The Earthscan Forest Library

RESTORING FORESTS AND IMPROVING LIVELIHOODS IN NEPAL

FOUR DECADES OF COMMUNITY FORESTRY

Edited by
Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel,
Rahul Karki, Dil Khatri, Sony Baral,
Mani Ram Banjade, and Ian Nuberg

ROUTLEDGE

Restoring Forests and Improving Livelihoods in Nepal

This book presents a comprehensive review of new research and practice-based insights from Nepal's four decades of community forestry development, delving into when and how community-based management can lead to forest landscape restoration and equitable livelihoods.

With over four decades of formal program history, Nepal's community forestry is a rare case from the Global South showcasing the trajectories and outcomes of a community-based environmental management initiative. It offers historically proven lessons of what it takes to restore degraded forests in a way that empowers local communities to make decisions. The book showcases research and experiential insights of those who became part of Nepal's community forestry movement from the early years to the current stage. Tracing stories of change from the era of "Himalayan degradation" in the 1970s to the globally hailed success of community forestry in the 2000s, the book demonstrates how the policy, political economy, and changing community dynamics have shaped the everyday practice of community forestry and its contribution to livelihoods and forest restoration. It reveals how small-scale work in the early years evolved into a complex system of community forestry, exposing the challenges associated with social exclusion, resource management, and policy environment. As such, it makes an important contribution to the global knowledge on community-driven forest landscape restoration in the Global South where forest ecosystems are inseparable from the everyday life and livelihoods of local communities.

This book will be of great interest to students, scholars, and practitioners working on forest restoration and conservation, community development, environmental policy and planning, and sustainable development more widely.

Hemant Ojha is an Associate Professor at Australian National University and the Principal Advisor of Global Development at the Institute for Study and Development Worldwide (IFSD), Australia.

Krishna K. Shrestha is Professor of Global Development at the University of New South Wales, Australia.

Naya S. Paudel is a Senior Researcher at ForestAction Nepal.

Rahul Karki is an Executive Coordinator at ForestAction Nepal.

Dil Khatri is an Executive Director and Senior Researcher at the Southasia Institute of Advanced Studies (SIAS), a Kathmandu-based policy research organization. Associate Professor at the Swedish University of Agricultural Sciences and Adjunct Professor at the Institute of Forestry, Tribhuvan University, Nepal.

Sony Baral is Associate Professor at the Institute of Forestry, Tribhuvan University, Nepal.

Mani Ram Banjade is a Principal at NIMS College, Lalitpur and Researcher at ForestAction Nepal.

Ian Nuberg is Senior Lecturer at the University of Adelaide, Australia. He is also the leader of the ten-year EnLiFT project researching the improvement of livelihoods through agroforestry and community forestry in Nepal.


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

The Earthscan Forest Library

Series Editorial Advisers: John L. Innes, *University of British Columbia, Canada;* **John Parrotta**, *US Forest Service – Research & Development, USA;* **Jeffrey Sayer**, *University of British Columbia, Canada; and* **Carol J. Pierce Colfer**, *Center for International Forestry Research, USA.*

This series brings together a wide collection of volumes addressing diverse aspects of forests and forestry and draws on a range of disciplinary perspectives. It is aimed at undergraduate and postgraduate students, researchers, professionals, policy-makers and concerned members of civil society.

Adaptive Collaborative Management in Forest Landscapes
Villagers, Bureaucrats and Civil Society
Edited by Carol J. Pierce Colfer, Ravi Prabhu, and Anne M. Larson

Sacred Forests of Asia
Spiritual Ecology and the Politics of Nature Conservation
Edited by Chris Coggins and Bixia Chen

The Cultural Value of Trees
Folk Value and Biocultural Conservation
Edited by Jeffrey Wall

Responding to Environmental Issues through Adaptive Collaborative Management
From Forest Communities to Global Actors
Edited by Carol J. Pierce Colfer and Ravi Prabhu

Global Forest Carbon
Policy, Economics and Finance
Runsheng Yin

Restoring Forests and Improving Livelihoods in Nepal
Four Decades of Community Forestry
Edited by Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel, Rahul Karki, Dil Khatri, Sony Baral, Mani Ram Banjade, and Ian Nuberg

For more information about this series, please visit: www.routledge.com/The-Earthscan-Forest-Library/book-series/ECTEFL

Restoring Forests and Improving Livelihoods in Nepal

Four Decades of Community Forestry

Edited by Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel, Rahul Karki, Dil Khatri, Sony Baral, Mani Ram Banjade, and Ian Nuberg

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

earthscan
from Routledge

First published 2026
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2026 selection and editorial matter, Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel, Rahul Karki, Dil Khatri, Sony Baral, Mani Ram Banjade, and Ian Nuberg; individual chapters, the contributors.

The right of Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel, Rahul Karki, Dil Khatri, Sony Baral, Mani Ram Banjade, and Ian Nuberg to be identified as the authors of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

The Open Access version of this book, available at www.taylorfrancis.com, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives (CC-BY-NC-ND) 4.0 International license.

Any third party material in this book is not included in the OA Creative Commons license, unless indicated otherwise in a credit line to the material. Please direct any permissions enquiries to the original rightsholder.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-032-70559-0 (hbk)
ISBN: 978-1-032-70562-0 (pbk)
ISBN: 978-1-032-70561-3 (ebk)

DOI: 10.4324/9781032705613

Typeset in Times New Roman
by SPi Technologies India Pvt Ltd (Straive)

Contents

Contributors

Ambika P. Gautam is a Professor at Kathmandu Forestry College.

Ambika Paudel is affiliated with Canadian Wildlife Service, Department of Environment and Climate Change Canada, Gatineau, QC, Canada.

Bharat Pokharel is a Freelance Consultant.

Bishnu Hari Pandit is the Chairperson of the Kathmandu Forestry College, Nepal.

Bishnu Hari Poudyal is a Deputy Project Manager cum Forest Management Specialist at Food and Agriculture Organization (FAO), Nepal.

Bishnu Hari Wagle is an Assistant Professor at the Institute of Forestry, Tribhuvan University, Nepal.

Craig Johns is an Associate Professor at the University of Adelaide, South Australia.

Dil B. Khatri is an Executive Director and Senior Researcher at the Southasia Institute of Advanced Studies (SIAS), a Kathmandu based policy research organization. Associate Professor at the Swedish University of Agricultural Sciences and Adjunct Professor at the Institute of Forestry, at Tribhuvan University, Nepal.

Dilli P. Poudel is a Senior Researcher at Southasia Institute of Advanced Studies (SIAS), Kathmandu, Nepal.

Dil Raj Khanal is a National Policy Advisor at Federation of Community Forestry User (FECOFUN).

Dinesh Paudel is a Professor in the Sustainable Development Department at the Appalachian State University and Senior Research Fellow at the Southasia Institute of Advanced Studies (SIAS).

Don Gilmour is an Adjunct Associate Professor in the Forest Research Institute at the University of the Sunshine Coast, Queensland, Australia.

Douglas K. Bardsley is an Associate Professor at the University of Adelaide, South Australia.

Eak Rana is a Consultant-REDD+ and Forestry at the World Bank, Nepal.

Edwin Cedamon is a Researcher at the School of Agriculture, Food and Wine, University of Adelaide, Australia.

Ganga Ram Dahal is an International Consultant for the Food and Agriculture Organization (FAO) of the United Nations.

Govinda Paudel is a Researcher at ForestAction Nepal and Senior Researcher at the Southasia Institute of Advanced Studies (SIAS).

Harisharan Luintel is a Research Fellow at ForestAction Nepal.

Hemant Ojha is an Associate Professor at Australian National University and the Principal Advisor of Global Development at the Institute for Study and Development Worldwide (IFSD), Australia.

Ian K. Nuberg is former Senior Lecturer at the University of Adelaide, Australia. He was also the leader of the ten-year EnLiFT project in Nepal.

Kishor Aryal is a Senior Watershed Management Officer (Forest Directorate) at the Ministry of Industry, Tourism, Forests, and Environment, Sudurpashchim Province, Nepal.

Krishna K. Shrestha is Professor of Global Development at the University of New South Wales, Australia.

Kumar Darjee is a Researcher at the University of Hamburg, Germany.

Mani Ram Banjade is a Principal at NIMS College, Lalitpur and Researcher at Forest Action Nepal.

Mankesh Gupta is the IPLC Coordinator at the Centre for Indigenous Peoples Research and Development (CIPRED).

Menuka Maharjan is an Associate Professor at the School of Forestry and Natural Resource Management, Institute of Forestry, Tribhuvan University, Kathmandu 44600, Nepal.

Mohan Poudel is the National Coordinator for the UN REDD Technical Assistance to Nepal, Food and Agriculture Organization (FAO), Nepal.

Naya S. Paudel is a Senior Researcher at ForestAction Nepal.

Nicola McGunnigle is a Researcher at the University of Adelaide, Australia.

Pawan Karki is a Program Officer at Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC), Nepal.

Pragati Sharma is a Research Fellow at the Southasia Institute of Advanced Studies (SIAS).

Prativa Sapkota is a research fellow at the the University of Melbourne, Australia.

Rahul Karki is an Executive Coordinator at ForestAction Nepal.

Rajan Parajuli is an Associate Professor at North Carolina State University, USA.

Ripesh Kharel serves as a consulting Research and Project Officer at the Institute for Study and Development Worldwide (IFSD).

Sajjan Regmi is a Research Officer at Southasia Institute of Advanced Studies (SIAS).

Sarada Tiwari is a Researcher at ForestAction Nepal.

Shambhu Dangal is a Forestry Expert.

Sikshya Adhikary Rana is a Social, Environmental and Governance Specialist at ForestAction Nepal.

Sindhu Prasad Dhungana is the Joint Secretary and Chief of Climate Change Management Division at the Ministry of Forests and Environment, Nepal.

Sita Aryal is the Executive Director of Federation of Community Forestry Users Nepal (FECOFUN).

Sital Rijal is a Researcher at the School of Education, Department of Development Studies, Kathmandu University, Nepal.

Sony Baral is an Associate Professor in the Institute of Forestry at Tribhuvan University.

Srijana Baral is a Researcher at ForestAction Nepal and affiliated with Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC) Main Office.

Sujata Shrestha is a Research Fellow at the Global Institute for Interdisciplinary Studies, Nepal.

Swoyambhu Man Amatya is a Deputy Coordinator at the International Union of Forest Research Organization (IUFRO), Vienna.

Tek Narayan Maraseni is a Professor at the University of Southern Queensland, Toowoomba, Australia.

Thakur Bhattarai is a National Carbon Farming Technical Manager at the Elders, Thomas Elders Institute.

Upama Koju is a Researcher at ForestAction Nepal.

Uttam Babu Shrestha is the Founding Director of the Global Institute for Interdisciplinary Studies, Nepal.

Yam Malla is a Freelance Consultant.

Introduction


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

1 Nepal's community forestry journey[1]

Themes, challenges, and contributions

Hemant Ojha, Krishna K. Shrestha, Naya S. Paudel, Ripesh Kharel, Dil Khatri, Sony Baral, Rahul Karki, Mani Ram Banjade, and Ian Nuberg

1.1 Local practice, global resonance

Humanity's major challenge today is restoring nature-positive and socially equitable relations between ecosystems and local communities. Without effective governance institutions at the appropriate scale, natural resources and the environment have faced unprecedented pressure (Dietz et al., 2003). The scale of the problem is alarming: one billion hectares of forests have been degraded globally (FAO, 2020a), affecting 1.6 billion people who depend on forests for their livelihoods. Furthermore, deforestation and forest degradation are key sources of terrestrial carbon emissions (Mukul et al., 2021; Philander, 2012; Randerson, 2009) and reduced provisioning of ecosystem goods and services, affecting human well-being and the economy (Lawson et al., 2014).

The challenge has received global and local policy attention, but the search for effective solutions continues. Amid the United Nations Decade on Ecosystem Restoration (2021–2030); policymakers face a conundrum: how can degraded forests be restored while simultaneously improving the livelihoods of local communities, particularly the poor and marginalized? Addressing this requires examining institutional and governance arrangements that can benefit people and ecosystems. Finding institutional and technological solutions that work for people and nature is challenging in countries where natural resources are central to subsistence livelihoods and facing rapid socio-economic and political transitions. Many attempts to implant technological solutions (such as modernizing agricultural systems) have failed, and strictly conversation-centric approaches (such as establishing state-controlled nature reserves) have often led to social injustice and human-nature conflicts.

Nobel Laureate Elinor Ostrom showed that traditional state management and privatization have largely failed to manage common pool resources (Ostrom, 1990). State-led approaches frequently suffer from bureaucratic inefficiencies and lack of local participation, fueling deforestation, degradation, and unsustainable livelihoods (Agrawal & Ribot, 1999; Ostrom, 1990). Privatization, conversely, tends to exclude local communities and prioritizes profits, exacerbating

DOI: 10.4324/9781032705613-2
This chapter has been made available under a CC BY-NC-ND license.

poverty and social inequality (Blaikie & Jeanrenaud, 1997). In response, collective action and community institutions have been reinforced as the most viable solution. Many scholars, including Ostrom, have argued that the collective action of local resource users is better placed to manage small-scale commons and shared natural resources, overcoming free-riding behavior and checking resource degradation (Charnley & Poe, 2007; Ostrom, 1990). However, these arguments often overlook how local, national, and global contexts mediate such actions. Evidence of community action in different contexts remains limited, including how social, environmental, political, and climatic situations shape collective action. As a result, there is a tendency to advocate generalized solutions across different conditions. Even the scholarly discussions tend to under-theorize how these factors influence the community-based approach (Berkes, 2004; Blaikie, 2006; Nightingale, 2003; Ojha et al., 2009a; Shrestha & McManus, 2008; Shrestha, 2016; Thwaites et al., 2017; Leach et al., 2020), often discounting the wisdom of practitioners and locally engaged scholars, downplaying their potential to reveal the local contextual truths about the working of community institutions and collective action in natural resources management.

This book offers a fresh and comprehensive review of Nepal's four and a half decades of formally implemented Community Forestry System (CFS), examining its role in forest restoration and local livelihoods. It highlights the potential and limitations of community involvement, showing when community action faces limits. The book provides fresh analysis and novel insights into how formal policy ambition and community enthusiasm converge for active community engagement in decision-making, benefit sharing, and resource management. Ultimately, it intends to engage with and contribute to global knowledge on community-based forest landscape restoration (FLR) in the Global South, where forest ecosystems are integral to local communities' everyday lives and livelihoods.

In decentralized natural resources management, community institutions and collective action have been diverse across different countries and contexts. Community involvement varies from tokenistic participation to more active engagement, represented by notions of 'community-based,' 'community-led,' or 'community-driven,' each carrying somewhat different meanings. This book showcases Nepal's community forestry (CF) as community-based natural resource management with an active approach to community engagement, supported by customary and/or formal rules and accommodating goals for ecosystem restoration and community development. More importantly, it critically examines the internal dynamics of CF and in relation to broader social, economic, cultural, political, and environmental contexts. Drawing on scientific research alongside the extensive practical and policy engagement of its contributors who have been instrumental in shaping the evolution of CFS. Our starting point is CF as a form of community-based forest management (CBFM), extending the discussion on how it has evolved into a multi-scalar CFS in the case of Nepal.

Many scholars and policy analysts have presented Nepal's CBFM as a global community-based environmental management success story. This book, however, focuses not only on success, but also on failures and struggles, contested processes, and complexities that have shaped policy and practice over the four and half decades. While there are some notable positive outcomes, especially in forest ecosystem restoration, the CFS has been unable to deliver livelihood benefits, particularly to the poor, women, and marginalized groups. Nonetheless, the CFS has been crucial in ecological restoration and supporting local livelihoods, evolving in diverse forms and functions across different geographic and social contexts of the country.

This book engages with the multiple dimensions of how community-based forestry has evolved in Nepal. As the world grapples with the dual issues of improving livelihoods for disadvantaged local communities living in and around forests and restoring degraded forest ecosystems, Nepal's experience offers valuable insights for discourse, policy, and practice. Through a historical and multisectoral lens, this book analyzes theoretical debates on governance, property rights, human-biodiversity relationships, community resilience, equity and justice, and entrepreneurship. However, it does not fully address each of these dimensions. The crucial question that the book focuses on is about forest restoration that challenges the narrow view of restoration as merely an increase in forest cover (Mansourian et al., 2017), advocating instead for a holistic, socio-ecological approach within a highly contested political economy. We believe this book will interest a wide range of readers – from students to professors, practitioners to policymakers, and academic scholars to community leaders. We invite you to embark on this journey through Nepal's CF landscape as we unravel the complex interplay of governance, ecology, and livelihoods. The insights offer valuable lessons for global efforts to restore degraded ecosystems and support the communities that depend on them. As you read through the chapters, you will gain a nuanced understanding of the potential and limitations of community-based approaches to forest management, highlighting the need for context-specific policy and planning approaches and solutions.

This book draws on a wide range of theoretical approaches to critically engage with Nepal's community forestry experience. It incorporates insights from interdisciplinary policy sciences, political ecology, critical institutionalism, and adaptive governance to explore how power, knowledge, and agency shape forest governance outcomes. Concepts such as common property theory, deliberative governance, and community planning, and gender equity help frame the complex interactions between local institutions, state policy, and global discourses. By weaving together grounded empirical cases with such diverse conceptual lenses, the book offers a multi-dimensional understanding of community forestry as both a local practice and a globally relevant case study for understanding livelihoods and restoration and sustainability of forest ecosystems.

1.2 Community forestry, livelihoods, and forest restoration

Global restoration initiatives such as the Bonn Challenge and the UN Decade on Ecosystem Restoration face substantial challenges in reconciling ecological goals with the socio-economic needs of local communities (Mansourian, 2018; Stanturf et al., 2019). The debate surrounding forest restoration centers on addressing the potentially competing objectives of ecosystem restoration and improving local livelihoods, particularly in the Global South, where communities are connected to forest landscapes. The FLR initiatives often suffer from a technocratic and Western-centric expertise focus that tends to prioritize ecological outcomes such as biodiversity conservation and carbon sequestration over the immediate socio-economic needs of forest-dependent communities (Höhl et al., 2020). Community perspectives and Indigenous knowledge systems are ignored in large-scale restoration initiatives, exacerbating existing inequalities by neglecting the well-being of local populations, leading to tensions between conservation goals and livelihood needs (Erbaugh & Oldekop, 2018). Many top-down restoration programs have failed to consider the socio-political complexities and governance structures that define how local populations access and manage forest resources (Chazdon et al., 2020).

The dominant FLR approach is also marred with governance challenges, particularly those related to land tenure and ensuring the participation of diverse and conflicting stakeholders. Effective FLR efforts require collaboration among governments, NGOs, private sector entities, and local communities, often leading to contradictory priorities (Höhl et al., 2020; Lewis et al., 2019; Stanturf et al., 2019). One significant barrier is the lack of secure land tenure for forest-dependent communities, discouraging local populations from investing in long-term restoration, as they fear losing access to restored areas (Coleman & Fleischman, 2022; Gebara & Agrawal, 2021; RRI, 2020). This challenge is evident in countries like Ethiopia and Cambodia, where unclear tenure arrangements have hindered CBFM and restoration projects (Mansourian, 2018; Larson & Springer, 2016; Sarmiento Barletti et al., 2021).

Ensuring a sustained and significant flow of livelihood incentives remains a key challenge in forest restoration. Although reforestation contributes to carbon sequestration and climate mitigation, the livelihood benefits for local communities are often slow to materialize. Many restoration projects focus on long-term ecological outcomes without integrating livelihood incentives for local populations (Bayrak & Marafa, 2021; Cheng et al., 2017; Lewis et al., 2019). Some projects have implemented agroforestry systems or promoted non-timber forest products (NTFPs) as potential income sources for communities, but their success depends on local governance structures and market access (Höhl et al., 2020; Sabogal et al., 2021). More importantly, the focus on economic instruments, such as Payments for Ecosystem Services, too often overlooks the critical roles of resource tenure and community autonomy, undermining traditional and Indigenous rights that communities have upheld over generations. This oversight can result in misaligned conservation strategies undermining the sustainability of community-based initiatives.

One promising avenue for addressing these intertwined challenges is CBFM. While its evolution has been driven by various contextual drivers and policy objectives, CBFM has emerged as a key strategy for reconciling ecological restoration and livelihood objectives. In recent decades, it has gained significant attention as a governance model that can effectively integrate ecological restoration with community livelihoods. Rooted in the principles of decentralization and local governance, CBFM devolves forest management rights and responsibilities to local communities, recognizing their knowledge, stewardship, and dependence on forest ecosystems (Larson & Springer, 2016; Ostrom, 1990). However, its success is contingent upon several factors, including secure land tenure, clear governance frameworks, and equitable benefit distribution (Gebara & Agrawal, 2021; Ribot et al., 2006). Without these foundational elements, restoration projects risk being captured by local elites, further disenfranchising marginalized groups such as women, indigenous peoples, and the poor (Coleman & Fleischman, 2022).

As chapters show, Nepal's CF has evolved from a local-scale CBFM to a multi-level CFS model. This transformation offers a notable case for understanding how community actions can address forest restoration and livelihood improvement. By devolving forest management rights to local communities, Nepal has increased its forest cover by approximately 5% between 1990 and 2010 (Food and Agriculture Organization [FAO], 2015) and provided opportunities for rural communities to manage and benefit from forest resources (Oldekop et al., 2020). Today, over 20,000 Community Forest User Groups (CFUGs) manage substantial portions of Nepal's forestland, contributing to ecological restoration and rural development.

The success of Nepal's CFS, however, has not been uniform and, in many local cases, has reinforced or exacerbated social inequities and socio-environmental disharmony, such as the increased human-wildlife conflict in the recent years (see Luintel et al., this volume). While many communities have benefited from restored forests and improved access to forest resources, challenges remain in ensuring equitable outcomes for all social groups, especially the marginalized ones. Studies from Latin America, Africa, and Asia, have shown that, despite the promise of participatory forest management, local elites often capture most benefits, leaving marginalized groups disenfranchised (Ribot and Larson, 2012; Larson and Springer, 2016; Coleman & Fleischman, 2022; Agarwal, 2015). Elite capture not only undermines the inclusivity of restoration efforts but also threatens their long-term sustainability as marginalized groups become disillusioned and disengage from collective management (Chomba et al., 2020; Rights and Resources Initiative (RRI), 2020; Sarmiento Barletti et al., 2021). Nepal's governance structures that support CFS are prone to elite capture, skewing benefit distribution toward more powerful local actors (Ojha et al., 2009b; Khatri et al., 2022; Baral et al., 2024). Despite these challenges, Nepal's CF remains a critical case study for global restoration efforts, demonstrating the importance of secure tenure, participatory governance, and local ownership in achieving sustainable restoration outcomes (Baynes et al., 2015; Chazdon et al., 2020).

The impacts of climate change further complicate global forest restoration efforts. Climate change increases the frequency of extreme weather events, alters forest ecosystems, and makes long-term restoration outcomes harder to predict (Mansourian & Vallauri, 2020; Stanturf et al., 2019). Rising temperatures, shifting precipitation patterns, and increased vulnerability to pests and diseases exacerbate the challenges of achieving sustainable restoration (Bastin et al., 2019; Chazdon et al., 2020; Mansourian, 2018). To address these uncertainties, restoration projects must adopt adaptive management strategies that account for changing environmental conditions rather than relying on static restoration models (Messier et al., 2014; Sabogal et al., 2021; Sayer et al., 2017).

The global relevance of Nepal's experience with CF is underscored by the increasing emphasis on integrating social dimensions into restoration efforts. As the literature on FLR evolves, scholars and practitioners recognize the need to move beyond conservationist paradigms that prioritize ecological goals over community well-being (Holl, 2017; Mansourian & Vallauri, 2020). Community-based approaches, like Nepal's CFS, offer valuable lessons for policymakers seeking to design restoration initiatives that are both ecologically sound and socially just. Central to this is the recognition that successful restoration involves more than increasing forest cover or biodiversity but also creating sustainable socio-ecological systems that support the livelihoods and cultural identities of forest-dependent communities (Sayer et al., 2017).

In the global debate, Nepal's CF showcases how participatory governance, local empowerment, and equitable benefit-sharing can overcome persistent challenges in large-scale forest restoration. It underscores the critical role of communities as beneficiaries and stewards of forest ecosystems, suggesting that global restoration efforts should integrate community well-being and local knowledge into their frameworks. As the world seeks scalable solutions to restore degraded landscapes and meet ambitious targets like those set by the Bonn Challenge, Nepal's experience reminds us that successful restoration is deeply interconnected with the livelihoods and governance structures of those living in and around forests. This approach offers valuable lessons for global policymakers in crafting restoration strategies that are both ecologically sound and socially equitable. Although widely regarded as a viable approach to forest conservation and community development, CF's effectiveness in rapidly changing socio-environmental contexts remains debated. Baynes et al. (2015) identified five key factors shaping the success of CF in Nepal, Mexico, and the Philippines, emphasizing the importance of governance, community participation, and socio-economic incentives. Similarly, Gebreegziabher et al. (2021) highlighted governance regimes as critical for Ethiopia's CF success. A meta-analysis by Pagdee et al. (2006) revealed that secure tenure, clarified ownership, coherently delineated biophysical and socio-economic boundaries, compliance with rules and regulations, monitoring, and strong local leadership and institutional set-up were crucial for CF's success. In summary, some view the community approach as a resilient and adaptive strategy that enhances local governance and ecological sustainability, while others highlight its

limitations in addressing large-scale risks like climate change, deforestation, and market-driven pressures, which often exceed local communities' management capacities (Baynes et al., 2015; Chervier et al., 2023; Takahashi, 2022).

1.3 Aims, scope, and approach

The book addresses an overarching question: *What can we learn from Nepal's four decades of CF?* More specifically, the book addresses the following three interconnected questions:

- When, how, and under what conditions does a community-based approach to forest restoration and management lead to positive ecological and livelihood outcomes?
- How does the community-based approach evolve in different historical, geographic, and social contexts?
- What are its inherent and emergent limitations in rapidly changing environmental and socio-economic contexts?

In addressing these questions, the book unravels a bundle of themes and issues that shape community-based resource management practices and outcomes – resource tenure, planning practices, policy directions and decisions, institutional arrangements, gender and social inclusion, forest management, and the role of local political economy. It also investigates the trade-offs between community well-being and ecosystem restoration and how synergies can be built. An overarching goal is exploring ways to achieve ecosystem restoration and livelihood improvement in countries like Nepal (Figure 1.1).

The book traces the evolution of CF in Nepal, from the era of Himalayan degradation in the 1970s to its global recognition in the early 2010s. It provides valuable lessons in resource management, governance, and institutional development. The book's in-depth review of Nepal's CF is based on integrating scientific research and practice-based knowledge. A key strength of this book is that chapters are written by experts with decades of direct experience in Nepal's CF development, either as researchers, practitioners, or policymakers. It also includes new research from emerging and junior researchers co-authoring with established scholars and professionals. The book highlights the positive developments in Nepal's CF while critically examining the challenges, issues, and gaps. It is oriented toward global readers interested in community-based natural resource management for ecosystem restoration, community livelihoods, biodiversity conservation, and climate change mitigation. Although the book does not provide extensive case studies, it is a gateway to the broader literature on CF. Written in an interdisciplinary style, the book ensures accessibility to readers from various disciplines and professionals involved in CF. Another strength of the book is that nearly one-third of the chapters draw on research conducted by Australian and Nepali researchers over the past ten years supported by the Australian Centre for International Agricultural Research.

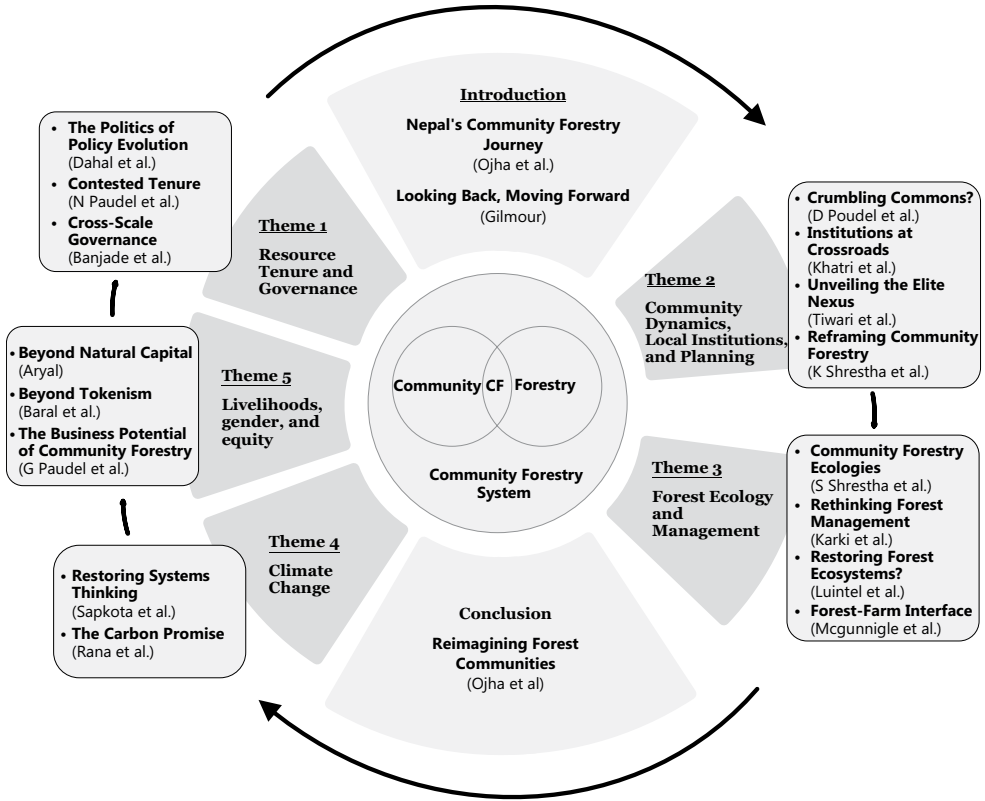

Figure 1.1 A schematic overview of themes and chapters.

Source: Authors.

By providing fresh evidence and historical perspectives, the book identifies critical themes and pathways for future transformation in CF. It is structured under four themes:

i resource tenure and governance;
ii community dynamics, local institutions, and planning;
iii forest ecology and silviculture; and
iv climate change.

Each theme includes chapters that engage with conceptual debates, link Nepalese CF with broader literature, and cover historical depth and a wide range of relevant issues.

1.4 The Nepalese context

The evolution of CF in Nepal is deeply intertwined with the country's social, political, economic, and environmental contexts. From a small-scale pilot project in the 1970s, it has grown into one of the most discussed examples of CBFM globally, with over 2.25 million CFUGs actively managing forest resources (DoFSC 2025).

Nepal's CFS has roots in the country's strong sense of community and tradition of local governance. Rural communities have historically relied on forests for subsistence, with timber, fuelwood, and fodder integral to daily life (Gilmour & Fisher, 1991; Hobley, 1996). Over time, deforestation and forest degradation became pressing issues, prompting local populations to seek better management systems (Eckholm, 1976; World Bank, 1978). As Nepali society began transitioning from a feudal, agrarian system to a more democratic structure, it fostered increased civil participation (Whelpton, 2005; Gellner, 2007). The introduction of CF mirrored this shift, granting local communities rights and responsibilities for forest management. However, marginalized groups such as women, *Dalits*, and Indigenous peoples often face barriers to full participation and benefit from these initiatives (Agrawal & Ostrom, 2001; Nightingale, 2002; Paudel et al., 2012; Shrestha, 2016). Nonetheless, various reforms in recent decades have sought to improve inclusivity and ensure a more equitable distribution of CF benefits (Ojha et al., 2009a; Poudel et al., 2015).

Politically, Nepal's CF has been shaped by decades of changing governance systems. Nepal underwent significant political shifts from a monarchy to a multi-party democracy in 1990 and the establishment of a federal system after the civil war ended in 2006 (Lawoti & Pahari, 2010; Whelpton, 2005). These shifts created new opportunities for decentralization, enabling more local-level decision-making in forest management. The passing of the 1993 Forest Act was a pivotal moment, legally empowering communities to manage forest resources (His Majesty's Government of Nepal [HMGN], 1993). Initially supported by international aid organizations, CF policies became increasingly driven by national actors as Nepal's political institutions developed (Ojha

et al., 2007; Rutt et al., 2015). Federalization has posed challenges and opportunities for CF, with new power structures influencing how forest resources are governed (Nightingale, 2019). While decentralization has generally been positive, the complex political landscape continues to pose challenges, particularly in ensuring that local governance structures are equipped to handle the demands of CBFM (Paudel & Vedeld, 2015; Ojha et al., 2019).

Economically, Nepal remains a predominantly agricultural country, with many depending on natural resources for their livelihoods. In this context, CF has served as both an economic safety net and a means of environmental restoration, providing essential resources for rural communities, including NTFPs like medicinal plants, mushrooms, and fodder (Olsen & Larsen, 2003; Subedi, 2004). Additionally, it has created income opportunities through agroforestry and ecotourism (Birendra et al., 2014; Pandit & Bevilacqua, 2011). However, economic inequalities persist, with wealthier households dominating decision-making processes within CFUGs, leaving poorer households, women, and marginalized communities with limited access (Adhikari et al., 2004; Khadka et al., 2014). Market-based incentives, such as carbon credits and REDD+ (Reducing Emissions from Deforestation and Forest Degradation), have also been introduced, though the benefits of these initiatives are not always evenly distributed (Khatri et al., 2018; Poudel et al., 2015).

Nepal's forests cover approximately 40% of the country's land area (FAO, 2020b), but deforestation surged in the mid-20th century, driven by population growth, agricultural expansion, and fuelwood extraction (Eckholm, 1976; World Bank, 1978). CF emerged in response to this environmental crisis, and its success is evident in the country's forest regeneration efforts, with forest cover increasing by approximately 5% between 1990 and 2010 (Food and Agriculture Organization [FAO], 2015). These efforts have helped restore degraded landscapes, contributed to biodiversity conservation and ecosystem resilience, and improved local livelihoods. Integrating local and Indigenous knowledge with formal forestry management practices has enabled adaptive solutions for communities and ecosystems (Berkes et al., 2000; Ojha et al., 2010).

The cultural context of Nepal is also significant in shaping CF outcomes. With 142 ethnic groups, 59 Indigenous nationalities recognized by Nepal's Constitution, and a rich tapestry of cultural practices and beliefs (NSO, 2021), forests are closely tied to religious rituals, festivals, and social norms (Messerschmidt, 1992; Bhattarai, 1995). CF has provided a platform for expressing and preserving these cultural values, allowing local communities to manage forests in ways that align with their cultural identities and practices. However, it is essential to recognize that cultural norms can also perpetuate social inequalities, particularly in gender roles and caste-based discrimination (Agrawal & Ostrom, 2001; Nightingale, 2011; Chaudhary et al. 2018). Efforts to promote inclusivity and equitable benefit-sharing require navigating the complex interplay of cultural traditions and social hierarchies.

Nepal's CF is characterized by a layered network of governance structures, from local CFUGs to national-level policy frameworks. Its success is often

attributed to strong institutional arrangements, including clear tenure rights, participatory decision-making processes, and robust monitoring and enforcement mechanisms (Agrawal & Ostrom, 2001; Ojha et al., 2019; Ostrom, 1990). However, challenges such as power imbalances within CFUGs, elite capture of benefits, and conflicts between local and national-level interests persist (Iversen et al., 2006; Khatri et al., 2022; Paudel et al., 2012; Thoms, 2008). Additionally, the changing socio-economic and political landscape has necessitated ongoing adaptations and innovations in CF institutions, including the development of new benefit-sharing mechanisms and the integration of climate change mitigation and adaptation strategies (Ojha et al., 2019).

1.5 Key themes and chapters

We begin with a retrospective outlook from Don Gilmour, a well-established authority on early CF in Nepal and later globally. With the benefit of hindsight, he reflects on the early 1960s, discussing the challenges of securing community rights amid strict protection by the state. He highlights how user rights gained state recognition and how a previous local government-based (Panchayat) forestry evolved into CF. He identifies various aspects of CFS development from the historical context of degradation, including trials, experiments, restoration projects, and the legal and political shifts that enabled greater local participation in CF. Taking note of the most recent developments, Gilmour raises questions about the underutilization of forests, limited benefit flow, and other deficiencies in CF's current modality, emphasizing the need to redefine and redesign CF for this century.

1.5.1 Resource tenure and governance

The first theme examines resource governance and tenure, a cornerstone of effective CF. Chapter 3 by Dahal et al. provides a historical analysis of CF policy development, detailing how policies and regulatory frameworks have evolved. The authors unravel current issues in deliberative governance, including policy duality, contradictions, and the impact of federalism on local community rights. They suggest that devolution in forest management is interlinked with political devolution and recommend clarifying the authority, jurisdiction, and roles of various levels of government and CFUGs to resolve ongoing disputes. The chapter also pinpoints ongoing and emerging policy ambiguities regarding commercial harvesting, value addition, and marketing of forest products and recommends more flexible and devolved policies to enable CFUGs to realize the economic and livelihood potential of community forests fully.

Chapter 4 by Paudel et al. provides an in-depth analysis of the current tenurial arrangements in CF, both on paper and in practice. The authors argue that tenure is a contested issue, influenced by ongoing negotiations, political oversight, unequal power relations, socio-political changes, and challenges in deliberative governance. They highlight the discrepancies between policy provisions

and real-world implementation, which affects the effective management and equitable distribution of benefits from community forests. The authors emphasize the need for more transparent and more secure tenure rights, both in policy and regulatory practice, to support the long-term sustainability of CF and the livelihoods of forest-dependent communities.

Banjade et al., in Chapter 5, analyze the dynamics of knowledge and power-driving CF development in Nepal. Taking a multi-scale and multi-dimensional analysis of the political landscape within which CF evolved in Nepal, they explore how it has become a battleground for multiple stakeholders, shaping forest restoration and community livelihoods. They map interactions between the state and civil society, the interplay between scientific and popular knowledge, the influence of development aid, decentralization processes, and political articulation at multiple jurisdictions and scales. They also explore the emerging tension between provincial forest authorities and local governments about regulating CF, offering insights on improving coordinated regulation across various layers of government.

1.5.2 Community dynamics, local institutions, and planning

This theme examines the evolving socio-political and economic dynamics within communities managing or using forests, exploring institutional arrangements, and planning processes to revitalize CFS in the changing context. Chapter 6 by Poudel et al. analyzes the sociological shifts within communities involved in CF, highlighting the impacts of globalization, neoliberal development, political instability, and societal change. The authors identify six key sociological dynamics: out-migration, land fragmentation, alternative energy sources, human-wildlife conflict, climate change impacts, and urbanization. They discuss how these factors affect collective action, resource dependence, and community engagement in forest management, raising critical questions about the future modality of CF, including the need for democratic governance, economic incentivization, multi-purpose resource use, and context-sensitive collaboration with local institutions.

Chapter 7 by Khatri et al. investigates CF's institutional evolution and diversity at the local level, highlighting emerging challenges community institutions face in changing contexts. The authors identify different institutional arrangements across various ecological and social contexts in Nepal, examining the socio-political factors shaping this diversity in CF. They identify key challenges community institutions face due to changing community dynamics and ecological contexts. The chapter concludes that local institutions have yielded mixed results regarding forest conservation and community well-being, emphasizing the need for adaptive and context-specific institutional frameworks rather than a one-size-fits-all approach. Further, the authors stressed the need for continued innovation and redefinition of CF institutions to better align with underlying evolutionary dynamics and the complex interplay of social, political, and ecological factors.

Chapter 8 by Tiwari et al. explores the political economy factors influencing the progress and stagnation of CF at the local level. Through in-depth studies in two districts, the chapter identifies critical political economy factors affecting CF, such as policy manipulation, informal nexus, organizational dysfunction regarding market-oriented forest management, declining facilitative systems, unclear subregional policies, and problematic civic voice and political articulation. The authors demonstrate how the interplay of problematic power relations, knowledge interfaces, and resource transactions shapes forest restoration and livelihood outcomes.

In Chapter 9, Shrestha et al. analyze Nepal's CF planning through the lens of communicative planning. Using case studies from two districts, the chapter explores challenges and opportunities in the evolving CF planning practices at the community level. The authors show that the planning practice of CFUGs in Nepal, which was designed some 30 years ago, is still being implemented with little substantive improvement in the process, intent, or practice. This chapter has dual objectives: first, to examine Nepal's CF planning practice at the local level, and second, to present a set of principles to enable a new CF planning practice that facilitates more active, equitable, and sustainable management of CF.

1.5.3 Forest ecology and management

The third theme, forest ecology, silviculture, and management, provides detailed ecological contexts within which CFs operate and assess their contributions to forest restoration and biodiversity. Chapter 10 by Shrestha et al. offers a comprehensive overview of CFs' ecological aspects, including forest types, floral and faunal diversity, physiography, and environmental services. It highlights key challenges surrounding the CFs' ecological resilience, such as biodiversity integration, human-wildlife conflict, invasive species, forest fires, inadequate silvicultural interventions, and a lack of ecological data. They emphasize the need for landscape-level planning and adopting appropriate silvicultural systems that consider Nepal's diverse environmental and socio-economic contexts.

Chapter 11 by Karki et al. examines the integration of scientific and community knowledge in CF management, focusing on historical and current management interventions and their impact on forest and ecosystem outcomes. The authors argue that effective forest management in Nepal requires balancing multiple objectives, including timber production, biodiversity conservation, water regulation, carbon sequestration, and community well-being. They stress the importance of a multi-faceted, landscape-level strategy that combines scientific research and local ecological knowledge, advocating for adaptive and collaborative management approaches that engage local communities, forest managers, and researchers in co-producing knowledge and developing context-specific solutions.

Chapter 12 by Luintel et al. synthesizes research into biophysical outcomes of CBFM in Nepal, focusing on forest restoration, biodiversity conservation,

carbon storage, and watershed protection. The authors highlight CF's overall positive but context-specific impacts, demonstrating its potential to balance conservation and livelihood goals. They identify key factors contributing to successful outcomes, such as local ownership, grazing and illegal harvesting regulation, forest protection, and alternative energy promotion. However, the challenges and trade-offs associated with CF, such as human-wildlife conflicts and the need for more equitable benefit-sharing are acknowledged. The authors recommend periodic and quasi-experimental evaluations of CF programs, holistic impact assessments, and integrating scientific research with policymaking to enhance the effectiveness and sustainability of CBFM.

Chapter 13 by McGunningale et al. analyzes findings from recent case studies in the Nepal hills to show how private forestry and CFS can be integrated at the landscape level. The authors show that the integrative approach can generate positive ecological outcomes and more equitable livelihood benefits. While CF has successfully regenerated forests, the changing political and economic contexts require a broader vision of its resilience and livelihood outcomes at the landscape level, where private forestry is becoming increasingly important. Integrating community-private forest management could equalize forest supply and demand, providing income opportunities, more equitable governance, and livelihood outcomes.

1.5.4 Climate change

This theme focuses on CF's role in climate change mitigation and adaptation. Chapter 14 by Sapkota et al. explores the adaptation strategies of CF through a socio-ecological systems lens, highlighting the challenges and opportunities in managing climate vulnerabilities. The authors argue that CBFM alone cannot address the complex impacts of climate change on livelihoods and ecosystems, emphasizing the need for structural and systemic changes across multiple sectors and scales. They identify key barriers to effective adaptation, such as limited local authority, inflexible regulations, fragmented policies, and the lack of integration of diverse knowledge systems. The chapter concludes by stressing the importance of improved CFUG governance, removing restrictive regulation, and supporting local adaptation efforts that address climate risks and socio-economic changes.

Chapter 15 by Rana et al. examines the role of local CF practices in carbon stock management and their potential contribution to climate change mitigation. The authors compare the carbon storage potential of community forests with government-managed forests, highlighting the positive impact of sustainable forest management on carbon sequestration. They discuss the influence of management scale, institutional arrangements, and policy frameworks on carbon outcomes. The chapter also explores the challenges and opportunities of integrating CF into carbon initiatives such as REDD+, considering the complexities of small-scale forestry, carbon markets, and benefit-sharing mechanisms.

1.5.5 Livelihoods, gender, and equity

This theme explores the intersection of CF with livelihoods, gender equity, and social inclusion. Chapter 16 by Aryal examines the livelihood impacts of CF using a sustainable livelihood framework, presenting mixed outcomes across different livelihood capitals. The author highlights positive and not-so-positive contributions of CF to natural and social capital but notes the inconsistent results for human, physical, and financial capital. The author identifies gender equity as a persistent challenge, with CF programs showing progress and limitations in addressing disparities in resource access, decision-making, and benefit distribution. The chapter recommends targeted interventions, such as capacity building, robust monitoring, and support for marginalized groups and women's participation, to enhance CF's impact on sustainable livelihoods and social equity.

Chapter 17 by Baral et al. critically analyzes gender dynamics and equity in CF, drawing on case studies from the Sindupalchowk and Kavrepalenchowk districts. The authors argue that while CF's decentralized structure has created opportunities for women's leadership and engagement, genuine empowerment requires a shift from numerical representation to meaningful participation in decision-making. They highlight the persistent and entrenched socio-cultural barriers and patriarchal norms that limit women's full involvement and access to benefits. The chapter calls for women-driven and gender-responsive policies, capacity building, and support mechanisms to address these challenges and promote transformative change toward gender equality in CF.

Chapter 18 by Poudel et al. investigates the potential for transitioning CF from subsistence-oriented management to commercial production, presenting case studies from two districts in Nepal. The authors highlight the opportunities for enhancing CF's economic viability through initiatives such as portable sawmilling, timber marketing, and private sector collaboration. However, they also identify the regulatory, operational, and governance challenges that hinder CF's commercial potential. The chapter advocates for policy reforms, institutional support, and capacity building to create an enabling environment for community-based forest enterprises.

The Conclusion chapter synthesizes several critical insights from the book, offering policy recommendations and practical guidance for strengthening CF in Nepal and beyond. The chapter calls for a renewed commitment to community-based natural resource management to promote forest restoration, livelihood resilience, and social equity.

1.6 Summary

Nepal's four decades of CF showcase how local communities, empowered with forest management rights, have played a crucial role in restoring degraded landscapes while navigating complex social, economic, and political challenges. This book critically examines the evolution of Nepal's CFS, analyzing its

successes, limitations, and future trajectories. While often heralded as a global model, the reality is more complicated—CF has contributed to forest recovery and governance improvements while encountering issues of inequity, elite capture, and institutional failures amid shifting socio-political dynamics.

Central to this book is the exploration of when and under what conditions CF leads to both ecological and social benefits. It investigates how governance structures, policy reforms, and institutional frameworks have shaped communities' ability to manage forests effectively. Drawing on extensive research and practitioner experiences, the book unpacks the historical evolution of CFS, the role of tenure security, and the political economy influencing decision-making at various levels. It also highlights how communities have responded to challenges such as migration, changing livelihoods, climate change, and state-community tensions.

Beyond Nepal, this book engages with global discussions on participatory governance and FLR, offering lessons for policymakers and practitioners worldwide. It emphasizes that successful restoration is not just about increasing forest cover but about allowing and enabling governance systems that balance conservation with local well-being. Nepal's experience provides valuable insights into the dynamic relationships between communities and ecosystems, and the ways in which these relationships can be managed, planned, and governed to support both equitable livelihoods and sustainable restoration of forest landscapes.

Note

1 We would like to acknowledge the financial support of ACIAR through the Enhancing Livelihood from Improved Forest Management in Nepal (EnLiFT2) project for this publication.

References

Adhikari, B., Di Falco, S., & Lovett, J. C. (2004). Household characteristics and forest dependency: evidence from common property forest management in Nepal. *Ecological Economics*, *48*(2), 245–257.

Agrawal, A., & Ostrom, E. (2001). Collective action, property rights, and decentralization in resource use in India and Nepal. *Politics & Society*, *29*(4), 485–514. https://doi.org/10.1177/0032329201029004002

Agrawal, A., & Ribot, J. (1999). Accountability in decentralization: A framework with South Asian and West African Cases. *The Journal of Developing Areas*, *33*(4), 473–502. https://www.jstor.org/stable/4192885

Agarwal, B. (2015). The power of numbers in gender dynamics: Illustrations from community forestry groups. *Journal of Peasant Studies*, *42*(1), 1–20.

Baral, S., Shrestha, K. K., & Tiwari, S. (2024). Persistence of women's exclusion in Nepal's community forestry practice. *Geoforum*, *155*, 104092.

Bastin, J., Finegold, Y., Garcia, C., Mollicone, D., Rezende, M., Routh, D., Zohner, C. M., & Crowther, T. W. (2019). The global tree restoration potential. *Science*, *365*(6448), 76–79. https://doi.org/10.1126/science.aax0848

Baynes, J., Herbohn, J., Smith, C., Fisher, R., & Bray, D. (2015). Key factors which influence the success of community forestry in developing countries. *Global Environmental Change*, *35*, 226–238.
Bayrak, M. M., & Marafa, L. M. (2021). Tenure security and forest landscape restoration: Insights from Southeast Asia. *Forest Policy and Economics*, *124*, 102400.
Berkes, F. (2004). Rethinking community-based conservation. *Conservation Biology*, *18*(3), 621–630.
Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications*, *10*(5), 1251–1262.
Bhattarai, K. (1995). Community forestry in Nepal: An emerging paradigm of forest management. *Journal of World Forest Resource Management*, *8*, 99–122.
Birendra, K.C., Stainback, G. A., & Chhetri, B. B. K. (2014). Community users' and experts' perspective on community forestry in Nepal: A SWOT–AHP analysis. *Forests, Trees and Livelihoods*, *23*(4), 217–231.
Blaikie, P. (2006). Is small really beautiful? Community-based natural resource management in Malawi and Botswana. *World Development*, *34*(11), 1942–1957.
Blaikie, P., & Jeanrenaud, S. (1997). Biodiversity and human welfare. In Ghimire, K. B., & Pimbert, M. P. (Eds.), *Social change and conservation* (pp. 46–70). Routledge.
Charnley, S., & Poe, M. R. (2007). Community forestry in theory and practice: Where are we now? *Annual Review of Anthropology*, *36*, 301–336.
Chaudhary, S., McGregor, A., Houston, D., & Chettri, N. (2018). Environmental justice and ecosystem services: A disaggregated analysis of community access to forest benefits in Nepal. *Ecosystem Services*, *29*(Part A). https://doi.org/10.1016/j.ecoser.2017.10.020
Chazdon, R. L., Gutierrez, V., Brancalion, P. H., Laestadius, L., & Guariguata, M. R. (2020). Co-creating conceptual and working frameworks for forest and landscape restoration. *Global Environmental Change*, *60*, 102042.
Cheng, S. H., Ahlroth, S., Onder, S., Shyamsundar, P., & Wibowo, A. (2017). What is the evidence for the contribution of forests to poverty alleviation? A systematic map. *Environmental Evidence*, *6*(1), 1–23.
Chervier, C., Naime, J., Ladewig, M., & Angelsen, A. (2023). *Archetype analysis of forest policies and measures: Towards a new typology*. CIFOR.
Chomba, S., Kariuki, J., Lund, J. F., & Sinclair, F. (2020). Roots of inequity: How the implementation of REDD+ reinforces past injustices. *Land Use Policy*, *99*, 104803.
Coleman, E. A., & Fleischman, F. D. (2022). Elite capture and elite-brokered participation in decentralized forest management. *Global Environmental Change*, *72*, 102437.
DoFSC. 2025. Community Forestry Bulletin. Community Forest Research Center, Department of Forest and Soil Conservation, Government of Nepal, Kathmandu, Nepal.
Dietz, T., Ostrom, E., & Stern, P. C. (2003). The struggle to govern the commons. *Science*, *302*(5652), 1907–1912.
Eckholm, E. (1976). *Losing ground: Environmental stress and world food prospects*. New York: W. W. Norton.
Erbaugh, J. T., & Oldekop, J. A. (2018). Forest landscape restoration for livelihoods and well-being. *Current Opinion in Environmental Sustainability*, *32*, 76–83.
Food and Agriculture Organization (FAO). (2015). *Global Forest Resources Assessment 2015: How are the world's forests changing?* FAO.
FAO. (2020a). *Global Forest Resources Assessment 2020*. Rome: FAO.
FAO. (2020b). *Global Forest Resources Assessment 2020 – Nepal, updated version 2020*. Rome: FAO.
Gebara, M. F., & Agrawal, A. (2021). Forest governance and REDD+ in Ethiopia: Multi-level challenges and responses. *Climate Policy*, *21*(5), 669–685.

Gebreegziabher, Z., Mekonnen, A., Gebremedhin, B., & Beyene, A. D. (2021). Determinants of success of community forestry: Empirical evidence from Ethiopia. *World Development*, *138*, 105206.

Gellner, D. N. (2007). Caste, ethnicity and inequality in Nepal. *Economic and Political Weekly*, *42*(20), 1823–1828.

Gilmour, D. A., & Fisher, R. J. (Eds.). (1991). *Villagers, Forests and Foresters. The Philosophy, Process and Practice of Community Forestry in Nepal* Sahayogi Press, Kathmandu, Nepal.

His Majesty's Government of Nepal (HMGN). (1993). *Forest Act 1993 (official translation)*. Ministry of Forest and Soil Conservation, Kathmandu, Nepal.

Hobley, M. (1996). *Institutional change within the forestry sector: Centralised decentralisation* (p. 46). Overseas Development Institute, London.

Höhl, M., Ahimbisibwe, V., Stanturf, J. A., Elsasser, P., & Bolte, A. (2020). Forest Landscape Restoration: What generates failure and success? *Forests*, *11*(9), 938.

Holl, K. D. (2017). Restoring tropical forests from the bottom up. *Science*, *355*(6324), 455–456.

Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A., & Seeley, J. (2006). High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai. *Ecological economics*, *58*(1), 93–107.

Khadka, M., Karki, S., Karky, B. S., Kotru, R., & Darjee, K. B. (2014). Gender equality challenges to the REDD initiative in Nepal. *Mountain Research and Development*, *34*(3), 197–207.

Khatri, D. B., Marquardt, K., Pain, A., & Ojha, H. (2018). Shifting regimes of management and uses of forests: What might REDD+ implementation mean for community forestry? Evidence from Nepal. Forest Policy and Economics, *92*, 1–10. https://doi.org/10.1016/j.forpol.2018.03.005

Khatri, D., Paudel, D., Pain, A., Marquardt, K. and Khatri, S. (2022). Reterritorialization of community forestry: Scientific forest management for commercialization in Nepal. Political Ecology, *29*(1), 455–474.

Larson, A. M., & Springer, J. (2016). Recognition and respect for tenure rights: The key to sustainable landscape restoration. *World Development Perspectives*, *4*, 10–15.

Lawoti, M., & Pahari, A. (2010). *The Maoist insurgency in Nepal: Evolution and growth of the Maoist insurgency in Nepal*. Routledge.

Lawson, S., Blundell, A., Cabarle, B., Basik, N., Jenkins, M., & Canby, K. (2014). *Consumer goods and deforestation: An analysis of the extent and nature of illegality in forest conversion for agriculture and timber plantations*. Forest Trends Report Series.

Leach, M., Stirling, A., & Scoones, I. (2020). Transformations to sustainability: Combining structural, systemic, and enabling approaches. *Annual Review of Environment and Resources*, *45*, 1–28.

Lewis, S. L., Wheeler, C. E., Mitchard, E. T., & Koch, A. (2019). Restoring natural forests is the best way to remove atmospheric carbon. *Nature*, 568(7750), 25–28.

Mansourian, S. (2018). In the eye of the beholder: Reconciling interpretations of forest landscape restoration. *Land Degradation & Development*, *29*(9), 2888–2898.

Mansourian, S., & Vallauri, D. (2020). Forest landscape restoration: Progress in the last decade and remaining challenges. *Ecological Restoration*, *38*(1), 1–10.

Mansourian, S., Stanturf, J. A., Derkyi, M. A. A., & Engel, V. L. (2017). Forest landscape restoration: increasing the positive impacts of forest restoration or simply the area under tree cover?. *Restoration Ecology*, *25*(2), 178–183.

Messier, C., Puettmann, K., Chazdon, R., Andersson, K., Angers, V., Brotons, L., Filotas, E., Tittler, R., Parrott, L., & Levin, S. (2014). From management to stewardship: Viewing forests as complex adaptive systems in an uncertain world. *Conservation Letters*, *8*(5), 368–377. https://doi.org/10.1111/conl.12156

Messerschmidt, D. A. (1992). People and forests, anthropologists and foresters: Recent research at Nepal's institute of forestry. In: M. Allan (ed.) *Anthropology of Nepal: Peoples, problems and processes*. Mandala Book Point, Kathmandu, pp.82–96.

Mukul, S. A., Huq, S., Herbohn, J., Nishat, A., Rahman, A. A., Amin, R., & Ahmed, F. U. (2021). Rohingya refugees and the environment. *Science*, *372*(6548), 1279–1279.

Nightingale, A. (2003). Nature–society and development: social, cultural and ecological change in Nepal. *Geoforum*, *34*(4), 525–540. https://doi.org/10.1016/s0016-7185(03)00026-5

Nightingale, A. J. (2002). Participating or just sitting in? The dynamics of gender and caste in community forestry. *Journal of Forest and Livelihood*, *2*(1), 17–24.

Nightingale, A. J. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum*, *42*(2), 153–162. https://doi.org/10.1016/j.geoforum.2010.03.004

Nightingale, A. J. (2019). Commoning for inclusion? commons, exclusion, property and socio-natural becomings. *International Journal of the Commons*, *13*(1), 16. https://doi.org/10.18352/ijc.927

Oldekop, J. A., Rasmussen, L. V., Agrawal, A., Bebbington, A. J., Meyfroidt, P., Bengston, D. N., … Wilson, S. J. (2020). Forest-linked livelihoods in a globalized world. *Nature Plants*, *6*(12), 1400–1407.

Ojha, H., Persha, L., & Chhatre, A. (2009a). Community forestry in Nepal: A policy innovation for local livelihoods. *International Food Policy Research Institute*, *913*, 123–159.

Ojha, H. R., Paudel, N. S., Banjade, M. R., McDougall, C., & Cameron, J. (2010). The deliberative scientist: integrating science and politics in forest resource governance in Nepal. In L. German, J. J. Ramisch, & R. Verma (Eds.), *Beyond the biophysical: Knowledge, culture, and politics in agriculture and natural resource management* (pp. 167–191). Springer.

Ojha, H. R., Bhusal, P., Paudel, N. S., Thompson, P. M., & Sultana, P. (2019). Turning conflicts into cooperation? The role of adaptive learning and deliberation in managing natural resources conflicts in Nepal. *Climate Policy*, *19*(sup1), S107–S120.

Ojha, H. R., Cameron, J., & Kumar, C. (2009b). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, *11*(5-6), 365–374.

Ojha, H., Timsina, N., & Khanal, D. (2007). How are forest policy decisions made in Nepal? *Journal of Forest and Livelihood*, *6*(1), 1–16.

Olsen, S. C., & Larsen, H. O. (2003). Alpine medicinal plant trade and Himalayan mountain livelihood strategies. *Geographical Journal*, *169*(3), 243–254.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

Pagdee, A., Kim, Y. S., & Daugherty, P. J. (2006). What makes community forest management successful: a meta-study from community forests throughout the world. *Society and Natural Resources*, *19*(1), 33–52.

Pandit, R., & Bevilacqua, E. (2011). Forest users and environmental impacts of community forestry in the hills of Nepal. *Forest Policy and Economics*, *13*(5), 345–352.

Paudel, N. S., & Vedeld, P. O. (2015). Prospects and challenges of tenure and forest governance reform in the context of REDD+ initiatives in Nepal. *Forest Policy and Economics*, *52*, 1–8.

Paudel, N. S., Khatri, D. B., Khanal, D. R., & Karki, R. (2012). *The context of REDD+ in Nepal: Drivers, agents, and institutions*. Occasional Paper 81, CIFOR.

Poudel, M., Thwaites, R., Race, D., & Dahal, G. R. (2015). Social equity and livelihood implications of REDD+ in rural communities–A case study from Nepal. *International Journal of the Commons*, *9*(1), 177–208.

Philander, S. G. (Ed.). (2012). *Encyclopedia of global warming and climate change*. SAGE Publications.

Randerson, J. (2009). Carbon emissions from forest degradation and deforestation. *Environmental Research Letters*, *4*(4), 041002.

Ribot, J. C., Agrawal, A., & Larson, A. M. (2006). Recentralizing while decentralizing: How national governments reappropriate forest resources. *World Development*, *34*(11), 1864–1886.

Ribot, J. C., & Larson, A. M. (2012). Affirmative policy on an uneven playing field: Implications for REDD. In *Forests and people* (pp. 67–84). Routledge.

Rights and Resources Initiative (RRI). (2020). *Rights-based conservation: The path to preserving Earth's biological and cultural diversity?* RRI.

Rutt, R. L., Chhetri, B. B. K., Pokharel, R., Rayamajhi, S., Tiwari, K., & Treue, T. (2015). The scientific framing of forestry decentralization in Nepal. *Forest Policy and Economics*, *60*, 50–61.

Sabogal, C., Santos, R. P., & White, A. (2021). Forest landscape restoration: Insights from the experience of the International Model Forest Network. *Land*, *10*(4), 429.

Sarmiento Barletti, J. P., Larson, A. M., Sabogal, C., & Hewson, N. (2021). Designing for engagement: Insights for more equitable and resilient multi-stakeholder forums. *World Development*, *150*, 105707.

Sayer, J., Chokkalingam, U., & Poulsen, J. (2017). The restoration of forest biodiversity and ecological values. *Forest Ecology and Management*, *201*(1), 3–11.

Shrestha, K. K., & McManus, P. (2008). The politics of community participation in natural resource management: lessons from community forestry in Nepal. *Australian Forestry*, *71*(2), 135–146.

Stanturf, J. A., Kleine, M., Mansourian, S., Parrotta, J., Madsen, P., Kant, P., Burns, J., & Bolte, A. (2019). Implementing forest landscape restoration under the Bonn Challenge: A systematic approach. *Annals of Forest Science*, *76*(2), 1–21.

Shrestha, K. K. (2016). Rethinking participation: From theoretical ambiguity to practical challenges. In J. Parker & K. K. Shrestha (Eds.), *Routledge handbook of community forestry* (pp. 85–98). Routledge.

Subedi, B. P. (2004). Linking plant-based enterprises and local communities to biodiversity conservation in Nepal Himalaya. Unpublished doctoral dissertation, Kumaun University, India.

Takahashi, R. (2022). Property rights and natural resource management in developing countries. In: Estudillo, J.P., Kijima, Y., Sonobe, T. (Eds.) *Agricultural development in Asia and Africa: Essays in Honor of Keijiro Otsuka* (pp. 127–138). Springer Nature Singapore.

Thoms, C. A. (2008). Community control of resources and the challenge of improving local livelihoods: A critical examination of community forestry in Nepal. *Geoforum*, *39*(3), 1452–1465.

Thwaites, R., Fisher, R., & Poudel, M. (Eds.). (2017). *Community forestry in Nepal: Adapting to a changing world*. Routledge.

Whelpton, J. (2005). *A history of Nepal*. Cambridge University Press.

World Bank. (1978). *Nepal staff project report and the appraisal of the Community Forestry Development and Training Project*. Document of the World Bank, Washington DC.

2 Looking back, moving forward

The evolution of community forestry policy and practice in Nepal

Don Gilmour

2.1 Beginning of formal recognition of community rights to access and use forests

When Nepal moved out of a feudal state in the early 1950s, the local controls over forest use exercised by feudal functionaries broke down. It was not until 1960 that some semblance of political and social stability was restored (Gilmour, 1990). Bajracharya (1983) gives a useful account of the political changes that took place in Nepal since 1768 and their effects on forest management.

The notion of local communities having formal rights to access and use forest products has a long history in Nepal, dating from the immediate post-feudal years. Seventy years ago, in 1952/1953, a young Nepalese forest officer, Emerald J.B. Rana, hand-wrote a draft National Forest Policy on 39 pages of a school exercise book. In it, he perceived that Nepal's forests would be classified into three categories: Protection Forests, National Forests, and Community Forests, though these would not be mutually exclusive. Emerald Rana described community forests as those "…which would have to be created or set aside to provide firewood, small timbers for agriculture implements, building timbers, other forest produce and grazing for cattle, for the rural community." He goes on to state that community forests "…are intended, in the main, to serve the needs of surrounding villages in respect of timbers for housing and agricultural implements, firewood, leaves for manure and fodder, fencing thorns, grazing and edible forest products." He also perceived that "these forests shall be conserved or created and conserved by the community…" and that "the protection of the forests and distribution of produce should be entrusted to Panchayats."

Emerald Rana's draft forest policy was never formalized; it was probably never even typed. However, the contents of this 70-year-old document that never saw the light of day illustrate that, from the very beginning of "modern" Nepal, there were far-sighted people in the country who articulated a vision for community forestry (CF) that was not fully realized in the formal policy domain until the late 1980s. Emerald Rana became Secretary of the Ministry of Forest and Soil Conservation (MoFSC) in the late 1970s, at a time when CF

DOI: 10.4324/9781032705613-3
This chapter has been made available under a CC BY-NC-ND license.

was finally emerging onto the national development agenda. He was in the right place at the right time to support the nascent ideas around transforming the vision of CF into reality, and his ideas were influential in framing parts of the National Forestry Plan in 1976 (discussed in more detail in the following section). Emerald Rana treasured his draft forest policy and gave his original exercise book to me in 1990,[1] 37 years after he wrote it, and near the end of his life.

The 1950s and 1960s were tumultuous times for Nepal, politically and socially, as the country embraced first multi-party democracy and then a partyless *Panchayat* political system. Defining and implementing a national forest policy was not a high priority in the fledgling state, and national decisions on how forests would be managed, particularly in the Middle Hills, languished for several decades. In general, formal forest management followed the modalities emanating from Dehra Dun with an emphasis on command and control, where the role of the Forest Department staff was focused on protection, policing, and licensing (Gilmour & Fisher, 1991). Any support for community rights to access forest products, let alone for communities to have an active role in forest management, was pushed to the background. There were only five or six trained foresters in the country in the late 1950s (WEC, 1986), so in those early years, there was little capacity to execute effective forest management on the ground, particularly in the Middle Hills, where there was little road access and poor communication. A detailed discussion of the evolution of forest management in Nepal between the 1950s and 1980s, as well as a discussion of the emergence of community and social forestry on the world stage, is given in Gilmour and Fisher (1991) and will not be repeated here, apart from highlighting a few key issues relevant to the subject of this chapter.

2.2 Panchayat forestry and evolution to CF

The first major step to bring CF onto the national stage followed a 1975 conference in Kathmandu, attended by Divisional Forest Officers (DFOs) from throughout the country, along with senior officials from the Forest Department and the MoFSC, to consider various issues related to the management of forests in the country, particularly the deterioration of mountain forests. This resulted in the publication of a National Forestry Plan in 1976 (for an English translation, see NAFP, 1979). Part of the remedy for the deteriorating condition of the forests was to encourage the conversion of community or government land to "Panchayat Forest" with new plantations being raised by Village *Panchayats* (local government bodies under the *Panchayat* system). In addition, "the panchayat may distribute the forest produce from the forests to the local people…" (NAFP, 1979, p. 15). The implicit focus was on restoring and protecting degraded forest land and providing forest products for subsistence use. This is close to the approach envisioned by Emerald Rana in 1952/1953, whereby community forests were to be managed mainly for subsistence products under the control of the Village *Panchayat*.

In the mid-1970s, T.B.S. Mahat (DFO of Chautara Division) and Rob Campbell (Team Leader of the Australian Forestry Project) spent much time trekking through the Chautara Division and discussing forestry issues with village leaders and villagers. They published a paper in the *Nepal Journal of Forestry* in 1978 (Campbell & Mahat, 1978) that fleshed out their emerging ideas on what CF meant in the local context and how it could be implemented. Their ideas followed the direction set in the 1976 National Forestry Plan and contributed to formulating the first official policy on CF: The Panchayat Forest and Panchayat Protected Forest Rules and Regulations 1978. The following paragraphs, adapted from Gilmour (2003), describe how this policy was articulated, the results of its implementation, and the evolution toward the next iteration of CF.

These Rules and Regulations recognized two distinct forms of community forest to be established under the local government administrative/political units (Village *Panchayats*). Panchayat Forests (PF) were to be plantation forests established by communities on largely bare land and subsequently protected by them. Panchayat Protected Forests (PPF) were degraded natural forests which were to be rehabilitated primarily by community protection efforts. Income generated from PPFs was to be shared between the community and the government. Importantly, the government put its primary focus on PF establishment (largely funded by bilateral donor assistance and World Bank loans) and their handover to the Village *Panchayat* administrative/political units. PPFs were largely neglected. The reason for this emphasis was because of the government's desire to create a new forest resource with donor funding. This emphasis on resource creation was moderately effective in those districts where forests had been heavily depleted and where local people were keen to see new forests created to benefit from improved access to fuelwood and fodder. For example, in Sindhupalchowk and Kavrepalanchowk districts, about 20,000 hectares (ha) of new forest were successfully established during the 1980s and early 1990s with the active support of local communities and village leaders (following the approach that had been pioneered by T.B.S. Mahat). However, in those districts where forest products were not in short supply, local communities had less interest in becoming involved in plantation establishment and protection, and many of the costly plantation establishment efforts produced little in the way of new forests. Another reason for the limited interest by local communities in becoming involved was that the new policy provided for the transfer of responsibility for forest management to communities, but there was very limited transfer of real authority to carry out forest management and distribute benefits (Gilmour & Fisher, 1997).

While the 1978 PF and PPF Rules and Regulations marked a landmark shift in policymakers' thinking, they also constrained attempts to trial anything outside this framework, as the institutional focus of activities was on the Village *Panchayat*. Institutional space had to be carved out to enable the exploration of alternative modalities of planning and implementing CF, and while always contested, this was achieved with support from senior figures in the Department and Ministry and with visionary DFOs.

The PF and PPF policy witnessed some success in establishing new forests via plantation establishment, but reflection at the time led to the conclusion that this was not sustainable in the long term because of the large area of degraded forest and the high cost in terms of both money and technical expertise (Gilmour & Fisher, 1991). It was evident that restoration of the degraded natural forests was needed on a large scale, and the PPF modality was not enabling enough to achieve this.

A major breakthrough in practical possibilities came with the recognition and documentation of the widespread existence of indigenous forest management systems in the Middle Hills (for example, Fisher, 1989; Gilmour, 1990; and Gilmour & Fisher, 1991). This provided much of the rationale for proposing a shift in the focus of forest management responsibility and authority from the Village *Panchayat* to natural groups of forest users, Community Forest User Groups (CFUGs). In many cases, such groups already existed (albeit out of official sight as they were extra-legal) and had institutional arrangements in place to plan and implement forest activities. They exhibited a strong vested interest in ensuring that their local forests were managed sustainably for their benefit and were not "taken away" by the government or other entities. When discussing the history of indigenous management systems with villagers throughout the Sindhupalchowk and Kavrepalanchowk districts during the 1980s, many of them referred to the years 2017 and 2018 B.S. (1960/1961) as marking the beginning of their systems (Gilmour & Fisher, 1991). This coincided with the commencement of the partyless *Panchayat* system and followed a period of great political and social instability in the previous decade. It was a reasonable hypothesis that the emergence of these systems was a rational and logical local response to local conditions at the time, and the systems were not "traditional" in the sense of being extremely long-standing.

A national CF conference was held in Kathmandu in 1987. This brought together field staff, project implementers, educators, and policymakers to share experiences and debate the key issues. This was a seminal event, as it was realized that, despite different projects having different approaches to trialing CF, there were many common elements.[2] Most of the CF modalities that evolved in the late 1980s emphasized identifying existing groups of forest users and their forests and legitimizing the groups to manage their forests for their own benefit with institutional arrangements that ensured equitable outcomes. The role of the government in this process was seen to be a facilitating and supporting one, and the first draft Guidelines for Implementing Community Forestry were prepared in 1989 (and formalized in 1990) to assist government field staff with this task. The key elements of this approach found their way into the Master Plan for the Forestry Sector, which was developed during the late 1980s. These included:

> Phased handover to the communities, community forest protection and management, income to forest users, and staff retraining.
>
> (MFSC, 1990, p. 14)

Despite the considerable expenditure of resources during this period, by 1990, only a handful of CFUGs had been formally established across the Middle Hills. However, the technical and institutional requirements for CF had been thoroughly tested and documented and an enabling policy environment had been established with the Master Plan for the Forestry Sector in 1989, which emphasized the importance of CF for the Middle Hills. This emphasis was given greater focus when it was embedded in a new Forest Act in 1993. The formal adoption of these three key complementary elements of the regulatory framework: Forest Act, Master Plan for the Forestry Sector, and Guidelines for implementing Community Forestry, set the scene for a major expansion of CF in the following decades. This marked the transition from "Panchayat Forestry" with its forest-centered approach and controlling role of the Village *Panchayat* and Forest Department to "Community Forestry" with its community-centered approach and facilitating role of the Forest Department staff. This was a fundamental paradigm shift in the power dynamics around forest management and was not without conflict. Perhaps the key defining feature of CF is that it is predicated on empowering local communities to manage their own forest resources for their own benefit.

A contributing factor in the transition from *Panchayat* to Community (user group) Forestry was the end of the *Panchayat* polity brought about by the People's Revolution in April 1990. The strong political support for Village *Panchayats* as the key local-level institutional entities evaporated overnight, which opened the door for alternatives.

An important outcome of the considerable effort that went into trialing and refining different approaches to planning and implementing CF in the 1980s and early 1990s by many bilateral and multilateral agencies was a large body of published papers that documented its evolution and that included the failures and the successes. This contributed to conceptualizing a modality for CF whereby the key elements could be easily conveyed to villagers, bureaucrats, politicians, and educators and for training material to be developed. Importantly, implementation emphasized using an exploratory, action research approach because of the many social, institutional, and biophysical unknowns in the operating environment (Gilmour & Fisher, 1991).

2.3 Context of the 1980s and implications for trialing CF modalities

Before going further, it is worth spending some time examining the context in which the debates on changing forest management paradigms and trialing new forest management modalities were taking place during the 1970s and 1980s, as this is critical to understanding what worked and why.

From the mid-1970s to the mid-1980s, there was widespread acceptance that the Himalayas were in the middle of a massive and rapidly worsening environmental crisis (Eckholm, 1975, 1976). It was perceived that a large part of the problem was caused by recent deforestation attributed to a burgeoning population of ignorant peasants who cut down trees to expand their agricultural

and grazing lands and for fuelwood and fodder. It was further postulated that the deforestation led to large-scale erosion and flooding that affected not just Nepal but downstream as far as the Ganges delta in Bangladesh.

Ives and Messerli (1989) described the linkages implicit in this perceived crisis as the "Theory of Himalayan Environmental Degradation." Their analyses provided a much more nuanced understanding of the environmental situation in the Himalayas and exposed the simplistic and questionable nature of the linkages.[3] While acknowledging the high level of uncertainty that surrounded the environmental debate about the Himalayas, Ives and Messerli also refuted the crisis dimensions of the "Theory." A major contribution to the debate came with the publication of a substantial body of work in a series of papers by Mahat et al. (1986a, 1986b, 1987a, 1987b), which challenged the recent nature of deforestation, and the role of peasant farmers alone in being the agents of deforestation.

Nonetheless, the "Theory" was very influential in policy thinking and became a charter for action for the government and aid agencies (Fisher, 1990). The simplistic nature of the linkages implicit in the "Theory" was appealing: the major problem was deforestation caused by ignorant peasants, so the solution was seen to be reforestation and teaching villagers to respect and protect forests. This became the rationale for much of the forestry aid that flooded Nepal in the 1980s. Hence, the first few years of trialing CF focused on the restoration of forests via nurseries and plantations, accompanied by community extension programs.

The "Theory" also vilified villagers as the key actors in deforestation due to subsistence pressures and ignorance. However, anyone who trekked through the hills in the 1980s and talked to villagers about their perception of the importance of forests would know that this characterization is completely false. All villagers were well aware of the importance of forests in supporting their farming systems and general livelihood, and they were keen to have an active role in forest management. It was common to hear villagers say that without forests they would not survive.

Before the early 1980s, most government and project attempts to establish plantations had failed, but T.B.S. Mahat demonstrated in the late 1970s that establishing "forests without fences" was possible by engaging with community leaders and with support from local villagers. In addition, several village leaders in Sindhupalchowk district were active and vigorous advocates at both bureaucratic and political levels for more authority to manage forests in their vicinity. This marked the beginning of collaboration (though always contested) between the government and villagers to establish and protect forests and was in marked contrast to the confrontation that had previously characterized relations between government officials and communities where there was little trust on either side.

2.4 Expansion, maturation, and stagnation of CF

CF has been a signature policy of the Nepal government for more than 30 years, and by some measures, it has been spectacularly successful. The rural

landscape, particularly across the Middle Hills, has been transformed. Once deforested hillsides are now tree covered. As of July 2020, community forests covered 2.3 million ha (nearly 35% of the national forest estate) and reached over 3.0 million households that are members of 22,500 CFUGs (57% of all households in the country) (Pandey & Pokhrel, 2021). Many forests, both natural and plantation, have grown to the stage where commercial harvesting is possible, and in some cases, is long overdue.

Over the past three decades, many forest-based enterprises have become established drawing products from community and private forests. The precise numbers are hard to ascertain, but Adhikary et al. (2019) reported a study by Subedi et al. (2014) that determined that about 41,000 small-scale forest enterprises were operating across the country. Of these, about 66% were involved in primary production, with the rest engaged in processing, manufacturing, and trade. Clearly, the rural employment opportunities created by such enterprises are considerable.

Importantly, CF was taken up by civil society, which promoted it and advocated strongly and effectively for community rights. The emergence and rapid growth of the Federation of Community Forestry Users of Nepal (FECOFUN) and similar movements in the 1990s marked the transition of CF from a government-sponsored initiative to a national social movement, and this has contributed significantly to its success (Ojha, 2012). Gilmour and Fisher (1997) postulated that, under the right conditions, CF can move out of the control of intervening or sponsoring agencies and develop the characteristics of a broad-based social movement. As such, it can develop a life of its own, become an independent political force, and set its agenda for how forests are managed rather than respond to an agenda set by others. Recent research has shown that, to some extent, this has happened in Nepal and signifies the growing maturation of the process (Ojha & Hall, 2021).

CFUGs have proven to be extremely resilient institutions in the face of substantial social and political turmoil over more than three decades. Among the challenges that have been faced are the people-powered revolution in 1990, which catalyzed the shift from the partyless *Panchayat* state to multi-party democracy; the ten-year armed civil war from 1996 to 2006; political uncertainties, including no local government elections for more than 15 years during and after the armed conflict; moving to a federated form of governance in recent years including major institutional changes at local government level. Throughout these events, CFUGs not only survived but prospered. The reasons for this resilience are manyfold. The design of CF as a national program was central in helping to generate its image as a neutral, inclusive, pro-poor, and just process of forest management (Nightingale & Sharma, 2014). The most important structural aspects were the decentralized nature of CF and its emphasis on public and transparent systems of governance. Resilience was further enhanced because CFUGs had financial and physical resources. Financial resources were extremely important, as they gave CFUGs bargaining leverage. Nightingale and Sharma (2014) also noted the importance of social and

human capital and good governance, i.e., incorporating flexible and adaptive institutions that value open, transparent, inclusive, and equitable processes. CFUGs were originally established to be independent of the local government political/administrative units (Village *Panchayats* prior to 1990 and Village Development Committees between 1990 and 2017). This institutional separation served CF well, particularly during periods of conflict when different entities were fighting for national legitimacy and government assets were frequently targeted. CFUGs survived, at least partly, because they were not perceived to be part of the government; rather, they belonged to the people. The recent changes associated with a federated governance system have brought some aspects of CFUG operations within the ambit of redefined local government structures (*Gaun Palikas*),[4] and how this plays out remains to be seen.

Overall, the tangible impacts of CF have been remarkable and demonstrate the appropriateness of the modality that was developed during the 1980s. It clearly fitted with the social and political conditions of the time. However, despite this apparent success, it is fair to say that CF has underperformed, particularly in terms of contributing to improved livelihoods, social equity, and active management of forests.

Many authors (Agarwal, 1997; Khadka, 2010; Hobley et al., 2013; Nightingale, 2002) have shown that while CF has had generally positive environmental and social outcomes, in many cases, the level of social capital has been insufficiently high to prevent inequities, particularly in participation and benefit sharing. These inequities can be partly attributed to entrenched patterns of discrimination and marginalization in society, which often skew decision-making and benefit-sharing in favor of local elites (Paudel et al., 2014).

Further, the management of community forests has been passive rather than active, and there has been reluctance by the forest bureaucracy to promote the harvesting of commercial forest products. The government of Nepal's official approach to forest management has changed over recent years and has embraced "Forestry for Prosperity." Among the stated aims of the 2019 Forest Policy is one aimed at increasing forest sector productivity and forest products to meet domestic needs and create export income to increase the contribution of forests to the national economy. However, these official shifts in policy have been slow to translate into changes on the ground.

In general, CFUGs and the wider economy are missing out on the benefits of the commercialization of forest goods and services. The innovation that marked the early development of CF in the 1980s and 1990s seems to have been lost and the process has stagnated.

2.5 Contemporary context (2022)

Nepal has changed dramatically during the past 30 years in response to many internal and external influences. By the early 2010s, it was recognized that rural Nepal was in a state of flux with major changes underway in social, economic,

institutional, and biophysical aspects of the operating environment. Among the impacts of these changes were outmigration, development of a remittance economy, urbanization, feminization of the rural workforce, abandonment of agricultural land, and declining interest in farming as a viable economic option (Gilmour et al., 2014). Since then, the pace of change has accelerated, and the socio-economic context has become even more dynamic. An additional issue has been the recent embracing of a federal political structure with three tiers of government, including new local government institutional entities, *Gaun Palikas and Nagar Palikas*. In parallel with the ongoing socio-economic and political changes, and partly as a response to these, the role of CF is changing, as is its position in the institutional landscape. Drivers of change continue to modify the socio-economic, institutional, and policy operating environments.

Most (though not all) rural communities no longer have a strong dependence on forest products to support their livelihoods. Hence, CF's role has changed and continues to change in the face of the rapidly evolving context. The provision of forest products for subsistence purposes is declining in importance, and the role of forests in generating multiple environmental benefits is increasing, along with the generation of economic benefits through the commercialization of timber and other products. This is a dramatic shift from the situation that prevailed in the 1980s. However, community forest policy and practice in Nepal are still predicated on the assumption that most rural households are still largely dependent on forest products and agriculture for their livelihood and food security and, hence, have a strong interest in managing forests for essential subsistence benefits.

Throughout the history of CF in Nepal, the priority of most Operational Plans (OPs) has been timber production. Fuelwood, fodder, non-timber forest products and ecosystem services are considered secondary products. This is in spite of the overwhelming importance of forest products to satisfy subsistence needs in the early decades. However, timber-dominated management plans tend to undermine the needs and priorities of diverse interest groups and make it very difficult to provide for pro-poor, equitable, and gender transformative outcomes.

An additional constraint to the efficient functioning of CFUGs is the ever-increasing compliance burden required by the forest authorities. As noted by Paudel et al. (2014), while the Forest Act and supporting regulations are very enabling, the actual regulatory environment faced by CFUGs is disabling because of constraints placed in their way by government officials. These include requirements for detailed management plans, complex inventories, and special permits, often from multiple authorities, to harvest, transport, and process forest products. Smallholders are required to go through at least 14 steps involving four separate government agencies to obtain approval to harvest and transport trees from their land, a process that takes a minimum of three months (Amatya et al., 2015), and CFUGs face similar hurdles. As noted by Larson et al. (2008, p. viii), "the bundle of rights granted is sometimes overwhelmed by an accompanying bundle of responsibilities."

A recent review of an Australian Centre for International Agricultural Research (ACIAR) project in Sindhupalchowk and Kavrepalanchowk districts (Gilmour & Gentle, 2021) revealed several issues that, taken together, illustrate how CF (and also private forestry) has failed to keep pace with and adapt to the changing context (see Box 2.1).

Box 2.1 Key points that illustrate deficiencies of the current CF modality

- While many community forests contain commercial-sized trees that could be harvested, many CFUG members exhibit a low interest in commercial timber management. This can be attributed to: (i) decades of a constraining environment, combined with widespread high transaction costs leading to pessimism that their efforts to harvest and sell timber will be rewarded and (ii) when timber is harvested and sold, CFUGs earn insufficient to make any significant contribution to household income or community welfare.
- In Sindhupalchowk district, about 60 community forests are less than 3 ha in size, yet each forest needs an OP, which is invariably focused on commercial timber harvesting, irrespective of the interests of the CFUG members. There are substantial opportunity costs associated with conforming to the rules and regulations that apply: regular executive committee meetings, assemblies, audits, OP revisions, etc., and the CFUGs feel that the costs outweigh the benefits. Commercialization of the community forests, if it occurs, entails additional very high transaction costs that are not offset by the income from selling timber because of the small volume coming from each forest. Options such as clustering small community forests for commercial purposes, including OP development, may be one way of minimizing transaction costs and making harvesting viable.
- CFUG members have limited amount of time (and interest) in being involved in CF activities. A contributing factor in declining interest can be attributed to conflicting objectives and interests of user group members in executive committee decisions and fund management.
- There is a very large timber resource in community forests across the country that is declining in value. It is verging on a national disgrace that this resource has not been mobilized to benefit local and national economies (including creating jobs).
- There is also a large and expanding private forest resource, particularly on abandoned agricultural land, that is the source of most commercial timber in many hill districts, even though the timber resource in community forests is much greater.

- The increasingly complicated techno-bureaucratic approach to community forest management (OPs and other regulatory requirements) is a significant challenge to CFUGs and *Palikas* managing forests effectively.
- Community institutions successfully reversed forest degradation and created subsistence benefits but may not be the best institutions to create market-oriented benefits.
- The nexus between forest officials and timber contractors in the sale and transport of forest products from both community and private forests under the existing regulatory framework works to disadvantage the state, CFUGs, and private forest owners.
- Technical services from government technicians to CFUGs are often unavailable, are expensive when available, and tend to come with a cumbersome administrative culture.
- *Palikas* are new institutional actors and have a legally mandated role to oversee CF and engage in some planning processes. Though there are currently some institutional spaces for CFUGs and *Palikas* to work together, these need to be clarified through the development of Rules and Guidelines.
- CFUG-*Palika* collaboration is generally weak. There are both cooperative and conflicting interests between CFUGs and *Palikas* in resource utilization and community development work. Potential exists for stronger collaboration between the two regarding active forest management, commercialization of forest products, local development, and social equity.
- Many CFUG executive committee members (and most *Palika* representatives) are interested in utilizing CFUG funds for tangible community development works such as infrastructure, while women and poor households are more interested in livelihoods, skills, and income.
- The role of *Palikas* in supporting private forestry is limited. The policy provisions allow *Palikas* to register private forests and permit the harvesting and transportation of products within their *Palika*. As there are limited market opportunities within *Palikas*, transportation and sale of private forest products outside *Palikas* are still controlled by DFOs.

2.6 Redefining CF for the 21st century

Nepal's internal and external contexts have changed dramatically from when CF was first conceptualized in the 1980s and rolled out in the 1990s and 2000s. The previous discussion calls into question the appropriateness of the current CF modality to function effectively in the contemporary context.

While the provision of subsistence goods and services from community forests is still important for many people, particularly those who are poor or who

live in remote locations, community forests do not play the critical livelihood support role that was near universal several decades ago and, understandingly, local interest in managing forests has waned. The role of CF in contemporary rural Nepal is evolving rapidly as rural society itself changes in response to numerous internal and external drivers. However, an appropriate modality to fit the new institutional settings has yet to be clearly articulated and trialed. Concomitant with this is the important question of whether parts of the regulatory framework of policies, legislation, rules, and regulations that have supported and enabled CF in the past are fit for purpose in the contemporary socio-economic, institutional, and political context. Good progress on analyzing the current context and outlining possibilities to "revitalize community forestry" has been made in a collection of papers edited by Paudel et al. (2021), and it is hoped that this can catalyze national debate and contribute to transitioning to a CF modality that can be relevant into the 21st century.

Notes

1 I lodged the original hand-written document in the Forest Department library in 1991 but retained a photocopy.
2 The proceedings of this first National Community Forestry conference were published in a Special Issue of Banko Janakari, 1987, Vol 1, No 4.
3 A more thorough discussion of the "Theory of Himalayan Environmental Degradation" and its refutation by Ives and Messerli is contained in Gilmour and Fisher (1991).
4 Rural municipalities, generally a collection of previous Village Development Committees (VDCs) with more rights to collect taxes and greater budgets than VDCs.

References

Adhikary, A., Jhaveri, N., Karki, R., & Paudel, N.S. (2019). *Analyzing the investment effects of forest rights devolution in Nepal's community-managed forest enterprises*. CIFOR Working Paper 254. Center for International Forestry Research (CIFOR), Indonesia.

Agarwal, B. (1997). Environmental action, gender equity, and women's participation. *Development and Change*, *28*(1), 1–44.

Amatya, S. M., Nuberg, I., Cedamon, E., & Pandit, B. H. (2015). *Removing barriers to the commercialisation of agroforestry trees in Nepal. Presentation at IUFRO 3.08 Small Scale Forestry Conference*, Sunshine Coast, Australia, 11−15 October (available at www.smallscaleforestry.org/presentations.html).

Bajracharya, D. (1983). Deforestation in the food/fuel context, historical and political perspectives from Nepal. *Mountain Research and Development*, *3*, 227–240.

Campbell, R. G. and Mahat, T. B. S. (1978). A practical approach to the development of community forestry in Nepal. *Nepal Journal of Forestry*, *1*, 25–33.

Eckholm, E. P. (1975). The deterioration of mountain environments. *Science*, *189*, 764–770.

Eckholm, E. P. (1976). *Losing Ground: environmental stress and world food prospects*. W.W. Norton.

Fisher, R. J. (1989). *Indigenous systems of common property forest management in Nepal*. Working Paper No. 18, Environment and Policy Institute, East-West Center, Honolulu, Hawaii.

Fisher, R. J. (1990). The Himalayan dilemma: finding the human face. *Review Essay. Pacific Viewpoint 31*(1), 69–76.
Gilmour, D. A. (1990). Resource availability and indigenous forest management systems in Nepal. *Society and Natural Resources*, *3*, 145–158. https://doi.org/10.1080/08941929009380714
Gilmour, D. A. (2003). Retrospective and prospective view of community forestry in Nepal. *Forest and Livelihoods*, *2*(2), 5–7.
Gilmour, D. A. & Fisher, R. J. (1991). *Villagers, Forests and Foresters – The Philosophy, Process and Practice of Community Forestry in Nepal*. Sahayogi Press, Kathmandu.
Gilmour, D. A. & Fisher, R. J. (1997). Evolution in community forestry: contesting forest resources. *In Community Forestry at the Crossroads: Reflections and Future Directions in the Development of Community Forestry*: proceedings of an international seminar held in Bangkok, Thailand, 17–19 July 1997. RECOFTC Report 16, 27–44.
Gilmour, D. A. & Gentle, P. (2021). *Enhancing livelihoods through improved forest management in Nepal*. Mid-term project review report of ACIAR Project FST/2017/037.
Gilmour D.A., Pradhan, U., Malla Y., Bartlett, T., Finlayson, R., & Shah, R. (2014). *Enhancing Livelihoods and Food Security from Agroforestry and Community Forestry Systems in Nepal: Current Status, Trends, and Future Directions*. World Agroforestry Centre (ICRAF) Southeast Asia Regional Program, International Union for Conservation of Nature, & Australian Centre for International Agricultural Research (ACIAR). https://apps.worldagroforestry.org/sea/Publications/files/report/RP0306-15.pdf
Hobley, M., Jha, C., & Poudel, K. (2013). *Persistence and change: Review of 30 years of community forestry in Nepal*. Multi Stakeholder Forestry Programme, Government of Nepal. https://doi.org/10.13140/RG.2.1.1769.0086
Ives, J. D., & Messerli, B. (1989). *The Himalayan Dilemma-Reconciling Development and Conservation*. The United Nations University and Routledge.
Khadka, M. (2010). *Why does exclusion continue in Nepal's community forestry? Aid, knowledge and power in forest policy process*. Maastricht, the Netherlands, Shaker Publishing.
Larson, A. M., Cronkleton, P., Barry, D., & Pacheco, P. (2008). *Tenure rights and beyond: community access to forest resources in Latin America*. Occasional Paper No. 50. CIFOR (available at www.cifor.org/publications/pdf_files/OccPapers/OP-50.pdf)
Mahat, T. B. S., Griffin, D. M., & Shepherd, K. R. (1986a). Human impact on some forests in the Middle Hills of Nepal. 1. Forestry in the context of the traditional resources of the state. *Mountain Research and Development*, *6*(3), 223–232.
Mahat, T. B. S., Griffin, D. M., & Shepherd, K. R. (1986b). Human impact on some forests in the Middle Hills of Nepal. 2. Some major human impacts before 1950 on the forests of Sindhu Palchok and Kabhre Palanchok. *Mountain Research and Development*, *6*(4), 325–334.
Mahat, T. B. S., Griffin, D. M., & Shepherd, K. R. (1987a). Human impact on some forests in the Middle Hills of Nepal. 3. Forests in the subsistence economy of Sindhu Palchok and Kabhre Palanchok. *Mountain Research and Development*, *7*(1), 53–70.
Mahat, T. B. S., Griffin, D. M., & Shepherd, K. R. (1987b). Human impact on some forests in the Middle Hills of Nepal. 4. A detailed study in South East Sindhu Palchok and North East Kabhre Palanchok. *Mountain Research and Development*, *7*(2), 111–134.
Ministry of Forest and Soil Conservation (MFSC). (1990). *Forestry Sector Policy Revised Draft. Master Plan for the Forestry Sector Nepal*. His Majesty's Government of Nepal.
NAFP. (1979). *Nepal's National Forestry Plan 1976 (2033)*. Unofficial English translation, Nepal-Australia Forestry Project, Kathmandu, Nepal.

Nightingale, A. J. (2002) Participating or just sitting in? The dynamics of gender and caste in community forestry. *Journal of Forestry and Livelihoods*, *2*(1), 17–24.

Nightingale, A. & Sharma, J. R. (2014). Conflict resilience among Community Forestry User Groups: experiences in Nepal. *Disasters*, *38*(3), 517–539.

Ojha, H. R. (2012). Can civic engagement lead to deliberative democratic governance? In A. Deniere & H.V. Luong (Eds.) *The dynamics of social capital and civic engagement in Asia*. Routledge.

Ojha, H. R., & Hall, A. (2021). Transformation as system innovation: insights from Nepal's five decades of community forestry development. *Innovation and Development*, *13*(1), 109–131. https://doi.org/10.1080/2157930X.2021.1917112

Pandey, H. P., & Pokhrel, N. P. (2021). Formation trend analysis and gender inclusion in community forests of Nepal. *Trees Forests and People*, *5*, 100106. https://doi.org/10.1016/j.tfp.2021.100106

Paudel, G. P., Paudel, N. S., & Khatri, D. B. (2014). *Revenue and employment opportunities from timber management in Nepal's community forests*. In Proceedings of Sixth National Community Forestry Workshop, Kathmandu, 16−18 June 2014, 108−120. MFSC, Government of Nepal (available at http://dof.gov.np/download/bids/6Th%20National_CF_workshop_Finalproceeding.pdf).

Paudel, N. S., Karki, R., & Paudel, G. (2014). *Impacts of local dynamics on community forest management and utilisation in Nepal*. Discussion paper. ACIAR EnLiFT Project.

Paudel, N. S., Ojha, H. R., Banjade, M. R., Karki, R., & Tamang, S. (Eds.). (2021). *Revitalising community forestry in the changing socioeconomic context of Nepal*. Research Paper Series on Improved Forest Management in Nepal, 2022-01: 1–86. EnLiFT2 programme and ForestAction Nepal.

Subedi B. P., Ghimire P. L., Koontz A., Khanal S. C., Katwal P., Sthapit K. R., & Mishra S. K. (2014). *Private Sector Involvement and Investment in Nepal's Forestry: Status, Prospects, and Ways Forward. Study report*. Multi Stakeholder Forestry Programme (MSFP).

Water and Energy Commission (WEC). (1986). *Land Use in Nepal – A summary of the Land Resources Mapping Project Results*. Report No. 4/1/310386/1/1 Seq. No. 225. His Majesty's Government of Nepal, Ministry of Water Resources.

Theme 1

Resource tenure and governance


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

3 The politics of policy evolution

Community forestry governance and regulatory shifts in Nepal

Ganga Ram Dahal, Bharat Pokharel, Dil Raj Khanal, Sita Aryal, Mankesh Gupta, and Yam Malla

3.1 Introduction

Community forestry (CF) in Nepal has emerged as a globally recognized model for decentralized forest governance, evolving over five decades amid significant socio-political changes. This chapter examines the intricate development of CF policies and regulations in Nepal, exploring how they have been shaped by political transitions, changing socio-economic contexts, and global environmental agendas. The evolution of Nepal's CF policies offers a compelling case in the complex interplay between national politics, local realities, and global priorities in shaping natural resource governance. From its roots in traditional resource management practices to its current status as a cornerstone of Nepal's forestry sector, CF has undergone numerous transformations, reflecting broader changes in the country's governance structures and development paradigms (Ojha et al., 2008; Hobley & Malla, 2022).

This chapter aims to elucidate how political decentralization, changing local contexts, and global environmental priorities have collectively shaped CF governance in Nepal. In doing so, we address several key questions. Firstly, we examine how major political transitions have influenced the evolution of CF policies and regulations. Secondly, we investigate the extent to which these policies have adapted to changing socio-economic contexts and livelihood patterns in rural Nepal. Finally, we explore how global environmental agendas, particularly those concerning climate change and biodiversity have been incorporated into Nepal's CF policy framework.

By examining these questions, we seek to contribute to broader debates on decentralized natural resource management and the reconciliation of conservation with local livelihoods. The Nepali experience of CF offers valuable insights for policymakers and practitioners grappling with similar transitions and challenges globally (Baynes et al., 2015; Gilmour, 2016).

The chapter is structured as follows: Section 3.2 provides a historical context of Nepal's political and economic landscape, setting the stage for understanding CF policy evolution. Section 3.3 outlines our analytical approach, which conceptualizes policy development as a dynamic process influenced by multiple interacting factors. This is followed by a detailed examination of CF

DOI: 10.4324/9781032705613-5
This chapter has been made available under a CC BY-NC-ND license.

policy evolution across three distinct political phases in Nepal's recent history. Finally, we discuss key policy issues and draw conclusions relevant to both Nepal's ongoing reforms and global forest governance debates. Through this analysis, we aim to shed light on the challenges and opportunities associated with community-based forest policy and practice in a rapidly changing world.

3.2 Context of CF policy evolution in Nepal

The trajectory of CF in Nepal is deeply intertwined with the country's broader political and socio-economic transformations. A complex interplay of political transitions, economic changes, environmental concerns, and international influences forms the backdrop against which Nepal's unique approach to community-based forest management has evolved. Understanding this historical context is crucial for appreciating the complex evolution of CF policies and practices.

The feudal Rana regime ruled the country for over a century (1846–1950). Following a brief political transition in the 1950s, King Mahendra instituted the Panchayat system in 1960, a party-less "guided democracy" that centralized power in the monarchy (Whelpton, 2005). This period, lasting until 1990, saw some initiatives for national development, but provided limited political freedoms.

The forestry sector during this era was marked by centralized control. The Private Forest Nationalization Act of 1957 brought forests under state control, often alienating local communities from their traditional resource base (Hobley and Malla, 2022). Subsequent legislations like the Forest Act 1961 and Forest Protection Special Act 1967 further empowered forest officials while restricting local communities' access (Gilmour & Fisher, 1991; Paudel et al., 2008).

However, the failure of centralized policies to halt deforestation led to a gradual shift toward community involvement. This shift was influenced by growing international concern over Himalayan environmental degradation in the 1970s and 1980s (Ives & Messerli, 1989) and emerging global trends toward participatory development approaches. The National Forestry Plan of 1976 first recognized the need for people's participation in forest management, marking a significant policy turn (RECOFTC, 2013).

The restoration of multi-party democracy in 1990 created an environment that enabled CF to flourish. This period saw the formalization of CF through landmark legislations like the Forest Act 1993 and Forest Regulations 1995, which legally recognized Community Forest User Groups (CFUGs) as autonomous institutions for forest management (Ojha et al., 2008). The democratic environment also fostered the growth of civil society organizations, notably the Federation of Community Forestry Users Nepal (FECOFUN), which provided a strong foundation for the advocacy of community rights over forests (Paudel et al., 2012).

Economically, Nepal has transitioned from a largely agrarian, subsistence-based economy to one increasingly integrated with global markets. The 1990s

witnessed economic liberalization policies, opening Nepal to foreign investment. However, sustaining economic growth continued to struggle with political instability mainly due to frequent changes in the government and the Maoist conflict (1996–2006) (World Bank, 2019). Throughout these changes, forests have remained crucial to rural livelihoods, gradually recognized for their multi-faceted importance in environmental stability and national development.

The most recent phase in Nepal's political evolution began with the promulgation of the new Federal Constitution in 2015. This shift to federalism has significantly reshaped governance structures, including those pertaining to forest management. The Local Government Operation Act 2017 and Forest Act 2019 attempt to align forest governance with the federal structure, though challenges in implementation persist (Ojha & Hall, 2021).

Concurrently, Nepal faces new socio-economic challenges that impact CF. Large-scale outmigration, particularly of rural youths, has altered forest-people relationships, diverting rural livelihood priorities from farm to non-farm activities (Paudel et al., 2021). There's also an increasing emphasis on realizing economic benefits from community forests, necessitating policy adaptations (Timsina et al., 2021). Furthermore, global environmental agendas, particularly around climate change mitigation and biodiversity conservation, are increasingly influencing CF policies. Nepal's participation in climate change initiatives like Reducing Emissions from Deforestation and Forest Degradation (REDD+) presents both opportunities and challenges for community-based forest management (Maraseni et al., 2020).

3.3 Analytical approach and methodology

This study employs a multi-faceted analytical framework to examine the evolution of CF policies in Nepal. We conceptualize policy development as a dynamic process influenced by interacting factors across multiple scales and domains, drawing on insights from political ecology (Robbins, 2012) and institutional analysis (Ostrom, 2009).

Our framework posits three key dimensions shaping CF policy outcomes. Firstly, national-level political transitions serve as the overarching context for forest governance. These transitions—from autocratic rule to democracy and later to federalism—have redefined state-society relations and power structures, creating new opportunities and constraints for community-based resource management (Ojha et al., 2008). Secondly, at the local level, socio-economic dynamics play a crucial role. Shifting livelihood patterns, demographic changes (particularly outmigration), and evolving market relations influence how communities interact with forest resources (Poudyal et al., 2023). These local realities shape both the demand for forest products and services and the capacity of communities to engage in collective forest management. Thirdly, global environmental agendas exert significant influence. International discourses and commitments related to climate change, biodiversity conservation, and sustainable development introduce new priorities and opportunities for CF

(Maraseni et al., 2020). These global influences often manifest through international aid and technical assistance programs, with multiple effects: some supporting the recentralization of authority and others supporting community rights and tenurial security (Figure 3.1).

We argue that CF policy outcomes emerge from the complex interactions between these political, socio-economic, and environmental factors. Importantly, our framework recognizes the role of agency and contestation in policy processes. Various stakeholders—including government agencies, civil society organizations, forest user groups, and international actors—engage in ongoing negotiations and struggles over forest governance arrangements (see Banjade et al., this volume).

Methodologically, we employ a qualitative historical analysis approach. This involves an extensive review of policy documents and legislation related to forestry from 1957 to 2022, complemented by academic literature on CF in Nepal and globally. We also draw on reports from forestry projects and donor agencies, as well as workshop proceedings. The authors' long-term engagement with Nepal's forestry sector also provides additional insights and context.

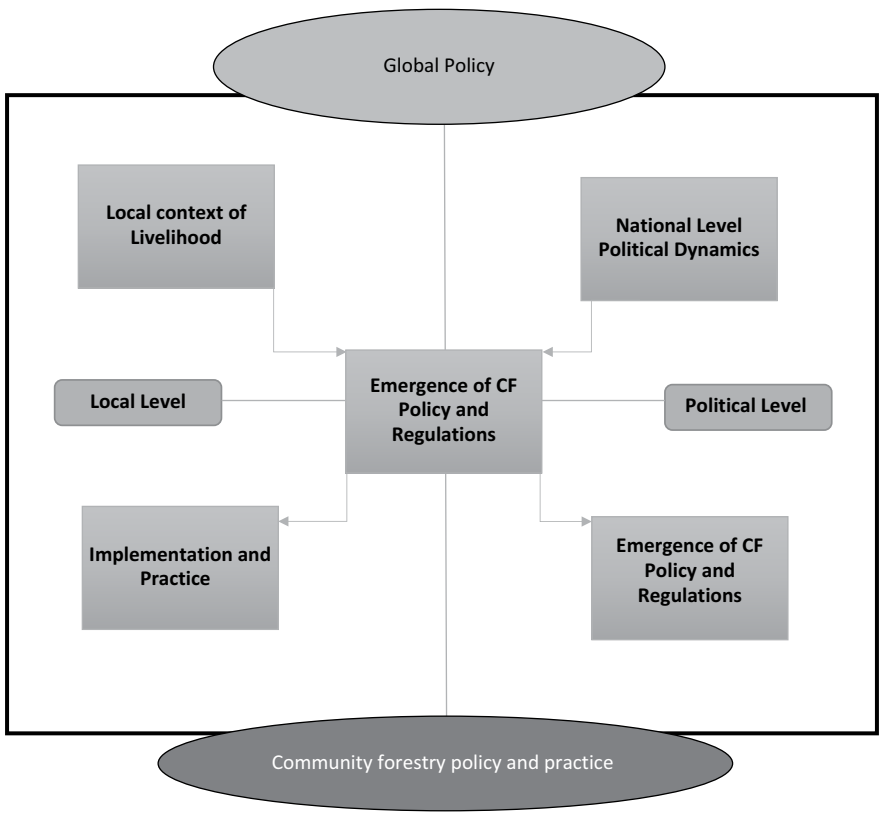

Figure 3.1 A conceptual framework for understating CF policy and practice in Nepal.

Our analysis is structured chronologically across three political phases: the period before multi-party democracy (pre-1990), the democratic phase (1990–2015), and the federal era (2015 onward). For each phase, we systematically examine policy documents to trace key changes supported by academic literature to understand the context and implications of these changes. We pay particular attention to how policies responded to or were influenced by changes in the broader political system, shifting socio-economic conditions, and emerging global environmental agendas. By analyzing policy evolution through this multidimensional lens, we aim to uncover the complex drivers of change in Nepal's CF sector. This provides insights relevant to Nepal's ongoing reforms and broader debates on decentralized natural resource governance and the reconciliation of conservation and development objectives.

3.4 Phases of CF policy evolution in Nepal

3.4.1 Pre-CF policy context

CF emerged in the context of widespread deforestation and degradation, mainly due to the failure of the state-controlled top-down approach to forest management. In the 1960s and early 1970s, the problem of land degradation and deforestation was highlighted by international media, experts, and researchers, stressing that further deforestation in the mid-hills of Nepal should be controlled immediately. This was backed by a strong argument for the need for extensive reforestation initiatives and the prevention of potentially devastating effects due to downstream flooding and land degradation (Eckholm, 1976; Gilmour & Fisher, 1991). Scholarly work and public discourse around the severe environmental degradation continued and sparked motivations and aid cooperation from several bi- and multi-lateral agencies.

International assistance poured in at a time when the state adopted an approach that empowered government officials through state-controlled legal frameworks such as the Forest Act 1961 and the Forest Protection (Special) Act 1967, among others. These measures imposed restrictions on local people's access to and use of forest products, ignoring the historical role of local communities in forest conservation and management (Gilmour, 2016; Hobley, 1996). All these acts and policies vested the control of forests to the Department of Forest but were not supportive of the rights of local communities in accessing and using forest resources.

Despite a centrally controlled forest protection and management system, the outcomes remained devastating as most of the mid-hill region was heavily degraded and deforested. Meanwhile, there was a growing criticism of expert-led, top-down approaches to development that ignored the role of local people. A similar reflection appeared in the forestry sector, where experts suggested that the local communities should have a meaningful role in the management of forests (Hobley & Malla, 2020).

Below, we elaborate on major policy changes enabling and supporting CF development under three distinct phases of political evolution in the country.

3.4.2 Initial phases before the restoration of multi-party democracy in 1990

During the century-long Rana regime, most of the productive lands and forest resources were allocated to the members of the ruling family or officials working under the Rana government. However, all other forests were under traditional management by the communities and clans. In 1951, the Rana regime was replaced by a multi-party system lasting just a decade. During this period, all forest areas were nationalized by enacting the Private Forest Nationalization Act (1957). The government then adopted a centralized bureaucratic approach to govern and manage forests which was reflected in the Forest Act 1961 and the Forest Protection (Special) Act 1967 that empowered the government forest officers and imposed restrictions on local use of forest resources such as firewood, timber, and non-timber forest products (Hobley & Malla, 2022; Larson & Dahal, 2012; Malla, 2001; Pokharel et al., 2008).

In the 1970s, there was a strong realization of the failure of a centralized policy, and therefore, the government introduced decentralization policies through the National Forestry Plan in 1976 that recognized the role of local communities. It was followed by the Panchayat Forests Rules 1978 and Panchayat Protected Forests Rules 1978 (Bhattarai et al., 2002; Gautam et al., 2024). However, the enthusiasm for the "Panchayat Forests" and the "Panchayat Protected Forests" vanished soon (Bhattarai et al., 2002). As Panchayats were political and administrative units, they were too political and also covered quite large and diverse forest areas, they could not mobilize local communities in forest management (ibid.). Meanwhile, during these desperate times, forestry experts largely supported by aid projects explored suitable institutional arrangements that could directly mobilize local communities for forest conservation and management.

In the 1980s, Nepal adopted decentralized and community-based approaches in forest management by encouraging participation of local people (Malla, 2001). Some of these policies were influenced by the structural adjustment program pushed by the World Bank and IMF (Guthman, 1997). As deforestation and forest degradation continued during this period, the government and its development partners intensified the efforts to experiment and advance more substantial community roles in forest management. As a result of several years of intensive study and collaborative reflections, the government came up with the Master Plan for the Forest Sector 1989. The plan strongly recognized forest conservation and improved local livelihoods as the twin goals of forest management and proposed the leading role of communities in achieving these goals. It proposed to hand over 61% of the national forests to communities (Ives & Messerli, 1989; Paudel et al., 2008). Table 3.1 lists key policies and regulatory instruments issued and implemented during this period.

Table 3.1 Policies and legal instruments that shaped CF before 1990

Year	*Policy and legal instruments*	*Rationale*
1957	Private Forest Nationalization Act	Mobilize forests as national resources for the country's development.
1959	Birta[1] Abolition Act	Bring private *Birta* land and forests to regular landholding (*Raikar*[2]), impose taxes, and prevent unchecked deforestation.
1961	Forest Act	Regulated forest management and use to check deforestation.
1967	Forest Protection (Special) Act	Empower forest officials to take strong actions against illegal and unsustainable harvesting and maintain law and order.
1970	Forest Products Sale and Distribution Rules	Provided procedure for selling timber, fuelwood, and non-timber forest products according to demand, prioritizing Timber Corporation of Nepal (TCN) and forest-based industries.
1976	National Forestry Plan	Introduced different categories of Panchayat-managed forests for conservation, management, and utilization.
1978	Panchayat Forests/ Panchayat Protected Forests Rules	Hand over forests to local political bodies for protection and sustainable management.
1982	Decentralization Act	The authority of forest management was transferred to District and Village Panchayat. The concept of a user committee was initiated.
1989	Master Plan for the Forestry Sector	Introduced the concept of CF and CFUGs based on a comprehensive review of existing policies and legal frameworks.

3.4.3 CF during democratic phase (between 1990 and 2015)

In 1990, Nepal marked the restoration of multi-party democracy, which enabled CF to provide a supportive regulatory framework. Accordingly, the new democratic government introduced the Forest Act 1993 and the Forest Regulations 1995, providing a legal foundation for CF. Moreover, the establishment of a democratic system also provided space for civil society organizations to emerge and thrive. The emergence of civil society networks such as FECOFUN, among others in the post-1990 era, fundamentally changed the institutional landscape in CF. While the government and aid agencies used to be the only actors in shaping forest policies, the emergence of FECOFUN, several user group federations, and other Civil Society Organizations (CSOs) helped widen the policy space and make it more inclusive and transparent (Paudel et al., 2012). Additionally, newly trained domestic scholars working on forestry governance and their critical thinking anions began to challenge some of the previous top-down and narrowly framed policies and were able to highlight questions of tenure, inclusion, and equity in the forest policy agenda (Paudel et al., 2012; Ojha et al., 2008). Of course, the Maoist Movement

(1996–2006) played a significant role in reinforcing and extending some of these agendas outside the CF domain (Gautam, 2022).

Since the late 1990s, rural outmigration, especially of young males, sharply increased (now more than 4 million), resulting in changing forest-people relations and feminization of agriculture that generally weakened collective action in CF. Consequences are observed in decreased forest management; forests turned into jungles, and increased forest hazards such as human-wildlife conflicts and forest fire (see Dilli Poudel et al., this volume; Paudel et al., 2021; Thwaites et al., 2018). A decrease in institutional function and a corresponding increase in governance challenges at the CFUG level invited stronger regulatory and administrative requirements. However, such moves have undermined CFUG's autonomy. Consequently, there were increased conflicts between the government and FECOFUN. This period observed rising tension and protests on the part of FECOFUN.

The global environmental agenda, especially under the UNFCCC and CBD, among others, began to influence CF priorities during this period. Series of climate policy-related documents: National Adaptation Program of Action 2010, the National Framework on Local Adaption Plan of Action 2011, Climate Change Policy 2011, and several climate change-related plans and programs, were introduced during this time. Similarly, in partnership with the World Bank's Forest Carbon Partnership Facility program, the government embarked on preparing for REDD+, a key international carbon financing scheme to mitigate climate change through better forest management. Interestingly, all these policy initiatives recognized and prioritized CFUGs as the key local-level institutional vehicle to achieve the climate goals. Table 3.2 lists key policies and regulatory instruments issued and implemented during this period.

Table 3.2 Policies and legal instruments that shape CF between 1990 and 2015

Year	*Policy and legal instruments*	*Rationale*
1993	Forest Act	Formalization of the CF program by recognizing CFUGs as perpetual and autonomous institutions in managing forests.
1995	Forest Regulation	Providing regulatory instruments to implement the Forest Act.
1999	Revision of Forest Act	Authority granted to forest officials to penalize CFUG for violating rules agreed upon in the forest operational plan.
2000	Forest Policy	Government decided to hand over degraded and scattered forests in *Terai* and inner *Terai* to local communities as community forests.
2009	CF Development Guidelines	Streamline CF by detailing the process and procedures of CFUGs' organizational functioning, forest management, and benefit sharing.

3.4.4 CF during the federal system—since 2015 onward

The Local Government Operation Act 2017 was a key framework that allowed local governments to formulate local laws and regulations as per local needs and priorities (Ojha & Hall, 2021; Yasmi et al., 2017). In addition, after 2015, the federal government took the initiative to revise previous policies and regulations to align with the core intention of the Constitution of 2015. For example, recent policies and regulations, include the Forestry Sector Strategy 2016, National Forest Policy 2017, Forest Act 2019, and Forest Regulations 2022.

The promulgation of the Constitution of Nepal in 2015 and associated laws, especially the Forest Act 2019, Forest Regulation 2022, and Local Government Operation Act 2017, significantly reshaped CF. Two aspects are worth mentioning here. First, the Constitution reiterated the citizens' environmental rights and local communities' priority in managing and benefiting from natural resources (Article 51). Second, it placed forestry into the concurrent list, meaning that all three levels of government will exercise some roles and responsibilities over forest management. This implies that the regulatory oversight roles and responsibility to support CF fall under all three levels of government (Schedules 5, 6, 7, 8). However, contrary to what community rights groups were demanding, the Constitution did not recognize the collective rights over forestlands.

This period experienced increased power struggle, policy confusion, and stagnation in CF management. The three levels of government and the local communities engaged in a tug-of-war around interpretation of constitutional and legal jurisdictions, roles, and responsibilities. As a result, after nine years of promulgating the Constitution and forming three levels of government, there is no general Civil Service Act in place. Divisional Forest Officers (DFOs), the pivotal officials with oversight and facilitation roles for the CF, are still confused due to the lack of a much-needed Civil Service Act. Though the Forest Act was issued in 2019, it took almost three years to bring its implementing instrument—the Forest Regulations, which came only in 2022. Even after that, the government was unable to implement the Rules because of the opposition of timber traders and FECOFUN alike. Similarly, while the Forest Act proposes a nested planning approach, there is no national-level strategic plan yet, affecting forest planning at the sub-national level. All three levels of government are imposing taxes on CF despite a general agreement among them to rather have a one-door policy on it. Forest management has been practically halted for the last four years since the federal government banned all harvesting, transportation, and timber sale and scraped the "Scientific Forest Management Program." The government was supposed to replace it with National Standards on Sustainable Forest Management, which is still under progress.

A large part of the above-mentioned challenges is associated with increasing contestation and non-cooperation in policy formulation and implementation. At their heart lies inadequate participation, inclusion, and deliberation of

various stakeholders in the forest policy process. During this period, civil society, the private sector, and even sub-national-level governments have increasingly felt marginalized and excluded from the policy process. FECOFUN opposed the conversion of CF areas into Forest Conservation Areas (some CFUGs in the Fulchoki area), multiple taxation imposed by three levels of governments, mandatory provisions to provide up to 50% of their timber harvest to the government-led District Forest Product Supply Committee by adopting press releases, mass meeting, and street protests by FECOFUN. The private sector also opposed some provisions of the Forest Regulations, especially the increase in timber royalty rate and change of timber measurement formula (FECOFUN, 2023).

Lack of coherence across the policy levels has been a persistent problem in CF. For example, while the political discourse and the broader policy statements acknowledge the need to move toward enhancing the economic outcomes of CF, the lower-level regulatory instruments have not followed the policy spirit. The Ministry of Forests and Environment adopted a motto, "forestry for prosperity," stating in a policy document that forests are recognized as "economic resources" and crafted National Forest Policy 2019 with terms like "economic prosperity." However, at the ground level, harvesting a tree involves over 15 steps; selling timber and getting it to the market involves even more steps and time (Timsina et al., 2021). It appears that the failure to materialize the full economic potential of CF can primarily be attributed to policy challenges.

Currently, the CF policy landscape has become complex, with many intersecting, cascading instruments, from the 2015 Constitution to many decisions made by the three levels of government. Take tax for an example. Despite FECOFUN's plea for one-door policy, the federal government, seven provincial governments, and hundreds of local governments have issued their tax policies and imposed them upon CFUGs. Table 3.3 lists key policies and regulatory instruments issued and implemented during this period.

Table 3.3 Policies and legal instruments during federalism (post-2015)

Year	*Policy and legal instruments*	*Rationale*
2015	The Constitution of Nepal	Defines roles and responsibilities of three levels of government in forest, safeguards the rights of local communities over forests.
2016	CFUG Financial Procedure Guideline	To ensure the regular, systematic, and transparent management of the user group's funds generated from the sale of forest products.
2017	Local Government Operation Act	Provided legal authority to local government to enact sectoral policies, guidelines, and acts, including the local forest act.
2018	Nepal REDD+ Strategy	Supports benefit sharing among community forests of the income generated from the carbon trade

(*Continued*)

Table 3.3 (Continued)

Year	*Policy and legal instruments*	*Rationale*
2019	National Forest Policy	Provides overall policy priority in the forest sector and places CF within the forest sector policy framework
2019	Federal Forest Act	Continue CF program under federalism by replacing Forest Act 1993
2019	National Environment Policy	Maintains a balance between environment and development to achieve sustainable development goals
2019	Environment Protection Act	Provides a legal framework to implement national environment policy; the government can declare an environment conservation area, green zone, or a sensitive zone to protect forests
2022	Federal Forest Regulation	Provides a regulatory instrument to operationalize the Forest Act 2019

3.5 Current policy and regulatory issues

3.5.1 Political decentralization and CF policy reform

As discussed above, the evolution of CF policies and regulations appears to be closely aligned with broader political changes. Centralized bureaucratic control was institutionalized during the party-less Panchayat political system with active monarchy. While some incremental reform process began during this time, establishing a multi-party parliamentary system in 1990 laid the legal foundation of CF. Similarly, the federal system in 2015 resulted in the distribution of oversight roles and the sharing of CF benefits among three levels of government. Currently, two major laws, the Forest Act 2019 and the Local Government Operation Act 2017, shape the governance of CF. Unfortunately, the provisions enshrined within these acts overlap in some areas, creating latent tensions among the federal, provincial, and local governments. However, irrespective of the policy gaps and overlaps among the three levels of government, we observed that the broader political framework at the national level has shaped the activities of aid agencies, civic space, and multi-stakeholder processes in crafting policies and implementing them on the ground. However, within these broader trends, specific policies are shaped by the diverse socio-cultural and institutional contexts.

One of the major policy issues that has emerged recently is the clarity of roles and responsibilities of three levels of government to regulate CF or similar community-based forest programs. For example, federal or provincial governments administer government functionaries (government forestry staff) who need to deliver technical and legal functions at the local level in collaboration with local government. There is a mismatch between functions and functionaries. In another case, the CFUGs are required to submit their community

forest operational plans and other mandatory documents to the local government and the Division Forest Office for their approval. Dealing with multiple agencies in parallel is complicated, cumbersome, and time-consuming. The Forest Act 2019 suggests a nested planning framework where the national-level strategic forest sector plan should be followed by DFO's five-year plan under which CFUGs plans are approved and implemented. However, there is no national strategic plan after nine years of federalism and five years since the Forest Act was promulgated. The inability to make a timely plan at the national level has affected forest management at the local level. Similarly, CFUGs are suffering from a lack of timely services and needed coordination because of the misalignment of the provincial forest offices with the local governments. Multiple taxes imposed by all three levels of government is another contested issue. For instance, timber harvested from CFUG for commercial purposes has to be paid taxes by multiple tiers of government. The federal government is still struggling to settle some of these gaps to harness the political and institutional strengths and opportunities associated with decentralized forest governance.

3.5.2 Broader enabling environment beyond policy

While a radical policy shift from centralized and bureaucratic control to one that recognized CF played a key role in its success, a broad-based enabling environment is equally important. Substantive involvement of development partners with their funding, expertise, and political leverage for over three decades cannot be understated. Compared to Nepal's small annual budget, the aid amount appeared significant and could mobilize government staff, experts, and local NGOs/CBOs to support CF. Besides creating good incentives through top-ups in salaries, daily allowances, and training opportunities, including higher degrees overseas, these projects were able to garner support from forest officials to implement the policies on the ground. The mobilization of multidisciplinary expertise has helped with innovations, social mobilization, and linking national policies with ground implementation. Investment in the capacity building of government agencies and communities through training, exposure visits, and institutional support created a momentum toward CF advancement. In the meantime, the emergence of vibrant civil society organizations in the post-1990s, especially the establishment of FECOFUN in 1995, helped democratize the policy process and facilitated its implementation on the ground.

3.5.3 Policy reforms for economic outcomes

Policy discourses in recent years have prioritized a shift from previous environmental goals to economic ones with the generation of jobs and income for the local communities and revenue for the state (MoFE, 2019). For the first time, the 15th Periodic Plan (2019/2020–2023/2024) recognized forests as economic resources with the notion that forests and other natural resources can form the

foundation of prosperity (GoN, 2020, pp. 185). Several studies highlighted the gaps between the economic potentials of CF and its actual contribution to generating jobs and other sources of income to local communities or GDP.[3] Most of these studies have pointed to the inadequacy of policy, regulatory, and institutional response to the growing forest resources and market as the major explanatory factor. Accordingly, policymakers have increased awareness and readiness to relax the current regulatory framework to facilitate harvesting, transportation, trade, and enterprise (Sharma, 2017; Timsina et al., 2021). Another important area where policy response is lagging is the changing socio-economic contexts and forest-people relations. Out-migration of rural youths (mainly male) in search of jobs abroad and the emergence of the remittance economy and associated changes in patterns of livelihoods have reshaped the traditional forest-people relations (see Dilli Poudel et al., this volume). Some of the changes include increased use of LP gas replacing fuelwood, declining livestock farming and therefore sinking need for grass/fodder and grazing, increasing use of alternative construction material, increased opportunity costs, unavailability of volunteer labor, and ultimately declining collective action in CF (Shrestha & Fisher, 2019; Paudel et al. 2021).

3.5.4 Alignment with global environmental agenda

Early CF policies aimed to halt forest degradation and meet local communities' subsistence forest product needs (MoFSC, 1988; Ojha, 2009). Policy instruments and institutional practices were closely aligned with strong protection measures with limited use, focusing on subsistence economy. As discussed in the previous section, since the mid-1990s, policy priorities have evolved from inclusive governance and equitable livelihoods to economic outcomes in recent years (Kanel, 2004).

However, there are still major policy gaps in specific areas, such as defining the role of the private sector, recognizing customary rights, addressing climate change, and devising implementation mechanisms by which local communities can get economic and environmental benefits from carbon trading, REDD+, and ecosystem services. While CF has contributed to some global goals, be it SDG, Paris Climate Agreement, or CBD, the current CF policy framework has not adequately established CF with these goals. Recognition of CF's contribution to these global goals and crafting performance-based incentives for CF actors may help create a sustainable financing mechanism and further enhance CF's performance in the future.

3.6 Conclusion

The evolution of CF policies in Nepal provides several key insights relevant for researchers and policymakers working on community-based natural resource management across the Global South. First, Nepal's forest policy and practice have evolved gradually, with the policy landscape continually being updated

based on insights from practice. Second, the analysis of Nepal's political transitions reveals that while critical, political decentralization is insufficient to guarantee effective community-based governance. The enactment of the Forest Act 1993 allowed for significant devolution of power to CFUGs. However, more recent challenges under the federal system, particularly the overlapping roles and unclear authority among different tiers of government, highlight the need for strong, clear institutional frameworks that ensure these powers are effectively operationalized. This lesson holds relevance for other countries where decentralization policies are implemented without robust supporting structures, as explored in the historical context of CF policies.

Third, Nepal's experience emphasizes the need for active and inclusive participation in policy development and implementation. The rise of civil society organizations like FECOFUN and their influence on policy reforms, as highlighted in the democratic era's policy evolution, shows how engaging communities and marginalized groups can significantly strengthen natural resource management. This participatory approach to policy formulation can serve as a model for other nations, as noted in the sections on policy development through collective action.

Finally, the growing influence of global environmental agendas, particularly climate-related initiatives like REDD+, presents both opportunities and challenges for CF governance. As detailed in the discussions on global environmental influences, Nepal's engagement with these international frameworks demonstrates the importance of balancing local needs with global priorities to ensure that communities benefit from international funding without being burdened by external agendas.

In sum, the key messages from Nepal's policy evolution include:

- Devolution policies in forest management are interlinked with the process of political devolution that empowers both local government and local community institutions such as CFUGs.
- The evolution of CF is not linear and straightforward in terms of devolving rights to local communities. Instead, it will be determined by the institutional strength of CFUGs and their networks and the commitment of political actors at the local, provincial, and national levels.
- CF policies should not limit their scope to addressing the needs and priorities of local communities and Indigenous people but should also consider addressing global needs and priorities such as climate change and biodiversity conservation.

As we write this conclusion in late 2024, more open and devolved policies and regulations should be devised to enable CFUGs to unlock the economic potential of community forests to generate local employment and income. Therefore, there is an urgent need for new approaches, policies, regulations, and strategies compatible with the changing political, environmental, and socio-economic contexts and could address the changing demands and priorities of local communities.

Nepal's CF experience suggests that a dynamic and context-sensitive policy approach that draws lessons from historical practices and adapts to changing socio-economic and environmental conditions can offer a more sustainable path forward for developing CF policies and practices. This adaptive approach is critical to ensuring conservation and livelihood benefits in CF systems across the Global South.

Notes

1 "Birta land" means any kind of land obtained or possessed in such a way that the land is wholly exempt from the State Land Tax, or that the tax payable thereon is less than the tax imposed on Raikar land of similar type in the same place, and this term also includes any land as defined in Clauses (b) and (c).
2 Raikar land: Land possessed by a person on payment of government tax.
3 The World Bank study conducted in 2019 estimates that forests in terai and mid-hill alone can produce 104.5 million cubic feet of timber annually if harvested in a sustainable way generating income equivalent to USD 4.92 billion per year.

References

Bhattarai, K. D., Conway, D., & Shrestha, N. (2002). The vacillating evolution of forestry policy in Nepal: Historically manipulated, internally mismanaged. *International Development Planning Review*, *24*(3), 315–338.

Baynes, J., Herbohn, J., Smith, C., Fisher, R., & Bray, D. (2015). Key factors which influence the success of community forestry in developing countries. *Global Environmental Change*, *35*, 226–238. https://doi.org/10.1016/j.gloenvcha.2015.09.011

Eckholm, E. P. (1976). *Losing ground: environmental stress and world food prospect*. New York: W.W Norton and Co.

Federation of Community Forestry Users Nepal (FECOFUN). (2023). *Silver Jubilee publication of the Federation of Community Forestry Users Nepal*.

Gautam, A. P., Shivakoti, G. P., & Webb, E. L. (2024). A review of forest policies, institutions, and changes in the resource condition in Nepal. *International Forestry Review*, *6*(2), 136–148.

Gautam, M. K. (2022). Understanding of the Maoist Movement (1996–2006): The Large-scale and long-run Perspective. *Interdisciplinary Journal of Management and Social Sciences*, *3*(1), 111–119. https://doi.org/10.3126/ijmss.v3i1.50237

Gilmour, D. A. (2016). *Forty years of community forestry*. FAO Forestry Chapter. Rome, FAO.

Gilmour, D. A. & Fisher, R. J. (1991). *Villagers, forests and foresters*. Kathmandu Sahayogi Press.

Government of Nepal (GoN). (2020). *The Fifteenth Plan (Fiscal Year 2019/20-2023/24)*. National Planning Commission, GoN.

Guthman, J. (1997). Representing Crisis: The Theory of Himalayan Degradation and the Project of Development in Post-Rana Nepal. *Development and Change*, *28*(1), 45–69.

Hobley, M. (1996). Participatory forestry: The process of change in India and Nepal. *ODI Rural Development Forestry Study Guide 3*.

Hobley, M. & Malla, Y. (2020). Forests and federal system: institutional assessment of forest sector. A report to the World Bank.

Hobley, M. & Malla, Y. (2022). Community forestry in the changing political and social context of Nepal. In J. Bulkan, J. Palmer, A. M. Larson, & M. Hobley (Eds), *Routledge Handbook of Community Forestry* (1st ed, pp. 477–490).

Ives, J. D., & Messerli, B. (1989). *The Himalayan Dilemma: Reconciling development and conservation*. London: Routledge.

Kanel, K. (2004). Twenty-Five Years of Community Forestry: Contribution to Millennium Development Goals. In *Proceedings of the Fourth National Workshop on Community Forest (eds)*, 4–6 August, 2004, Department of Forests, Kathmandu, Nepal.

Larson, A. & Dahal, G. R. (2012). *Forest for people: Community rights and forest tenure reform*. London, Earthscan.

Malla, Y. B. (2001). Changing policies and the persistence of patron-client relations: An analysis of stakeholders' responses to changes in forest policy. *Environmental History*, *6*(2), 287–307.

Maraseni, T. N., Poudyal, B. H., Rana, E., Khanal, S. C., Ghimire, P. L., & Subedi, B. P. (2020). Mapping national REDD+ initiatives in the Asia-Pacific region. *Journal of Environmental Management*, *269*(2020), Article 110763, https://doi.org/10.1016/j.jenvman.2020.110763

MoFE. (2019). *Forest Policy of the Government of Nepal*. Ministry of Forests and Environment (MoFE), Kathmandu.

MoFSC. (1988). *Master plan for the forestry sector*. Ministry of Forest and Soil Conservation (MoFSC), Nepal.

Ojha, H. (2009). Civic engagement and deliberative governance: the case of community forestry user federation in Nepal. *Studies in Nepalese History and Society*, *14*(2), 303–334.

Ojha, H. R., Timilsina, N. P., Kumar, C., Banjade, M. R., & Belcher, B. (2008). *Communities, forests and governance- policy and institutional innovations from Nepal*. Adroit Publishers, New Delhi. Forests and governance- policy and institutional innovations from Nepal. Adroit publishers, New Delhi.

Ojha, H., & Hall, A. (2021). Transformation as system innovation: insights from Nepal's five decades of community forestry development. *Innovation and Development*, *13*(1), 109–131. https://doi.org/10.1080/2157930x.2021.1917112

Ostrom, E. (2009). A Polycentric Approach for Coping with Climate Change. *World Bank Policy Research Working Paper Series*.

Poudyal, B. H., Khatri, D. B., Paudel, D., Marquardt, K., & Khatri, S. (2023). Examining forest transition and collective action in Nepal's community forestry. *Land Use Policy*, *134*, 1–11.

Paudel, N. S., Monterroso, I., & Cronkleton, P. (2012). Secondary level organisations and the democratisation of forest governance: Case studies from Nepal and Guatemala. *Conservation and Society*, *10*(2): 124–135.

Paudel, N. S., Ojha, H., Banjade, M. R., Karki, R., & Tamang, S. (Eds.). 2021. Revitalising community forestry in the changing socioeconomic context of Nepal. Kathmandu: EnLiFT2 programme and ForestAction Nepal. *Research Paper Series on Improved Forest Management in Nepal*, 2022–01: 1–86.

Paudel, N. S., Banjade, M. R., & Dahal, G. R. (2008) Handover of community forestry: A political decision or a technical process? *Journal of Forests and Livelihoods*, *7*(1), 27–35.

Pokharel, B., Branney, P., Nurse, M., & Malla, Y. (2008). Community Forestry: Sustaining Forests, Livelihoods and Democracy. In H. R. Ojha, N. P. Timisina, C. Kumar, M. R. Banjade, & B. Belcher (Eds.) *Communities, Forests and Governance: Policy and Institutional Innovations from Nepal*. Adroit Publishers, New Delhi. Delhi: Adroit Publishers

Robbins, P. (2012). *Political ecology: A critical introduction*. J. Wiley & Sons.

Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC). (2013). *Community forestry in Asia and the Pacific: Pathways to inclusive development*. RECOFTC, Bangkok.

Sharma, U. R. (2017). Use of forest land for national-priority infrastructures in Nepal. *Banko Janakari*, *27*(1), 60–64.

Shrestha, K., & Fisher, R. (2019). Labour migration, the remittance economy and the changing context of community forestry in Nepal, in *Community Forestry in Nepal: Adapting to a Changing World*, Routledge, London, pp. 171–192, https://www.routledge.com/Community-Forestry-in-Nepal-Adapting-to-a-Changing-World/Thwaites-Fisher-Poudel/p/book/9780367403720

Thwaites, R., Fisher, R., & Paudel, M. (2018). *Community forestry in Nepal-adopting to a changing world*. Earthscan and Routledge, London and New York.

Timsina, S., Basyal, M., Dahal, K., Karki, R., & Paudel, N. S. (2021). What is Choking Nepal's Domestic Timber Supply? *Journal of Forest and Livelihood*, *20*(1), 62–77.

Whelpton, J. (2005). *A history of Nepal*. Cambridge University Press.

World Bank. (2019). *Nepal environment sector diagnostic study: Path to sustainable growth under federalism*. World Bank, Washington, DC.

Yasmi, Y., Dahal, G. R., & De Bruyn, T. (2017). *Forest tenure in Cambodia, Nepal and Viet Nam*. FAO, Bangkok.

4 Contested tenure

Legal rights, administrative barriers, and the everyday negotiations for Community Forest Access

Naya S. Paudel, Hemant Ojha, and Rahul Karki

4.1 Introduction

When the Forest Act 1993 was passed by Nepal's parliament and its by-laws were enacted in 1995, Nepal began to be known as the leader in forestry sector decentralization that vested local communities with the rights to manage and utilize forests (Agrawal & Ostrom, 2001; Dahal et al., 2017; Myers et al., 2022; Ribot et al., 2006). However, the trajectory of decentralization has never been straightforward, and the "tenure in practice" has been a process of constant struggle between local communities and the state, as well as many other intermediary players that have emerged in the cross-scalar playing field of community forestry (Malla, 2001; Ojha, 2014). While the historical evolution of the policies is discussed in the previous chapter, this chapter focuses on the current tenure arrangements, including how resources are controlled, contested, managed, and used in community forestry (CF). This analysis reveals the need for significant regulatory reforms in the context of shifting forest values, the struggle of disadvantaged groups, and emerging markets.

Conceptually, resource tenure is usually conceived as a bundle of rights (Agrawal & Ostrom, 2001; Bruce, 1989; Schlager & Ostrom, 1992) involving the rights to access, withdrawal, management, exclusion, and alienation. Along with this bundle of rights, the patterns of ownership (owned by the state, collectively, or individually) and the basis of claims (de jure, de facto, or customary) are also recognized as important dimensions in understanding tenure. In the case of Nepal's CF, forestlands belong to the state, while use and management rights over forest resources are devolved to local communities. However, Nepal's CF tenure regime is so complex in practice that these dimensions – are still considered inadequate to fully explain the extent to which rights are exercised. Additional aspects such as clarity, perpetuity, enforceability, and legality of rights are important for the comprehensive understanding of tenure security (Ellsworth & White, 2004; Cronkleton & Larson, 2015). Tenure regimes are also multi-scalar in nature, as outlined by Sikor et al. (2017), who identify three levels of rights: use rights, control rights, and authoritarian rights. This means the use rights of local communities are invariably shaped by the control rights of oversight agencies, which in turn are shaped by the authoritarian

DOI: 10.4324/9781032705613-6
This chapter has been made available under a CC BY-NC-ND license.

rights of the national governments (Cronkleton et al., 2012). To complicate the matter further, Meinzen-Dick et al. (2021) identify three aspects – breadth, duration, and assurance of those core rights – as helpful concepts to understand tenure security.

Various scholars have proposed integrating these diverse aspects. Scientists from the Center for International Forestry Research (CIFOR) have developed a comprehensive model for analyzing tenure security that is applicable in diverse socio-political and legal contexts (Figure 4.1). Apart from the three core dimensions mentioned above – the bundle of rights, patterns of ownership, and basis of claims, this model includes three equally important external aspects: robustness of rights (legality, clarity, duration), protection measures

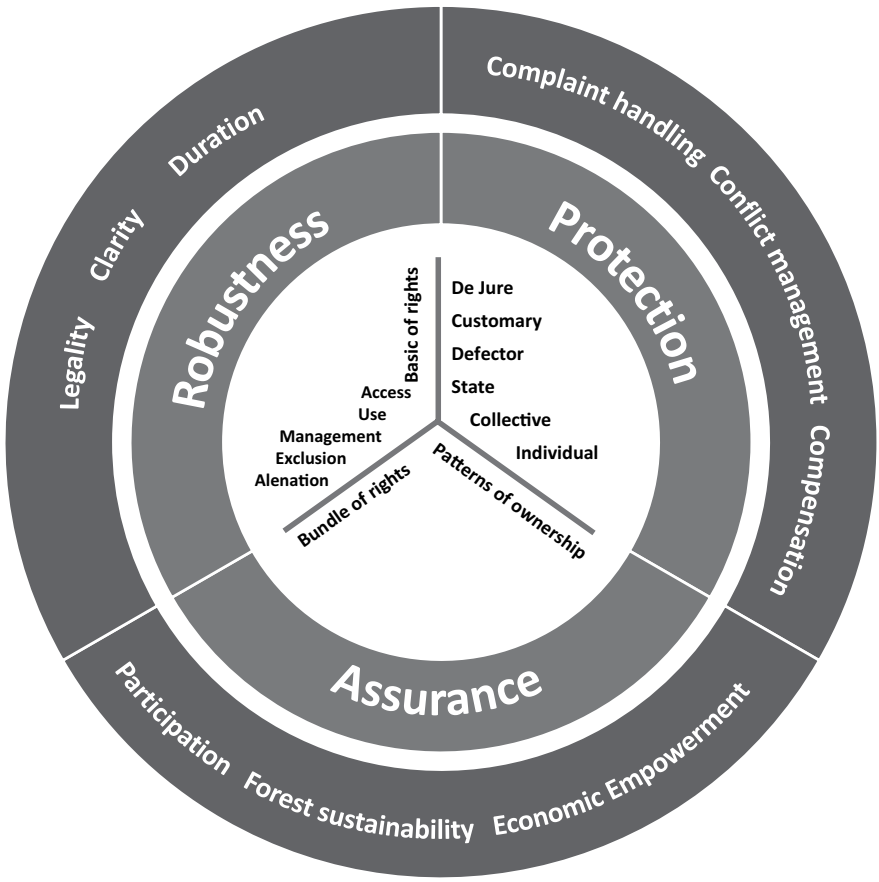

Figure 4.1 Forest tenure security dimensions.

This figure first appeared in Banjade et al., 2017. But it was drawn from ongoing work of dozens of scholars on land and forests tenure. These include Schlager and Ostrom, 1992; Agrawal and Ostrom, 2001; Ellsworth and White, 2004; Sikor et al., 2017; Larson and Dahal, 2012; and Mwangi and Meinzen-Dick, 2009.

(complaint handling, conflict management, compensation), and prospects of assurance (participation, forest sustainability, economic empowerment).

This chapter examines how and to what extent regulatory provisions are translated into the everyday practice of forest resource use and management in Nepal CF. We also discuss marginalized groups' struggle to have equitable access to forest resources in the context of prevailing social heterogeneity. We show how and why tenure in practice shapes the actual rights enjoyed by various groups for subsistence and commercial use, especially in the context of emerging market opportunities for forest product trade and enterprises. Finally, the chapter argues for the need to simplify complex regulatory practices recognizing the shifting values of forests and emerging markets. This chapter first outlines the legal provisions defining tenure regimes, followed by an assessment of how those legal arrangements are actualized in practice. We then identify the contextual dynamics that have shaped how resource tenure is enacted in practice, shaping the use and management of community forests and the eventual impacts on livelihoods and forest restoration in Nepal. Our analysis covers both provisions on paper and how such provisions are interpreted and translated (or distorted) into practice. We also present the historical tensions between the community and the state around the control, management, use, and benefit sharing of forest resources and forestlands. Finally, we conclude with the findings from the analysis of how the three key elements – robustness, protection, and assurance – are reflected in Nepal's CF.

4.2 Legal and regulatory provisions

Nepal's existing legal system provides significant recognition and support to community rights over forest resources through the Constitution 2015, Forest Act 2019, and associated legal and regulatory provisions. The Constitution grants priority and preferential rights to the local communities against interference by the state or private sector (Article 51: g) (MoLJPA, 2015). It guarantees an equitable distribution of benefits from using natural resources (Article 59) (MoLJPA, 2015). Forest Act 2019, Article 18: 1 recognizes community forest user groups (CFUGs) as "the perpetually self-governed organizations entitled to develop, conserve, use, and manage the designated areas of community forest and to sell and distribute the forest products by fixing their price independently" (MoLJPA, 2019). Table 4.1 outlines existing legal provisions in Nepal's CF against the key elements of tenure security discussed above.

CFUGs are the key CF institutions which operate under the approved constitution and are registered with the Division Forest Office (DFO). The organizational performance of the CFUGs significantly shapes the forest rights of its members. The CFUGs are required to submit their annual activity progress report, audit report, and plan for the next fiscal year, all endorsed by their general assemblies (GAs) within three months of each new fiscal year (Forest Act 31:4; Forest Regulations 44, 45) (MoLJPA 2019; MOLJPA 2022). This implies that they need to organize GAs, elect an executive committee through an

Table 4.1 An overview of de jure regime of tenure in Nepal's CF

Elements of tenure security		*Legal and regulatory provisions*
Bundle of rights		Withdrawal, management, and exclusion; but no alienation rights
Patterns of ownership		Government owns the land; forest resources are handed over to communities
Basis of rights		Statutory law allows the competent authority (DFO) to transfer rights based on an approved operational plan (OP)
Robustness	Legality	CF operates within the statutory law issued by the parliament
	Clarity	Provisions of rights and duties of communities and state agencies are clear to all actors
	Duration	Perpetual, no time limit
Protection	Complaint handling	CFUG executive committee is assigned to see internal conflicts, and oversight agencies look at the complaints that the Executive Committee (EC) cannot manage
	Conflict resolution	Conflicts are not explicitly referred to in legal text
	Compensation	CFUGs are compensated if their land is given to any development projects; however, there is no compensation if CF lands are changed to another forest management regime
Assurance	Participation	Law requires inclusive and participatory processes in decision-making and benefit-sharing
	Forest sustainability	Established truth that community forestry contributed to increased forest cover and has supported community rights
	Economic empowerment	Full rights are granted for subsistence use; many rights are regulated for commercial use

Source: Authors.

inclusive democratic process, develop and endorse periodic plans through GAs, and carry out financial audits annually. Those who are unable to meet these requirements are not eligible to manage and harvest forest products – these provisions parallel those in Mexico (Bray et al., 2006).

Operational Plans (OPs), the management plans in Nepal's CF, are the critical documents stipulating all the forest protection and management-related activities, harvest limits, rules for dos and don'ts, the sale of forest products, and benefit-sharing arrangements. Because all rights are defined and exercised under an approved OP, the content and process of its approval fundamentally determines the scope of tenure. The OP is conceived as: (i) the basis of the transfer of rights through a DFO-community contract, (ii) details the provisions of rights to its members, (iii) makes arrangements for conflict management, and (iv) sanctions (Forest Act 18). CFUGs must develop and submit an OP to the respective DFO, who has the right to dis/approve the document.

These OPs are valid for ten years, after which they can be revised and submitted to the DFO for renewal. During this process, the CFUGs must submit and acquire recommendation from the respective local government (Forest Regulations 46).

Once the DFO approves the OP, a CFUG can initiate forest management, harvest and use products, and sell the forest products or forest-based ecosystem services as prescribed in the OP (Regulations 46:12). The CFUGs manage and use forest products (timber, non-timber forest products [NTFPs], fuelwood, fodder, grass, medicinal plants, leaf litter, regulated grazing) or allocate forestlands to selected poor households for agroforestry or fodder management and harvest. By integrating those plans into their OP, they can establish and operate diverse forest-based enterprises such as forest product processing, agroforestry, and ecotourism by integrating those plans into their OP (Forest Regulation Article 51, 52) (MOLJPA, 2022). They can mobilize their funds, partner with neighboring CFUGs, or collaborate with the private sector for investment, joint operation, and benefit sharing.

However, there are certain restrictions imposed on the CFUGs that undermine their autonomy. First, in some districts, the CFUGs have to allocate 50% of their timber product to the Forest Product Supply Committee (FPSC), a parastatal body, at a price set by the government, which is usually much lower than the market price. The government's logic is that not all the households in those districts are members of CFUGs, and the government is responsible for meeting their forest product needs. However, compelling CFUGs to sell part of their timber produce at a low rate to the state-owned company directly restricts them from selling timber in the open market at a competitive price (Forest Regulations 2022; Article 22) (MOLJPA, 2022).

Rights to manage, use, and sell ecosystem services have become increasingly critical for forest communities. Traditionally, policy and legal provisions on ecosystem services were not explicit. However, with the changing societal value on ecosystem services, tenure arrangements over water, recreational services, and wildlife-based tourism are gradually becoming more distinct. While carbon rights are kept exclusively with the federal government (Forest Act 2019; Article 44), CFUGs can develop ecosystem services management plans as part of their OP and acquire DFO's approval to implement them (Forest Regulations 2022: Rule 104) (MoLJPA, 2019; MoLJPA, 2022). In the case of ecosystem services, CFUG should invest 50% of the income to maintain and promote those services that generate this revenue. For carbon trading, while the federal government manages the trade, CFUG consent is required before any agreement with a buyer can be made (Forest Regulations 2022: Rule 107) (MoLJPA, 2022).

Historically, local governments were only marginal actors in CF. However, after federalization, local governments have emerged as important actors in shaping CF and benefiting from taxing it. Local governments act as an oversight agency, exert political influence, and, in some cases, provide financial

support, making them one of the influential players in shaping CF. Forest Act 2019 (Article 18) and Local Government Operation Act 2017 (Article 11:4/e) provide local government with clear roles and responsibilities concerning CF (MoLJPA, 2019; MoLJPA, 2017). First, CFUGs must submit a report of their annual progress, financial audit, next year's plan, and a draft of the revised OP. Second, they must collaborate with the local governments to mobilize CFUGs' 37.5% revenue in development activities. Third, as per the Local Government Operation Act 2017 (Amendment 9:62/a, b: p. 38), the local governments can charge a 10% tax on CF product sales (MoLJPA, 2017).

Long-term security and irreversibility of transferred rights are crucial questions in the forest tenure debate (Larson et al., 2023; Meinzen-Dick et al., 2021). However, the current legal provisions render community rights in CF uncertain. For example, when the government identifies any CF land as having rich biodiversity or a unique ecosystem, the area can be declared a forest protection area to be managed under a different modality (MoLJPA 2019: Article 15). The government declared new protected areas, forest protection areas, and environmental protection areas covering the existing community forests through which the management and use rights of communities were undermined.[1] Similarly, the federal government can provide CF land to any development project if no suitable alternative land is found elsewhere (MoLJPA 2019: Article 42).

4.3 Tenure in practice

Developing an OP, getting it approved, and implementing it involves political maneuvering, the exercise of administrative power, and use and misuse of technical knowledge, which are intricately linked with tenure security (Paudel et al., 2008). The content and process of OP approval and renewal are directly linked with community rights in five ways. First, existing regulations demand technical details of forest inventory and precise calculation of annual allowable harvest based on specific silvicultural systems. However, the whole technical exercise is often flawed and has become simply an administrative ritual (Baral et al., 2018; Rutt et al., 2014). Developing OP is usually lengthy and costly, which most CFUGs cannot afford. Second, the OP contents are largely prescriptive, thus rendering CFUGs with little autonomy in forest management, harvest, and distribution. Third, apart from technical quality, several political and policy-related factors, such as district-level forest management plan, national policy environment, and the existence of clear guidelines shape forest management, use and sale (Timsina et al., 2021).

Everyday practice around forest management, product harvest and sale permits, and mobilization of available funds are other crucial arenas shaping tenure in CF. Exhaustive administrative requirements (see Table 4.2) substantially increase transaction costs and discourage CFUG members from participating

Table 4.2 Domains of heavy regulatory requirements that compromise CFUGs' rights

Requirements	*Remarks*
12 steps for timber harvest	Exhaustive procedure discourages CFUGs from harvesting timber; some leaders may get exhausted and frustrated; some tend to indulge in non-transparent relations with officials
20 steps for timber sale	Huge time lapse between harvest and sale, CFUG leaders get exhausted, uncertainty in price and duration of sale, timber quality loss, and reduced prices
10 steps for collection of fallen trees due to any disaster	Process is costly; fallen timber does not get a good price; timber decayed in the field – discourage CF members in the collection of fallen trees
100-page OP with complex data analysis and prescriptions	Costly OP revision process, unable to understand and comprehend their plan, too much reliance on forest officials
CFUGs have to pay tax for the period since their registration to get a PAN certificate	Over 90% of CFUGs have not received PAN and cannot be involved in any formal transitions; not illegible for any DFO support

in forest management (Gritten et al., 2014; Timsina et al., 2021). One of the CFUG chairpersons in the Kavrepalanchowk district said (May, 2022):

> We'd rather return this forest to the DFO. It has been too costly for us to protect this forest from encroachers, illegal loggers, and forest fires. Despite that fact we have been looking after this forest for the last 30 years, we cannot provide even a small amount of timber when our members are requesting. We feel like we are only the *gothala* (shepherd), not the owner of this forest.
>
> (Source: field survey May 2024)

For example, a summary of the timber sale process is given in Box 4.1.

The regulatory requirements and administrative practices are often biased against market transactions of forest products, especially for high-value timber in the *Terai* region. Though policies seem to favor the increased role of, and partnership with, the private sector in increasing jobs and income through the forest industry, there are several bottlenecks in practice (Bhatta et al., 2022; Sharma et al., 2020). Conversely, subsistence use of forests, especially NTFPs, face fewer barriers. In this context, gross descriptions of tenure provisions within CF may be misleading (Paudel et al., 2009).

The state's oversight role, carried out by the DFO, Commission for the Investigation of Abuse of Authority (CIAA), and local governments, also shapes tenure in practice. The DFO is authorized to approve OPs (Article 18), take action against CFUGs or its members for contravening OP (Articles 19, 21), approve the CFUG constitution (Article 31), exercise semi-judicial

Box 4.1 Timber sales process

CFUGs have to ensure internal demands are met before selling forest products outside its members. Next priority is neighboring CFUGs. Afterward, based on their general assembly decision to sell outside, they have to get recommendation of local government and sub-division forest office. They can then apply to the DFO to get a sale permit. The DFO examines their OP, harvest permits, internal demands and may issue a sale permit. The CFUG then issue a public notice for timber auction. There are strict administrative processes for completing the auction process. The CFUG will sell the timber to the highest bidder. The winner will make necessary payments and deposits following which he/she will approach to the DFO for a transportation permit. Once DFO releases such permit, trader can transport timber outside the site.

Source: Authors.

authority on the legal cases (Article 67), and monitors forest management and overall group functioning (Article 80). However, DFOs are often constrained with limited human resources, especially with needed expertise and leadership. Available officers often prioritize protecting national forests, legal cases, and private forests. Meanwhile, the DFO's use of discretionary decisions directly affects the CFUGs' rights in managing, harvesting, selling, and benefit from forest management. Not all areas can be fully resolved only through legal means, and therefore, negotiation is often the solution. The balance of power, understanding of the DFO, and CFUG's capacity to constructively engage in dialogue with DFO results in the rights that CFUGs can enjoy.

Similarly, the actions of another oversight agency, the CIAA, a constitutional anti-corruption body (Nepal's Constitution: Article 238, 239), also affects the prospects of forest product harvest, sale, and enjoy benefits. In recent years, complaints filed to the CIAA on financial irregularities associated with forest product harvest, sale, and fund mobilization have substantially increased, reaching over 4600 cases during 2018/19 to 2022/23.[2] Once the CIAA investigation of a particular CFUG begins, all the documents are confiscated, bank accounts are blocked, and concerned leaders often hide. As a result, the CFUG's institutional functions gets paralyzed. DFO avoids conducting any forest management activity in such a group. While some may have been involved in such illegal activities, the investigation and subsequent legal case obstruct the forest product harvest, use, and sale process. CF members' forest rights are compromised in such cases.

In recent years, local governments have gradually assumed their oversight roles using their legal rights to support and monitor CFUG (2017:11/4). They

can examine environmental performance, internal governance, financial mobilization, and imposing forest product sale royalties and penalties (Banjade et al., 2021). Although local governments have fewer oversight roles than DFOs, they are influential entities due to more substantial political legitimacy, larger jurisdiction, and financial resources at their disposal. Accordingly, they try to impose their own political and other vested interests even on the institutional functioning and choice of leadership of CFUGs.

Local communities' organized actions as countervailing power significantly shape tenure security in Nepal's CF. The establishment and functioning of the Federation of Community Forest Users Nepal (FECOFUN) as a civil society has significantly shaped the status of rights in CF (Ojha et al., 2007; Paudel et al., 2012). Local communities are organized through their federated structure and actively engage in contestation, constant struggle, and negotiation among various stakeholders, primarily with all three levels of governments. Whenever tenure is undermined or challenged through new laws, official decisions, bureaucratic behavior, exhaustive planning or permit process, or introducing a new management regime, FECOFUN stands up and opposes such moves. FECOFUN's actions from the local to global level have helped maintain the balance of power between the local communities, state, and private sector (Paudel et al., 2012; Ojha et al., 2007).

4.4 The discrepancy between tenure policy and practice

So, what explains such a discrepancy between policy and legal framework? We have identified four explanatory factors that help us understand the gaps between broader policy statements and actual tenure in practice:

- First, policies and laws are often influenced by political actors, while regulatory instruments and everyday practice are controlled by bureaucracy.
- Second, unequal power relations at every level of Nepalese society imply that local communities are weaker than officials and poor and marginalized groups are weaker even within CFUGs.
- Third, fast-moving socio-economic dynamics and slow-moving forest policy process means that given rights are becoming less relevant to the communities.
- Fourth, poor governance of state, private, and civic institutions has shaped the tenure security outcomes at the local level.

4.4.1 Absence of political oversight

The variation between higher-order policy and legal provisions on the one hand and the specific regulatory instruments and administrative culture on the other can be described by different processes of their development. Broader policy statements generally grant more rights, as CF policy and laws were developed usually through a broad range of stakeholder engagement. The process and the

draft content were often subjected to wider scrutiny, including international environmental discourses and national development frameworks. When the government tabled the draft bill of the Forest Act 2019, it received significant attention from members of the parliament, the private sector, and civil society actors. The parliamentary committee consulted with dozens of forestry experts and other relevant actors. The policy statements and legal provisions were scrutinized against broader policy thrusts and commitments of the political parties and the government. In the case of regulatory instruments, the forest officers framed, drafted, and finalized them; however, these did not get to the parliament. Many of such instruments were approved at the Ministry's secretary level without any political oversight. Usually, forest officials develop these regulatory instruments based on administrative rationale and convenience in implementation. They often tend to protect their own interests by expanding their discretionary powers and shifting the burden to communities. During the implementation, the officials often interpret the legal provisions through their administrative glass.

4.4.2 Unequal power relations

Unequal power relations among government officials, CFUG leaders, and ordinary CF members help explain the weakening of tenure in practice in Nepal's CF. Forest officials are empowered by their administrative authority and technical knowledge at their disposal, usually in the form of techno-bureaucratic power (Ojha, 2006). Their position as forest administrators, expertise in technical forestry, and knowledge of the regulatory requirements put them in a relatively advantageous position over CFUG leaders. Moreover, the discretionary power of forest officials helps them exercise power in many unwritten areas of OP approval, issuing of permits, or supporting CFUGs in their institutional development. However, CFUG leaders are often loyal to the officials because of the high regulatory and administrative requirements that are usually difficult to meet, weak technical knowledge and legal awareness, and pressure of satisfying CFUG members' forest product needs and development expectations.

A similar imbalance of power often exists between the CFUG leaders and ordinary members. Elite capture is a common phenomenon in Nepal's CF, where economically well-off males, often from the dominant caste groups, tend to hold the key position in CFUG leadership (Persha & Andersson, 2014). Many of these leaders adopt authoritarian behavior with exclusionary decisions and practices that undermine the tenure security of the poor, women, *Dalits*, *Janajatis*, and *Madhesis*,[3] among others. Although some provisions to ensure inclusive representation and equitable benefits are made, marginalized groups' access to forest resources and associated benefits continue to face challenges (Sunam & McCarthy, 2010). A persistent challenge arises from intersectional inequalities based on economic status, gender, caste/ethnicity, and spatial residence.

4.4.3 Socio-economic changes

The regulatory framework and institutional practices appear less informed of the significant changes in livelihoods and social contexts (see chapter Dilli Poudel et al., this volume). For example, an interview with the members of Kalopani CFUG in Kavre district revealed that they manage almost 300 hectares (ha) of a good condition forest but import rice straw from *Terai* and animal feeds from Kathmandu. Contrary to these practical needs for fodder and grass, their OP focuses on pine timber. The large blocks of *Khasru* forest (fodder tree) are poorly managed. Similarly, blacksmiths of Shreechhap CFUG in Sindhupalchowk stated that they buy charcoal from other villages because they are prohibited from accessing and producing it within their own community forest. Both these CFs are pretty large, and there is no apparent issue with unsustainable harvesting. The problem is that what counts as forest and forest management is heavily inclined toward "forest tree species," and local people's needs for fodder trees or charcoal do not fit the standard framing of forest planning and management. Consequently, CF members are devoid of access to the specific forest biomass critical to their livelihoods.

In recent decades, emerging markets have offered two opportunities: (i) better prices for many forest products and services and (ii) availability of substitutes for forest products. The timber market has reached even remote districts. At the same time, the availability of cement, UPVC, and aluminum has substantially reduced the demand for timber, especially for softwood species such as pine. Contrary to these emerging trends, authorities often show biases against selling and trading of forest products. For example, for several years, DFO allowed CFUGs to harvest up to 85% of the annual allowable cut for internal use but only 60% for sale (ref. personal communication with FenFIT General Secretary). Harvest permits for internal use can be issued from the sub-division forest office but not for commercial use. Generally, CFUGs have to follow more exhaustive documentation and decisions for sale.

These days, societal values on forests and associated ecosystem services are changing. There is an increased appreciation of ecosystem services such as water, greenery, scenic beauty, and wildlife-based tourism. Accordingly, many CFUGs have now prioritized the protection of water sources and their management. Similarly, CFUGs can develop and sell nature-based recreational facilities such as ecotourism, picnic spots, mini-zoos, parks, and swimming pools. As per the Forest Act 2019, CFUGs can develop and get DFO's approval for a separate tourism plan and implement it (Article 18[7]). However, the integration of these emerging areas in the OP and its implementation remains slow (Ojha et al., 2022). Moreover, when CF is shifting away from subsistence use toward increased sale, trade, and enterprise management, the historical discrimination, marginalization, and exclusion of disadvantaged groups have become even more significant (Baral et al., 2024).

4.4.4 Poor governance

Poor governance of the forest sector, both outside the CFUG and within, determines the tenure in substantive ways. Forest governance in this context can be defined as how power is exercised in managing CF for productive, sustainable, and equitable outcomes (WB, 2003). It involves questions like who has power, who makes decisions, how stakeholders make their voices heard, or how accountability is rendered. From this perspective, the CF field can be a battlefield among three levels of governments, CFUGs and their federation – FECOFUN, forest product traders, development agencies – and other stakeholders.

Contestations over roles and responsibilities among political and bureaucratic institutions of three levels of government have resulted in stagnation of the federal-level strategic forest plan, blocking DFO's plan and, thereby, approval and implementation of OPs. The federal government has been unable to address the opposition of Federation Forest-based Industry and Trade, Nepal (FenFIT) and FECOFUN over some provisions of Forest Regulations that have blocked timber trade, undermining CFUGs' rights to harvest and sell timber. Similarly, a continued vacuum in a reasonably acceptable silvicultural modality has rendered an impasse in timber harvest in CF since 2020. While these governance challenges have weakened CFUGs' ability to manage, harvest, and sell or distribute forest products, poor, women, *Dalits*, and other disadvantaged groups suffer more.

4.5 Options for tenure security

Nepal's CF can be claimed as one of the early initiatives of forest tenure reform globally (Agrawal & Ostrom, 2001). The mosaic of forest-farm settlements and strong forest-people relations, especially in the hills, provided suitable ground for CF to flourish. Over the last four decades, robust legal and institutional foundations have been created to enable community management of resources. However, policy intention has been distorted in regulatory practice, creating significant uncertainty in tenurial security. In recent years, a widening gap has appeared between the existing tenure arrangement and actual tenure administration, impacting the motivation, enthusiasm, and incentives of forest dwellers, smallholders, and marginalized sections of the rural population involved in the management of Nepal's CF system.

Nepal's case of tenurial complexity offers some critical insights. The discrepancy between legal and regulatory frameworks on tenure arrangement and communities' sense of tenure security during actual practice reflects the complexity surrounding the conceptualization, policy framing, and regulatory implementation of forest tenure in the context of community-based management systems. Although policy rhetoric emphasizes devolution and community empowerment, the legal hierarchy – particularly at the operational levels, such as forest regulations and directives – often imposes restrictions on rights,

sometimes even contradicting the spirit of higher-level laws, including the constitution (Sunam et al., 2013). As discussed in the previous section, moving further to implementation brings issues of unequal power between communities and state agencies, discretionary powers of government officials, and prevailing biases against transacting with the market, all of which mediate translations of legal provisions in practice (Basnyat et al., 2018; Ojha et al., 2009). Meanwhile, changing socio-economic dynamics and livelihood patterns on the one hand and emerging environmental and market trends on the other demand shifting focus of tenure away from traditional products for sale, trade, and enterprises (Paudel et al., 2009). Unfortunately, the regulatory provisions and institutional practice do not seem to embrace and support such a shift fully. Table 4.2 outlines the gaps between tenure in paper and practice.

4.5.1 Robustness of rights

The legal analysis demonstrates that Nepal's CF is founded on a firm legal basis created by the parliament, embedded in the Constitution, and reinforced by other sectoral laws. As for the Forest Action 2019, the community rights are perpetual without any time limits. CFUGs enjoy a comprehensive bundle of rights: to manage, use, and sell forest products and associated ecosystem services by setting their price. The communities enjoy full benefits from the sale, can establish and operate forest-based enterprises, and can set management rules. They can also monitor and impose sanctions for any non-compliance.

However, the regulatory practice does not allow these rights to be realized fully. CF system is subjected to a historically entrenched techno-bureaucratic culture, in which regulatory practice brings restrictive administrative requirements in the use of forest products. Such restrictions favor administrative convenience, allowing little space for communities' collective choices (Basnyat et al., 2018; Ojha, 2006). In practice, the rights come with cumbersome conditions, many of which are either hard to meet or involve high transaction costs that directly reduce the incentive to invest time, effort, and resources in CF. More recently, policy uncertainty at the national level, lack of higher-level plans, or debates around forest management and silvicultural systems have further worsened regulatory complexity around the exercise of community rights (Timsina et al., 2021). Consequently, the communities are not able to fully access the bundle of rights associated with CF, limiting their ability to materialize the economic benefits of CF, particularly for the poor, women, *Dalits*, and other marginalized members.

4.5.2 Protection of rights

CF tenure includes complaint handling, conflict management, and provision of compensation for the loss of rights (Figure 4.1). Analysis of the legal provisions and institutional frameworks generally shows weak arrangements for providing these services. Although complaint handling is often prioritized as

one of the vital safeguard mechanisms, it remains largely absent in both state-community relations and within the institutional arrangement of CFUGs. The lack of a clear, transparent, and accessible mechanism for lodging complaints and addressing them implies that CFUGs cannot claim their rights in front of government officials, or marginalized groups of CF members cannot make legitimate claims to CFUG leaders. Similarly, because of the absence of an accessible and credible conflict management mechanism, hundreds of CFUGs are now crippled by increasing party politics and conflicts around the appropriation of CFUG funds. Unfortunately, forest officials are unable to respond and help resolve these conflicts.

There is also a lack of clarity on how community rights are safeguarded when they face pressures of alienation. For instance, while there is a provision for compensation if CF lands are allocated to national priority projects, no such compensation exists if the government alters the forest management modality. Past decisions of this nature, made without compensation, have significantly eroded the sense of ownership among affected communities (FECOFUN, 2009).

4.5.3 Assurance of rights

Active participation of diverse groups of local communities in the conservation and management of forests has presented CF as the largest civic environmental action in Nepal and also a significant one internationally (Paudel et al., 2012). A key aspect of civic action is the evolution and the nation-wide expansion of FECOFUN as the federated structure of CFUGs in providing a critical safeguard against any attempts to undermine community rights (Ojha et al., 2007; Paudel et al., 2012). FECOFUN has resisted many pressures targeting community rights – from top-down policy reversal attempts to the exclusionary process of expanding strictly protected areas to even marketization of forestry management without community rights safeguards. Although not without problems of elite capture and internal accountability lapses, FECOFUN's active engagement has significantly influenced communities' ability to assert and safeguard legal rights in community forests.

Nepal's CF offers a distinctive case of tenurial security in community-based forest management, yet with some parallels in other countries. There are similar tenure reform initiatives in India, China, Vietnam, the Philippines, Cameroon, Mexico, and Guatemala, which also experience challenges Nepal faces. While CF tenure in Nepal is more robust than India's Joint Forest Management, India's Forest Rights Act 2006 provides more robust and comprehensive rights to tribal communities, including rights to land and its management (Jamkar et al., 2023; Nandwani, 2022). Like Nepal, arduous challenges have been reported in implementing the Act. China's transfer of state-owned forestlands to collectives and individuals with certificates provides much stronger rights, including rights to subcontract, lease, or mortgage for 70 years (Ginsburg & Keene, 2020; Lin et al., 2018). The Forest Land Allocations program in Vietnam offers similar rights to that in China and is therefore

considered much stronger than Nepal's CF program (Aggarwal et al., 2021). While there are CF-like programs in the Philippines, Cameroon, and some Latin American countries, the CF members in Mexico have made visible benefits from timber trade (Bray, 2020).

4.6 Conclusion

Nepal's CF model, while celebrated for its strong legal tenure provisions, faces persistent challenges in translating these rights into meaningful practice. The gap between tenure as defined in law and tenure as experienced by communities is shaped by a regulatory environment that remains restrictive, complex, and often inconsistent. Despite policies that grant forest user groups the right to manage, use, and benefit from forest resources, the discretionary power of bureaucratic institutions and an entrenched techno-bureaucratic culture have placed significant constraints on how these rights are exercised. Without regulatory reforms that align with the intent of tenure devolution, the potential of CF to drive both conservation and rural livelihoods will remain underutilized.

At the heart of Nepal's CF tenure system is the dynamic and contested nature of tenure security. Tenure is not a static legal status but an ongoing negotiation shaped by relationships between communities, state authorities, market actors, and political institutions. While formal policies emphasize community rights, the lived reality of tenure is mediated by power struggles, elite influence within CFUGs, and the discretionary authority of government officials in approving OPs, harvesting permits, and market transactions. These forms of contestation highlight the need to view tenure security not just as a legal entitlement but as an evolving process that is constantly shaped by socio-political dynamics. In many community-based tenure systems, the extent to which local people benefit from tenure arrangements depends not only on the legal framework but also on their ability to engage in political advocacy, navigate regulatory complexities, and build alliances that can challenge restrictive practices. The role of community institutions, federations, and networks has been critical in asserting rights, yet the effectiveness of such mobilization depends on the broader political and governance context.

Nepal's changing economic and environmental landscape further underscores the need for tenure arrangements that are adaptive, transparent, and responsive to emerging opportunities. While forest tenure policies were initially designed around subsistence use and conservation, the growing commercial potential of forest-based enterprises, ecosystem services, and carbon markets requires tenure security that extends beyond legal recognition to practical ease of implementation. A tenure regime that continues to impose excessive administrative burdens, uncertainties over rights to trade and market access, and inconsistent enforcement of rules will deter long-term community investment in forest management. Simplified and predictable regulatory processes, combined with trust-building between communities and the state, will be crucial for the revitalization of CF in Nepal. Ultimately, the success of tenure reforms will

not be measured solely by legal provisions but by how effectively they enable communities to manage forests in ways that are both economically viable and ecologically sustainable. Supportive regulatory environment, adaptive governance structures, and policies conducive to secure resource tenure for local communities are the key to achieving twin goals of forest restoration and equitable livelihoods.

Notes

1 The government declared: (i) Gaurishankar Conservation Area on 11 January 2010 in which 57 CFUGs were brought into the new system of conservation area, (ii) Chure Environment Protection Area on 14 July 2014 covering entire *Chure* landscape with 12.8% of national geography in which over 4000 CFUGs were affected, and (iii) Fulchowki Forest Protection Area in which six CFUGs were affected.
2 This figure is a sum of last five fiscal years based on CIAA annual reports (fiscal year 2018/19 to 2022/23).
3 Women, Dalits, Janajatis, Madhesis, and the poor are among the marginalized social groups identified by the constitution of Nepal 42(1). Accordingly, there are some constitutional and legal provisions for positive discrimination of these groups.

References

Aggarwal, S., Larson, A., McDermott, C., Katila, P., & Giessen, L. (2021). Tenure reform for better forestry: An unfinished policy agenda. *Forest Policy and Economics*, *123*, 102376. https://doi.org/10.1016/j.forpol.2020.102376

Agrawal, A., & Ostrom, E. (2001). Collective action, property rights, and decentralization in resource use in India and Nepal. *Politics & Society*, *29*(4), 485–514.

Banjade, M. R., Paudel, N. S., & Mwangi, E. (2017). Political economy of forest tenure reform implementation in Nepal: Evolution, contestation, outcomes and challenges. *Journal of Forest and Livelihood*, *15*(1), 1–14.

Banjade, M.R., Paudel, N.S., Jha, B.N., Poudel, M., Shrestha, K.K., & Ojha, H. (2021). Developing a partnership framework between community forestry and local governments under federalism in Nepal. Research Paper Series on Agroforestry and Community Forestry in Nepal, 2021-04, 1–10.

Baral, S., Meilby, H., Chettri, B. B. K., Basnyat, B., Rayamajhi, S., & Awale, S. (2018). Politics of getting the numbers right: Community Forest Inventory of Nepal. *Forest Policy and Economics*, *91*, 19–26.

Baral, S., Shrestha, K., & Tiwari, S. (2024). Persistence of women's exclusion in Nepal's Community Forestry Practice. *Geoforum*, *155*(104092). 1–13.

Basnyat, B., Treue, T., Pokharel, R. K., Lamsal, L. N., & Rayamajhi, S. (2018). Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, *91*, 5–18. https://doi.org/10.1016/j.forpol.2017.08.010

Bhatta, K.P., Johns, C., Paudel, N.S. and Karki, R. (2022). Promoting inclusive and equitable timber business in Nepalese hills: A case of Sindhupalchok and Kavrepalanchowk. *Research Paper Series on Agroforestry and Community Forestry in Nepal, 2022-04*.

Bray, D. B., Antinori, C., & Torres-Rojo, J. M. (2006). The Mexican model of community forest management: The role of agrarian policy, forest policy and entrepreneurial organization. *Forest Policy and Economics*, *8*(4), 470–484.

Bray, D. B. (2020). It takes communities to save forests. *Nature Sustainability*, *4*(3), 190–191.

Bruce, J.W. (1989). *Community Forestry Rapid Appraisal of Trees and Land tTenure. Forest, Trees and People Community Forestry*. Community Forestry Note 5. FAO.

Cronkleton, P., & Larson, A. (2015). Formalization and collective appropriation of space on forest frontiers: comparing communal and individual property systems in the Peruvian and Ecuadoran Amazon. *Society & Natural Resources*, *28*(5), 496–512.

Cronkleton, P., Pulhin, J., & Saigal, S. (2012). Co-management in community forestry: How the partial devolution of management rights creates challenges for forest communities. *Conservation and Society*, *10*(2), 91.

Dahal, G. R., Pokharel, B. K., Khanal, D. R., & Pokhrel, P. R. (2017). Why does tenure security matter in community forestry? A critical reflection from Nepal. *Journal of Forest and Livelihood*, *15*(1), 15–26.

Ellsworth, L. & White, A. (2004). *Deeper roots: Strengthening community tenure security and community livelihoods*. Ford Foundation, Washington DC.

FECOFUN. (2009). Withdraw the Declaration of Protected Area. Press Release. Federation of Community Forest Users Nepal (FECOFUN). 04 December 2009.

Ginsburg, C., & Keene, S. (2020). At a crossroads: Consequential trends in recognition of community-based forest tenure from 2002–2017. *China Economic Journal*, *13*(2), 223–248. https://doi.org/10.1080/17538963.2020.1755129

Gritten, D., Paudel NS, Luintel, H., Khatri, DB, Atkinson, J., Bampton, J., Mohns, B., & Bhandari, K. (2014). Enabling forest users in Nepal to exercise their rights: Rethinking regulatory barriers to communities and smallholders earning their living from timber. In P. Katila, G. Galloway, W. de Jong, P. Pacheco, & G. Mery (Eds.), *Forests under pressure: Local responses to global issues*. IUFRO World Series Volume 32, (pp. 275–284). Vianna.

Jamkar, V., Butler, M., & Current, D. (2023). Barriers and facilitators for successful community forestry: Lessons learned and practical applications from case studies in India and Guatemala. *Case Studies in the Environment*, *7*(1). https://doi.org/10.1525/cse.2023.1827932

Larson, A. M., & Dahal, G. R. (2012). Introduction: Forest tenure reform: New resource rights for forest-based communities? *Conservation & Society*, *10*(2), 77–90.

Larson, A. M., Monterroso, I., Liswanti, N., Tamara, A. (2023) What is forest tenure (in)security? Insights from participatory perspective analysis. Forest Policy and Economics. *147*, 1–16. https://doi.org/10.1016/j.forpol.2022.102880

Lin, Y., Qu, M., Liu, C., & Yao, S. (2018). Land tenure, logging rights, and tree planting: Empirical evidence from smallholders in China. *China Economic Review*, *60*, 101215. https://doi.org/10.1016/j.chieco.2018.08.011

Malla, Y. B. (2001). Changing policies and the persistence of patron-client relations in Nepal: Stakeholders' responses to changes in forest policies. *Environmental history*, 6(2). 287–307.

Meinzen-Dick, R., Doss, C., Flintan, F., Knight, R., Larson, A.M., & Monterros, I. (2021). *Women's Tenure Security on Collective Lands: A Conceptual Framework*. IFPRI Discussion Paper 02074.

MoLJPA (Ministry of Law Justice and Parliamentary Affairs). (2015). *Constitution of Nepal*. Government of Nepal.

MoLJPA (2017). *Local Government Operation Act 2074*. Government of Nepal.

MoLJPA (2019). *Forest Act 2019*. Government of Nepal.

MoLJPA (2022). *Forest Regulations 2022*. Government of Nepal.

Mwangi, E., & Meinzen-Dick, R. (2009). Understanding property rights in land and natural resource management. In J.F. Kirsten, A.R. Doward, C. Poulton, & N. Vink (Eds.), *Institutional Economics Perspectives on African Agricultural Development*, (pp. 295–318). International Food Policy Research Institute (IFPRI). https://www.ifpri.org/publication/understanding-property-rights-land-and-natural-resource-management-0/

Myers, R., Fisher, M., Monterroso, I., Liswanti, N., Maryudi, A., Larson, A. M., Mwangi, E., & Herawati, T. (2022). Coordinating forest tenure reform: Objectives, resources and relations in Indonesia, Kenya, Nepal, Peru, and Uganda. *Forest Policy and Economics*, *139*, 102718. https://doi.org/10.1016/j.forpol.2022.102718

Nandwani, B. (2022). Community forestry and its implications for land related disputes: Evidence from India. *European Journal of Political Economy*, *73*, 102155. https://doi.org/10.1016/j.ejpoleco.2021.102155

Ojha, H. (2014). Beyond the "local community": the evolution of multi-scale politics in Nepal's community forestry regimes. *The International Forestry Review*, *16*(3), 339–353.

Ojha, H., Khanal, D.R., Paudel, N.S., Sharma, H., & Pathak, B. (2007). *Federation of community forest user groups in Nepal: An innovation in democratic forest governance*. *Proceedings of the International Conference on Poverty Reduction and Forests*. RECOFTC-RRI, Bangkok, Thailand, September.

Ojha, H., Paudel, N.S., Timsina, J., Chaudhary, S., Baral, H. (2022). Ecosystems services from community forestry: Prospects and challenges for improving local livelihoods in Nepal. In: Timsina, J., Maraseni, T.N., Gauchan, D., Adhikari, J., Ojha, H. (eds) *Agriculture, Natural Resources and Food Security*. Sustainable Development Goals Series. Springer, Cham. https://doi.org/10.1007/978-3-031-09555-9_19

Ojha, H. (2006). Techno-bureaucratic Doxa and challenges for deliberative governance: The case of community forestry policy and practice in Nepal. *Policy and Society 25*(2), 1–45.

Ojha, H. R., Cameron, J., & Kumar, C. (2009). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, *11*(5–6), 365–374. https://doi.org/10.1016/j.forpol.2008.11.003

Paudel, N. S., Banjade, M. R., & Dahal, G. R. (2008). Handover of community forestry: A political decision or a technical process? *Journal of Forest and Livelihoods 7*(1), 27–35.

Paudel, N.S., Banjade, M. R., & Dahal, G. R. (2009). *Community forestry in changing context: Emerging market opportunities and tenure rights*. ForestAction and CIFOR. Kathmandu.

Paudel, N. S., Monterroso, I., & Cronkleton, P. (2012). Secondary Level Organisations and the Democratisation of Forest Governance: Case Studies from Nepal and Guatemala. *Conservation & Society*, *10*(2), 124–135.

Persha, L. and Andersson, K. (2014). Elite capture risk and mitigation in decentralized forest governance. *Global Environmental Change*, *24*, 265–276.

Ribot, J. C., Agrawal, A., & Larson, A. M. (2006). Recentralizing while decentralizing: How national governments reappropriate forest resources. *World Development*, *34*(11), 1864–1886.

Rutt, R. L., Chhetri, B. B. K., Pokharel, R., Rayamajhi, S., Tiwari, K., & Treue, T. (2014). The scientific framing of forestry decentralization in Nepal. *Forest Policy and Economics*, *60*, 50–61.

Schlager, E., & Ostrom, E. (1992). Property-rights regimes and natural resources: A conceptual analysis. *Land Economics*, *68*(3), 249–262.

Sharma, B. P., Lawry, S., Paudel, N. S., McLain, R., Adhikary, A., & Banjade, M. R. (2020). Operationalizing a framework for assessing the enabling environment for community forest enterprises: A case study from Nepal. *Small-scale Forestry*, *19*(1), 83–106. https://doi.org/10.1007/s11842-020-09433-w

Sikor, T., He, J., & Lestrelin, G. (2017). Property rights regimes and natural resources: A conceptual analysis revisited. *World Development*, *93*, 337–349. https://doi.org/10.1016/j.worlddev.2016.12.032

Sunam, R. K., & McCarthy, J. F. (2010). Advancing equity in community forestry: Recognition of the poor matters. *The International Forestry Review*, *12*(4), 370–382.

Sunam, R. K., Paudel, N. S., & Paudel, G. (2013). Community forestry and the threat of recentralization in Nepal: Contesting the bureaucratic hegemony in policy process. *Society & Natural Resources*, *26*(12), 1407–1421. https://doi.org/10.1080/08941920.2013.799725

Timsina, S., Basyal, M., Dahal, K., Karki, R. and Paudel, N.S. (2021). What is Choking Nepal's domestic timber supply? *Journal of Forest and Livelihood*, 20(1), 62–77.

5 Cross-scale governance

Technocracy and local resistance in community forestry in Nepal

Mani Ram Banjade, Naya S. Paudel, Hemant Ojha, and Bharat Pokharel

5.1 Introduction: Community forestry as a contested landscape

Community forestry (CF) in Nepal is a contested system involving multiple actors. In July 2010, Nepal's Ministry of Forest and Soil Conservation proposed amending the Forest Act 1993 to impose restrictions on CF rights, increase the role of government forestry agencies, and impose up to 50% tax on forest product sales, among others. The amendment, proposed without stakeholder consultation, including CF leaders, was highly contested (Dahal, 2012; Sunam et al., 2012), forcing the government to withdraw the proposal. Civil Society Organizations (CSOs) opposed the proposed amendments arguing that they would harm collective actions in forest commons. They protested through various means, including wider stakeholder dialogues, joint press releases, media mobilization, mass meetings, and street protests, generating pressure on the government to withdraw the proposal (Sunam et al., 2012). This was a clear example of the interplay of knowledge and power, with techno-bureaucrats, local forest users, civil society networks, NGOs, and aid agencies employing issue-specific contestations and formed compacts. It demonstrates how actors at different levels deploy their power and influence to shape CF policy and practice.

Contestation in Nepal's CF is historically entrenched, in struggles over who controls resources, whose knowledge counts, and who benefits (Basnyat et al., 2018; Bhattarai et al., 2002; Malla, 2001; Nightingale et al., 2018; Ojha, 2008; Pokharel, 1997). Although the Forest Act 1993 (and its 2019 revision) recognize the rights of community forest user groups (CFUGs) (Lienert & Burger, 2015), policy formulation or regulatory amendment is characterized by civil protests, organized resistance, or intense conflicts (Ojha et al., 2015). At the beginning of CF in the 1970s, forest restoration was the primary goal where government agencies, local communities, and supporting agencies, including CSOs, worked collaboratively. Over time, however, it became an intensive playing field among diverse state and non-state actors forming compacts and consensus on certain policy decisions while contesting over others. In this chapter

DOI: 10.4324/9781032705613-7
This chapter has been made available under a CC BY-NC-ND license.

"compact" refers to all overt and covert associations aimed at defending or extending influence over others in terms of power or knowledge.

CF is a cross-scalar system of interaction, hence the phrase community forestry system (CFS) is used as referred to by Ojha et al. in the Introduction chapter of this book. This is akin to what a French sociologist refers to as a "social field" that offers a site for practice and social contestations (Fligstein & McAdam, 2015). Using this analytical lens, we explore how different actors mobilize their knowledge, power, and resources in three themes of CFS: (i) discourse production and mobilization, (ii) policy formulation and revision, and (iii) program implementation. These themes intersect with six domains of contention and compacts discussed in the next section. The six key domains of contention and compact in CF are outlined in Figure 5.1.

Section 5.2 describes the stakeholder landscape, and Section 5.3 offers a discussion of six key frontiers of knowledge and power coalition and contestation in Nepal's CF, highlighting the "deliberative deficit." Section 5.4 explores deliberative governance as a practical approach to managing contestations through reciprocity, inclusiveness, and mutual learning. Finally, Section 5.5 concludes with some lessons for sustaining Nepal's CFS.

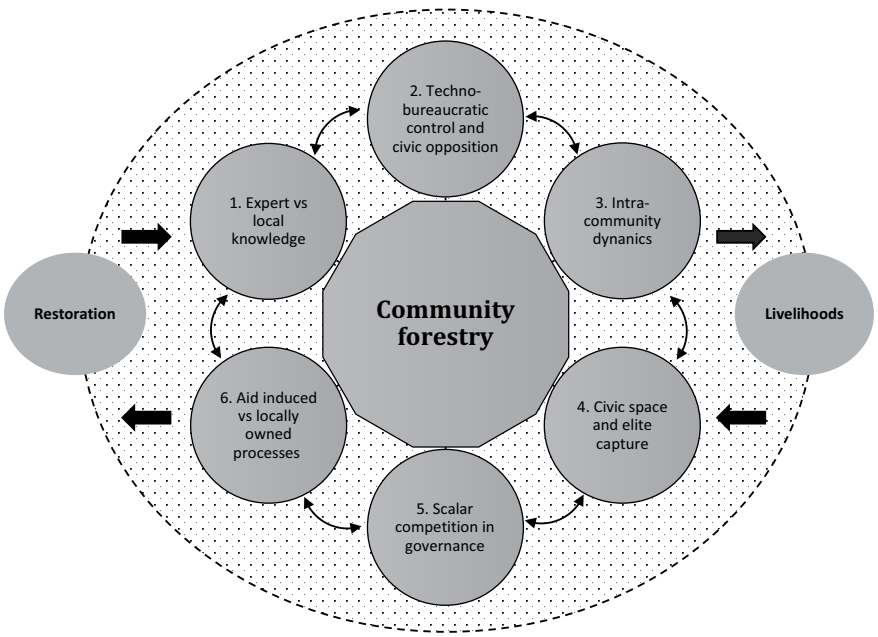

Figure 5.1 The six key frontiers of compact and contention in Nepal's community forestry.

Source: Authors.

5.2 Changing stakeholder landscape

Nepal's CF has evolved from a local-scale practice into a multi-scale system. Historically, the state has owned and regulated almost all forestlands, granting large portions to the Rana families or their confidants through *Jagir* (as remuneration of service) and *Birta* (gifting of land to priests, religious teachers, soldiers, and families and those loyal to the Rana rulers). By the 1950s, almost one-third of Nepal's total land was under the *Birta* tenure (Regmi, 1978). After nationalizing forests in 1957, the government strengthened its control through a series of legal and regulatory instruments (Hobley, 1996; Regmi, 1978). However, as these policies alienated local communities, resulting in heavy deforestation and degradation (Eckholm, 1975), the government introduced CF in the late 1970s (Gilmour & Fisher, 1991; Hobley, 1996; Malla, 2001) as a community-based approaches to forest management. Donor agencies entered Nepal in the early 1950s, beginning with the Swiss Agency in 1951, followed by the USAID in 1952. By the 1960s, foreign aid supported forest development through massive plantations, later expanding to participatory forestry by the 1970s (Nuberg et al., 2019).

Since the mid-1980s, senior forestry officials and experts involved in aid projects started to explore alternative institutional forms, which resulted in the current form of user group-based CF. The establishment of the Federation of Community Forestry Users Nepal (FECOFUN) in 1995 became instrumental in bringing community perspectives and voices into the policy arena (Ojha, 2009; Paudel et al., 2012b).

The post-1990 multi-party democratic era saw the emergence of CSOs, political parties, human rights, and environmental groups, resulting in a complex institutional landscape, fostering inclusive, deliberative practices, and a democratic public sphere. CF now operates within a multi-level governance system, involving actors at community, local government, district/division, province, federal, and international levels (Banjade, 2014; Banjade et al., 2021). Though the larger national polity provided a relatively inclusive framework for forest policies, techno-bureaucratic attitude still dominates the regulatory provisions and institutional practice (Bhattarai et al., 2002; Gautam et al., 2004; Malla, 2001; Ojha, 2006).

A unique characteristic of Nepal's CF is that the basic unit of the CFUG is independent of the government's political boundaries, such as (rural) municipalities or districts. Ironically, this fact was a significant reason why CF survived during the 1995–2006 armed conflict.

5.3 Frontiers of contestations

5.3.1 Expert versus local knowledge

The tension between expert and community knowledge is a recurrent issue in Nepal's CFS, with state foresters imposing technocratic knowledge (Bashnyat

et al., 2018). For example, forestry expert knowledge dictates methods for resource assessment, block division, and allowable harvest calculations. Centuries-long indigenous, local knowledge is largely disregarded in management practices (Banjade, 2014; Gilmour & Fisher, 1991; Pokharel, 1997).

Over two decades of research and practice in Nepal's CF, often observed numerous cases of modern forest science downplaying the role and efficacy of local traditional knowledge (Basnyat et al., 2018; Basnyat et al., 2020). Government forest staff involvement in decision-making reinforce this technocratic dominance in forest management (Basnyat et al., 2020; Magessa et al., 2020). Frontline forest officials exercise their discretionary power in formally transferring management rights to local communities and regulating their exercise, specifically institutional governance, forest management, and financial operations (Banjade et al., 2017; Ojha, 2006). They shaped the objectives of CFUGs and promoted their "scientific forestry" agenda, tactically maneuvering the practices in the name of technical support (Thoms, 2011). This subjugated local knowledge due to unequal power relationships, even within participatory planning and decision-making (Ojha et al., 2014; Pokharel, 1997).

Additionally, forest agencies imposed stricter conditions and scrutiny for extracting forest products (usually requiring more intense use of formal forest science inventory methods) (see Tiwari et al., this volume). Forest officials and technicians have introduced a range of scientific tools aimed at effective management of CF, often resulting in establishing their dominance and marginalizing local people. The introduction of inventory-based forest resource management in early 2000 (Ojha, 2002), mandatory environmental impact assessment above certain forest areas, and too many stages of application and documentation during timber harvest and sale (Timsina et al., 2021) are some of the examples of such techno-bureaucratic approach to CF. Making inventory-based resource assessment mandatory for the development and revision of forest management plans has compelled communities to rely on external experts that ignore local knowledge and capacity while incurring high costs. This has led to a persistent backlog of OP revisions, which has now reached over 50% (FECOFUN, 2024; Paudel et al., 2008). The technical and administrative requirements discourage CFUGs from entering the market, stagnating forest management, trading, and enterprise development (see Paudel et al., this volume). While CF program was incepted to capitalize on the indigenous knowledge, institutions, and practices around forest governance, it has increasingly exhibited instances of bureaucratic control through the administrative authority and technical expertise (Baral, 2018; Ojha, 2006). Legal devolution of forest management rights to local communities is often compromised by prescriptive forest management technologies and administrative procedures.

Several studies have suggested that integrating expert and local knowledge improved deliberative practices (Banjade, 2014; Ojha et al., 2010; Ojha et al., 2014). The imposition of technocratic knowledge, legitimated by positivist science, should be scrutinized through deliberative processes that foster reflection and knowledge exchange. Given the complexity of people-nature relations in

CFS, engaging both local and scientific knowledge systems is critical for effective forest management and harnessing benefits from them (Ojha et al., 2014).

Wider debates on participatory governance (Chambers, 1983) also challenged the expert-led and top-down approaches, favoring local knowledge and worldviews in environmental management and community development (Mansuri & Rao, 2013). Centralized and expert-led approaches, often treated local people as a threat to conservation (Fisher et al., 2005), and undermined indigenous knowledge (Gilmour & Fisher, 1991) in the face of "superior" "scientific" knowledge. Centralization, in fact, undermined the traditional rights, knowledge, and customs of local people, resulting in forest destruction. Ideally, a participatory approach to forest management shifts the focus from technical fixes to a holistic approach that recognizes the importance of local communities (Gilmour, 1988; Gilmour & Fisher, 1991; Hobley, 1996) and fosters collaboration between the government officials and CFUGs.

5.3.2 Techno-bureaucratic control and civic opposition

Promoting science-based management, particularly in CF, marginalizes local knowledge and practices, serving as a strategy for techno-bureaucratic control (Baral, 2018). Recentralization efforts may include techno-bureaucratic domination over other forms of knowledge systems (Ojha, 2006) reinforced by operational strategies and policies favoring forest bureaucrats (Baral, 2018). CFUGs are mandated to comply with administrative and technical requirements, such as undertaking highly technical resource inventories, following the "technical" government instructions, submitting periodic progress reports to the District Forest Office (DFO), and obtaining permissions for forest product extraction even when following their OP prescriptions. This techno-bureaucratic control is reinforced through legal and technical justifications (Basnyat et al., 2023). FECOFUN and other CSOs have expressed their opposition, raising their concerns in bilateral meetings and public events, press releases, protest campaigns, and publications (FECOFUN, 2024; Paudel et al., 2012b).

The introduction of new agendas, such as climate change and commercial exploitation of community forests, has further increased the risk of decentralization and undermined local autonomy (Khatri, 2018). Local elites, the private sector, and forest agencies often collude, sidelining forest health and users' interests (Baral, 2018; Basnyat et al., 2020; Goutam, 2017; Khatri, 2018). Additionally, the upward accountability in CF questions Nepal's decentralized forest management modality (Baral, 2018). As debates around climate and forestry policies intensify, CF networks, including the FECOFUN are championing the voice of local communities.

We have observed both highly consultative, deliberative approaches and more techno-bureaucratic, top-down controls in policymaking. A key example of a highly consultative approach is the revision of the CF Guidelines in 2008, which involved extensive consultations with CFUGs and other stakeholders, including government officials, FECOFUN, NGOs, and the private sector.

This inclusive process led to widely accepted guidelines that promoted inclusive, equitable, and democratic practices on the ground.

In contrast, the "Scientific Forest Management (SciFM) Procedure 2014" was developed primarily by the Department of Forests (DoF) and approved by the Ministry of Forest and Soil Conservation with limited stakeholder consultation (Department of Forests, 2014), sparking strong opposition from FECOFUN and CSOs over the exclusion of key stakeholders in the decision-making processes and raising concerns about corruption, policy/legal uncertainty, and managerial inefficiency (Joshi et al., 2018). Despite initially being implemented in the Terai Sal forests and later expanded to some hill forests, the SciFM program encountered persistent opposition due to concerns about its technical justifications, governance issues, and exclusionary practices.

Lack of prior experience in extractive management of forests and governance issues (e.g., corruption in the form of OP preparation and timber extraction) were arguably used for the opposition to the SciFM program (FECOFUN, 2024; Goutam, 2017). The issue of corruption and "excessive" timber extraction in Terai drew significant attention through media discourse and conventional wisdom that felling a green tree is essentially a bad conduct (Banjade, 2012). This led to investigations by two federal parliamentary sub-committees and a high-level government committee in June 2020. Both committees recommended repealing the SciFM program, leading to a long hiatus of forest management, impacting thousands of CFUGs and causing the loss of forest products and income. All the seven networks related to forest technicians have opposed the repeal, blaming the government for undermining the established norms and principles of forest science.[1] In all these and emerging cases of contestation between techno-bureaucratic and civic powers, Nepal's CFS is constantly evolving.

5.3.3 Intra-community dynamics

The community within CF hosts complex dynamics of contention and compact, often dominated by local elites who capture leadership positions and channel benefits (Iversen et al., 2006; see Khatri et al., this volume; Tiwari et al., this volume). In its early days, CF's, rapid hand over to communities promoted elite capture in decision-making spaces, resulting in exclusionary institutions and practices (Agarwal, 2001). Many CFUG leaders have held committee positions for the last two to three decades, with well-off households benefiting disproportionately (Iversen et al., 2006), while women, *Dalits*, the poor, and marginalized groups remain excluded (Baral et al. this volume; Khadka et al., 2014). Despite significant attempts to increase representation and augment the voice of women and marginalized groups in CFUGs, exclusion and the lack of equitable benefit-sharing persist (Baral et al., 2024; Khadka et al., 2014). Within CFUGs, significant areas of contestation surfaced when local elites or political parties demonstrated their tacit or explicit interest in placing their cadres in key leadership positions. In addition,

dominant narratives within CFUGs observed in the form of equal contributions and equal share of benefits often guided the benefit sharing. While some CFUGs have attempted to implement differential pricing of forest products to benefit poor members relatively better-off members continue to gain larger shares of forest products at a subsidized price, which some scholars termed "hidden subsidy" (Iversen et al., 2006).

The role of gender and social inclusion in forest management has also been contentious, with challenges in mainstreaming gender into forest development policies (Khadka et al., 2014). Often, hill, male, and upper-caste members form the elite group hold most positions and siphon the benefits. This reflects broader intra-community dynamics, where local leaders are complicit with forest product traders and forest officials to serve their interests (see Khatri et al., this volume). Such complex intra-community dynamics present a challenge in creating inclusive institutional arrangements within CFUGs and in fostering equitable decision-making and benefit-sharing practices. This challenge becomes even more complicated when the community-level dynamics intersect with multi-level political processes as outlined later.

5.3.4 Civic space and elite capture

Nepal's CFS, probably the most extensive civic action in environment and development, demonstrates how ecological forest management gets embroiled in the larger politics seeking inclusion and resisting elite capture. CF is not just about technical forest management. It has mobilized millions of people in diverse institutional activities, collaboration and contestation with government authorities, engaging with professional groups, the private sector, and development partners, and networking with national and international civic movements. Over the four decades, CF development has faced several recentralization efforts by the state (Basnyat et al., 2020; Ribot et al., 2006), including exhaustive regulatory and administrative requirements, empowering forest officials, and declaring CFs as protected forest areas. In response, civic actions, such as public awareness campaigns, boycotting, lobbying, press releases, mass meetings, padlocking forest offices, street protests, and strikes, have been organized (FECOFUN, 2024). Sometimes, these actions gradually emerged as broader social movements on human rights and democracy (Paudel et al., 2012a).

FECOFUN, founded in 1995, has remained the icon of this social movement, advocating for decentralized and participatory forest management, challenging the recentralizing tendency of the state and the market (Britt, 2002; Ojha, 2009; Paudel et al., 2012b). However, social movements around CF, especially those led by FECOFUN, sometimes tend to adopt more centralized agendas and approaches that fail to adequately address specific local issues in forest management, governance, benefit sharing, or dealing with the market (Ojha, 2009). Additionally, many of its senior leaders are visibly aligned with one or another political party. While this offers an opportunity to leverage

their political capital in feeding many of the movement's agendas to mainstream politics and policymaking, it also has certain drawbacks. The larger social image of CF is corroborated with FECOFUN, and its leadership's positioning shapes its image of FECOFUN. When a senior leader is active in a political party, their political positioning is blended with FECOFUN.

Policy revisions have often demonstrated the discrepancy between formal policy processes and the actual drafting of policy contents, with political connections and interest groups shaping policy outcomes. For example, FECOFUN mobilized their political connections to revise the content of the Forest Bill in 2019 and to stop SciFM. Despite this, policies such as bans on green tree felling for five years in 1999, a total ban on timber harvest and transport imposed in 2010 (Banjade, 2012), adoption of "Scientific Forest Management Guidelines 2014" by the federal government without adequate consultation with stakeholders, and halt of SciFM program by the government in 2021 demonstrate the persistent contestation among the government, techno-bureaucrats, and other stakeholders.

As the neoliberal economy has expanded, civic actions around CF increasingly confront the private sector and regressive government forces. Traditional volunteerism is becoming feeble due to rising living costs, monetization of the local economy, and increasing opportunity costs. In this context, leaders who can access aid funds or direct forest benefits maintain their volunteerism, while those from poor and marginalized groups struggle to support and sustain their involvement. Moreover, the increasing reliance of civic action on shrinking aid funds has given donors and governments more influence over advocacy agendas and strategies.

Throughout the development of CF, civic actions are consolidated and federated around FECOFUN. However, as the organization grew and gathered more authority and resources, it gradually lost its dynamics and flexibility. In addition, it also developed a defensive routine (Argyris, 1993), discouraging active learning, experimentation, and innovation. Some of these cases include: (i) exploring innovative partnerships with the private sector in forest management and enterprise development, (ii) categorization of CFUGs and devising differential regulatory and administrative requirements, (iii) bringing institutional innovations in the context of changing forest-people relations, (iv) new arrangements for service provisioning, (v) exploring new silvicultural systems in the age of climate change risks. Consequently, civic actions and social movements around CF, once a source of social change, have become a force of stagnation, prioritizing the status quo.

Similarly, as CF became a more formidable civic movement, critiques say it has been disproportionately shaped by hill-based people and failed to reflect the important issues of inclusion and equity in the Terai region (Ojha, 2009). Since the early 2000s, the Terai-based political parties opposed the CF program, arguing that the high-value forest was being handed over to the recently migrated people from the hills. They argued that CF excluded the Madhesi people.

5.3.5 Scalar competition in governance

Nepal's transition to a federal system has introduced new dynamics of scalar competition in the governance of CF. The 2015 Constitution devolved significant authority over natural resources, including forests, especially to provincial governments (Pokharel et al., 2020). However, the specific roles and responsibilities of each level of government in CF remain ambiguous, leading to contestations and competing claims of authority (Dahal et al., 2021).

At the federal level, the Ministry of Forests and Environment and the Department of Forests and Soil Conservation continue to influence CF policies and regulations (Banjade et al., 2021). The Forest Act 2019 and the Forest Regulations 2022 provide the overarching legal framework for CF governance. However, provincial governments have also started to assert their authority by formulating their own forest acts, which sometimes conflict with federal policies (Paudel et al., 2022).

Local governments, empowered by the Local Government Operation Act 2017, have increasingly engaged with CFUGs and influenced their decision-making processes. Some local governments have allocated budgets for CF-related activities (Banjade et al., 2021) but specific mechanisms for collaboration and coordination between local governments and CFUGs remain unclear, potentially causing tensions and power struggles. Despite constitutional mandates for cooperation between different levels of government, the federal and provincial government forest agencies hesitate to transfer roles and powers to the local governments (Pokharel et al., 2020). For example, the federal government consistently tried to retain some level of control in forest governance by keeping DFOs under federal control despite national forests falling under provincial jurisdiction, but DFOs were later brought under provincial jurisdiction to maintain the spirit of federalism.

There are confusions and jurisdictional conflicts on who holds what authority in forest governance among the three levels of the state. With federalism in place, local governments expected more control over natural resources as Schedule 9 of the 2015 Constitution keeps certain aspects of forestry under concurrent power between federal, provincial, and local governments. In that spirit, the Local Government Operational Act 2017 offered a greater role to local governments in the governance of community and private forestry, which was later constricted by the Forest Act 2019 and Forest Regulations 2022. The current regulatory framework recognizes the cursory role of local governments in providing suggestions to CFUGs or the latter to coordinate with the respective local government while developing poverty reduction and community development-related plans.

Following federalism, the elected local governments, with strong popular mandates, have started showing interest in CF governance and developing engagement strategies with the CFUGs, demanding transparency of group governance and fund mobilization. The laws prepared by local governments in many places have jurisdictions that overlap with those of DFOs and CFUGs,

which at times could be a potential source of contestation. There is also an opportunity for local governments to partner with CFUGs to maximize local benefits and ensure environmental sustainability. However, a significant gap in knowledge and policy exists as to how, when, and why an effective partnership between local governments and CFUGs can be developed and nurtured (Banjade et al., 2021). Possible areas of contestation include local government leader's attempt to constrain CFUGs; local governments attempt to use CF land for the construction of roads and other infrastructure, and imposition of tax on forest products (ibid.).

5.3.6 Aid induced versus locally owned processes

Aid programs have been integral part to the evolution of CF in Nepal, significantly shaping its trajectory and outcomes. Early on, aid agencies commissioned research (Khadka, 2009) and provided crucial technical guidance and field-level support, helping to establish and strengthen local institutions and practices (Gilmour & Fisher, 1991; Pokharel & Nurse, 2004). They also promoted collaboration between government forest agencies, FECOFUN, and local NGOs, increasing the legitimacy and effectiveness of the aid activities. As such, these deliberative frontiers not only helped the transmission of knowledge across these actors but also contributed to generating more considerable legitimacy of the decisions made in the form of policies, institutional arrangements, and implementation.

However, aid agencies also brought their knowledge systems and priorities, which at times reinforced existing power imbalances, supporting local elites and techno-bureaucrats in the delivery of services (Dhakal, 2014; Ojha et al., 2009), as aid agencies often relied on them to implement their programs (Nightingale, 2005).

It is important to recognize that the aid system is not ideologically monolithic, and different aid actors have taken varied stances on CF governance over time. While some aid agencies supported or reinforced techno-bureaucratic control over resource governance, others aligned themselves with human rights and community movements, including FECOFUN's campaigns against government policies that were perceived to undermine local autonomy and rights (Ojha, 2008; Paudel et al., 2012b).

Critical action researchers have also received aid to mediate discourses and facilitate dialogue among stakeholders in the CF arena. For example, the book *Forestry, Forest Users and Research: New Ways of Learning* edited by A. Lawrence (2000), an outcome of an aid-supported action research project, helped reflect on CF experiences and generate new knowledge for policy and practice.

More recently, as CF in Nepal faces emerging challenges such as climate change, market integration, and governance reforms, there is a growing recognition of the need for critical action research to support local adaptation and innovation (Ojha et al., 2019). Aid agencies can play a constructive role in

facilitating participatory action research, social learning, and knowledge co-production among diverse stakeholders (Ojha, 2013).

With emerging opportunities like carbon trade and challenges like increasing human-wildlife conflict, innovative pilot actions and strategic thinking are necessary to navigate this crossroads effectively. A recent study by the Enhancing Livelihoods from Improved Forest Management in Nepal project (Paudel et al., 2021) highlighted that Nepal's CF requires revitalization in institutions and governance. However, the fragmented nature of Nepal's CF regime and the existing power dynamics may hinder progressive improvements, reinforcing the need for targeted aid and technical support to facilitate transformative change.

Aid agencies can be crucial in supporting pilot actions exploring new approaches to CF governance, benefit-sharing, and conflict management. They can also contribute to strategic thinking by facilitating multi-stakeholder dialogues, scenario planning exercises, and policy analysis. However, these interventions must align with local knowledge, capacities, and aspirations (Ojha et al., 2020), as they are often criticized for promoting exclusionary technocratic and eco-centric perspectives on forest governance (Khadka, 2009).

5.4 Improving multi-level governance through deliberative practices

Considering the six domains of contention and compacts presented above, there is a compelling rationale for fostering deeper deliberation among actors involved in Nepal's CF to improve CF governance. These frontiers highlight the complex web of power relations, competing interests, and knowledge asymmetries, often leading to suboptimal outcomes regarding productivity, sustainability, equity, and local autonomy (Ojha, 2019; Ojha et al., 2020). Deliberative deficit in policies, institutions, and practices can compromise community autonomy, ultimately limiting CF's economic, environmental, and political potential.

Deliberative governance can enhance decision-making quality, promote social inclusion, foster ownership and legitimacy among stakeholders, and build trust and social capital in Nepal's CF (McDougall et al., 2013; Ojha et al., 2009). It offers a promising approach to navigate these challenges by creating spaces for inclusive dialogue, mutual learning, and collaborative problem-solving (Banjade, 2014; Ojha, 2006). These values can be achieved through the various modalities and scales of deliberation outlined above. For example, local-level forums, such as public hearings and participatory planning, can promote inclusive decision-making and make CF governance more responsive to local needs and priorities. National-level multi-stakeholder policy dialogues can foster a shared understanding of CF's challenges and opportunities, leading to more coherent and equitable policies. Participatory action research and social learning platforms can help build local actors' deliberative capacities, enabling more effectively collaborative problem-solving and adaptive governance.

Deliberative governance can take various forms and operate at different scales, depending on the specific context and objectives. Banjade (2014) identifies several modalities of deliberation in Nepal's CF, including public hearings to promote transparency and accountability in allocating CF funds and participatory planning processes to develop more inclusive and locally responsive forest management plans. Ojha and Timsina (2007) highlight the importance of creating "deliberative public spheres" at multiple levels, ranging from local-level forums, such as CFUG assemblies, to national-level platforms, such as the National Policy Learning Group. Linking these deliberative spaces across scales facilitates the flow of information, ideas, and innovations between local practices and national policies. Other deliberation modalities, such as participatory action research (McDougall et al., 2013) and social learning platforms (Ojha, 2013) emphasize joint learning, experimentation, and reflection among diverse stakeholders to foster adaptive and resilient CF governance.

To address cross-scale competitions and ensure effective CF governance, it is crucial to clarify roles and responsibilities among different levels of government and establish mechanisms for coordination and collaboration (Banjade et al., 2021; Paudel et al., 2022). This may involve the creation of multi-stakeholder platforms that bring together representatives from CFUGs, local governments, provincial governments, federal agencies, and CSOs to discuss and resolve governance issues (Banjade et al., 2021). Local-level deliberations are important for ensuring that CF governance responds to forest-dependent communities' needs and aspirations. These local processes can be linked to higher levels of governance through mechanisms like FECOFUN, which can aggregate local concerns and advocate for policy change (Timsina et al., 2021). CSOs and political representatives can also play key roles in facilitating cross-scale interactions, providing technical support, and mobilizing public opinion (Ojha et al., 2008).

Critical knowledge actors, such as ForestAction, can catalyze deliberation across contesting civil society groups and the state on CF matters. These actors can conduct action research to generate evidence on CF's challenges and opportunities, convene multi-stakeholder dialogues to explore alternative governance models, and provide capacity-building support to strengthen the deliberative capabilities of local actors (Banjade et al., 2009). By engaging in critical reflection and social learning, knowledge actors can help to challenge dominant narratives, expose power imbalances, and facilitate the co-production of new knowledge and practices (Ojha et al., 2014).

By embracing deliberative governance, Nepal's CF sector can navigate the complex challenges posed by the six domains of contention and work toward more sustainable, equitable, and locally responsive governance arrangements. This will require sustained efforts to create inclusive, deliberative spaces, strengthen cross-scale linkages, and build the capacities of all stakeholders to engage in meaningful dialogue and collaboration.

5.5 Conclusion

CF governance in Nepal has evolved over four decades through a complex interplay of knowledge, power, and social mobilization. However, it remains a highly contested landscape, characterized by ongoing struggles over authority, expertise, and resource access. By examining the dynamics of knowledge and power across six key domains—expert versus local knowledge, techno-bureaucratic control and civic opposition, intra-community dynamics, civic space and elite capture, scalar competition in governance, and aid-induced versus locally owned processes—we have highlighted the challenges and opportunities for advancing sustainable and equitable CF governance in Nepal.

This analysis draws six key lessons for enabling multi-level CF governance in Nepal. First, Nepal's CF governance must create space for integrating local, indigenous, and experiential knowledge alongside scientific and technical expertise through more inclusive and collaborative knowledge co-production processes. Second, while the devolution of forest management rights to local communities has been a cornerstone of Nepal's CF success, robust accountability mechanisms must accompany decentralization. This includes strengthening the downward accountability of CFUGs to their members and horizontal accountability among different stakeholder groups. Third, deliberative governance approaches, fostering inclusive dialogue, social learning, and collaborative problem-solving, should be embraced at all levels of government, with capacity-building for stakeholders to engage in meaningful deliberation.

Fourth, efforts must be made to challenge entrenched power imbalances within Nepal's CF governance, particularly those related to gender, caste, and economic status. Governance arrangements must be tailored to the specific social, political, and ecological contexts in which they operate. Fifth, civic engagement plays a crucial role in driving policy change and holding power-holders accountable. The emergence of FECOFUN as a national federation of CFUGs has been particularly significant in this regard, providing a platform for collective action and advocacy at multiple scales. Finally, adaptive and reflexive governance approaches that encourage learning, experimentation, and innovation, fostering a culture of critical reflection and dialogue are essential for responding to unfolding political and economic contexts.

Note

1 Mukesh Pokharel's piece on Himal Khabar media: https://www.himalkhabar.com/news/119587 accessed on 5 February 2025.

References

Agarwal, B. (2001). Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development*, *29*(10), 1623–1648. Retrieved from http://www.sciencedirect.com/science/article/B6VC6-43TP77N-1/2/f93eb9c5c864aa92048447a318bec4ac

Argyris, C. (1993). *On Organizational Learning*. Cambridge, MA: Blackwell.

Banjade, M. R. (2012). Discourse and discursive practices over timber in Nepal. *Journal of Forest and Livelihood*, *10*(1), 58–73. https://doi.org/10.3126/jfl.v10i1.8601

Banjade, M. R. (2014). *Deliberative Governance and Community Forestry in Nepal*. PhD, The Fenner School of Environment and Society, The Australian National University, Canberra.

Banjade, M. R., Paudel, N. S., Jha, B. N. & Poudel, M. (2021). Developing a Partnership Framework between Community Forestry and Local Governments under Federalism in Nepal. pp. 1–10 in *Research Paper Series on Agroforestry and Community Forestry in Nepal*, Vol. 04. Kathmandu: ForestAction Nepal.

Banjade, M. R., Paudel, N. S., & Mwangi, E. (2017). Political economy of forest tenure reform implementation in Nepal: Evolution, contestation, outcomes and challenges. *Journal of Forest and Livelihood*, 15(1), 1–14. https://doi.org/10.3126/jfl.v15i1.23081

Banjade, M. R., Timsina, N. P., Neupane, H. R., Bhandari, K., Bhattarai, T., & Rana, S. K. (2009). Transforming agency and structure for facilitating Pro-Poor governance in community forestry. *Journal of Forest and Livelihood*, *5*(1), 22–33. https://doi.org/10.3126/jfl.v5i1.1978

Baral, S. (2018). Attempts of recentralization of Nepal's community forestry. *Forestry Journal of Institute of Forestry Nepal*, *15*, 97–115. https://doi.org/10.3126/forestry.v15i0.24925

Baral, S., Shrestha, K. K., & Tiwari, S. (2024). Persistence of women's exclusion in Nepal's community forestry practice. *Geoforum*, *155*, 104092. https://doi.org/10.1016/j.geoforum.2024.104092

Basnyat, B., Treue, T., Pokharel, R. K., Baral, S., & Rumba, Y. B. (2020). Re-centralisation through fake Scientificness: The case of community forestry in Nepal. *Forest Policy and Economics*, *115*, 102147. https://doi.org/10.1016/j.forpol.2020.102147

Basnyat, B., Treue, T., Pokharel, R. K., Kayastha, P. K., & Shrestha, G. K. (2023). Conservation by corruption: The hidden yet regulated economy in Nepal's community forest timber sector. *Forest Policy and Economics*, *149*, 102917. https://doi.org/10.1016/j.forpol.2023.102917

Basnyat, B., Treue, T., Pokharel, R. K., Lamsal, L. N., & Rayamajhi, S. (2018). Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, *91*, 5–18. https://doi.org/10.1016/j.forpol.2017.08.010

Bhattarai, K., Conway, D., & Shrestha, N. (2002). The vacillating evolution of forestry policy in Nepal: Historically manipulated, internally mismanaged. *International Development Planning Review*, *24*(3), 315–338. https://doi.org/10.3828/idpr.24.3.5

Britt, C. (2002). *Changing the Boundaries of Forest Politics: Community Forestry, Social Mobilization, and Federation-Building in Nepal Viewed through the Lens of Environmental Sociology and Par*. PhD Dissertation. Cornell University, New York.

Chambers, R. (1983). *Rural Development: Putting the Last First*. London and New York: Longman.

Dahal, B., Joshi R., Poudel, B., & Panta, M. (2021). Community Forestry Governance in Federal System of Nepal. *Journal of Policy & Governance*, *1*(1), 30–45.

Dahal, G. R. (2012). Proposed Forest Act Amendment Could Derail Community Forestry in Nepal. *RECOFTC*. https://www.recoftc.org/stories/proposed-forest-act-amendment-could-derail-community-forestry-nepal

Department of Forests (DoF). (2014). *Scientific Forest Management Procedures*. DoF, Kathmandu, Nepal.

Dhakal, B. (2014). The Local Environmental, Economic and Social Tragedies of International Interventions on Community Based Forest Management for Global Environmental Conservation: A Critical Evaluation. *Open Journal of Forestry*, *04*(01), 12. https://doi.org/10.4236/ojf.2014.41010

Eckholm, E. P. (1975). The Deterioration of Mountain Environments. *Science*, *189*, 764–770.

FECOFUN (2024). Silver Jublee Publications. Federation of Community Forest Users Nepal, Rajat Jayanti (2052–2077). FECOFUN.

Fisher, R.J., Maginnis, S., Jackson, W. J., Barrow, E., & Jeanrenaud, S. (2005). *Poverty and Conservation: Landscapes, People and Power*. Gland, Switzerland and Cambridge, UK: IUCN.

Fligstein, N. & D. McAdam. (2015). *A theory of fields*. Oxford University Press.

Gautam, A., Shivakoti, G., & Webb, E. (2004). A review of forest policies, institutions, and changes in the resource condition in Nepal. *The International Forestry Review*, *6*(2), 136–148. https://doi.org/10.1505/ifor.6.2.136.38397

Gilmour, D. A. (1988). Not seeing the trees for the forest: a re-appraisal of the deforestation crisis in two hill districts of Nepal. *Mountain Research & Development*, *8*(4), 343. Retrieved from http://www.scopus.com/scopus/inward/record.url?eid=2-s2.0-0024183576&partner=40&rel=R4.5.0

Gilmour, D. A. & Fisher, R. J. (1991). *Villagers, Forests and Foresters: The Philosophy, Process and Practice of Community Forestry in Nepal*. Kathmandu: Sahayogi Press.

Goutam, K. R. (2017). *Corruption in timber production and trade: An analysis based on case studies in the Tarai of Nepal*. PhD. Australian National University, Canberra.

Hobley, M. (1996). *Participatory forestry: The process of change in India and Nepal* (Vol. *3*). London: Rural Development Forestry Network, Overseas Development Institute.

Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A., & Seeley, J. (2006). High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai. *Ecological Economics*, *58*(1), 93–107. Retrieved from http://www.sciencedirect.com/science/article/B6VDY-4H3Y9VH-2/2/9a8b715976fd3dbaf2db8e575fd55c50

Joshi, O., Parajuli, R., Kharel, G., Poudyal, N., & Taylor, E. (2018). Stakeholder opinions on scientific forest management policy implementation in Nepal. *PloS one*, *13*, e0203106. https://doi.org/10.1371/journal.pone.0203106

Khadka, M. (2009). Why does exclusion continue? Aid, knowledge and power in Nepal's community forestry policy process. Maastricht: Shaker Publishing.

Khadka, M., Karki, S., Karky, B. S., Kotru, R., & Darjee, K. B. (2014). Gender Equality Challenges to the REDD Initiative in Nepal. *Mountain Research and Development*, *34*(3), 197–207, 111. Retrieved from https://doi.org/10.1659/MRD-JOURNAL-D-13-00081.1

Khatri, D. B. (2018). *Climate and Development at the Third Pole: Dynamics of Power and Knowledge reshaping community forest governance in Nepal*. (PhD). Swedish University of Agricultural Sciences, Sweden, Uppsala.

Lawrence, A. (Ed.) (2000). *Forestry, forest users and research: new ways of learning*. Wageningen: ETFRN-European Tropical Forest Research Network.

Lienert, J.& Burger, P. (2015). Merging Capabilities and Livelihoods Analyzing the Use of Biological Resources to Improve Well-Being. *Ecology and Society*, *20*(2), 1–11.

Magessa, K., Wynne-Jones, S., & Hockley, N. (2020). Are Policies for Decentralised Forest Governance Designed to Achieve Full Devolution? Evidence from Eastern Africa. *International Forestry Review*, *22*(1), 83–100, 18.

Malla, Y. B. (2001). Changing Policies and the Persistence of Patron-Client Relations in Nepal: Stakeholders' Responses to Changes in Forest Policies. *Environmental History*, *6*(2), 287–307.

Mansuri, G. & Rao, V. (2013). *Localizing Development: Does Participation Work?* World Bank, Washington DC.

McDougall, C. L., Leeuwis, C., Bhattarai, T., Maharjan, M. R., & Jiggins, J. (2013). Engaging women and the poor: adaptive collaborative governance of community forests in Nepal. *Agriculture and Human Values*, *30*(4), 569–585. https://doi.org/10.1007/s10460-013-9434-x

Nightingale, A. J. 2005. "The Experts Taught Us All We Know": Professionalisation and Knowledge in Nepalese Community Forestry. *Antipode*, *37*(3), 581.

Nightingale, A. J., Bhattarai, A., Ojha, H. R., Sigdel, T. S., & Rankin, K. N. (2018). Fragmented public authority and state un/making in the 'new' republic of Nepal. *Modern Asian Studies*, *52*(3), 849–882.

Nuberg, I. K., Shrestha, K. K., & Bartlett, A. G. (2019). Pathways to forest wealth in Nepal. *Australian Forestry*, *82*(sup1), 106–120. https://doi.org/10.1080/00049158.2019.1614805

Ojha, H. (2002). *A Critical Assessment of Scientific and Political Aspects of the Issue of Community Forest Inventory in Nepal*. ForestAction, Nepal.

Ojha, H. (2006). Techno-Bureuacratic Doxa and the Challenges of Deliebrative Governance - the Case of Community Forestry Policy and Practice in Nepal. *Policy and Society*, *25*(2), 131–175.

Ojha, H. (2008). *Reframing Governance: Understanding Deliberative Politics in Nepal's Terai Forestry*. Adroit Publishers, New Delhi.

Ojha, H. (2009). Civic Engagement and Deliberative Governance: The Case of Community Forest User Federation Nepal. *Studies in Nepali History and Society*, *14*(2), 1–31.

Ojha, H. (2013). Counteracting Hegemonic Powers in the Policy Process: Critical Action Research on Nepal's Forest Governance. *Critical Policy Studies*, *7*(3), 242–262.

Ojha, H. (2019). *How Can Nepal's Community Forestry Be Adapted to New Federal System?* Setopati, Kathmandu.

Ojha, H., Banjade, M. R., & Shrestha, K. K. (2015). Critical Action Research and Social Movements: Revitalizing Participation and Deliberation for Democratic Empowerment. In F. Fisher, D. Torgerson, A. Durnová, & M. Orsini (Eds.) *Handbook of Critical Policy Studies*, *Handbooks of Research on Public Policy Series* (pp. 380–398). Edward Elgar Publishing.

Ojha, H., Cameron, J., & Kumar, C. (2009). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, *11*(5–6), 365–374. https://doi.org/10.1016/j.forpol.2008.11.003

Ojha, H., E. Kovacs, K. Devkota, K. R. Neupane, N. Dahal and B. Vira. 2019. Local Experts as the Champions of Water Security in the Nepalese Town of Dhulikhel. *New Angle: Nepal Journal of Social Science and Public Policy*, *5*(1), 1–14.

Ojha, H., Regmi, U., Shrestha, K. K., Paudel, N. S., Amatya, S. M.Zwi, A. B.Nuberg, I.,Cedamon, E. & Banjade, M. R. (2020). Improving Science-Policy Interface: Lessons from the Policy Lab Methodology in Nepal's Community Forest Governance. *Forest Policy and Economics*, *114*, 101997. https://doi.org/10.1016/j.forpol.2019.101997

Ojha, H & Timsina, N. (2007). From Grassroots to Policy Deliberation: The Case of Community Forest Users' Federation in Nepal. *Knowledge Systems and Natural Resources: Management, Policy and Institutions in Nepal*, 60–85. https://doi.org/10.1017/UPO9788175968691.006

Ojha, H. R., Banjade, M. R., Sunam, R. K., Bhattarai, B., Jana, S., Goutam, K. R., & Dhungana, S. (2014). Can authority change through deliberative politics?: Lessons from the four decades of participatory forest policy reform in Nepal. *Forest Policy and Economics*, *46*(0), 1–9. https://doi.org/10.1016/j.forpol.2014.04.005

Ojha, H. R., Paudel, N. S., Banjade, M. R., McDougall, C., & Cameron, J. (2010). The deliberative scientist: Integrating science and politics in forest resource governance in Nepal In L. German, J. J. Ramisch, & R. Verma (Eds.), *Beyond the biophysical: knowledge, culture, and politics in agriculture and natural resource management* (pp. 167–191). London: Springer.

Ojha, H. R., Timisina, N. P., Kumar, C., Banjade, M. R., & Belcher, B. (2008). *Communities, Forests and Governance: Policy and Institutional Innovations from Nepal*. Adroit Publishers, New Delhi.

Paudel, G., Carr, J., & Munro, P. (2022). Community forestry in Nepal: A critical review. *The International Forestry Review*, *24*(1), 43–58. https://doi.org/10.1505/146554822835224810

Paudel, N., Monterroso, I., & Cronkleton, P. (2012b). Secondary level organisations and the democratisation of forest governance: Case studies from Nepal and Guatemala. *Conservation and Society*, *10*(2), 124. https://doi.org/10.4103/0972-4923.97485

Paudel, N. S., Banjade, M. R., & Dahal, G. R. (2008). Handover of community forestry: A political decision or a technical process? Journal of Forest and Livelihood, 7(1), 27–35. Retrieved from http://forestaction.org/im/images/stories/pdfs/journal_of_forest_and_livelihood/vol7_1/4_Paudel%20et.%20al.pdf

Paudel, N. S., Jana, S., & Khatiwada, B. (2012a). Contestation and Citized-Led Negotiation around the Establishment of Protected Areas in Nepal Himalaya. *Journal of Forest and Livelihood*, *10*(1), 42–57.

Paudel, N.S., Ojha, H., Banjade, M.R., Karki, R. & Tamang, S. (Eds.). (2021). Revitalising community forestry in the changing socioeconomic context of Nepal. Kathmandu: EnLiFT2 programme and ForestAction Nepal. *Research Paper Series on Improved Forest Management in Nepal*, *2022-01*: 1–86.

Pokharel, B. K. (1997). *Foresters and Villagers in Contention and Compact: The Case of Community Forestry in Nepal*. Ph.D, East Anglia, Norwich.

Pokharel, B.K. & Nurse, M. (2004). Forests and People's Livelihoods: Benefiting the Poor from Community Forestry. *Journal of Forests and Livelihoods*, *4*(1), 19–29.

Pokharel, K., Karki, R., Ojha, H., Gentle, P., Acharya, D., Banjade, M., & Paudel, D. (2020). State-community relations and deliberative politics within federal forest governance in Nepal. *The International Forestry Review*, *22*(3), 370–381. https://doi.org/10.1505/146554820830405609

Regmi, M. C. (1978). Land tenure and taxation in Nepal. Kathmandu: Ratna Pustak Bhandar.

Ribot, J. C., Agrawal, A., & Larson, A. M. (2006). Recentralizing While Decentralizing: How National Governments Reappropriate Forest Resources. World Development, *34*(11), 1864–1886. https://doi.org/10.1016/j.worlddev.2005.11.020

Sunam, R., Paudel, N.S. & Paudel, G. (2012). Community Forestry and the Threat of Recentralization in Nepal: Contesting the Bureaucratic Hegemony in Policy Process. *Society & Natural Resources*, *26*(12), 1407–1421. https://doi.org/10.1080/08941920.2013.799725

Thoms, C.A. (2011). Co-Constructing Community Forests in Nepal: Mutual Constraint in a Transnational Aid Network. *Journal of Natural Resources Policy Research*, *3*(3), 303–314.

Timsina, S., Basyal, M., Dahal, K., Karki, R., & Paudel, N. S. (2021). What is Choking Nepal's Domestic Timber Supply? *Journal of Forest and Livelihood*, *20*(1), 62–77.


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

Theme 2

Community dynamics, local institutions, and planning


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

6 Crumbling commons?

The transformation of forest-dependent societies in changing contexts

Dilli P. Poudel, Naya S. Paudel, and Dinesh Paudel

6.1 Introduction

Nepal's subsistence farming communities are rapidly transitioning to market systems, given the growing impacts of the neoliberal restructuring, remittance-based labor economy, and market penetrations in the Nepali society (Bardsley et al., 2024; Chhetri et al., 2021; Paudel et al., 2022b; Sugden, 2009; Sugden et al., 2021). Several interconnected drivers are contributing to this form of agrarian-based transition. The most common include the out-migration of youth from rural areas, shortage of farm labor, increasing wildlife crop depredation, urbanization, climate change and disasters, decreasing agriculture practices and collective actions (Adhikari & Hobley, 2015; Chhetri et al., 2021; Fox, 2018; Poudel et al., 2024). These drivers, linked to Nepal's adoption of neoliberal policies after the 1990s and the growing interconnected global economy, affect the dynamics from household level to wider society (Ojha et al., 2017; Sijapati & Limbu, 2012; Sugden et al., 2021).

This chapter unpacks the nature of shifting community dynamics and its impact on community forestry (CF) management. First, it analyzes how the exogenetic factors (migration, wild animal attacks, markets, urbanization, delocalized society, climate change, and disasters) shape the community's internal dynamics (differential access to resources, decreased agriculture practices, decreased dependency on forest, decreasing forest management, and political manifestation of CF). Analyzing these internal processes and dynamics would help us showcase how changing socio-economic conditions and community dynamics impact community participation in CF management. Finally, the chapter envisions five scenarios of future CF, concluding with recommendations for reimagining collective action governance in Nepal.

6.2 Conceptual framework

Back in the 1970s, community's involvement in local forest management was stipulated given the then mode of economic production, which was subsistence agriculture resourced by forest utilization in the form of fodder, firewood, herbs, timber, water, and grazing. After the 1990s, with the rise of the

DOI: 10.4324/9781032705613-9
This chapter has been made available under a CC BY-NC-ND license.

neoliberal global economy that opened up the Nepali markets to the outer world, youths (potential forest managers and users) were encouraged to migrate and supplied as laborers to other Asian countries, resulting in decreased agro-forestry-based subsistence practices and increased remittance (Blaikie et al., 2002; Sunam et al., 2021). The present mode of economic production of the "community" is therefore shaped by the neoliberalizing[1] contexts of rural Nepal and the interconnected global economy (Figure 6.1).

To trace changes in multiple socio-spatial and temporal contexts, a conjunctural analysis would be imperative (Hart, 2024). Given (1) a changing mode of production, (2) inter-connected national, international, political and environmental events, and factors for the current changes, and (3) national and international neoliberal economics, the term "conjuncture" implies a multitude of events, causes, phenomena, and factors and their explicit and implicit relationship in space and time which trigger a change in society. For instance, analyzing a case and associated changes (e.g., decreasing CF practices) at one scale (i.e., community), at one space (i.e., CF), and at one time/period (e.g., past CF's success stories) is not sufficient to comprehend the present *sociology of CF* users (Section 6.3) and decreased collective actions, and, thus, deserves an

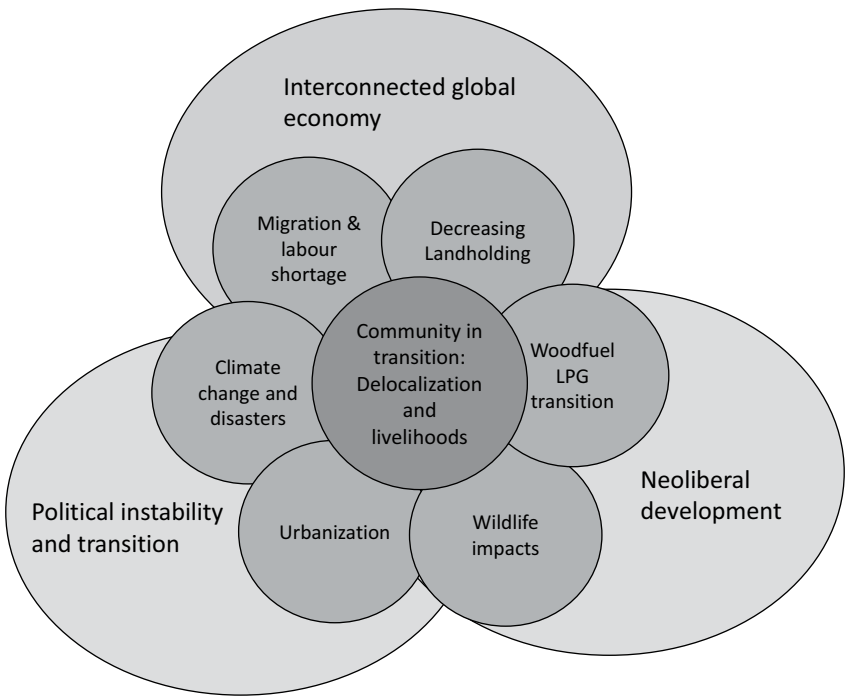

Figure 6.1 Socio-spatio-temporal conjunctures for transitioning community and forest relationships.

analysis of interconnected events, causes/factors, and changes at multiple spatio-temporalities. Crucially, scrutinizing discourses of and relationships with conjunctures helps to explain such complex phenomena and processes (Hart, 2024), thus unpacking the present sociology of the community, their agrarian practices, and the changes experienced.

Conjunctural forces (events, factors, spatiality, and temporalities) condition and reveal changes in the mode of production in a society. In the Marxist theory of historical materialism, people's mode of production of economy, livelihoods, and culture changes with time and technological advancement, which are determined by the availability of productive forces and the relations of production (Peet, 2006). The productive forces denote human labor and means of production such as tools, infrastructures, technical knowledge, raw materials, and land. Whereas the relations of production refer to the means of governing the means of production such as property, power, control relation, collective actions, relations between people and objects, and relations among social classes. Communities' changed dynamics and relations with CF factored by the externalities (exogenetic and endogenetic factors) are associated with their changing mode of production in time, space, and interactions with land and society. This means that the productive force found new opportunities to use their labor for different relations of production, i.e., the opportunities offered by the liberal policy for labor migration after the 1990s. So, the old relationships of communities with land and forest in rural Nepal are changing with the relation of production associated with migration and opportunities therein.

Subsistence communities are generally identified with a higher level of collective action, community economic practices, and moral economic behaviors. Nepal's CF and the schemes of managing the commons globally have relied on these features. As the communities are experiencing a higher level of primitive accumulation[2] (Paudel, 2016), there is a noticeable decline in collective actions, which is obviously an outcome of the interconnected global economy mediated by neoliberal ideology (Harvey, 2005), market, and development. Besides initiatives at privatizing industries at the national level through neoliberal policies, the implementation of the Agricultural Development Plan in 1996, which promoted agriculture commercialization, took the neoliberal ideology to the household level (Sugden, 2009). Similarly, the Foreign Employment Act 2007 and the Foreign Employment Rules in 2008, which directly promoted labor migration to countries other than India (Sijapati & Limbu, 2012), aligned with the growing demand for labor in the Gulf and East Asian countries. Additionally, several other national laws, bilateral agreements, and international conventions further encouraged international labor migration, reducing farm labor in rural Nepal. This new conjuncture of labor outmigration has been intensified with political instabilities since the 1990s (Manandhar, 2014). Although implicit, instabilities and uncertainties further encourage labor migration and inject discouragement on the continuation of collective actions.

6.3 Changing community dynamics and drivers

Rural communities in Nepal are more involved in non-farm activities, particularly outmigration for remittance or alternative income (Chhetri et al., 2021; Fox, 2018; Ojha et al., 2017; Sugden et al., 2021; Sunam et al., 2021), as they are uncertain about the use of forest for their economic betterment in the future (Poudel et al., 2024). These changing rural contexts also denote the communities' changing mode of economic production, that are altering their relationships with forests and farmland. This situation raises the question of what types of "communities" are still using and managing CF at present, as the use or unuse of CF is determined by the imperatives of livelihoods under rapid socio-economic changes. So, to frame a new way of governing CF and collective actions that match up with the changing rural contexts, a comprehensive understanding of the *sociology of CF* considering the use of forest and users' multi-socio-spatial localities (residence, livelihood, and migration) is quite essential but lacking. Here, the term "sociology of CF" denotes the shifting relationship of the community with land, forest use, and its management due to several endogenetic and exogenetic factors and the evolving socio-economic dynamics that demand a change in the institutional and operational functioning of CF.

We have identified and discussed five drivers that have direct implications for the management of CF: (i) migration and remittance, (ii) declining farm production, (iii) increasing need for cash, (iv) shifting energy use, and (v) climate change impacts.

6.3.1 Migration and remittance

Massive rural outmigration, especially of youths, since the mid-1990s is the central socio-cultural and economic phenomenon in contemporary Nepali society. The expanding labor market in the Middle East and East Asia along with the Maoist-led conflict, lack of economic opportunities at home, and increasing demand for cash earnings have driven this outmigration (Sharma, 2013; Sugden et al., 2021). Additionally, national policies began to promote foreign labor migration through international neoliberal policies and institutions such as the International Labour Organization (ILO) and the International Organization for Migration (IOM) (Seddon et al., 2002; Sijapati & Limbu, 2012; Sugden et al., 2021). Similarly, the concentration of educational and health facilities and job opportunities in a few urban centers have induced internal migration. The development rhetoric which labeled rural, traditional, subsistence and non-market activities as backward swayed people toward a modern lifestyle. Today, over 50% of youths are away from their hometown either in the country or abroad (Bhawana & Race, 2020; Poudel, 2019).

Outmigration to the labor market has resulted in an increased flow of remittance which is the major driver in introducing consumerism, cash economy, and the abandonment of farming practices in rural Nepal (Sharma, 2021).

According to the latest Nepal Living Standard Survey (NSO, 2024), about 77% of the total households of Nepal are remittance recipients who on average receive NPR 145,093 (~1048 USD) annually, almost 34% of their total household income. In 1995, remittance-recipient households were 23% who on average used to receive NPR 34,698 (~250 USD), about 27% of total household income (CBS, 2011b). Given the dominant role in sustaining livelihoods and neoliberalizing rural society, Sunam et al. (2021) symbolize Nepali villages as "remittance villages." In most cases, once the male member migrates and starts sending remittance, his wife or parents migrate to nearby towns to send their children to private schools, resulting in the shortage of labor in the villages, underutilization and abandonment of farmland and the neglect of aged household members who get left behind.

6.3.2 Declining farm production

Low agricultural production and productivity is driving people away from farming. One of the reasons is the decreased availability of farming land in the last two censuses (CBS, 2011a, 2021b).[3] As per the latest Nepal's Living Standard Survey 2022/2023, the average landholding is 0.4 hectares (ha) (NSO, 2024). Many of these households own much smaller land, barely enough to produce food for their families. For example, Fox (2018) found 0.3 ha as an average land holding of farmers in his study sites. Similarly, the agricultural productivity is much lower than most South Asian neighbors (Liu et al., 2020). Key factors are land fragmentation, low agri-inputs, disease and pests, poor technology, increasing wildlife depredation, and climatic factors (Hussain et al., 2016; Khatri et al., 2024; Ojha et al., 2017; Paudel et al., 2021).

Declining production and labor scarcity have resulted in land idling and abandonment (Ojha et al., 2017; Poudel, 2019; Poudel et al., 2024). In 2013/2014, according to the Nepal's Ministry of Agricultural Development, a total of 1.03 million ha (24.9%) out of the total 4.1 million ha of arable land was uncultivated (MoAD, 2014).

Despite farming being the mainstay of the economy and culture, the urban lifestyle has been portrayed as a symbol of being developed. Farming life is the opposite, only to be carried by those uneducated and uncivilized people (Gartaula et al., 2012). While the younger generation seeks opportunities outside the village, their parents also want to see their children getting access to "office work." Bhawana & Race (2020) found that 92% (n = 101) of the surveyed households do not want their kids to be farmers or think their kids will not continue farming in the future. Consequently, the impact was reported in the cropping pattern, such as the percentage of holding growing main paddy has decreased from 76% in 1995/1996 to 64.3% in 2022/2023 (NSO, 2024). Previous studies also found that the contribution of farming to household income declined from close to 90% to 36%, whereas the share of non-farm income rose from 13% to 64% in rural Asia (Rigg, 2006).

6.3.3 Shifting energy use

The shift in energy sources from fuelwood to liquid petroleum gas (LPG) and electricity has fundamentally changed the relationship between people and forests. The 2021 census shows that over 50% of households use non-fuelwood sources for cooking (CBS, 2021a). These include LPG (44.3%) followed by cow dung (2.9%), biogas (1.2%), electricity (0.5%), etc. The sharp decline in fuelwood use has directly weakened the dependency on CF. For example, Poudel (2019) calculated that a CF member who used to visit the forest six times a week ten years ago visited only once in the study year (Figure 6.2).

The rapid energy transition, especially from fuelwood to LPG, coincides with the migration, remittance flow, and the domination of neoliberal market policies and products. After adopting free market policies, Nepal started using LPG as an alternative to kerosene in urban areas in 1995–1996, with an annual import of 18, 600 tons.[4] With the growth of CF in the 1990s and early 2000s, which restricted and limited firewood collection, the demand for LPG took off, resulting in an annual consumption of 141,171 tons in 2009–2010. The consumption reached 536,028 tons in 2020–2021 as the remittance flow in the rural areas already increased households' purchasing capacity (Sugden et al., 2017). Currently, Nepal spends NPR 36.15 billion annually to import LPG (Sugden et al., 2017).

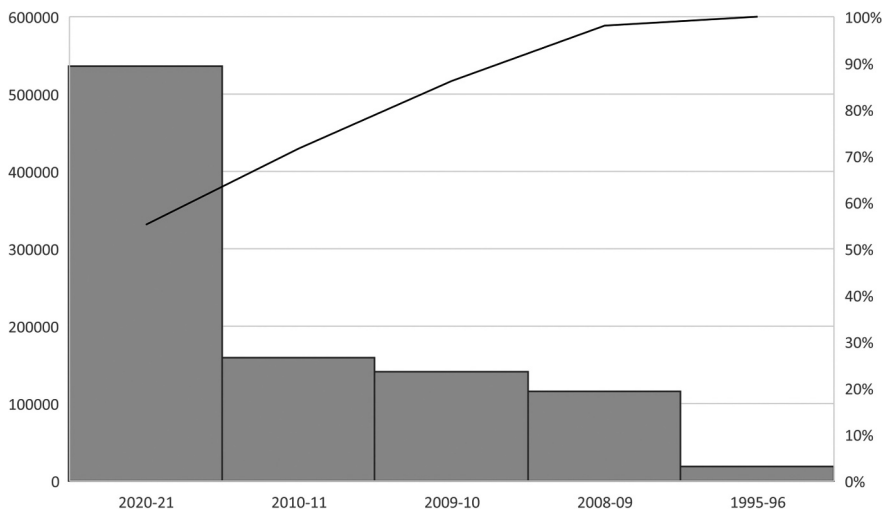

Figure 6.2 LPG consumption in Nepal.

Source: CBS, 2021a.

6.3.4 Increasing need for cash

There is increasing demand for cash to pay for food, housing, daily consumables, education, health, mobile phones and internet, and changing lifestyles (Sharma, 2013; Sugden et al., 2017). The smallholders can hardly afford it from their farm income. During the lead author's visit[5] to Chyasku village (Ramechhap district) in March 2021, a farmer said:

> Last year we sold *gahat* (gram beans) and *swosta/rajma* (kidney beans) for NPR 600 per kg. This year, they paid only NPR 400. But the prices that we have to pay in the market for daily consumption are increasing day by day. Two years ago, we paid NPR 160 for a liter of mustard oil, last week, I paid NPR 200. How can we survive?

Monetization of the local economy means they need to pay farm laborers and other inputs – seed, fertilizer, irrigation, and pesticide all in cash, which hardly comes from the harvest sale. In most cases, the gap is compensated by remittance or government/private jobs, but not all households have this luxury.

6.3.5 Climate change impacts

Climate change (CC) and associated disasters have impacted rural landscapes, especially in Nepal's hills and mountain regions (Adhikari, 2018; Bardsley & Hugo, 2010; Hussain et al., 2016; Shrestha et al., 2012). From 1982 to 2006, Nepal experienced a considerably higher temperature rise of 1.5°C with an average increase of 0.06°C/yr^{-1} (Shrestha et al., 2012). Nepal's mean annual temperatures are projected to increase between 1.3 and 3.8°C by the 2060s and 1.8–5.8°C by the 2090s (MoPE, 2016). Mean rainfall has also been decreasing by 3.7 mm per month per decade (MoE, 2010), leading to drought, especially for the rain-fed hill farming system (Adhikari, 2018).[6] The CC impacts are more visible in reduced agricultural production and uncertainties in agroforestry-based livelihood (Rijal et al., 2021). Additionally, the rising temperature is accelerating the incidences, and severity of forest fires (Bhattarai et al., 2022). This has consequently reduced agricultural production, and subsequently decreased local income, fueling migration and downsizing farming and CF activities in rural Nepal.

6.4 Impact on community forestry

All the parallel socio-economic and spatio-temporal processes explained above contributed to weakening collective action over forest commons and other local initiatives. Apart from engaging in overseas labor markets, people have increasingly drawn their livelihoods from banking, insurance, transportation, commercial poultry, hotels/restaurants, small shops, and wage labor.

The changing dynamics at the community and societal level are reshaping forest-people relations, especially concerning community forest management.

6.4.1 Decreased economic significance of community forestry

Despite increasing forest cover in the last three decades (DFRS, 2015), the economic contribution of forests is way below compared to its projected potential (Bardsley et al., 2024; Fox, 2018; Paudel et al., 2022a; Poudyal et al., 2023). Moreover, even the moderate benefits are skewed to small groups of local elites, excluding large sections of poor and marginalized communities (Adhikari et al., 2004; Nightingale, 2011; Timsina & Paudel, 2003). Respondents in a recent survey with 600 households put a declining value on the prospects of forest-based income from CF (Bardsley et al., 2024). In recent years, while the cash earnings of households have increased, the relative contribution of forest to it has significantly decreased (Bardsley et al., 2024). Consequently, the CF members have a low economic stake in CF management.

6.4.2 Weak community and forest relations and collective actions

Several studies have reported weakening forest-people relations with the decreasing dependency on community-managed forests (Chhetri et al., 2021; Fox, 2018). Additionally, with the reduced use of fuelwood and fodder, the increasing use of non-timber products, such as iron, bricks, cement, and aluminum in house construction has further reduced their dependency. Although around 50% of households still use diverse forest products for their livelihoods (CBS, 2021a), these products primarily come from private land. In recent years, forest-people relations have changed in two ways. First, there is a decreasing use of forest products from CF especially in the mountain and hill communities. Second, community engagement and investment in free labor contribution to forest management have decreased substantially. Poudyal et al. (2023) calculated that 85% of respondents reported a decreased frequency of forest product collection. Similar changes have been reported in other parts of Nepal (Fox, 2018; Bhawana & Race, 2020). People now prefer to keep small ruminants such as goats, pigs, and poultry than buffalo and cattle. Increasing the use of tractors in plowing fields means no need for oxen, substantially reducing demand for grass, fodder, and grazing.

Similarly, another behavioral change observed is the declining community interest in managing forests or participating in CF institutional functions. It is estimated that over half of the CFUGs' Operational Plan[7] have expired, and thousands have not organized annual general assemblies, carried out financial audits, or submitted the mandatory documents to relevant authorities (Fox, 2018; Bhawana & Race, 2020; Paudel et al., 2022b, 2024; Poudyal et al. 2023). For example, a survey of 600 CF members in 2019 and 2023 covering six municipal locations of two hill districts revealed significant decline in time given to forest management activities such as cleaning, thinning, and protecting forests

from fire (Bardsley et al., 2024). Even the executive members of CFUGs meet less frequently nowadays (Poudyal et al., 2023). The past idea of voluntary contribution by the rural communities in collective actions and managing forests seems obsolete now.

6.4.3 Forest as resources to risk

The decreased dependency on and lack of active management over the years have turned the forests into jungles, transforming them from a resource to a source of risks. The communities accuse CF of harboring wildlife that has ruined farming activities and posed risks to human security substantially reducing farm production (Khatri et al., 2024). According to Bista and Song (2021), 81% of households (n = 415) reported crop-raiding incidences and 124 livestock lost in a year. In some cases, up to 75% of crops have been destroyed by wild animals, compelling farmers to abandon several hectares of previously cultivated land (Poudel et al., 2022). Additionally, human injury and death have become a major issue, especially in the mid-hills (Poudel et al., 2022). There exists a vicious cycle between rural outmigration and wildlife depredation. While it has induced people to abandon farming and leave villages, the remaining population (elderly people, children, or women) are less likely to fight with the wildlife, further exacerbating the problem.

Secondly, the lack of forest management activities, such as collecting combustible biomass for fuelwood, has increased the incidences of forest fires that often destroy the settlements, houses, and livestock, among others (Bhujel et al., 2022; Poudel et al., 2022). According to Bhujel et al. (2022), annually, around 3,098 forest fire incidences occur in Nepal, resulting in damage to 172,040.65 ha of forest and biomass loss of 7.07 million tons, accounting for 3.30 million tons of carbon emission. Additionally, during 2013–2023, according to the National Disaster Risk Reduction and Management Authority (NDRRMA[8]), 769 people died, and 2,568 were injured in 18,791 wildfires, and the financial loss exceeded NPR 22 billion. Consequently, people in several hilly areas have launched campaigns for felling trees to get rid of these risks.[9],[10] Therefore, the past symbiotic relationship between community and forest is feebly and partially true at present.

6.4.4 Prevalence of pseudo-leaders in community forestry institutions

CF institutions have long been assumed as local social and political spaces (Poudel, 2021). The lack of functional local government during the Maoist conflicts (1996–2006) attracted leaders to engage with CF. After the constitution of 2015 and the election for the local governments in 2017, many CF leaders jumped to mainstream politics. However, political party cadres view CF leadership as a stepping stone to raise their political profile, with little genuine interest and commitment to CF development. In *Tarai* (i.e., plain land with productive forests), however, opportunities to mobilize and secure private

benefits (overtly or covertly) from the CFUG products and income exist and an interest of engaging in CF activities remains (Mahato & Valadaud, 2023). In the hilly region, although the economic benefits from CF are lesser, capturing executive positions by local elites persists as it allows them to achieve social merits and a space for local political engagements. Moreover, the scarcity of youths in the villages due to migration and the existing youths' reluctance to take the CF leadership role also created favorable conditions for such capturing in some cases (Mahato & Valadaud, 2023). Consequently, although the number of CFUGs continues to grow (around 18,000 in 2018 to more than 23,000 at present), there is a scarcity of leadership in CF (Fox, 2018). Voluntary contribution has been a challenge in increasing opportunity costs and decreasing the socio-political profile of CF leaders. Presently, the capture of CF leadership by such pseudo-leaders often undermines the interest of CF implementation, which, undoubtedly, will ruin the importance of collective action and derail management endeavors in the future.

6.4.5 Community to Private Forestry

Rural farmers and forest officials have shifted their priorities from CF to Private Forestry (PF) management in recent years (Amatya & Lamsal, 2017). Decreasing the share of CF timber to market is one of its indicators. For example, over 35% of the country's forests are under CF, but its timber supply to the market has been limited to less than 20%, while private forests supply over 80% of timber (Basnyat et al., 2020). Several factors have contributed to this shift. First, exhaustive regulatory and administrative requirements, associated legal cases, high public scrutiny, and occasional government bans on timber harvest and trade from CF have discouraged engagement (Timsina et al., 2021; see Tiwari et al., this volume). Second, rural farmers who marginally benefited from CF management are attracted to PF for direct timber sale benefits without any hassles (Tiwari et al., this volume). Government officials also found it much more convenient to support PF as it involves minimum administrative burdens and risks (Tiwari et al., this volume). Traders prefer sourcing their timber from private forest owners much more convenient and safer.

6.5 The future of CF

The ethos of CF relies broadly on three principles, i.e., local communities depend on forest resources, they are living there permanently and consciously involved in collective actions, and there is no or minimal external interference in local collective actions (Agrawal, 2001; see also "designed principles" in Ostrom, 1990). The five drivers of change and their impacts on CF analyzed in the earlier sections depict significant alterations in these principles with the rise of neoliberal development, unstable and often failing governments, and the interconnected global economy.

The cumulative effects of these drivers trigger the change in the mode of production, community-forest relationship, and societal change transitioning from subsistence to neoliberal-dominated livelihood practices in rural Nepal. Due to the changing livelihood patterns and multiple socio-temporal factors, there is a new conjuncture, now "communities" turn into delocalized societies as a part of a larger political economy of production and circulation, dismantling previously assumed self-reliant and relatively independent communities (Ojha, 2014; Rigg, 2006). The present community is therefore more complex and heterogeneous and has experienced: livelihood diversification; decoupling of livelihoods and poverty from land; increased mobility to new sources of income, new locations, transactions, and associations; and remittance playing a key role in shaping socio-economic and cultural transformation (Ojha, 2014; Rigg, 2006). All these changes have significantly impacted collective action over local forest commons – the essence of CF.

Consequently, the relationship between the community and CF is affected in four ways. First, community dependency on CF-managed forests and their engagement in collective action decreased. Second, the growing forested land is becoming a threat with the increasing number of wild animals and fire hazards, destroying forests and crops, and endangering people and domestic animals. Third, to meet the need for cash income to maintain neoliberal livelihood (health, education, and utilities), communities are reducing or quitting farming as the income from the agriculture could not meet their needs. Fourth, the lack of active and interested youths allowing local political cadres to capture CF institutions and use these as stepping stones to attain their political careers.

The following five scenarios of future collective actions can be envisioned.

Firstly, the objective changes in the socio-economic foundation or the changes in the mode of production have reshaped the communities' interests in forests, which the CF must deliver. For instance, while some may want to manage their forests for subsistence purposes such as grass and fodder, others may want to maximize commercial benefits, such as grazing land for commercial herd owners. The interests in species choices for subsistence use, commercial production or carbon sequestration, and other cultural importance and environmental services substantially affect the communities' management options. Some CFUGs may want to collaborate with other surrounding CFUGs and strengthen a business relationship to gain an economy of scale through timber or non-timber products-based entrepreneurship. Future CF governance should therefore match both commercial and non-commercial farmers and accept, internalize, and execute these flexibilities in collective actions.

Secondly, in this neoliberal world, CFUGs must be conceived as business entities, not merely as active volunteers, so those who contribute their labor, resources, and time to run the business must be rewarded with appropriate payments. The economic rationale should be prioritized when making decisions related to forest management and CFUGs' institutional governance. A mechanism for befitting the community and creating comfortable conditions and opportunities to earn from CF should be an explicit part of reimagining CF.

Thirdly, the present CF governance is circumscribed by its forest-only thinking, disregarding wider ongoing socio-economic shifts and managing issues related to water, soil, and risks (disasters and climate change). Thus, it is imperative to envision a multi-purpose and multi-scalar CF governance model that reduces administrative costs, internalizes high opportunity costs, and can deliver with few executive individuals. This allows the future CF to design watershed or landscape-level collective actions with even higher opportunity costs regarding economic, social, and environmental benefits.

Fourthly, our analyses suggest that the lack of opportunity and alternative livelihood options in villages pushed adults to migrate to fulfill their unmet cash needs. If the local infrastructure development endeavors and services are oriented to facilitate subsistence farmers and agroforestry activities, local farmers may be encouraged to actively engage in agriculture, which, subsequently, reinvigorate collective actions in the future. Such community-oriented development may create community-based employment opportunities and attract youth to remain in the villages, reducing migration.

Finally, the present CF is in limbo as it is not connected functionally with the federal government system. So, a close collaboration with the local government (municipalities, rural municipalities, and wards) would potentially increase community participation. Diverse examples of collaboration among CFUGs, between CFUGs and local governments, and among different stakeholders, especially the CFUGs, the Division Forest Office (DFO), local government, and forest product traders, are emerging from various parts of the country (Cedamon et al., 2016). Given the ecological variations created by the altitude geography of Nepal, it would be better if the future CF disregards governing by a single method or mechanism, and envisions a need-based, geographically sensitive, and context-sensitive CF to better understand local management needs and the types of collaboration with the local government.

6.6 Conclusion

In this chapter, we explored how deep socio-economic changes are impacting forest-people relations that ultimately shape CF in Nepal. The post-1990s political and economic orientation that supported and promoted the neoliberal market economy and the influence of the global economy subsequently boosted heavy rural outmigration. As a result, local collective action over the forest commons weakened. Additionally, decreasing farm production, energy transition from fuelwood to LPG, and increasing impacts of wildlife, urbanization, climate change, and disasters forced farmers to look for alternative livelihood options. Remittance income surged in rural Nepal; facilitating livelihood diversification and increasing the community's involvement in non-farm and off-farm activities, substantially reducing their reliance on agriculture and forests.

This study highlights that the present CF needs reinvigoration, restructuration, and reimagination, internalizing the changing sociology of communities

and political manifestation of CF. Understanding the present mode of production of the communities, which are dominantly shaped by neoliberal markets, products, and policies, requires dealing with their changing relationship with land, forest, and society. Thus, the consideration of the following recommendations would be imperative for the restructuring of CF.

First, the CF should be restructured to accommodate both subsistence and commercial farmers, focusing on (i) species choices such as grass, fodder, and timber; (ii) needs such as subsistence and carbon sequestration; (iii) purposes such as commercial, livelihoods, cultural and environmental; and (iv) professions such as goat farmers and factory owners. Additionally, farmers'/users' choice of CF restructuration and governance mechanism should diversify based on local geography and culture. This means that a flexible CF governance should be envisioned for direct economic benefits according to their locations and ecologies.

Second, expanding the scope of CF to include watersheds and landscapes reorients CF as a business entity which rewards those who invest their labor, time, and resources in the functioning of the CFUGs. An interconnected institutional mechanism with financial imperatives for executive members could facilitate a multi-scalar CF that can entitle more forest resources and products to the users and market and carbon sequestration for the global trade.

Third, the future CF should transcend the "forest-only thinking" and embrace managing emerging risks like hazards and climate change. Additionally, regulating the watershed drainage system would allow us to envision a resilient CF capable of conserving natural resources like forests and water and managing existing and emerging risks of disasters.

Finally, given the federalized context of Nepal, the future CF should be tied to the local governments, which benefits future CF in two senses. First, it creates conditions for working with local government to conserve local resources and manage risks. Second, it facilitates envisioning governance for watershed level and multi-institutional CF, inclining the mechanism designed for the provincial/federal government.

Acknowledgments

We would like to express our sincere thanks to Dr. Hemanta Ojha, Dr. Dil B. Khatri, Dr. Mani Ram Banjade, and other reviewers for their helpful comments. We appreciate and thank Dr. Hemanta Ojha for suggesting designing the conceptual figure in Section 6.2.

Notes

1 Neoliberalism is a political economic practice that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets, and free trade (Harvey, 2005).

2 Primitive accumulation refers to the initial processes of "the separation of producers from their means of production" (Marx 1967). Paudel (2016) uses the concept of primitive accumulation to explain the processes of capitalist transformation in Nepal's community forestry in two ways: (1) community's social means of subsistence production into capital accumulation and (2) subsistence community structures into wage labor practices.
3 During this period, while farming families increased from 3.36 million to 4.13 million due to generational land inheritance, agricultural land decreased from 2.52 million ha to 2.22 million ha.
4 https://kathmandupost.com/money/2023/03/24/half-of-nepali-households-still-burn-firewood-to-cook-food
5 This visit was funded by the Swedish Research Council (Vetenskapsrådet) and the Swedish University of Agricultural Sciences (SLU)'s project called "The practice of resilience in mountain landscapes: exploring risk and landscape investments in rural Nepal" (grant no. 2017-0544).
6 Due to climate-induced disasters in Nepal, a total of 9,886 small and large weather and climate-related disaster incidents were reported between January 2020 to September 2022, claiming the lives of 1,173 people and 1,282 livestock, and destroying 4,945 houses and other types of infrastructure (Singh et al., 2022). The total economic loss accounted for approximately USD 45 million during the period (Singh et al., 2022).
7 The CF activities are guided and governed by the Operational Plan prepared by communities with technical support from and approved by the District/Divisional Forest Office (DFO) which has to be revised, renewed, and reapproved every five to ten years.
8 https://bipad.gov.np/en
9 https://myrepublica.nagariknetwork.com/news/pain-inflicted-by-monkey-is-indescribable/
10 https://risingnepaldaily.com/news/38724

References

Adhikari, B., Di Falco, S., & Lovett, J. C. (2004). Household characteristics and forest dependency: Evidence from common property forest management in Nepal. *Ecological Economics*, *48*(2), 245–257.

Adhikari, J., & Hobley, M. (2015). "Everyone is leaving. Who Will Sow Our Fields?" The livelihood effects on women of male migration from Khotang and Udaypur Districts, Nepal, to the Gulf Countries and Malaysia. *Himalaya*, *35*(1), 11–23.

Adhikari, S. (2018). Drought impact and adaptation strategies in the Mid-Hill farming system of Western Nepal. *Environments*, *5*(9), 101.

Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, *29*(10), 1649–1672.

Amatya, S. M., & Lamsal, P. (2017). Private Forests in Nepal: Status and policy analysis. *Journal of Forest and Livelihood*, *15*(1), 120–130.

Bardsley, D. K., Cedamon, E., Paudel, N., & Nuberg, I. (2024). Forest livelihood values and management opportunities to support the agrarian transition in Nepal. *Journal of Rural Studies*, *107*, 103253.

Bardsley, D. K., & Hugo, G. J. (2010). Migration and climate change: Examining thresholds of change to guide effective adaptation decision-making. *Population and Environment 32*, 238–262.

Basnyat, B., Baral, S., Tiwari, K. R., Shrestha, G. K., Adhikari, B., & Dahal, Y. N. (2020). COVID-19 outbreak, timber production, and livelihoods in Nepal. *Tribhuvan University Journal*, *34*, 15–32.

Bhattarai, N., Dahal, S., Thapa, S., Pradhananga, S., Karky, B. S., Rawat, R. S., Windhorst, K., Watanabe, T., Thapa, R. B., & Avtar, R. (2022). Forest fire in the Hindu Kush Himalayas: A major challenge for climate action. *Journal of Forest and Livelihood*, *21*(1), 14–31.

Bhawana, K. C., & Race, D. (2020). Outmigration and land-use change: A case study from the Middle Hills of Nepal. *Land*, *9*(1), 2.

Bhujel, K. B., Sapkota, R. P., & Khadka, U. R. (2022). Temporal and spatial distribution of forest fires and their environmental and socio-economic implications in Nepal. *Journal of Forest and Livelihood*, *21*(1), 1–13.

Bista, R., & Song, C. (2021). Human-wildlife conflict in the community forestry landscape: A case study from two Middle Hill districts of Nepal. *Human Dimensions of Wildlife*, *27*(2), 1–17.

Blaikie, P., Cameron, J., & Seddon, D. (2002). Understanding 20 years of change in West-Central Nepal: Continuity and change in lives and ideas. *World Development*, *30*(7), 1255–1270.

CBS (Central Bureau of Statistics) (2011a). *National population and housing census 2011 (National Report)*. CBS, National Planning Commission Secretariat, Government of Nepal.

CBS. (2011b). *Nepal Living Standard Survey 2010/11-Vol. two*. CBS, National Planning Commission Secretariat, Government of Nepal.

CBS. (2021a). *National Census 2021: Summary results. Page 198*. Office of the Prime Minister and Council of Ministers, CBS, Government of Nepal.

CBS. (2021b). *Preliminary findings of Population Census 2021*. CBS, Government of Nepal.

Cedamon, E., Nuberg, I., Paudel, G., Basyal, M., Shrestha, K., & Paudel, N. (2016). Rapid Silviculture appraisal to characterise stand and determine silviculture priorities of community forests in Nepal. *Small-scale Forestry*, *16*(2), 195–218.

Chhetri, R., Yokying, P., Smith, A., Van Den Hoek, J., Hurni, K., Saksena, S., & Fox, J. (2021). Forest, agriculture, and migration: Contemplating the future of forestry and agriculture in the middle-hills of Nepal. *The Journal of Peasant Studies*, *50*(1), 411–433.

Department of Forest Research and Survey (DFRS). (2015). *State of Nepal's Forests* (p. 52). Forest Resource Assessment (FRA), Nepal, DFRS, Kathmandu, Nepal.

Fox, J. (2018). Community forestry, labor migration and agrarian change in a Nepali village: 1980 to 2010. *The Journal of Peasant Studies*, *4*, 610–629.

Gartaula, H., Niehof, A., & Visser, L. (2012). Shifting perceptions of food security and land in the context of labour out-migration in rural Nepal. *Food Security*, *4*(2), 181–194.

Hart, G. (2024). Modalities of conjunctural analysis: "Seeing the Present Differently" through global lenses. *Antipode*, *56*, 135–164.

Harvey, D. (2005). *A brief history of neoliberalism*. Oxford University Press, Oxford.

Hussain, A., Rasul, G., Mahapatra, B., & Tuladhar, S. (2016). Household food security in the face of climate change in the Hindu-Kush Himalayan region. *Food Security*, *8*(5), 921–937.

Khatri, D., Paudel, D., Poudyal, B. H., Khatri, S., Poudel, D. P., & Marquardt, K. (2024). Examining socio-ecological transitions and new human–wildlife relations in farming landscapes of the Nepal Himalaya. *Journal of Agrarian Change*, *24*(4).

Liu, J., Wang, M., Yang, L., Rahman, S., & Sriboonchitta, S. (2020). Agricultural productivity growth and its determinants in South and Southeast Asian countries. *Sustainability*, *12*(12), 4981.

Mahato, S., & Valadaud, R. (2023). Beyond forest management: The politics of forest user groups in Chitwan. *Studies in Nepali History and Society*, *28*(1), 35–68.

Manandhar, T. R. (2014). Nepal: From Constitutional Monarchy to a Republican State (1990–2008). *Journal of International Studies*, *10*, 95–109.

Marx, K. 1967. *Capital Vol. 1: A critical analysis of capitalist production*. International Publishers, New York.

Ministry of Agriculture Development (MoAD). (2014). *Statistical Information on Nepalese Agriculture 2013/2014 (2070/071)*. MoAD, Singha Durbar, Kathmandu.

Ministry of Environment (MoE). (2010). *National Adaptation Programme of Action to Climate Change*. MoE, Kathmandu, Nepal.

Ministry of Population and Environment (MoPE). (2016). Nationally Determined Contribution. Ministry of Population and Environment, Government of Nepal. Kathmandu. October 2016. Can be accessed to https://unfccc.int/sites/default/files/NDC/202206/Nepal%20First%20NDC.pdf

Nightingale, A. J. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum*, *42*, 153–162.

National Statistics Office (NSO). (2024). Nepal Living Standards Survey IV 2022/23: Statistical Report. National Statistics Office (NSO), Office of the Prime Minister and the Council of Ministers. The government of Nepal. Kathmandu. June 2024. Can be accessed to https://nsonepal.gov.np/content/12061/12061-nepal-living-standards-survey/

Ojha, H. R. (2014). Beyond the 'Local Community': The evolution of multi-scale politics in Nepal's Community Forestry regimes. *International Forestry Review*, *16*(3), 339–353.

Ojha, H. R., Shrestha, K. K., Subedi, Y. R., Shah, R., Nuberg, I., Heyojoo, B., Cedamon, E., Rigg, J., Tamang, S., Paudel, K. P., Malla, Y., & McManus, P. (2017). Agricultural land underutilisation in the hills of Nepal: Investigating socio-environmental pathways of change. *Journal of Rural Studies*, *53*, 156–172.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions and collective action*. The University of Cambridge, Cambridge, UK.

Paudel, B., Wang, Z., Zhang, Y., Rai, M. K., & Paul, P. K. (2021). Climate change and its impacts on farmer's livelihood in different physiographic regions of the Trans-Boundary Koshi River Basin, Central Himalayas. *International Journal of Environmental Research and Public Health*, *18*(13), 7142.

Paudel, D. (2016). Re-inventing the commons: Community forestry as accumulation without dispossession in Nepal. *The Journal of Peasant Studies*, *43*(5), 989–1009.

Paudel, G., Poudyal, K., Paudel, D., & Pandit, B. H. (2022a). Can community forestry groups run forest businesses in Nepal? In N. S. Paudel, H. R. Ojha, M. R. Banjade, S. Tamang, eds. 2021. *Kathmandu: EnLiFT2 programme and ForestAction Nepal*. Research Paper Series on Improved Forest Management in Nepal. pp.1–86. ForestAction, Kathmandu.

Paudel, N. S., Ojha, H.R., Banjade, M.R., Karki, R., & Tamang, S. (2022b). *Introduction: Nepal's community forestry has entered a new crossroads*. ForestAction, Kathmandu.

Peet, R. (2006). *Modern geographical thought* (6th ed.). Blackwell.

Poudel, D. P. (2019). Migration, forest management and traditional institutions: Acceptance of and resistance to community forestry models in Nepal. *Geoforum*, *106*, 275–286.

Poudel, D. P. (2021). What is an institution? An ontological debate illustrating community forestry of Nepal. *The Geographical Journal of Nepal*, *14*, 21–40.

Poudel, D. P., Khatri, D., & Poudel, B.H. (2022). *Wildlife Management and Rural Economic Sytem (in Nepali)*. Kantipur Nepali National Daily. Kantipur, Kathmandu.

Poudel, D. P., Marquardt, K., Pain, A., & Khatri, D. B. (2024). De-agrarianisation and re-agrarianisation in patches: Understanding microlevel land use change processes in Nepalese smallholder landscapes. *Forests Trees and Livelihoods*, *33*(1), 1–22.

Poudyal, B. H., Khatri, D. B., Paudel, D., Marquardt, K., & Khatri, S. (2023). Examining forest transition and collective action in Nepal's community forestry. *Land Use Policy*, *134*, 106872.

Rigg, J. (2006). Land, farming, livelihoods, and poverty: Rethinking the links in the Rural South. *World Development*, *34*, 180–202.
Rijal, S., Gentle, P., Khanal, U., Wilson, C., & Rimal, B. (2021). A systematic review of Nepalese farmers' climate change adaptation strategies. *Climate Policy*, *22*(1), 132–146.
Seddon, D., Adhikari, J., & Gurung, G. (2002). Foreign labor migration and the remittance economy of Nepal. *Critical Asian Studies*, *34*(1), 19–40.
Sharma, J. R. (2013). Marginal but modern: Young Nepali labour migrants in India. *Young*, *21*(4), 347–362.
Sharma, J. R. (2021). *Political economy of social change and development in Nepal*. Bloomsbury, New Delhi.
Shrestha, U. B., Gautam, S., & Bawa, K. S. (2012). Widespread climate change in the Himalayas and associated changes in local ecosystems. *PLoS ONE*, *7*(5), e36741.
Sijapati, B., & Limbu, A. (2012). *Governing labour migration in Nepal: An analysis of existing policies and institutional mechanisms*. Centre for the Study of Labour and Mobility, Himal Books, Kathmandu.
Singh, P. M., Shrestha, Y., Uprety, D.R., Bhattarai, P., Sherchan, P., Maharjan, P., & Neupane, S. (2022). *Climate-induced Loss and Damage in Nepal*. Kathmandu.
Sugden, F. (2009). Neo-liberalism, markets and class structures on the Nepali lowlands: The political economy of agrarian change. *Geoforum*, *40*, 634–644.
Sugden, F., Nigussie, L., Debevec, L., & Nijbroek, R. 2021. Migration, environmental change and agrarian transition in upland regions: Learning from Ethiopia, Kenya and Nepal. *The Journal of Peasant Studies*, *49*(5), 1101–1131
Sugden, F., Seddon, D, & Raut, M. (2017). Mapping historical and contemporary agrarian transformations and capitalist infiltration in a complex upland environment: A case from eastern Nepal. *Journal of Agrarian Change*, *18*, 444–472.
Sunam, R., Barney, K., & McCarthy, J. F. (2021). Transnational labour migration and livelihoods in rural Asia: Tracing patterns of agrarian and forest change. *Geoforum*, *118*, 1–13.
Timsina, N., & Paudel, N. S. (2003). State versus community: A confusing policy discourse in Nepal's Forest Management. *Journal of Forest and Livelihood*, *2*, 8–16.
Timsina, S., Basyal, M., Dahal, K., Karki, R., & Paudel, N. S. (2021). What is choking Nepal's domestic timber supply? *Journal of Forest and Livelihood 20*, 62–77.

7 Institutions at crossroads

The evolution of collective action in community forestry

Dil B. Khatri, Govinda Paudel, Dinesh Paudel, Sajjan Regmi, and Rajan Parajuli

7.1 Introduction

In Nepal, community-level institutions have become a lynchpin of participatory development, local democracy, collective action, environmental conservation, and forest restoration. Although institutional modalities are context-specific and the outcomes vary in different places, there is a consistent need to adjust institutional arrangements to address environmental and developmental challenges. Since the pioneering efforts to establish community forestry (CF) institutions in the 1970s, Nepal's nationwide community forestry system (CFS) has empowered local communities to take collective actions in forest restoration and improving livelihoods. Creating legal provisions (see Dahal et al., this volume) to allow local communities to claim their rights to use and manage forests and to make decisions through the perpetually self-governed community institutions helped foster local collective action as a basis of CF. However, these institutional practices have been impacted by power hierarchies, de facto regimes of differentiated access to resources, socio-economic inequalities, and corruption (Iversen et al., 2006; Khatri et al., 2022; Paudel, 2016, and also see Tiwari et al., this volume). Despite these challenges, community institutions, through effective collective action, substantially restored forests that once were heavily degraded. Over 23,000 community forestry user groups (CFUGs) present numerous patterns of institutional modalities that have evolved to respond to diverse socio-political and environmental contexts, creating meaningful opportunities to understand how institutions develop and shape outcomes on ecological restoration and livelihoods improvement (Gautam et al., 2003; Oldekop et al., 2019). Responding to the profound socio-economic, political, and ecological changes resulting in notable shifts in forest-people relations in Nepal, community institutions have been innovating and evolving their modalities and everyday practices (Poudyal et al., 2023). Exploring these changing trends is essential for revisiting institutional modalities on how communities can adapt to rapidly changing contexts.

This chapter provides practice-based lessons and insights into Nepal's CF's institutional evolution and functioning. While scholars and policymakers stress the need for community participation in restoration initiatives for better

DOI: 10.4324/9781032705613-10
This chapter has been made available under a CC BY-NC-ND license.

ecological and livelihood outcomes (Fischer et al., 2023; Fleischman et al., 2020; Fleischman et al., 2022), an unanswered question is how such community engagement can be achieved in the shifting socio-economic contexts. To explore the lessons and insights of the past and potential innovations for the future, we review the historical evolutions, shifts in everyday practices, and contemporary changes in institutional dynamics and practices of CF in the last four decades. Specifically, this chapter aims to:

- Synthesize how the local participation process developed and institutionalized while addressing the need to restore degraded mountains in the late 1970s. Focusing on how CF institutions evolved and functioned allows us to show how communities responded to social, political, and ecological changes while practicing different institutional modalities across time and space.
- Analyze the impacts of evolving institutional arrangements on ecological sustainability and livelihood benefits.
- Offer insights into how and why institutional innovations can be developed in the context of changes in the country's political and economic structures and processes and what such changes mean for new local collective actions in the future.

7.2 History of community forestry institutions

The traditional community-based forestry practices, especially before the nationalization of forests in 1957, involved collective forest management for subsistence livelihoods through indigenous institutional practices (Gilmour & Fisher, 1991). Collective management of forests was practiced for centuries even though the land ownership was not very clear, and the feudal landlords and the state used to collect fees in the form of labor in return for forest utilization. From the fifth century onward, the village councils had the right to manage and use forests (Tiwari, 1990). Paudel et al. (2022) refer to written evidence in the forms of stone and metal inscriptions during the *Lichchhavi* dynasty (400–750 CE), in which community involvement in the management of water, forests, and pasture existed and was recognized by the state. Riccardi (1977) translated the royal edicts of then king Ram Shah (reigned 1606–1636), who devolved the rights to manage and resolve irrigation and drinking water disputes to the local communities. These practices recognized communities as the managers and owners of the forests.

After the unification of Nepal by Prithvi Narayan Shah in 1768, there were extra efforts by the state to entrust indigenous communities with collective ownership and management of the land and forest, the system popularly known as *Kipat* (Regmi 1976; Ranjit, 2019) in which the land/forest ownership was inheritable and sub-divisible to the next generations but within the same communities.[1] This system was practiced more widely in the eastern hills of Nepal, particularly in *Kirat* communities,[2] but it also existed in other parts

of Nepal. However, during the *Rana* regime (1846–1950), the *Kipat* and other similar systems were replaced with the *Raiker* system, in which individual households needed to undergo formal land registration. Following the gradual withdrawal of the *Kipat* system, the *Rana* rulers began to grant *Birta*, i.e., agricultural land and forest areas granted to individuals—their family members, relatives, army men, and civil servants loyal to the rulers—on a tax-free basis as a gift. In addition, *Rana* rulers began a *Talukdar* system where *Talukdars*—individuals chosen to act on behalf of the rulers—collected tax and regulated how the communities used and managed forests and accessed products such as timber, fuelwood, fodder, or leaf litter (Mahat, 1985; Ranjit, 2019). There were other forms of collective action in practice with differing names and functions. For example, *Naua*[3] was practiced in the Khumbu region. *Raniban*[4] was more common in the central and eastern hills, and the *Guthi*[5] system sporadically existed across the country with a collective tenurial arrangement.

After the end of the *Rana* regime in 1950, the government enacted the Private Forest Nationalization Act of 1957 and brought all forest areas across the country under the state control. The colonial forestry practices in India influenced Nepal's shift, and the arguments were that the state is capable and responsible for forest management and preventing deforestation. The government established the forestry department in 1942 to look after the forest sector (Kanel & Acharya, 2008) and it completely undermined the traditional institutional practices. The traditional and customary rights to manage and use forests under tenurial arrangements were made illegal. This resulted in widespread conflicts and mistrust between the state agencies and the traditional institutions, leading to deforestation by the defiant communities. The widespread concerns popularized by the Himalayan Degradation discourse, including Eckholm's (1976) drew the attention of the international community and put pressure on Nepal to address deforestation issues. The mounting pressure, domestic and foreign, forced Nepal to rethink the forest policies in the 1970s, which allowed for innovations in institution development and a major forest policy shift toward decentralization.

7.3 Community forestry institutional development and diversity

After the nationalization of forests in 1957, forest policies empowered the forestry department to regulate forest use and access strictly (Ojha et al., 2009; Paudel et al., 2022). Despite absolute power, the department could not enforce adequate regulatory provisions, particularly in the hilly regions where forest patches were scattered, and rural livelihoods were heavily dependent on forest resources (Kanel & Acharya, 2008). The Western concern about deforestation and soil erosion in the Himalayas (Blaikie & Brookfield, 1987) and the continued defiance by the communities forced Nepal to revisit and review the state-controlled policies and practices toward the ones that recognize and engage communities in managing forests.

Forestry authorities and international donors then turned toward the local communities to explore ways for them to participate in protecting forests and restoring the degraded landscapes. For instance, after consulting with the Panchayat Forestry Committee, the *Chautara* Forest Division invited local people to carry out an afforestation program and administer tree harvesting and distribution of forest products (Mahat, 1985). Forest officials discussed lessons from the government-community partnership experimentation at the National Forestry Conference 1975 with higher-level forest officials. The conference provided a mandate to the forestry department to formalize and expand the experimentations, including the involvement of *Panchayat—local village council—*in afforestation and forest protection roles carried out in *Sindhupalchowk* district to other hill districts with similar socio-economic and ecological conditions. With this development, Nepal's government agreed to devolve some authorities and responsibilities to the local level, i.e., *Panchayat* for protection and to regulate the extraction of forest products for local uses (Ranjit, 2019). This approach of working with local governments and seeking community participation provided a groundwork for a policy change toward embracing a participatory approach to forest conservation. In the 1980s, the government and donor agencies conducted local experiments for better community participation in afforestation activities nationwide.

With the realization that the devolution of authority to *Panchayat* was insufficient for local community participation in afforestation programs, a new approach to community participation was initiated in the *Kavrepalanchok* district in the early 1980s (Paudyal et al., 1987). Under the Australian government-funded forestry programs, forest officers and project facilitators started to organize local communities into informal groups (user groups) and elect ad hoc committees called protection committees (Paudyal et al., 1987). Further, the project initiated developing a management plan for each community group, incorporating defining forest and community boundaries, a participatory map of the forest, and basic rules for forest protection and utilization. The community forest user group (CFUG) as a community institutional mechanism gradually took shape alongside the development of the Master Plan of the Forestry Sector (MPFS) in 1988, which officially endorsed the CFUG model and designated CF as a priority government program. While the CFUG as an institutional mechanism was legally recognized by the Forest Act 1993, more than 2,000 CFUGs were already managing about 100,000 hectares (ha) of forests before its enactment.

Early experimentation of CF institutions was followed by the development of diverse forms of these institutions in different localities in Nepal. While the ownership of forests rests with the government under all community-based arrangements, including CF, a relatively higher level of rights (tenure security) is provided to local communities under the CF arrangement. Additionally, communities do not have to share the revenue from forest uses with the government except for taxes if they extract and sell forest products outside the communities. Forest Act 1993 (revised in 2019) recognized the registered forest user groups as autonomous bodies with perpetual succession (GoN, 2019) (Table 7.1).

Table 7.1 Different community-based forest management institutions in Nepal and their key features (MOFE, 2023)

SN	*Forms of community institution*	*Objectives and policy logics*	*Key institutional features*	*Status*
1	Community forestry	Responds to environmental degradation, decentralization of forest management, and integration of local communities to restore the degraded mountains.	Certain forest management and use rights are provided to a fairly large number of user households; forest conservation and production-oriented; communities do not need to share benefits with the government.	2,490,194 ha of forest area managed by 23,682 CFUGs as if 2023 (MOFE, 2023).
2	Leasehold forestry	Addresses specific needs of the rural poor, driven by positive discrimination and past project outcomes. The primary objective is to provide livelihood support from forest restoration.	A small number of selected poor households receive a patch of forest; emphasis on plantation and protection; communities can use resources except the standing trees at the time of forest handover.	About 7,731 leasehold forest user groups are managing 44,398.74 ha of forests.
3	Religious forestry	Ensures sustainable uses under religious guidelines and in collaboration with local authorities for conservation.	The primary beneficiary is the respective religious institution; protection/ conservation-oriented management; resources are used only for religious purposes.	About 2,896.57 ha of forests are managed by 186 religious institutions
4	Collaborative forest management	Responds to forest degradation in the *Terai* region, integrates community participation of distant users, and maintains co-ordination among different stakeholders.	Multiple groups of stakeholders, including government agencies; protection and production-oriented; community receives 50% of the revenue, while the government takes the remaining 50% of revenue	About 75,614 ha of forests are managed by 31 collaborative forest management committees in Nepal's *Terai* region

(*Continued*)

Table 7.1 (Continued)

SN	*Forms of community institution*	*Objectives and policy logics*	*Key institutional features*	*Status*
5	Buffer zone community forestry	Aims to strengthen the inter-relationship between protected areas and local communities living in and around it (Ghimire & Lamichhane, 2020)	Multiple communities of users; restricted use of products beyond the designated buffer zone.	About 211,213 ha of forest area surrounding the protected area are conserved by 1037 Buffer-zone CFUGs
6	Conservation area management committee (CAMC)	Facilitates local involvement in conservation efforts and manages natural heritages sustainably.	Multiple communities of users; emphasis on conservation and adopting parsimony on the utilization of forest products.	

Collaborative forest management (CFM) is another community-based forest management model, which emerged as a policy response to address the concerns of the distant users in *Terai*[6] (southern plain) region that the CF institutions are arguably inadequate. Critics contend that the proposed (and being practiced) CFM provides room for government control and undermines community autonomy, curtailing community rights and benefits. However, managing productive forests at a landscape level through the state-community co-management framework has been a significant policy expectation behind promoting CFM. Unlike CF, which holds communities' rights to manage and use forests, CFM has provisions to share the forest revenue equally with the government (Table 7.1).

Likewise, buffer zone community forestry (BZCF) and conservation area management committee (CAMC) were designed to promote the participation of communities in biodiversity conservation. Further, community-based leasehold forestry was explicitly intended to address the livelihood needs of the rural poor. Leasehold forestry involves handing over part of the forest area to a small group of poor households below the poverty line, and forests provide an asset for income-generating activities that support forest conservation and ecological restoration. On the other hand, religious forestry aims to protect religious sites while ensuring the conservation of forests in and around places of spiritual value.

These different institutional arrangements of community-based forest management vary in terms of decision-making authorities (autonomy), institutional structure, benefit sharing, and their functional mechanisms. Leasehold

user groups comprise only—five to seven households, all participating in every decision-making process. The CFUGs vary in size, ranging from quite often less than a hundred to a few hundred households (even above thousands in some cases). CFUG's decision-making mechanisms have two levels: all groups convene in a general assembly (GA) to make decisions (at least once a year), and an elected executive committee (EC) does day-to-day management decisions. This means that decisions are made collectively and mostly in consensus by the group members with little or no influence from the forestry department. CFM is a collaborative mechanism of forest governance among local communities, forest authorities, and local governments, and it entails significant government influence in decision-making. However, as we elaborate below, critics provide evidence of increasing government control even in CFUG decision-making regarding scientific and commercial forest management (Khatri et al., 2024).

These institutional diversities and modalities were mainly the response from the state. Forest bureaucrats increasingly felt that their traditional power was taken away by the communities and were under the impression that the conventional forestry profession was in jeopardy. Majority of Nepal's forest bureaucrats, through several administrative decisions and practices, have undermined the autonomy of the CFUGs which could provide officials ground to gain extra-legal personal rents from community-managed forests (Khatri et al., 2022; Ojha, 2006). Delaying handing over forests, increasing provisions of getting approvals, and creating hassles for the community leaders in forest operations activities were some of the passive aggressions exerted by forest officials. In response, community elites created informal institutional arrangements which would institutionalize rent-seeking practices informally. In some cases, a nexus of power was created, where the contractors played a bridging role between the officials and communities (Khatri et al., 2022). The communities responded to the muddy ground created by these dynamics by massively minimizing their involvement in community activities and paying less attention to the everyday operation of the forest. This was also contributed by declining population size in the hilly areas and people giving up subsistence farming due to outmigration (Poudyal et al., 2023).

7.4 Collective action mechanisms and institutional functioning

According to the Forest Act 2019, which provided the legislative framework for CF, the institutional arrangement and decision-making power rests on CFUGs, the legally established institutions registered in the Forest Offices. The households that have historically been using the forests are considered legitimate members of the CFUG. As a legal institution, the CFUGs function according to the constitution (*bidhan*) that outlines the key rules and decision-making processes. The major decisions in CFUGs are made in the GA of all member households, which are usually conducted once or twice a year. The group elects an EC (normally with 7–15 members) for day-to-day operations and makes

operational decisions concerning the management and utilization of forests. The latest amendment of the Forest Act 2019 also provisions the mandatory inclusion of one-third of the members in the EC of the CFUG from minority groups including female and lower caste disadvantaged communities.

Rules related to the management and utilization of forests are outlined in a periodic management plan, popularly known as an operational plan (OP). The plan contains information about the forest boundaries and resources as well as rules regarding forest management and use. The key rules and management provisions in the OP are discussed and endorsed by the CFUG general assembly which needs official approval from the Divisional Forest Office (DFO). However, in practice, the forest authority with technical expertise and bureaucratic rights has a significant influence in preparing the management plan and hence determining the key rules in OP (Baral et al., 2019; Ojha, 2006, 2008). This suggests that forest bureaucracy significantly affects how CF institutions operate and manage forests and is partly because of the tenure arrangement of CF—the government provides certain rights of management and use of forests to local communities. Land ownership rests with the government, only management and use rights are handed over to communities. Further, there are high levels of technical and bureaucratic control from forest authorities when it comes to making decisions about the management of forests and uses, particularly commercial extraction of forest products.

The CF, tested in the mountain regions, was implemented in the *Terai* and *Chure*[7] regions in the early 2000s. This means CF has been implemented in completely different contexts considering forest resources (ecology) and socio-economic dynamics. Despite such differences, the Forest Act of 1993 made no distinction between the establishment of CF in the hills and the *Terai*. It states that DFO can hand over the forests to the local communities as long as the forest is accessible, and communities are willing to manage the forest according to the rules and regulations (section 25 of the Forest Act 1991). The *Terai* region has productive forests and contains precious timber; therefore, the management (and use) of the forest is particularly contentious and challenging. Governance complexities also arise from the heterogeneous communities in *Terai*.[8] One of the challenges of such a mixed society is that CFUGs, particularly when they have command over high-value forests, can often be divided, conflictive, and unstable (Iversen et al., 2006).

While CF in the mountains focused on the conservation and restoration of once-degraded hills; in *Terai*, CF started commercial timber harvesting, often involving rent-seeking practices (Khatri et al., 2022; Paudel, 2016). Which means that the expansion of CF in the *Terai* region led to an important development, marking a significant departure in terms of commercialization and scientific framing of it (Khatri et al., 2022), requiring an inventory of forests to determine an annual allowable harvest which needs to be stated clearly in the OP. Making CF management more technical by involving forest inventory, required higher technical expertise in the CF processes and hence allowed control from the forestry department (Ojha, 2008; see also Banjade et al., this

volume). CFUGs in *Terai* began commercial timber harvesting, and the harvesting and selling of forest products, particularly timber, started to be heavily regulated by the forest authority (Khatri et al., 2022; Paudel, 2016). Further, the EC, dominated by local elites, timber contractors, and forest officials, played a crucial role in driving commercial timber harvesting with the primary interest of monetary benefits. Moreover, such bureaucratic control has further intensified in recent years. For example, in the recent amendment in forest regulations (The Forest Regulation, 2022), CFUGs are required to get permission from the sub-divisional office before harvesting trees, even for internal distribution within the community members. Such bureaucratic requirements have extended the government control in CF management.

7.5 Effectiveness of community forestry institutions

The institutional effectiveness of CF is well documented with details on how Nepal managed to increase forest cover and conditions as a result of massive people's participation in managing the forests (Niraula et al., 2013; Oldekop et al., 2019; Pokharel et al., 2017; Yadav et al., 2003). Niraula et al. (2013) showed that CF institutions played an important role in restoring forests in the Dolakha district at a rate of about 2% per year, with substantial reductions in forest fires and slash-and-burn agricultural practices. Similarly, community-managed forests are performing better than the state-managed forests in terms of increasing forest carbon stocks (Bluffstone et al., 2015; Bhawana et al., 2021).

Besides forest cover change, CF institutions have also provided important political and social spaces to foster community-level democratic practices and contribute to community development. The community institutions thrived and maintained important democratic functions even during the armed conflict in the 1990s (Pokharel et al., 2007). The community-level democratic processes are central to provisioning community development services such as supporting local education, healthcare facilities, maintenance of water infrastructure, and supporting poor households to uplift their livelihood conditions among others. Such democratic spaces also contributed to developing and nurturing local social and political leaders who played important roles in community development and broader political processes (Dahal & Chapagain, 2012).

However, elites capturing the leadership to serve their interests, negatively impacting local collective action is a huge issue (Iversen et al., 2006; Khatri et al., 2022). There is a high level of competition among major political parties to gain access to the CFUG leadership positions, especially in resource-rich community forests, particularly Sal forests in the *Terai* and *Chure* regions (Mahat, 2023). Such a high level of political interests and elite capture of leadership positions in the CFUGs are argued to be linked to maintaining control over resources and seeking private financial benefits, where the resource control is achieved by forming a nexus among powerful actors, including local leaders, contractors, and forest officials (Khatri et al., 2022). As a result,

broader community participation in CFUG decision-making and local autonomy to make decisions are reported to be compromised (Khatri et al., 2022).

The concerns about equity in decision-making and benefit-sharing have been persistent (Adhikari et al., 2007; Oldekop et al., 2019) even though women's leadership in rural areas is growing as a result of the outmigration of their male counterparts (Sijapati Basnett, 2013; Giri & Darnhofer, 2010). In response to these concerns, some efforts have been made at both the policy and practice levels. For example, the forestry department made a provision requiring CFUGs to allocate about 37% of the income for local livelihoods and enterprise development activities targeting poor and marginalized groups. Similarly, identifying the poorest households for provisioning livelihood support funds and mechanisms by allocating community forest land (mostly degraded ones) to selected households has been widely practiced. Land allocation was one of the institutional innovations within the CF institutional framework as a solution to the challenges of equity.

However, the success of these practices is widely questioned. The main argument has been that community institutions and forest management practices have not been able to generate economic benefits (Gritten et al., 2015; Paudel et al., 2022). Over the last two decades, CF has prioritized economic growth through commercial production as one of the key goals. There have been initiatives to develop community-based forest enterprise (CBFE) and some CFUGs have been practicing it successfully (Paudel, 2012). The broader policy environment, including bureaucratic understanding and practices, and the community institutions appear to be more subsistence-oriented and not fully supportive of commercially oriented management. The requirements for timber harvesting and selling are too lengthy and tedious, and it is hard for the community institutions to comprehend and comply with them (Khatri et al., 2022). Communities organized for subsistence mode of production are not fully capable of negotiating and benefiting from the competitive entrepreneurship in the largely private sector-controlled market systems. Institutionally, the question of equity, both in terms of participation in decision-making processes and sharing of benefits among community groups, is a key challenge.

7.6 Exploring institutional innovations in the changing context

In the last two decades, Nepal has undergone remarkable socio-economic, political, and environmental changes, which have important implications on CF institutions and community collective action practices, especially the everyday institutional functioning and participation in forest management. As the existing CF institutions were conceptualized while the majority of the population was subsistence farmers and the farming and forestry relationships were more important, CF is now facing new challenges in terms of the effectiveness of institutional functionality in changing contexts, specifically in the mid-hilly region of Nepal. While such challenges vary across contexts, i.e., between the resource-poor communities in mountain regions and the resource-rich regions (*Terai* and

Chure), we identify key domains of changes that have created new institutional contexts. These challenges are shaped by drivers of persistence and change, which are outlined below, enabling new institutions to emerge and function.

7.6.1 Declining reliance on forests for livelihoods

Outmigration of the rural population has resulted in depopulation of the rural areas (Sunam, 2020), which has increased consumerism driven by remittance and urbanization (Rankin, 2004). These socio-economic changes have two major consequences. First, improved access to alternative energy sources such as liquified petroleum gas and electricity, peoples' reliance on forests for subsistence needs such as fuelwood have sharply declined (Poudyal et al., 2023; Chhatri et al. 2021). Second, the socio-economic changes along with the ecological changes in the mountain landscapes have led to a new dynamic of human-wildlife interaction where farmers are facing increased crop depredation problems by animals such as monkeys, wild boars, and porcupines. Changing forest-people relations and a new form of challenges brought by ecological changes have posed significant obstacles to local collective action (Khatri et al., 2024). The changing human-wildlife relations are seen as an unintended negative consequence of forest transition, leading to declined community participation in forest management and other collective activities.

7.6.2 High transaction costs of collective actions relative to benefits

Historically, community participation in forest protection and management has always been voluntary and communities carried out activities such as afforestation, construction of fire lines, forest cleaning and thinning. In recent years, CFUGs have been struggling to even hold regular (mandatory) meetings. For instance, our study (Poudyal et al., 2023) in the villages of Dolakha and Ramechhap districts found that almost 80% of the studied CFUGs have not carried out basic forest management activities such as cleaning and thinning for the last five years. Further, a survey of 600 households in Sindhupalchowk, Kavre, Lamjung, Udayapur, and Salyan revealed a substantial decline in regular silvicultural operations and use of basic forest products from CF (see Karki et al., this volume). This is becoming a general trend across the mountain region of the country.

7.6.3 Bureaucratic hurdles

Higher levels of technical and bureaucratic requirements are imposed in the context of commercially oriented CF in the resources-rich regions of *Terai* and *Chure* (Khatri et al., 2022). Since 2012, the government implemented the "scientific forest management" scheme, which further intensified the technical requirements and bureaucratic control by requiring detailed inventories of forests and trees and more rigorous management plans involving a higher level of

technical expertise and financial resources (Khatri et al., 2022). CFUGs must go through more than 13 different steps, where government permissions are required in each step, resulting in the decline in people's engagement in forest management and decision-making.

7.6.4 Resource control through power nexus

In the context of CF's commercial management, powerful actors forge a nexus to maintain control over financial benefits and decision-making (Iversen et al., 2006; Larsen & Olsen, 2006; Paudel, 2016). In this process, CFUG's decision-making is shaped by powerful external actors undermining community autonomy and local priorities. For example, we observed in the CFUGs implementing Scientific Forest Management (SciFM) that the committee prioritizes selling timber outside the community through contractors instead of fulfilling local demands, as it provides an opportunity for monetary gain for the community elites and decision-makers (Khatri et al., 2022). Bhusal et al. (2020) explained in a case study from Nawalparasi district that, where the transaction of timber sales increased considerably, there increased inequity in resource distribution, i.e., an increase in timber prices for community members, as a result, only wealthier members were able to afford local timber.

7.6.5 Revisiting the CFUG-local government interface

Nepal has undergone a major political restructuring after the new constitution was promulgated in 2015, and CF is in the process of developing and aligning with the federal structure which has more powerful local governments (municipalities). There are widespread concerns that local governments are provided with limited authority when it comes to governing forests, as central and provincial governments hold forest authority. This means that the ties between CFUGs and local governments remain thin and unconnected. Forest Act 2019 and Local Government Operation Acts 2017 have conflicting and obscure provisions that provide room for contestation and conflict between the community groups and the local governments. Moreover, conflicting regulations exist in federal and provincial acts regarding the taxation of local forest products, which could create a serious tussle between CFUGs and local governments.

7.7 Conclusion

Nepal's CF institutions are diverse, complex, and are facing new challenges. Initially designed to restore degraded mountain forest landscapes and meet subsistence needs, these institutions have undergone significant transformations, creating both opportunities and challenges. The expansion of CF into resource-rich regions, alongside shifting socio-economic and ecological conditions, has necessitated continuous institutional innovation to sustain collective action. At least four key lessons are crucial:

First, the success of CF in Nepal was driven by the dual goals of environmental restoration and securing local forest rights. A supportive policy framework, coupled with locally driven institutional innovations, enabled communities to engage effectively in forest management (Pokharel et al., 2007; Oldekop et al., 2019). While tenure security through policy and legislative mechanisms provided the foundation, functioning institutional arrangements at the community level were essential in sustaining collective action for ecological and socio-economic outcomes.

Second, how community institutions can become more inclusive and equitable remains an unresolved challenge. Despite its success in restoring forests and fostering democratic spaces at the local level, challenges related to equity in participation and benefit-sharing persist. Power imbalances, elite capture, and increasing political influence over CFUG leadership continue to shape decision-making, disproportionately affecting marginalized groups (Iversen et al., 2006; Khatri et al., 2022). The competition among political parties to control CFUG leadership positions, particularly in resource-rich forests of the Terai and Chure regions, has compromised broader community participation and weakened local autonomy (Mahat, 2023; Paudel et al., 2022). Equity concerns, particularly in terms of gender and caste, remain significant despite efforts to empowerment.

Third, local institutional functioning and vitality is increasingly challenged by internal and external drivers. The expansion of CF into regions with high-value forest resources has introduced governance complexities. The shift from subsistence-oriented forest use to commercial forest management has led to recentralization tendencies, with increasing bureaucratic oversight and greater influence from powerful actors, including forest officials and timber contractors (Ojha, 2006; Khatri et al., 2022). This shift has, in many cases, undermined local decision-making autonomy, limiting the capacity of community institutions to manage forests for both economic and conservation purposes (Paudel, 2016). While market-oriented innovations have become essential (See Paudel et al., this volume), what institutional arrangements can best deliver CF's market ambition remains unclear.

Fourth, broader socio-economic and ecological shifts are reshaping CF institutions in Nepal. Outmigration, reduced reliance on forests for subsistence needs, and emerging environmental challenges, such as human-wildlife conflict, are altering the way communities interact with forests (Khatri et al., 2024). In many areas, traditional institutional arrangements are struggling to adapt, leading to declining community participation and weakened collective action (Poudyal et al., 2023). Additionally, bureaucratic requirements for forest management, particularly in commercially managed forests, have placed further constraints on community institutions, making it increasingly difficult for CFUGs to comply with regulatory processes and retain local control over decision-making (Khatri et al. 2022). Local CF institutions are struggling to revitalize themselves in the light of these regulatory hurdles, market opportunities, and socio-economic shifts.

As these socio-political and ecological changes unfold, it is imperative to envision and innovate institutional arrangements that can sustain collective action and ensure effective and equitable governance structures. Institutional innovations must focus on reducing administrative hurdles, rebalancing power between communities and state agencies, and integrating market opportunities that serve local priorities rather than external actors. Without such adaptations, CF risks being undermined by entrenched bureaucratic constraints and elite capture. A forward-looking approach that fosters governance reforms, builds the capacity of local institutions, and promotes inclusive participation will be key to ensuring that CF remains an effective model for both environmental restoration and sustainable livelihoods in Nepal and beyond.

Notes

1 Chalise, N.R., n.d. Land tenure reform in Nepal. Nepal Rastra Bank, available online https://www.nrb.org.np/contents/uploads/2021/09/vol5_art1.pdf
2 *Kirat* is a collective name for a group of ethnic communities viz. *Limbu*, *Rai*, *Lapcha*, and *Dhimal* in the eastern part of Nepal (Khatri, 2008). Among them, *Limbu* is a dominant community, and therefore, *Kipat* system is mostly associated with *Limbu*.
3 *Shingo Naua* is the guard of the forests appointed by the village assembly who oversees the use of the forests and distribution of forest products. *Shingo Naua* holds authority to issue permits to fell trees and fine the defaulters (Basnet, 1992).
4 *Raniban* is a protected forest, in which hunting is prohibited, and felling of trees is illegal unless someone receives permission from the village leader. Special permits are required to fell trees for community development, and construction of houses (Stevens, 1993).
5 *Guthi* is a kind of land tenurial arrangement where the revenue from the certain land goes to the management of temples, monasteries and religious, social, or charitable institutions.
6 *Terai* is a low-lying fertile land stretching east to west along the Indian border.
7 *Chure* is a mountainous formation stretching east to west along the *Terai* region.
8 Before the 1950s *Terai* was sparsely settled by indigenous communities and the forests were a primary source of revenue to the government. But the elimination of malaria led to major resettlement programs, and now more than half of Nepal's population lives in the *Terai*. This has had various consequences. First, most of the forest was cleared in the southern part of *Terai* leaving a narrow band of high-value forests in the northern part of it and the *Mahabarat* and *Chure* foothills. Second, the influx of migrants from the hills created mixed social groups in terms of caste, class, ethnicity, and communities.

References

Adhikari, B., Williams, F., & Lovett, J. C. (2007). Local benefits from community forests in the middle hills of Nepal. *Forest Policy and Economics*, *9*(5), 464–478. https://doi.org/10.1016/j.forpol.2005.11.002

Baral, S., Meilby, H., & Chhetri, B. K. (2019). The contested role of management plans in improving forest conditions in Nepal's community forests. *The International Forestry Review*, *21*(1), 37–50.

Basnet, K. (1992). Conservation practices in Nepal: past and present. *Ambio*, *21*(6), 390–393.

Bhawana, K. C., Race, D., Fisher, R., & Jackson, W. (2021). Changing rural livelihoods and forest use transition in the middle hills of Nepal. *Small-scale Forestry*, *20*(3), 479–501. https://doi.org/10.1007/s11842-021-09477-6

Bhusal, P., Karki, P., & Kimengsi, J. N. (2020). Timber distribution dynamics in scientifically managed community forests: Learning from Nepal. *Forests*, *11*(10), 1032. https://doi.org/10.3390/f11101032

Blaikie, P. & Brookfield, H., 1987. *Land degradation and society*, Methuen, London.

Bluffstone, R. A., Somanathan, E., Jha, P., Luintel, H., Bista, R., Paudel, N. S., & Adhikari, B. (2015). Does collective action sequester carbon? The case of the Nepal Community Forestry program. *World Bank Policy Research Working Paper* (7327).

Dahal, G. R., & Chapagain, A. (2012). Community forestry in Nepal: decentralized forest governance. In C. J. P. Colfer, G. R. Dahal, & D. Capistrano (Eds.), *Lessons from forest decentralization* (pp. 67–81). Routledge.

Eckholm, E. (1976). Losing ground. *Environment: Science and Policy for Sustainable Development*, *18*(3), 6–11.

Fischer, H. W., Chhatre, A., Duddu, A., Pradhan, N., & Agrawal, A. (2023). Community forest governance and synergies among carbon, biodiversity and livelihoods. *Nature Climate Change*, *13*(12), 1340–1347. https://doi.org/10.1038/s41558-023-01863-6

Fleischman, F., Basant, S., Chhatre, A., Coleman, E. A., Fischer, H. W., Gupta, D., Güneralp, B., Kashwan, P., Khatri, D., Muscarella, R., Powers, J. S., Ramprasad, V., Rana, P., Solorzano, C. R., & Veldman, J. W. (2020). Pitfalls of tree planting show why we need People-Centered natural climate solutions. *BioScience*, *70*(11), 947–950.

Fleischman, F., Coleman, E., Fischer, H., Kashwan, P., Pfeifer, M., Ramprasad, V., Solorzano, C. R., & Veldman, J. W. (2022). Restoration prioritization must be informed by marginalized people. *Nature*, *607*(7918), E5–E6. https://doi.org/10.1038/s41586-022-04733-x

Gautam, A. P., Webb, E. L., Shivakoti, G. P., & Zoebisch, M. A. (2003). Land use dynamics and landscape change pattern in a mountain watershed in Nepal. *Agriculture, Ecosystems & Environment*, *99*(1–3), 83–96. https://doi.org/10.1016/S0167-8809(03)00148-8

Ghimire, P., & Lamichhane, U. (2020). Community Based Forest Management in Nepal: Current Status, Successes and Challenges. *Grassroots Journal of Natural Resources*, *3*(2), 16–29. https://doi.org/10.33002/nr2581.6853.03022

Gilmour, D. A., & Fisher, R. J. (1991). *Villagers, forests and foresters: The philosophy, process and practice of community forestry in Nepal*. Sahayogi Press, Kathmandu.

Giri, K., & Darnhofer, I. (2010). Outmigrating men: A window of opportunity for women's participation in community forestry? *Scandinavian Journal of Forest Research*, *25*(sup9), 55–61. https://doi.org/10.1080/02827581.2010.506769

GoN, 2019. *Forest Act 2019*. Ministry of Forests and Environment, Kathmandu, Nepal.

Gritten, D., Greijmans, M., Lewis, S. R., Sokchea, T., Atkinson, J., Nguyen Quang, T., … & Paudel, N. S. (2015). An uneven playing field: regulatory barriers to communities making a living from the timber from their forests–exampfffles from Cambodia, Nepal and Vietnam. *Forests*, *6*(10), 3433–3451. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2621881

Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A., & Seeley, J. (2006). High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai. *Ecological Economics*, *58*(1), 93–107. https://doi.org/10.1016/j.ecolecon.2005.05.021

Kanel, K. R., & Acharya, D. P. (2008). Re-inventing forestry agencies: Institutional innovation to support community forestry in Nepal. In *Re-inventing Forestry Agencies: experiences of institutional restructuring in Asia and the Pacific*, edited by Patrick Durst, Chris Brown, Jeremy Broadhead, Regan Suzuki, Robin Leslie and Akiko Inoguchi. (Eds.) Rome: Food and Agriculture Organization.

Khatri, D., Paudel, D., Poudyal, B. H., Khatri, S., & Poude, D. P. (2024). Examining socio-ecological transitions and new human–wildlife relations in farming landscapes of the Nepal Himalaya. *Journal of Agrarian Change*. *24*(4), e12594. https://doi.org/10.1111/joac.12594

Khatri, D. B., Paudel, D., Pain, A., Marquardt, K., & Khatri, S. (2022). Reterritorialization of community forestry: scientific forest management in the Terai and Chure region of Nepal. *Journal of Political Ecology*, *29*(1). https://doi.org/10.2458/jpe.2298

Khatri, N.K. 2008. Traditional practices and customary laws of the Kirat People of Eastern Nepal and comparison with Nepal's Statutory Laws in N. Chhetri, B. Shakya and E. Sharma (eds.) *Biodiversity Conservation in the Kangchenjunga Landscape*. International Centre or Integrated Mountain Development, Kathmandu, Nepal.

Larsen, H. O., & Olsen, C. S. (2006). Unsustainable collection and unfair trade? Uncovering and assessing assumptions regarding Central Himalayan medicinal plant conservation. In D.L. Hawksworth & A.T. Bull (Eds.), *Plant conservation and biodiversity* (pp. 105–123). Dordrecht: Springer Netherlands.

Mahat, T. B. S. (1985). *Human impact on forests in the middle hills of Nepal* (Ph.D. thesis). Australian National University, Canberra, Australia.

Mahat, T. B. S. (2023). *The Initial Days of Nepal's Community Forestry* (2nd ed.). Sigma General Offset Press. ISBN 978-9937-0-7907-5.

Ministry of Forests and Environment. (2023). *Annual progress report: Fiscal year 2079/80* [in Nepali]. Government of Nepal. https://www.mofe.gov.np/uploads/documents/annual-report-079-80pdf-5895-844-1715750520.pdf

Niraula, R. R., Gilani, H., Pokharel, B. K., & Qamer, F. M. (2013). Measuring impacts of community forestry program through repeat photography and satellite remote sensing in the Dolakha district of Nepal. *Journal of Environmental Management*, *126*, 20–29. https://doi.org/10.1016/j.jenvman.2013.04.006

Ojha, H. R. (2006). Techno-bureaucratic Doxa and Challenges for Deliberative Governance: The case of Community Forestry policy and practice in Nepal. *Policy and Society*, *25*(2), 131–175. https://doi.org/10.1016/s1449-4035(06)70077-7

Ojha, H. R. (2008). *Reframing governance: Understanding deliberative politics in Nepal's Terai forestry*. Adroit Publishers.

Ojha, H. R., Cameron, J., & Kumar, C. (2009). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, *11*(5–6), 365–374. https://doi.org/10.1016/j.forpol.2008.11.003

Oldekop, J. A., Sims, K. R. E., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*(5), 421–428. https://doi.org/10.1038/s41893-019-0277-3

Paudel, D. (2012). In search of Alternatives: Pro-Poor Entrepreneurship in community Forestry. *The Journal of Development Studies*, *48*(11), 1649–1664. https://doi.org/10.1080/00220388.2012.716152

Paudel, D. (2016). Re-inventing the commons: Community forestry as accumulation without dispossession in Nepal. *The Journal of Peasant Studies*, *43*(5), 989–1009. https://doi.org/10.1080/03066150.2015.1130700

Paudel, G., Carr, J., & Munro, P. (2022). Community forestry in Nepal: A critical review. *The International Forestry Review*, *24*(1), 43–58. https://doi.org/10.1505/146554822835224810

Paudyal, B.R., King, G.C., & Malla, Y.B. (1987). The development of improved local forest management in Kabhre Palanchok District. *Banko Janakari 4*(1), 16–19.

Pokharel, B. K., Branney, P., Nurse, M., & Malla, Y. B. (2007). Community forestry: conserving forests, sustaining livelihoods and strengthening democracy. *Journal of Forest and Livelihood*, *6*(2), 8–19. https://www.nepjol.info/index.php/JFL/article/view/2321

Pokharel, R. K., Tiwari, K. R., & Thwaites, R. (2017). Community forestry in Nepal. In R. Fisher, M. Poudel, & R. Thwaites (Eds.), *Community Forestry in Nepal*, (pp. 37–58). Routledge.

Poudyal, B. H., Khatri, D. B., Paudel, D., Marquardt, K., & Khatri, S. (2023). Examining forest transition and collective action in Nepal's community forestry. *Land Use Policy*, *134*, 106872. https://doi.org/10.1016/j.landusepol.2023.106872

Ranjit, Y. (2019). History of Forest Management in Nepal: An analysis of political and economic perspective. *Economic Journal of Nepal*, *42*(3–4), 12–28. https://doi.org/10.3126/ejon.v42i3-4.36030

Rankin, K. N. (2004). *The Cultural Politics of Markets: Economic Liberalization and Social Change in Nepal* (1st ed.). Pluto Press. https://doi.org/10.2307/jj.28799914

Regmi, M. C. (1976). *Landownership in Nepal*. University of California Press.

Riccardi, T. (1977). The Royal edicts of King Rama Shah of Gorkha. (1), pp. 29–65.

Sijapati Basnett, B. (2013). Taking migration seriously: What are the implications for gender and community forestry? *CIFOR Infobrief No. 65*. Center for International Forestry Research.

Stevens, S. F. (1993). Tourism, change, and continuity in the Mount Everest region, Nepal. *Geographical Review*, *83*(4), 410–427. https://doi.org/10.2307/215823; https://www.jstor.org/stable/215823

Sunam, R. (2020). *Transnational Labour Migration, Livelihoods and Agrarian Change in Nepal: The Remittance Village*. Routledge.

Tiwari, K.B. (1990). *Nepalko ban byabasthapanko aitihasik singhabalokan (A historical review of the forest management of Nepal)*.

Yadav, N. P., Dev, O. P., Baginski, O. S., & Soussan, J. (2003). Forest management and utilization under community forestry. *Journal of Forest and Livelihood*, *3*(1), 37–50.

8 Unveiling the elite nexus

The political economy of progress and stagnation in Nepal's community forestry

Sarada Tiwari, Hemant Ojha, Naya S. Paudel, and Sindhu Prasad Dhungana

8.1 Introduction

Recent studies show that Nepal's community forestry (CF) is facing the challenge of stagnation. Degraded community forest areas have been restored but not used or managed actively despite increasing economic potential from a market point of view. The area of community forests has increased to 35%; however, its share of the timber supply to market has declined significantly. In 2015, 96% of the total harvested volume supplied to the market was contributed by community forests (Paudel, 2016) which fell to 5.5% by 2019/2020 (Basnyat et al., 2020; MoF, 2020). The government's economic survey report shows that the royalty collection from forestry sector has declined by nearly sixfold in the last five years (MoF, 2024). Consequently, despite CF's enormous potential for timber supply, Nepal is importing timber from different countries (Nuberg et al., 2019; Timsina et al., 2021). This underutilization of CF resources has become evident when rapid socio-economic and political changes impact forest-people relations at the local level. At the same time, CF policies and strategies struggle to embrace or respond to such changes (Paudel et al., 2022; Laudari et al., 2024).

The stagnation in CF can be primarily attributed to the underlying political economy dynamics around three key questions: (i) who controls decisions, (ii) whose knowledge counts, and (iii) who is authorized to manage, harvest, and share benefits. Nepal's CF can be recognized as a battlefield of uneven power relations among multiple groups of actors who contest, struggle, and negotiate access to and control over resources from the local to the national level (Kishor et al., 2015; Ojha, 2006; Ojha et al., 2009b; Timsina & Gotame, 2014). These political and economic dynamics eventually shape forest restoration and livelihood outcomes by influencing CF operations and functioning. Historically, the domination of a techno-bureaucratic mindset, nurtured within the institutions of the state, has been highlighted as a prominent factor undermining the democratic functioning of forest resources in CF (Giri & Ojha, 2011; Nightingale & Ojha, 2013; Ojha, 2006; Ojha, 2013). However, new coalitions across government, markets, and civil society have emerged in recent years, reshaping CF's functioning and transcending the state-community divide. A political economy approach to analysis helps understand the actors' landscape, their vested interests, and differentiated capacities of

DOI: 10.4324/9781032705613-11
This chapter has been made available under a CC BY-NC-ND license.

actors and groups and to identify likely pathways to improved forest management and utilization (Kishor et al., 2015; Riggs et al., 2020).

This chapter aims to unravel local forces holding up or stalling CF from progressing to more active, sustainable, and equitable management, taking a political economy perspective. Based on our empirical research in two mid-hill districts—Sindhupalchowk and Kavrepalanchowk of Nepal, we identify six emerging issues concerning how negotiating power, knowledge, and resources determine the functioning of CF. These issues are: (i) how formal policies related to CF are manipulated in practice, (ii) how informal nexus is developed between several actors to reap the material and symbolic benefits from forests, (iii) how Community Forest User Group (CFUG) as an organization is becoming dysfunctional in delivering market-oriented functions, (iv) how the decline in facilitative regimes is impacting local functioning of CF, (v) how lack of clear sub-regional policies are stagnating the functioning of CF, and (vi) how civil society engagement in CF is changing.

The findings center on these six issues and are based on five years of action research, including ethnographic observations, key informant interviews (KIIs), archival records, and timeline analysis. Through this chapter, we expect to offer local-level dynamics of power relations, knowledge interfaces, and resource transactions and their impacts on Nepal's CF (Figure 8.1).

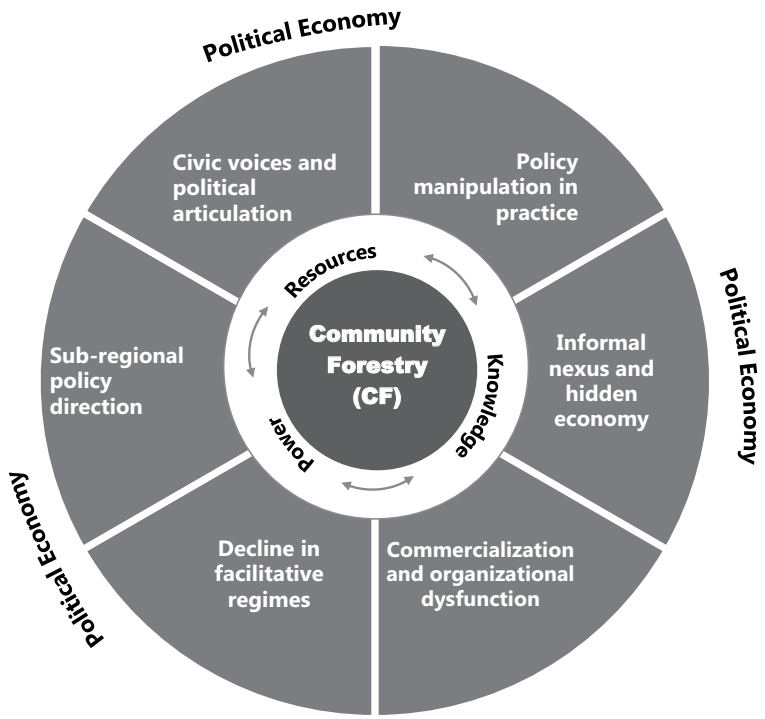

Figure 8.1 The conceptual framework applying the political economy approach to assess specific elements cutting across power, knowledge, and resources in CF.

Source: Authors.

8.2 Political economy of Nepal's CF in practice

The findings in this section highlight the intricate political economy dynamics shaping Nepal's CF. The governance of CF is characterized by contestation, negotiation, and transactions among diverse actors—government officials, community forest user groups (CFUGs), traders, civil society, and local elites—who seek to influence policy implementation and resource allocation. These interactions have led to distorted policy practices, the emergence of informal economies, and elite capture, ultimately hindering the inclusive and equitable management of forest resources. The six key issues analyzed in this section—ranging from policy manipulation and informal market networks to organizational dysfunction and governance failures—underscore the systemic barriers preventing CF from realizing its full potential. However, while these challenges expose deep-seated structural inequalities, they also reveal opportunities for institutional transformation. By understanding how power, knowledge, and resources intersect in CF governance, this section provides insights into potential pathways for resetting CF governance toward a more transparent, accountable, and sustainable framework—issues that will be further explored in the Conclusion.

8.2.1 Policy manipulation in practice

Policy manipulation is defined as the intentional distortion of policy provisions by powerful actors to meet their material or symbolic interests at the expense of broader community benefits. A comprehensive set of policies and laws issued by the state underpins the functioning of CF (Dahal & Chapagain, 2012; Kanel & Kandel, 2004). However, these policies and legal frameworks are often manipulated during their development, interpretation, and implementation (Baral, 2018; Tarnowski, 2002). Forest officials at different government levels develop regulatory instruments and procedures without sufficient political oversight while elaborating and interpreting policies and laws. This provides space for discretionary decisions and manipulation. Motivations for manipulation are diverse—from reducing job-related risks through informal benefits to maintaining hierarchical positions. In some cases, government officials act as agents of informal coalitions of policy manipulators, including traders, civil society actors, and the local elites, indicating that manipulation results from an alliance of elites pursuing shared interests.

Nepal's formal policies and laws on CF are often considered exemplary, particularly for their devolution of community rights (Ojha et al., 2009a; Thwaites et al. 2017). However, policy manipulation poses a persistent threat to CF in Nepal. Over the past four decades, several favorable provisions have been institutionalized—such as recognizing CFUGs as self-governing entities, allowing them to reap 100% of the benefits from community forests, and granting them authority to set prices for forest products (Paudel et al., 2022). Yet, such provisions are frequently manipulated in practice. Manipulation occurs in two primary ways: through positional power that reinterprets policies to control CF and administrative power used by implementing authorities under the guise of scientific reasoning.

Positional power constraints in issuing guidelines, procedures, and ad hoc decisions restrict the CFUGs' autonomy. For example, while the Forest Act allows CFUGs to sell their forest products at the rate they determine, the Department of Forests issued "Community Forest Products Sales Guidelines of 2014," which enforced a strict step-by-step procedure for distributing and selling forest products. Meanwhile, the circular endorsed in 2012 requires CFUGs to allocate a percentage of timber to the District Forest Product Supply Committee (DFPSC) at a set royalty rate. The local forest officials use these guidelines to manipulate product sales, hindering communities from exercising their legal rights and receiving fair benefits.

An immediate consequence of such manipulation was observed in the research sites where one of the CFUGs (CFUG 1 from Kavrepalanchowk) was instructed to sell only 75% of its timber harvest at a market price and allocate 25% to DFPSC. The local forest officials justified this by claiming the allocation was required to fulfil the district's demands for timber and fuelwood, a rationale that later unfolded differently. A contractor subsequently requested the CFUG1 to sell timber at the lowest government-set royalty rate, promising to handle all necessary paperwork with the government officials. Faced with potential waste, the CFUG1 accepted the contractor's offer, resulting in them receiving significantly lower returns than the market price for 25% timber. A member of the CFUG1 (interviewed on 28 July 2022) expressed disappointment, stating:

> We were disappointed that the rate was too low. From the same harvest, we sold 75% timber at NPR. 300 per cubic feet (ft) and the remaining at NPR.100 per cft.

Another form of manipulation involves the misuse of scientific reasoning using administrative power. Government forest officers, holding both administrative power and technical expertise, sometimes manipulate measurements and calculations associated with timber harvest. For instance, according to the government's Pine Plantation Thinning Guidelines (2007), 240 trees per hectare (ha) should be retained. During forest inventory to develop an Operational Plan (OP), 600 trees/ha were counted, prompting the CFUG2 (Sindhupalchowk) to propose harvesting 360 trees. However, forest officials argued that removing more than 50% would result in total forest degradation and may invite public criticism. They suggested retaining at least 300 trees/ha, resulting in a revision of the OP. The CFUG2 had to comply with the forest officials as they have combined administrative authority and technical expertise.

Such policy manipulation results in financial, reputational, or relational gains for those in power. It usually adds cost or burden to the CFUGs, compromises harvest levels, and skews benefits away from CF members (Baral et al., 2018; Basnyat et al., 2018; Ojha, 2013). Moreover, manipulation often leads to less transparent and inconsistent decision-making, disempowering CF members, and increasing their vulnerability to discretionary decisions, ultimately undermining forest management and benefits.

8.2.2 Informal nexus in timber trade

Informal nexus among the several actors in forestry sector often supersedes the formal procedures, especially in the marketing and trading forest products. Nepal's CF refers to the non-transparent or even illicit alliance among the CFUG leaders, traders, and forest officials aimed at channeling returns to themselves at the expense of government revenues and community benefits. Despite over 15 procedural steps for timber sales designed to safeguard against potential illegal activities, these lengthy processes provide ample space for manipulation and rent-seeking (Timsina & Gotame, 2014; Goutam, 2017; Basnyat et al., 2023). Apart from the elites in CFUGs, law enforcement agencies, and traders, other actors, such as local political leaders and hooligans, are involved in the process and seek illicit benefits.

CFUGs usually have a low capacity to navigate administrative requirements for their forest product sales, leading local traders to step in and engage with all powerful actors to meet the requirements. The CFUGs' dependency on local traders for administrative procedures can result in bidding information being leaked, traders forming cartels, and suppressing competitive pricing of timber produced by CFUGs.

Informal nexus also functions as a mechanism that favors the nexus members individually at the expense of the collective interests of the respective organizations. Sometimes, local elites from CFUGs and forest officials favor their friendly traders by leaking sensitive information or by developing bidding criteria that suit particular traders. In return, the traders often offer corresponding rewards to the elites and officials. The local tea shops, cafés, and restaurants become suitable venues for informal meetings, negotiations, and transactions, most of which are accounted as business costs of traders (Basnyat et al., 2023). In October 2022, the CFUG3 (Kavrepalanchowk) published a tender notice with incorrect bank details and timber volume, but the favored trader got the correct information through bilateral communication with a CFUG member. The trader got the other two bidders from his alliance, registered all three documents on time, and won the bid. Other competing bidders were excluded due to the misleading information. Although it was reported to the forest office, no legal action was taken.

Timber traders often develop cartels and suppress fair competition. In 2017, the CFUG3 published a tender notice to sell timber. Three local traders developed a cartel and submitted a bid with a very low-price offer. However, a fourth trader from outside the area, less familiar with local areas, submitted a bid with a much higher price. According to the information provided by one of the forest officials (interviewed on 27 July 2022), the local traders were unhappy with the presence of the outside bidder. They were looking for ways to get him out of their way. While opening the bid documents, one of the local traders grabbed the document submitted by the outside trader and tore it apart. Two other contractors and some paid hooligans protected him, and so action was taken. Later, the officials decided to re-publish the tender notice. This incident

threatened a fair and competitive process of timber sale. Not only did the CFUG lose its potential opportunity to get a higher price, but it also discouraged fair timber trading practices in the future.

This informal nexus undermines fair trade and prevents communities from obtaining legitimate incomes. An executive of CFUG2 (interviewed on 20 April 2021) stated that actors outside the CFUG reaped nearly 60% of the benefits from their timber sale in 2018. Those actors included local elites, traders, and hooligans hired by traders and officials directly or indirectly involved in the timber sale. This is also confirmed by a local trader (interviewed on 27 July 2022) who shared that, "*nearly half of the profit goes to unofficial payments to the actors at local and higher levels, including law enforcement agencies, local political cadres, and hooligans*." He further said,

> We have to fill too many stomachs while transporting timber. One day, a local law enforcement agent caught my timber, accusing that the receipt from the ward office was incorrect. When I asked him to wait until the next day for a corrected receipt, he demanded some kilograms of vegetables and groceries from the driver and let him go.

Informal nexus, also termed the iron triangle[1] (Moreno Zacarés, 2020), is widespread in the forest products trade in CF. Such a nexus between the CFUG elites, traders, and forest officials weakens the formal institutional process, undermines transparency and accountability in the timber trade, and compromises fair and competitive processes in the sale and exchange of forest products. Informal nexus is more visible in collusive corruption, including rent-seeking and rent-seizing, especially in the timber trade (Basnyat et al., 2023; Goutam, 2017), is widespread in the forest products trade in CF. Such nexus between the CFUG elites, traders and forest officials weakens formal institutional process, undermines transparency and accountability in timber trade and compromises fair and competitive process in the sale and trade of forest products.

8.2.3 Organizational dysfunction in the context of commercialization pressures

The term "commercialization" about CF refers to market-oriented forest products. Increased road networks, urbanization, and demand for forest products have driven community forests. The increased production of forest products has also opened avenues for establishing and operating forest enterprises.

CFUGs, as foundational institutions of CF, were formed initially to meet the early objectives of protecting forests while meeting the needs of subsistence forest products. The use of these products was regulated for sustainability and equity. Accordingly, the leaders of CFUGs could enforce restrictive measures on forest products based on participatory and consensual decision-making. However, the original institutional design and leadership style needed

transformation as forest-people relations changed and management shifted to more commercial production, trade, and enterprises and CFUGs lagged in such transformation, resulting in gaps in institutional performance.

The CFUG4 (Kavrepalanchowk) started generating substantial income from timber sales in the late 2000s. However, the prevailing informality in financial transactions, poor bookkeeping, and inadequate safeguards against potential misconduct have led to financial embezzlement. A few elites of the committee started lending huge amounts of CF's income to their favored people without any formal decisions. They started embezzling the funds allocated for road construction and vegetable farming. There was a lack of transparency in decision-making, and even the minutes of the meetings were signed by visiting individuals. In 2008, the Commission for the Investigation of Abuse of Authority (CIAA) investigated the case, and the CFUG leaders were found guilty. Even the current committee of the CFUG4 has been found guilty of financial embezzlement. A review of five-year audit reports of the CFUG revealed that nearly 60% of the CFUG's income was spent without any information to its members. As per the regulatory provision, at least 35% had to be spent on the livelihood enhancement of members, with 25% on forest management, which was not fulfilled. It was found that only 8.8% was mobilized in livelihood activities, while there was no record of how much was spent on forest management. A member of the CFUG (interviewed on 8 November 2022) said, "*The persons whom we trusted and elected as Chairperson used our income in purchasing his land. He also received a commission from the road construction project funded by the CFUG income. At last, there is nothing for the users*."

Shifting forest management priorities toward maximizing cash income has changed the locus of decision-making away from villages to urban centers. Increased market interface demands intensive communication among CF leaders, traders, and forest officials. As forest officers and traders, both powerful actors are in the urban centers, and CF leaders have to travel frequently to meet them. The restaurants and cafés in district headquarters and urban centers provide convenient places to meet and make secret deals. Almost 50% of the key leaders of CFUG4 live in their villages while remaining in urban centers away from villages where most of the timber processing and trade occur. They frequently meet with the officials and traders there and have established close links with them. They have their CFUG office in their bags (letterheads, stamps, and checkbooks, among others). They can produce all the needed documents without getting back to the village. During the general assemblies (GA), their allies, along with other youths living in urban areas, visit together, capture the assembly process, create documents, and secure critical decisions in their favor. This is how they have maintained their leadership without any accountability to the large mass of members.

During the community (tole) meeting on 25 November 2021, the CFUG members expressed their frustration with the executives: "*(pointing to the chairperson) he won't leave the executive committee unless he spends all the CFUG's funds*."

Generally, CFUGs that have harvested and sold timber in the market have faced more profound governance challenges. Such an inverse relation between income and institutional performance has two explanations. Firstly, there is a gap in CFUG's capacity to mobilize funds. For example, several CFUGs in our research sites used to manage less than NPR. 50,000 on average, have now earned over 2 million from timber sales. There are no corresponding capacity development interventions to handle the suddenly increased funds. Second, support agencies, including Division Forest Offices (DFOs) and local governments, appear more interested in timber harvest and often ignore governance. Despite the vast scope of commercializing CF, poor governance in timber harvest, sale, and income mobilization has skewed the commercialization benefits to a few local elites, traders, and officials, resulting in frustration among general CF members.

"*It is better not to harvest trees. The chairperson, secretary, and treasurer will cheat CF's fund together if harvested. Rather, it is better to let the trees remain in the forest*," said one of the CFUG members during the tole meeting of CFUG4 in March/April 2017.

Several forest enterprises that were set up and meant to be operated by CFUGs in the research sites have now collapsed. We identify three major explanations for the failure of these enterprises. First, leadership formation in CF usually follows an inclusive democratic process that tends to bring socially respected personalities who can mobilize all the members. However, such leadership may not necessarily have competency in commercial businesses, which is increasingly needed in the changing context. Second, CFUG leaders and members voluntarily provide their time and resources to govern CFUGs and manage forests. Incentivizing those leaders and members to compensate for their contributions is not well accepted and institutionalized. Finally, the collective process of CFUGs has proven inefficient in keeping information confidential and making swift decisions, especially concerning timber trade and operating enterprises.

The gap between the growing pressure to commercialize CF and the needed capacity and expertise of CFUG leaders is becoming increasingly visible. Some areas for transformation, such as leaders' business competencies, incentivizing leaders, efficient decision-making, and diversifying service provisioning in CF, have been identified to fill the gap.

8.2.4 Decline in facilitative system

In CF, a facilitative system refers to the functional network of state, private, or civic organizations that have funds, human resources, and programs to support the institutional and technical strengthening of CFUGs. Such support during the early phase of CF induced collective action, innovations, and networking at local, national, and international levels. Support from the government and international aid projects remained crucial in CF development, especially during its early phase.

Aid projects generally supported inclusive and participatory governance, prioritizing the poor, women, and Dalits in their interventions. They also endorsed piloting, experimenting, and innovating in governance, institutional, and technological development. This helped incentivize forest officials to increase their knowledge and skills in CF facilitation. The actor landscape was more open to collaborative efforts, empowering the CF members. However, the support was confined to forest protection, restoration of forest ecosystems, and meeting basic forest product needs.

There have not been many international aid projects in recent years in CF. CFUGs increasingly depend on DFOs and local governments, even for small support. The shift from reliance on aid projects to DFOs and local governments has marginalized the agenda of governance improvement, inclusive participation, and institutional strengthening. Although the DFOs' support is declining, they usually prioritize technical aspects of OP revision or harvesting plans, often to CFUGs with high timber potential. The social agenda is generally kept aside. The weakening of the social and governance agenda has, in turn, strengthened the iron triangle between CFUG leaders, forest officers, and traders (Basnyat et al., 2023).

Production and sales from CF are decreasing due to heavy reliance on forest officials for technical and administrative services. The limited human resources at the DFO's disposal often prioritizes facilitating timber harvest and sale from private forests. Three factors explain this shifting priority. First, timber harvesting and sale from private forests is much easier than CF as they do not require the organization of a general assembly or institutional involvement. There is also less of a requirement for the documentation, and it involves much fewer steps for approval and permits. Additionally, there is no need for an auction. Second, because of the small scale of transactions, the private forest owners do not have any bargaining power and are compelled to sell their trees at a much lower price set by the traders. This would allow traders to incentivize the officials for their facilitation. Based on the information from a local collector (interviewed on 27 July 2022), over 22% of the costs incurred in timber transactions from private forests are informal.

Declining project support and increasing reliance on government officials have also led to the privatization of public services that add costs to CFUGs. When the CFUGs become desperate to get technical services, the forest officials suggest and introduce their close friends as technical consultants. They also facilitate the negotiation of consultant's fees. Behind the curtain, they work with the consultant and share the fees. CFUGs are paying government officials for their technical services through consultants. However, poor CFUGs who cannot afford to pay the consultant had to wait for years to get their OP renewed. The CFUGs who can pay for the services are also unable to choose the service providers since forest officials are reluctant to acknowledge service providers they have not recommended.

A leader of CFUG5 from Kavrepalanchowk (interviewed on 3 August 2022) made a complaint,

> I have been requesting forest officials to renew our OP for the last three years (since 2020 A.D.) On several applications, they finally conducted a survey of our CFUG in April/May 2022. However, we have not received the renewed OP. Whenever I inquire, they always say that they have completed the computer work and are doing the remaining work. I am not sure how many more years it will take.

8.2.5 Sub-regional and local policy direction

Federalism has opened spaces for sub-regional and local policy directions to shape CF. Nepal embarked on a federal political system in 2015. The Constitution of 2015 brought CF under the jurisdiction of provincial governments. Forest Act 2019 and Forest Regulations 2022 have empowered the provincial government and its agency, the DFO, to oversee, regulate, and support CF. There is now a provincial Ministry of Forest and Environment, a forest directorate, and DFOs under the provincial government.

However, despite federalization, CF is still largely shaped by federal-level policies and political economy dynamics. The provisions of the Forest Act and the Forest Regulations have provided a detailed prescription of processes and procedures, leaving little room for provincial interests in CF. In addition, the DFO's five-year plan must be developed following the federal strategic forest plan. Currently, many DFOs are constrained by the lack of plans due to the absence of federal-level plans. Similarly, the proposed National Standards for Sustainable Forest Management have halted sub-national initiatives, including local governments' initiatives. Although local governments are allowed to develop and implement their forest laws, and hundreds have already issued such laws, there is little authority they can exercise. As a result, local government's early enthusiasm has gradually decreased in recent years with the realization that there is little they can influence. In the words of the Chair of Bhumlu Rural Municipality of Kavrepalanchowk,

> Forests are one of the major resources of our municipality, and I was really enthusiastic about the prospects of utilizing our forests for people. Accordingly, I allocated NPR. 5.5 million to the forest sector in our first year's budget. But we could not do anything with forests. I realized that it belongs elsewhere. We are only the peripheral actors. Now, we have diverted our budget away from forests.

Although the forests are constitutionally in the concurrent list of power among all three levels of the government, provincial and local level political leaders often complain that the federal government has encroached on their jurisdictions. We observed that the sub-national and local vision and direction have

been almost invisible in shaping CF. Despite CF being a locally grounded initiative with diverse socio-ecological contexts, it is still primarily guided by the centralized vision and direction. Deeply rooted centralizing mindsets among the prominent political leaders, strong resistance from bureaucracy, and weak bottom-up movement for devolution may have helped maintain the status quo.

8.2.6 Civic voice and political articulation

Civic action and political articulation from broader society, notably the Federation of Community Forestry Users Nepal (FECOFUN), development professionals, and critical intellectuals, have primarily influenced the design and development of CF at the national level (Timsina, 2003). However, their presence and influence in sub-national and local politics in favor of CF transformation are often weak. They have become even less influential in recent years, mainly because of the fragmentation of the governance system and the civic movement.

There are gaps between the nationally guided FECOFUN-led advocacy campaign and local priorities and strategies. The ethnographic observation of local CF activists reveals that multiple interests shape their relations and actions. Although FECOFUN has contributed to producing political leaders at various levels, many activists have faced challenges maintaining their livelihoods and engaging in civic actions. Some central civic leaders partially engage in aid projects and get some support. However, sub-national-level leaders have minimum access to such support. In such a situation, many local cadres maintain a close and often non-transparent nexus with the forest officials and traders, helping negotiate timber trade from CFUGs and may sometimes be rewarded by the traders. Such relations are occasionally seen with suspicion, especially by other activists.

A large group of CF supporters mainly represented by members of wider civil society, development professionals, environmentalists, and intellectuals, who were once able to exert positive influence for favorable policies and practices, now appear to be dispersed with the diverse and sometimes conflicting views on common issues of CF. Critical intellectuals, who tend to bring more critical perspectives, have gradually been sidelined by government officials, traders, and political and civic leaders.

8.3 Discussion

CF involves local political economy, which is linked with the larger political-economic forces such as decentralization of state authority, influence of donors and aid agencies, national political dynamics, commercialization and commoditization of rural economy, and trade liberalization (Sikor, 2006). The devolution of forests to CFUGs on the one hand and increasing techno-bureaucratic control over their management on the other has resulted in contestation over the rights and roles between state actors and communities

(Agrawal & Ostrom, 2001). Everyday practice involves power exercises that use the six domains identified in this chapter.

This chapter identifies policy manipulation by influential actors as one of the central issues in Nepal's CF sector. This problem is not confined to Nepal alone but is relevant to international trends in community-based forest management (CBFM) regimes. Decentralization efforts, which are supposed to empower communities, often fall flat when local elites with power and the officials distort the policies to fulfil their interests. Similar dynamics have been experienced during forest resource utilization by several other nations, such as Indonesia, Cambodia, Vietnam, and Ghana, where powerful actors take advantage of certain loopholes in the forest governance system (Hajar, 2015; Hapsari, 2011; Teye, 2013; To et al., 2014). In Nepal, manipulating forest policies limits community control over the forest, reflecting a broader challenge in the decentralized forest management system globally, as governance frameworks and administrative structures are easily co-opted by those in positions of authority.

Another issue emphasized in this chapter is the presence of informal ties or nexus among forest officials, traders, and community leaders, which determine the resource allocation and how they are managed. This phenomenon is also widely observed in other countries practicing CBFM, where informal networks often operate parallel to formal governance structures. For example, informal networks in Zambia and Kenya have allowed elites to control timber markets, undermining formal governance mechanisms to protect such access (Hara et al., 2009). These hidden economics operate in a social context fostered by corruption and misallocated resources, defeating the CF projects' positive intentions in terms of equitable share of benefits. These informal alliances in Nepal also contribute to a governance system that disproportionately benefits those with more significant economic and political capital, similar to the other countries where such informal governance patterns erode community participation and ownership.

The study also brings forth the weak functioning of the CFUGs, mainly when transitioning from subsistence forest use to commercialization. This shift often exposes gaps in governance and managerial capacity. The scenario of Nepal parallels Bolivia and Mexico, where the community forestry groups struggled to manage forest enterprises due to limited business skills and poor organizational structures (Larson et al., 2010). Organizational problems like poor financial management and operational disputes often appear when the groups are expected to participate in market-oriented activities without little to no institutional and capacity-building support (Krott et al., 2014). In this context, Nepal's experience is not unique but somewhat indicative of broader difficulties faced by communities globally that have been placed in a market-centric forest management paradigm.

An additional problem involves a decrease in facilitative support systems, which practically disappeared when international aid and donor-driven capacity-building programs were withdrawn. Nepal's CFUGs have become more

dependent on local government and forest officials, whose priorities are aligned with commercial interests over community welfare. This decline in external support has also been observed in other countries, where international aid has contributed to establishing CBFM initiatives. For example, the withdrawal of donors in Tanzania and India has been linked with weakening governance structures and declining community participation in forest management activities (Blomley, 2008; Springate-Baginski & Blaikie, 2007). The declining role of external facilitation in Nepal underscores the vulnerability of CBFM systems that rely heavily on external actors for their success. This challenge also affects other countries with similar aid-dependent forestry systems.

Another dimension highlighted in the chapter is the multi-level governance challenges that arise from the country's shift to the federal system. The roles of the provincial and local governments are still not well-defined, resulting in a governance vacuum for effective forest management. Past research has documented similar governance tensions in Brazil and Indonesia, where decentralization has led to disputes over management responsibilities between national, provincial, and local authorities (Ribot et al., 2006). In these cases, governance agencies within sub-national governments often don't have enough power or resources to manage forests properly, much like in Nepal, where federalism has made an already weak governance structure even more complicated.

Lastly, the weakening civic voices and political articulation among Nepal's CFUGs, primarily through organizations like FECOFUN, mirrors a broader trend in CBFM showcasing the decline of influence of CSOs over time. For example, in Mexico and some African countries, CSOs were crucial in promoting CFs initially, but later became sidelined due to political co-optation and elite capture (Bray et al., 2003; Hara et al., 2009). In Nepal, this decline in civic involvement is worsened by political control, where forest user groups are taken over by political elites, similar to what happens elsewhere. This loss of civic voice reduces community participation and weakens forest management systems' accountability, deepening resource access inequalities.

8.4 Conclusion

This chapter explored the political-economic roots underpinning the progress and stagnation of CF. We drew on five years of insights from an action research project entitled, "Enhancing Livelihoods from Improved Forest Management in Nepal (EnLiFT)" in Kavrepalanchowk and Sindhupalchowk Districts. While CF has been hailed as a successful model of participatory forest management, the findings highlight how elite capture, policy distortions, and governance failures continue to restrict its ability to adapt to evolving socio-economic and ecological challenges. These limitations prevent CF from fully realizing its potential as a driver of both sustainable forest management and local livelihoods. This finding underscores a broader issue in decentralized governance globally, where the mere devolution of power is insufficient without mechanisms to guard against elite capture and policy distortion.

Addressing these barriers requires a strategic approach that tackles governance inefficiencies, policy manipulation, and declining civic engagement while fostering new institutional collaborations. First, strengthening inclusive governance within CFUGs is essential. Many CFUGs struggle with elite domination, financial mismanagement, and lack of accountability. Enhancing transparency through regular financial audits, independent monitoring mechanisms, and the use of digital tools for record-keeping can help reduce rent-seeking behaviors. In addition, empowering marginalized groups—such as women, Dalits, and Indigenous communities—through leadership training and capacity-building initiatives can make decision-making more inclusive and equitable. At the same time, CFUGs need to be restructured to operate more efficiently in a market-oriented context, ensuring they can adapt to the growing commercialization of forest products.

Second, addressing policy manipulation and informal networks is critical. The selective enforcement of regulations has constrained CFUGs' ability to harvest and sell forest products, benefiting only a few powerful actors. To counteract this, policies should be revised to minimize bureaucratic hurdles and prevent discretionary decision-making by officials. Establishing clearer legal provisions, promoting competitive bidding processes, and using digital tracking systems for timber sales can enhance transparency and accountability. Tackling informal networks that dominate the timber trade requires regulatory oversight and mechanisms that prevent collusion between traders, bureaucrats, and CFUG elites.

Third, reinvigorating facilitative support systems is necessary to help CFUGs transition toward more sustainable and economically viable forest management in an inclusive way. With the decline of capacity-building programs, many CFUGs lack the technical expertise and institutional support required to navigate new challenges. Strengthening local facilitative institutions—such as municipal-level technical advisory units and forestry cooperatives—can provide much-needed assistance. Encouraging partnerships between CFUGs and private sector actors, such as timber processors and eco-tourism businesses, can also help diversify income streams and reduce dependency on traditional timber sales.

Fourth, aligning CF governance with Nepal's federal structure is crucial. While decentralization has theoretically created opportunities for local and provincial governments to play a larger role in CF, the lack of clear policy direction has resulted in uncertainty and inaction. Clarifying the role of provincial and municipal governments and ensuring better vertical coordination can enable more context-specific and responsive forest governance. Finally, reclaiming civic voice and collective action is essential to ensuring that CF actions are driven by those most affected by them. The weakening of grassroots advocacy has reduced community influence in policymaking. Strengthening research-based advocacy can also strengthen downwardly accountable CF practices.

For CF to move beyond its current stagnation and address both livelihood needs and ecological sustainability, a broader transformation of its political economy is required. This entails a multi-pronged approach that strengthens governance, reduces policy distortions, and fosters institutional innovations. The path forward must involve not only government actors and CFUGs, but also the private sector and the broader civil society deliberating on ways to build a more just, transparent, and resilient community forestry system. Without such a shift, CF risks remaining trapped in a cycle of underutilization, elite control, and policy inertia—its potential unrealized and its communities underserved.

This analysis shows how the ultimate goals of forest restoration and livelihood outcomes are linked to the combined effect of problematic power relations, knowledge interfaces, and resource transactions. Identifying six empirical issues related to political economy, this chapter highlights that the policy manipulation in practice, informal nexus and hidden economy, organizational dysfunction concerning commercial forest management, the decline in facilitative system, unclear sub-regional local policy direction, and problematic civic voice and political articulation are underlying political economy roots of the CF stagnation.

Note

1 Iron triangle is the corrupt nexus among the CFUG leaders, forest officials and the traders. This works in an invisible way, make secret deals and secures private benefits to themselves.

Bibliography

Agrawal, A. & Ostrom, E. (2001). Collective action, property rights, and decentralization in resource use in India and Nepal. *Politics and Society*, 29: 485–514.

Aryal, K., Ojha, B. R., & Maraseni, T. (2021). Perceived importance and economic valuation of ecosystem services in Ghodaghodi wetland of Nepal. *Land Use Policy*, 106, 105450.

Bajracharya, S. N. (2022). Inflation in Nepal – a cause for concern. https://nepaleconomicforum.org/inflation-in-nepal-a-cause-of-concern/

Baral, S., Gautam, A. P., & Vacik, H. (2018). Ecological and economical sustainability assessment of community forest management in Nepal: A reality check. https://doi.org/10.1080/10549811.2018.1490188

Baral, S. (2018). Attempts of recentralization of Nepal's Community Forestry. *Journal of Institute of Forestry*, 15, 97–115.

Basnyat, B., Treue, T., Pokharel, R. K., Lamsal, L. N., & Rayamajhi, S. (2018). Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, 91, 5–18. https://doi.org/10.1016/j.forpol.2017.08.010

Basnyat, B., Baral, S., Tiwari, K. R., Shrestha, G. K., Adhikari, B., & Dahal, Y. N. (2020). Covid-19 outbreak, timber production, and livelihoods in Nepal. *Tribhuvan University Journal*, 34, 15–32.

Basnyat, B. (2021). Pitfalls of scientific forestry practices in the Community Forestry of Nepal. *Forestry: Journal of Institute of Forestry, Nepal*, 18(01), 30–40.

Basnyat, B., Treue, T., Pokharel, R. K., Kayastha, P. K., & Shrestha, G. K. (2023). Conservation by corruption: The hidden yet regulated economy in Nepal's community forest timber sector. *Forest Policy and Economics*, 149, 102917.

Blomley, N. (2008). Enclosure, common right and the property of the poor. *Social and Legal Studies* 17(3), 311–331.

Bray, D. B., Merino-Pérez, L., Negreros-Castillo, P., Segura-Warnholtz, G., Torres-Rojo, J. M., & Vester, H. F. (2003). Mexico's community-managed forests as a global model for sustainable landscapes. *Conservation Biology*, 17(3), 672–677.

Dahal, G. R., & Chapagain, A. (2012). Community forestry in Nepal: decentralized forest governance. In *Lessons from forest decentralization* (pp. 67–81). Routledge. Edited by Carol J. Pierce Colfer, Ganga Ram Dahal and Doris Capistrano. https://doi.org/10.4324/9781849771825

Dev, O. P., Yadav, N. P., Springate-Baginski, O., & Soussan, J. (2003). Impacts of community forestry on livelihoods in the middle hills of Nepal. *Journal of Forest and Livelihood*, 3(1), 64–77.

Giri, K., Ojha, H.R. (2011). Participation and economci innovations: Technocracy dillemas in community forest management. Discussion Paper. ForestAction Nepal.

Goutam, K. R. (2017). Corruption in Timber Production and Trade. 273.

Hajar, B. (2015). Bureaucracy and Governance in Indonesia: Study on West Sulawesi Province. *Procedia Economics and Finance*, 23, 223–227. https://doi.org/10.1016/S2212-5671(15)00348-2

Hapsari, M. (2011). The political economy of forest governance in post-Suharto Indonesia. H. Kimura, Suharko, AB Javier, & A. Tangsupvattana (Eds.), *Limits of good governance in developing countries* (pp. 103–137).

Hara, M., Turner, S., Haller, T., & Matose, F. (2009). Governance of the commons in southern Africa: Knowledge, political economy and power. *Development Southern Africa*, 26(4), 521–537.

Kanel, K. R., & Kandel, B. R. (2004). Community forestry in Nepal: Achievements and challenges. *Journal of Forest and Livelihood*, 9.

Kanel, K., Shrestha, K., Tuladhar, A., & Regmi, M. (2012). *A study on the demand and supply of wood products in different regions of Nepal*. Kathmandu: REDD—Forestry Climate Change Cell Babarmahal.

Kishor, N., Castillo, S., & Nguyen, N. (2015). The Political Economy of Decision-Making in Forestry. https://www.semanticscholar.org/paper/The-Political-Economy-of-Decision-Making-in-Kishor-Castillo/226611840edc9d0874460fc949ef8685d5734634

Koirala, R., Giri, K., & Pokharel, B. K. (2008). *Development and status of community forestry governance in Nepal*. Reno-Tahoe, Nevada: National Convention of Society of American Foresters.

Krott, M., Bader, A., Schusser, C., Devkota, R., Maryudi, A., Giessen, L., & Aurenhammer, H. (2014). Actor-centred power: The driving force in decentralised community based forest governance. *Forest Policy and Economics*, 49, 34–42.

Larson, A.M., Barry, D., Dahal, G.R., Colfer, C.J.P. (2010). Tenure change in the global south. In: Larson, A.M., Barry, D., Dahal, G.R., Colfer, C.J.P. (Eds.), *Forests for People: Community Rights and Forest Tenure Reform*. London: Earthscan, pp. 3–18.

Laudari, H. K., Sapkota, L. M., Maraseni, T., Subedi, P., Pariyar, S., Kaini, T. R., … & Volkova, L. (2024). Community forestry in a changing context: A perspective from Nepal's mid-hill. Land Use Policy, 138, 107018.

MoF. (2020). *Economic survey: Fiscal year 2019/2020*. Nepal: Ministry of Finance. https://old.mof.gov.np/uploads/document/file/Economic%20Survey%202019_20201125024153.pdf

MoF. (2024). *Economic Survey 2023/24*, Ministry of Finance, Government of Nepal, Kathmandu.

Moreno Zacarés, J. (2020). The iron triangle of urban entrepreneurialism: The political economy of urban corruption in Spain. *Antipode*, 52(5), 1351–1372.
Nelson, F., & Agrawal, A. (2008). Patronage or participation? Community-based natural resource management reform in sub-Saharan Africa. *Development and Change*, 39(4), 557–585.
Nguyen, C. V., Giang, L. T., Tran, A. N., & Do, H. T. (2021). Do good governance and public administration improve economic growth and poverty reduction? The case of Vietnam. *International Public Management Journal*, 24(1), 131–161.
Nightingale, A. J., & Ojha, H. R. (2013). Rethinking power and authority: Symbolic violence and subjectivity in Nepal's Terai forests. *Development and Change*, 44(1), 29–51.
Nuberg, I. K., Shrestha, K. K., & Bartlett, A. G. (2019). Pathways to forest wealth in Nepal. *Australian Forestry*, 82(sup1), 106–120. https://doi.org/10.1080/00049158.2019.1614805
Nuijten, M. C. M. (2005). Power in practice: A force field approach to power in natural resource management. *Journal of Transdisciplinary Environmental Studies*, 4(2), 3–14.
Ojha, H. R. (2006). Techno-bureaucratic doxa and challenges for deliberative governance: The case of community forestry policy and practice in Nepal. *Policy and Society*, 25(2), 131–175.
Ojha, H., Persha, L., & Chhatre, A. (2009a). Community forestry in Nepal: A policy innovation for local livelihoods. *International Food Policy Research Institute*, 913.
Ojha, H. R., Cameron, J., & Kumar, C. (2009b). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, 11(5–6), 365–374.
Ojha, H. (2013). Counteracting hegemonic powers in the policy process: critical action research on Nepal's forest governance. *Critical Policy Studies*, 7(3), 242–262.
Orb, J. D. (2008). *The political economy of public-private partnerships: Forestry co-management in northwest Saskatchewan*. (Doctoral dissertation, University of Saskatchewan).
Ojha, H. R., Banjade, M. R., Sunam, R. K., Bhattarai, B., Jana, S., Goutam, K. R., & Dhungana, S. (2014). Can authority change through deliberative politics?: Lessons from the four decades of participatory forest policy reform in Nepal. *Forest Policy and Economics*, 46, 1–9.
Paudel, D. (2016). Re-inventing the commons: Community forestry as accumulation without dispossession in Nepal. *The Journal of Peasant Studies*, 43(5), 989–1009.
Paudel, G., Carr, J., & Munro, P. G. (2022). Community forestry in Nepal: A critical review. *International Forestry Review*, 24(1), 43–58. https://doi.org/10.1505/146554822835224810
Pokharel, B., & Ojha, H. (2005). Community forestry in Nepal: A platform for public deliberation or technocratic hegemony. *International Union for Forestry Research Conference Brisbane*.
Pokharel, B. K., Stadtmüller, T., & Pfund, J. L. (2005). From degradation to restoration: An assessment of the enabling conditions for community forestry in Nepal. *Intercooperation, Swiss Foundation for Development and International Cooperation, Switzerland*, 273, 13.
Pokharel, B. K., & Pokharel, B. K. (2006). Contribution of community forestry to people's livelihoods and forest sustainability: Experience from Nepal. World Rainforest Movement, Montevideo, Uruguay (http://www.wrm.org.uy/countries/Asia/Nepal.html Accessed on 5 October 2010).
Pokharel, B. K., Branney, P., Nurse, M., & Malla, Y. B. (2007). Community forestry: Conserving forests, sustaining livelihoods and strengthening democracy. *Journal of Forest and Livelihood*, 6(2), 8–19.
Poudel, A., Kennedy, J., Basnet, S. M., & Pokhrel, P. (2019). Federalism and environment in Nepal: Issues and challenges. *The Journal of Development Studies*, 5, 3–10.

Poudyal, B. H., Khatri, D. B., Paudel, D., Marquardt, K., & Khatri, S. (2023). Examining forest transition and collective action in Nepal's community forestry. *Land Use Policy*, 134, 106872. https://doi.org/10.1016/j.landusepol.2023.106872

Ribot, J. C., Agrawal, A., & Larson, A. M. (2006). Recentralizing while decentralizing: How national governments reappropriate forest resources. *World Development*, 34(11), 1864–1886.

Riggs, R. A., Langston, J. D., & Phann, S. (2020). Actor network analysis to leverage improvements in conservation and development outcomes in Cambodia. *Ecology and Society*, 25, 1–13.

Rouse, J. (1994). Power/knowledge. The Cambridge Companion to Foucault, 2.

Shahi, N., Bhusal, P., Paudel, G., & Kimengsi, J. N. (2022). Forest—People nexus in changing livelihood contexts: Evidence from community forests in Nepal. *Trees, Forests and People*, 8, 100223.

Sikor, T. (2006). Analyzing community-based forestry: local, political and agrarian perspectives. *For. Policy Econ*. 8, 339–349.

Springate-Baginski, O., & Blaikie, P. (Eds.). (2007). *Forests People and Power: The Political Ecology of Reform in South Asia* (1st ed.). Routledge. https://doi.org/10.4324/9781849771399

Springate-Baginski, N. O. (2013). Annexation, struggle and response: Forest, people and power in India and Nepal. In *Forests People and Power* (pp. 49–82). Routledge.

Strange, S. (1994). States and Markets, 2nd edn (London: Pinter). Four Theses on the Global Financial Crisis, 137.

Tarnowski, C. B. (2002). Forest places, political spaces: the social implications of community forestry in Nepal (Doctoral dissertation, University of Georgia).

Teye, J. (2013). Corruption and illegal logging in Ghana. *International Development Planning Review*, 35(1), 1–19.

Thwaites, R., Fisher, R., & Poudel, M. (Eds.). (2017). *Community forestry in Nepal: adapting to a changing world*. Routledge.

Timsina, N.P. (2003). Viewing FECOFUN from the perspective of popular participation and representation. *Journal of Forest and Livelihood*, 2(2), 67–71.

Timsina, N. P., & Gotame, B. (2014). *Political economy of forestry sector of Nepal: Analysis of actors' engagement and policy processes*. Nepal: ForestAction.

Timsina, S., Basyal, M., Dahal, K., Karki, R., & Paudel, N. S. (2021). What is Choking Nepal's Domestic Timber Supply? *Journal of Forest and Livelihood*, 20, 1.

To, P. X., Mahanty, S., & Dressler, W. (2014). Social networks of corruption in the Vietnamese and Lao cross-border timber trade. In *Anthropological Forum* (Vol. 24, No. 2, pp. 154–174). Routledge.

9 Reframing community forestry

Critiquing planning practices and charting a path for revitalization in Nepal

Krishna K. Shrestha, Naya S. Paudel, Mani Ram Banjade, and Hemant Ojha

9.1 Introduction

Community-based planning for natural resource management is essential but often fails local and marginalized communities and the environment. Across the Global South, the question of how diverse local communities plan and implement natural resource management activities to deliver socially equitable and environmentally sustainable outcomes remains an enigma despite many years of research, policy, and practice (Eidt et al., 2020; Yami & Mekuria, 2022). In the early stages of community forestry (CF) development in Nepal over 30 years ago, Gilmour and Fisher (1991, p. 183) criticized the culture of decision-making within the bureaucracy as illogical and thus could be a risk to CF. In recent years, significant scholarly work has highlighted the success and failure of CF planning practices, exposing problems such as equity, elite capture, social inclusion, and environmental sustainability (Jusrut, 2022; Leone, 2019; McManus et al., 2014). Yet, there is a gap in our understanding of how, when, and why community-based planning practice works or does not work in Nepal's changing social, economic, political, and environmental contexts.

Scholars have highlighted how and why local-level planning and decision-making are vital for the legitimacy, autonomy, and sustainability of communities and the environment. According to Benjamin (2008), when specific policies and practices are not legitimized locally because of their inappropriateness or because the communities do not recognize the authority of a particular locus, they might express their dissatisfaction through active or passive resistance. In many areas of the developing world, non-state actors either ignored the state policies (Shrestha, 2016) or manipulated them with or without a nexus with state officials (Nightingale et al., 2018). While external support can help, it must be less deterministic, respect local knowledge, values, and norms, and promote the resilience of local communities, information exchanges, and market linkages. Local-level decision-making, while intended to "include" communities in multi-level participation, is often distorted in

DOI: 10.4324/9781032705613-12
This chapter has been made available under a CC BY-NC-ND license.

practice (Basnyat et al., 2018). Threats of bureaucratic re-centralization have been reported widely, and tokenism is a critical issue in Nepal and globally. Despite these conceptual and empirical advances, evidence from the field suggests that the practice of local-level decision-making has not improved as anticipated (García-López, 2019), being shaped by rapid change in society and the environment and a decline in public trust in government (Eidt et al., 2020).

The participation of local stakeholders in the planning process became central to communicative planning theories, which emerged in the late 1980s and 1990s. Habermas's theory of communicative action (Habermas, 1987) attempts to explain the interconnection between the systemic side of human life and the value-driven side of human introspection—the latter being defined as the "lifeworld." The proponents of communicative planning argue that it produces commonly accepted objectives and has a commitment to implementation. It assumes that sharing information and interaction creates new ideas, leads to more creative solutions, builds social capital, and reduces racial tensions and social conflicts (Ananda & Herath, 2003; Margerum, 2002). In collaborative dialogue, participants often discover ways to jointly meet their interests and others, which is consensus building (Innes & Booher, 2004). Still, in practice, it is criticized on the grounds of differing interests of stakeholders, unequal power and authority, participatory exclusion, inequity, and elite capture. Planning processes and Operational Plans (OPs) as political, legal, and technical documents guide the Community Forest User Groups (CFUGs) governance and statutory functions, define forest management activities, and shape roles and relations with its members and relevant agencies. While there has been a strong focus on the planning of forest management and organizational functions, there is relatively inadequate attention to its efficacy. CFUG's interest, power, and authority to plan and manage forests have been questioned in the changing context of increasing bureaucratic interest in forests, lowering forest dependencies, changing values of forests, political and policy complexities, and unprecedented outmigration. Current practices largely follow top-down approaches, taking the information supplied by "experts" as vital for ensuring informed decisions and empowering CFUGs. The current CF planning, at least in theory, has been influenced by participatory planning linked to policy reform supporting devolution, but what is lacking is despite the prolific growth of actors engaged in the CF system from local to national levels, the communicative/deliberative planning has been missed. This chapter explores how to catalyze the potential power of deliberation to bring devolution into practice.

We conducted critical action research with CFUGs, local governments, and local forest administration offices, supported by Australian government-funded projects (EnLIFT 1[1] and 2[2]). The five CFUGs—Kalapani, Chaurkuna, Thople, Dharapani, and Shreechhap CFUGs—are located in Kavrepalanchowk and Sindhupalchowk districts (Figure 9.1).

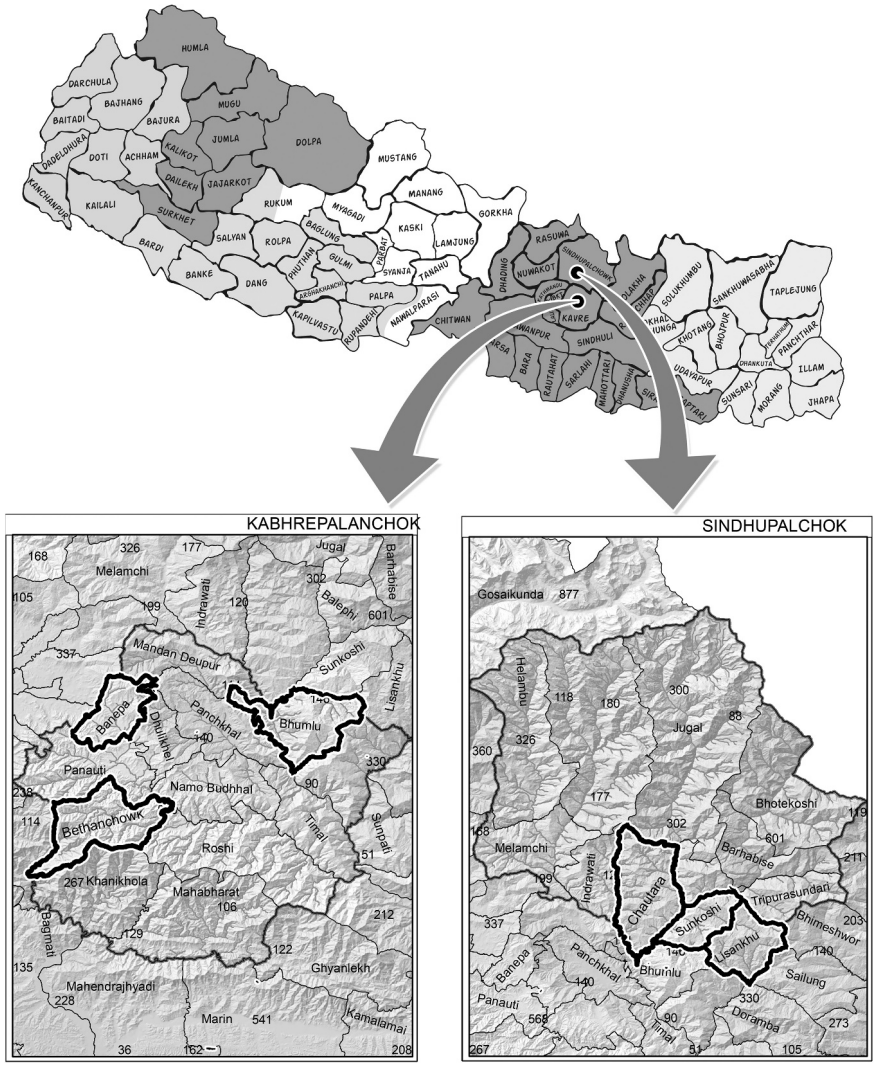

Figure 9.1 Map showing case study sites in two districts.

Source: EnLiFT 2.

Using the analytical framework illustrated in Figure 9.2, we evaluate the process of deliberation, unpacking the intent and efficacy of the OPs, and generating insights to develop a new set of principles and framework for transforming CF planning practice. The analysis draws on scholarships and evidence from CF and development planning, with insights from communicative planning providing the foundation for interrogating, unpacking, and developing

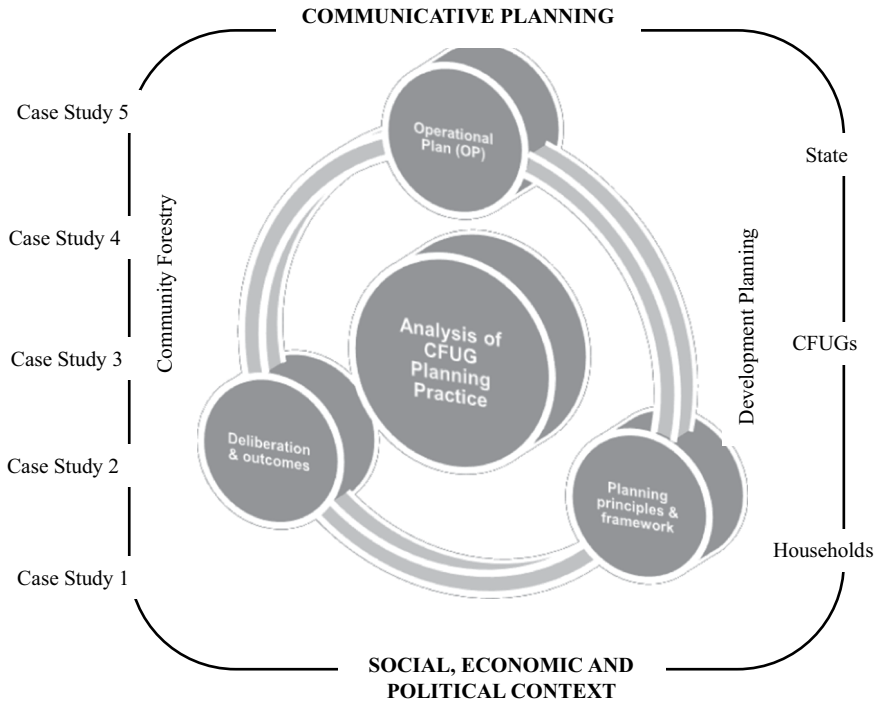

Figure 9.2 Analytical framework for investigating the CF planning practice in Nepal.

CF planning in the future. The analysis is not taken as an isolated postmortem of five CFUGs alone, but the CFUG planning practice is analyzed as embedded in broader social, economic, and political processes.

The chapter is organized as follows. Following the introduction, Section 9.2 discusses the evolving context of CF and the planning practice of CFUGs. Section 9.3 analyzes the current planning practice of five CFUGs by drawing on over ten years of action research, focusing on the OP development process, and annual planning highlighting issues of technical and bureaucratic manipulations and elite capture. We then discuss how these plans shape organizational and forest management-related decisions and whether the prescribed planning process has helped or constrained CF functioning at the local level. Section 9.4 discusses the key issues and opportunities from the case studies to improve planning practice. Section 9.5 identifies and explains principles that can enable a new CF planning practice going forward. Finally, the chapter concludes by highlighting how local planning practice in Nepal's CF can open a political space for diverse community groups and individuals to participate and develop a new planning system that is responsive to the changing contexts of Nepal.

9.2 The context of planning in Nepal's CF

Nepal's CF has evolved with a strong policy ambition to center local planning in forest governance and management. Over time, a complex set of institutional arrangements, practices, processes, and frameworks have assisted CFUGs in setting up forest management and community development priorities, balancing ecology and economy, defining the roles and responsibilities of key actors, and establishing equitable benefit-sharing arrangements. CF planning now intersects with multiple regulatory instruments—including the Forest Act 2019, Forest Regulations 2022, CF Guidelines 2014 as well as Local Government Operations Act 2017 and environment-related regulations of the country—resulting in the integration of national, local, and community plans, though often implicitly.

In compliance with the national and sub-national regulatory framework, the local-level planning practice of CFUGs is underpinned by three significant documents that guide their operations: the CFUG Constitution, OP, and the Annual Plan. Among these, the OP has been recognized as the key planning document guiding all CFUG functions: forest management, organizational functions, and development activities. It consists of a detailed resource inventory, calculation of growing stock, annual allowable harvest, and detailed planning of key forest management activities. Beyond forest management issues, the OP contents include forest trade, forest-based enterprises, tourism, community development, income generation, use rules, and fines. Critical aspects such as climate adaptation and environmental and social actions are also mandatory in the OP. The CF Guidelines provide the planning process CFUG in Nepal should follow. For the preparation and renewal of OP and revision of the constitution, several steps are advised: self-assessment of the previous OP and constitution, drafting of articles or provisions that required to be revised, taking those revision proposals to hamlets and interest groups to solicit their inputs and finally endorsing the revision proposals from the general assembly (GA). Similarly, the guideline mandates that each CFUG collect proposals from each *Tole* (i.e., Hamlet) and interest groups during the annual planning process. The OP is required to be approved by the Divisional Forest Officer.

The process of the CF planning practice is illustrated in Figure 9.3. In theory, the planning process starts with local forest users identifying their user group and approaching the forest office to formalize a community forestry group. Forest users are supposed to be formed democratically, registered with the Divisional Forest Office (DFO), and empowered to develop OP for forest management. They devise rules and regulations for managing the forest and its products. However, in practice, the DFO usually identifies the forest and forest users, discusses with users how to develop an OP, institutes a committee, and approves the plan. The current CFUG planning is illustrated in Figure 9.3.

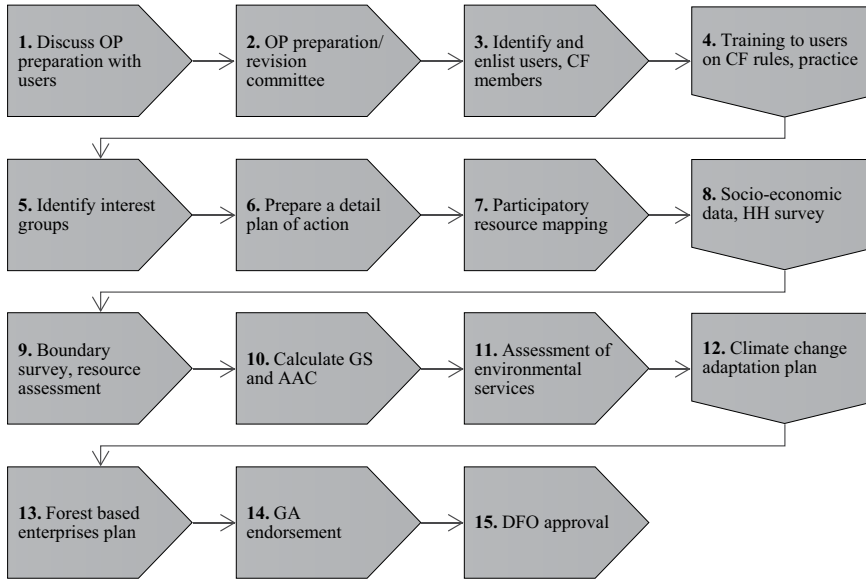

Figure 9.3 Steps followed in the development and approval of an OP.

Source: Authors.

9.3 CF planning practice: Evidence from case studies

The CF planning practice presents increasing problems and possibilities for better engaging with local people and actively managing forest resources. The OP preparation and revision process is considered very time-consuming and costly considering the resources required to undertake forest inventory and analysis of inventory data for assessing the growing stock and determining annual harvest. Local communities have to fulfill complex technical, financial, and legal obligations before they can exercise their rights and roles in preparing and implementing management plans. Despite the considerable investment of time and resources, the quality and usefulness of inventory-based OPs are found to be very low (Toft et al., 2015). There are concerns that current CF planning has been narrowly focused on estimating annual allowable harvest, with forest technicians leading the whole process and marginalizing CF members. The development process of the plan is exhaustive and costly, which has led to the disempowerment of the CFUG leaders, and the resulting plans are rarely referred to or used during the wide range of forest-related activities. Simply having a plan does not guarantee forest product harvest. Consequently, many Community Forestry Operational Plans (CFOPs) have become burdens rather than management tools.

Elite capture is another frequently raised concern. Critiques highlight that the CF planning processes are often elite-dominated, poorly informed, and ad

hoc (Jusrut, 2022; McDougall et al., 2013; McManus et al., 2014). Some experimental attempts were made to improve planning and decision-making by promoting an inclusive and deliberative approach through self-monitoring (Paudel & Ojha, 2007), adaptive collaborative management (Banjade, 2013; McDougall et al., 2013), and scenario-based planning (Bourgeois et al., 2017). These approaches start with a shared vision among all legitimate actors and involve information collection and analysis to provide informed choices for planners. Despite some success in enhancing inclusion, improved awareness, and contribution to marginalized groups' empowerment, they often require skilled facilitation and increase transaction costs (Ojha et al., 2013; Shrestha & Ojha, 2017). Planning processes must be adapted to the increasing opportunity costs, outmigration, and shifting priorities while maintaining the basic tenets of inclusion and deliberation.

The CF Development Guidelines—initially developed in 1995 (2052) and revised in 2001 (2058), 2009 (2065), 2014 (2071) and 2024 (2081)—are critical in the planning practice of CFUGs. Developed through a multi-stakeholder process with the active involvement of key CF stakeholders, the Guidelines suggest a rigorous process to ensure an inclusive, participatory, and democratic planning framework. The current planning framework assumes that CFUG members have a high stake in CF management and provide their volunteer time in its organizational and forest management-related activities. It also assumes that as CFUGs manage government forests, they must collaborate with government forest agencies in every step of their planning and implementation. Accordingly, they are discouraged from working independently; instead, they are expected to work as advised, guided by DFO staff.

Three key aspects are analyzed to understand the current CF planning framework and its shortcomings: (i) the revision of OPs, (ii) annual GAs as the key planning forum, and (iii) gaps in the implementation of the plans.

9.3.1 Revision of OPs

The CFUGs' OPs are the key legal and technical documents produced through scientific assessments of forest resources and socio-economic analysis. Understanding the OP development/revision process offers good insights into CF planning. Below, we present three cases of OP revision.

Kalopani CFUG began OP revision in early 2020. Despite COVID-19 restrictions, the boundary survey and inventory work continued showing a growing stock at 223.2 m^3/ha (hectares). The analysis was presented in a community meeting in late June, and was later reviewed by the Divisional Forest Officer, who did not accept the results because it exceeded the national average of 178 m^3/ha. Consequently, CFUGs were forced to revise the figures and brought it down to 183.8 m^3/ha. The forest was formally divided into five blocks but forest officials asked to make them into three blocks to increase the annual allowable cut (AAC). Similarly, the social process was also manipulated. Participation was minimal, with only 10–14 members attending meetings

and GAs. However, a written report presented a good discussion with the full participation of CFUG members. Later, the minute was taken door-to-door for signatures. Suitable paperwork was ready without participation and deliberation in the OP revision process.

In Chappani CFUG, there was a rich regeneration in all *Pinus patula* plots. For the DFO, there was no risk of poor regeneration, and similar thinning could be expanded to neighboring pine forests. Following a meeting between the DFO and the EnLiFT team, a new plan to conduct felling on 8 ha in this forest was approved. A revised OP integrating these aspects was prepared, submitted, and approved by the DFO, without the CFUGs and CFUG leaders' knowledge, input, and technical assessment. But CFUGs received the messages and accepted the revised OP. The case shows how a techno-bureaucratic approach shapes planning in CF.

In Shreechhap CFUG, a proposal for establishing research plots was discussed with the DFO and a detailed idea of proposed activities was outlined and presented to the CFUG committee meeting on January 2020, which the GA endorsed. The details of activities to be conducted under each research plot were developed. However, the OP, especially the AAC of different blocks, had to be adjusted as per the proposed harvest volume in the research plots. Although the CFUGs agreed to thinning at 240 trees/ha (per government guidelines, thinning options of 240 trees/ha, 200 trees/ha, and 135 trees/ha), the DFO objected, considering it unacceptable, especially for politicians and media. After four days of consecutive discussions, an arbitrary figure of 300 trees/ha was agreed upon to balance stakeholders' expectations and regulatory provisions. The OP and harvesting plan were revised accordingly.

9.3.2 GA of CFUGs

GAs are the highest, legitimate authority in CF, with the government's regulatory framework recognizing them as the central body for all decisions regarding forest management, fund mobilization, and community development. In this context, it is essential to review how the GA is organized, how decisions are made, and to what extent the GA plans and approves the plans made by the CFUGs. Below, we present three cases of GAs.

The Kalopani CFUG held its last GA on 28 January 2023. Nearly 237 members (Women = 129, Men = 108) out of 396 households (HHs) attended the GA. A former minister, coordinator of the District Coordination Committee, Divisional Forest Officer, and ward chair were among the guests. Additionally, local representatives of political parties, chairpersons of neighboring CFUGs, school headmasters, NGOs/CBOs, and women groups were invited. Although most members had arrived by 11:30 AM, the assembly commenced at 12:45 PM due to the chief guest's lunch break. After the arrival of the chief guest, the program began with a short welcome ceremony, which ended at 1:30 PM. The chairperson commenced the GA by sharing his report in ten minutes, and participants endorsed it without any discussions. The event

proceeded with the goodwill speeches starting with the chairperson of the (neighboring) Narayansthan CFUG, one member of women groups, NGOs (Mr. Kamal Bhandari from ForestAction), and three representatives of ruling political parties. By the time the first lot of speeches concluded, it was 3:15 PM. Following this, the secretary presented a progress and audit report in ten minutes due to the treasurer's absence. The secretary appeared to have limited knowledge of the report's contents, but participants raised no questions. It was followed by a second lot of speeches by senior guests, which concluded around 4:30 PM, and most participants had exited due to onset of evening. Noting the lack of participants, the Executive Committee (EC) of the CFUG hurriedly formed a three-membered committee to write the minute. However, no one paid attention to it, since most participants were rushing, the chairperson also quickly ended the program.

In Charkuna Bhirpani CFUG, the GA failed to convene twice on 3 and 10 September 2023 due to poor attendance and the absence of the chairperson and key officials. A third meeting was attempted on 17 September 2023. Attendees expressed their immense frustration and disappointment with the leaders. The meeting was scheduled for 11 PM, and approximately 40 participants arrived by noon, including the Ward Chair, the chair of the EC, and the members. Since the attendance number was not legally sufficient for the GA, the program started informally and ended by 2:30 PM. Noting the previous scenarios, most executives were willing to hand over their leadership, but none of the participating members expressed willingness to take over. Participants discussed several agendas, including the OP renewal and the selection of new committee members. The secretary shared the audit report and their annual plan, both of which were endorsed by the participants, and it was decided that the minutes would be signed by visiting members door-to-door.

In Thople Kamere CFUG, on 17 September 2021, 25 members out of 125 HHs were present in the assembly, including three women. The ward member was supporting the CFUG in organizing the meeting. However, they did not invite Sub-divisional Forest Officer. When asked about it, the CFUG chair said, "we don't know whom to invite and who not to invite, we thought it was not necessary to invite them." Only the chairperson and treasurer were present from among the EC members. They had no progress report or next year's plan to share in the GA, only a minute and the OP. The GA started informally at around 12:30 PM. As they had no progress to share, they discussed the grazing issue; however, they could not decide on it, as most forest-dependent members were absent from the assembly. They decided to open a bank account and deposit NPR 10,000 that the CFUG had. They decided to visit every HH and get a signature on the minute. This responsibility was given to the treasurer. The meeting ended by 1:30 PM.

Three significant insights can be generated from the above cases. First, CF members have decreased interest in participating and contributing to the GAs, largely because of the weakening forest-people relations and decreasing stake

in forest management, and limited influence of GAs on how CF members access, manage, and extract forest resources. Second, the GA's core business appeared unplanned in all three cases. Mandatory reports such as progress reports, financial audit reports, and proposed plans for the next fiscal year were neither prepared nor submitted before the meeting. In Kalopani's case, it was written on a small piece of paper prepared and shared by the chairperson. Third, there is a lack of deliberative process in planning, often ruined by political agenda of local leaders. The Kalopani case is just a political stunt, where political speeches sidelined community discussions on core planning issues. Two trends were evident: getting signatures by moving the minute door-to-door, and second, using GAs as a political showcase, undermining deliberative planning in CF. The provisions that ensure inclusive and democratic CF planning have become a burden to CFUGs. Consequently, thousands of CFUGs have been unable to revise and renew their OPs in a participatory and inclusive manner. Studies from other parts of the country confirm that these processes are rarely followed.

9.3.3 Issues in the implementation of the plans

After analyzing the key planning documents (OPs and annual plans) of the CFUGs, we found that they are selectively or rarely implemented. Despite the sample CFUGs having sufficient funds from intensive timber harvesting, only two (regeneration promotion and forest protection) out of 14 activities were implemented during the last three fiscal years. The list of proposed forest management-related activities is presented in Table 9.1. This calls into question the value of investing so much effort and resources into developing detailed plans that are not implemented.

Table 9.1 Summary of proposed activities in OP and their actual progress

S.No.	*Planned Activities in OP (valid OP in March 2023)*	*Dharapani*	*Sansari*	*Shreechhap*
1	Tree harvest as per thinning guidelines	0	0	0
2	Fire lines construction	0	0	0
3	Regeneration promotion	0	1	1
4	Forest protection by forest guard	0	1	1
5	Forest management equipment purchase	0	0	0
6	Forest fire control equipment purchase	0	0	0
7	Fire lines maintenance			0
8	Technical support for forest management	0	0	0
9	Cleaning of unwanted species	0	0	
10	Log yard improvement	0	0	0
11	Plantation of edible species for wild animals			0
12	Water source protection			0
13	Land allocation in CF			0
14	Fodder species plantation in private land			0

Table 9.2 List of key activities in annual plans that were not implemented

CFUG name	*Planned activities*
Chapani	Revolving funds for livelihood improvement (for goat farming, turkey farming, etc.)
	Capacity-building activities for women
	Support for enterprise establishment
	Construction of temple (Pokhari and Gairi tole)
	Irrigation pond renovation (Pokhari tole)
	Support to install electric pole
	Water tank construction support (Gairi tile, Dharapani, Yakpa, Okharbot, and Bajartole)
Fagar Khola	Enterprise of Allo thread extraction
	Charcoal extraction
	Cardamom plantation and management
Sansaridanda	Construction of road
	Fireline construction
	Construction of CFUG building
	Drinking water supply
	Salary for one teacher in a school
	Well-being ranking and providing Rs. 10,000/person at 10% interest to identified poor under the supervision of EC

Similar gaps exist in the implementation of annual plans. Table 9.2 lists the activities of yearly plans that were never implemented.

The question then emerges: why were these plans not implemented in practice? In some cases, the OPs were prepared based on previous legal framework, such as the government's Scientific Forest Management Guidelines 2014 (2071), which was later withdrawn, rendering the OPs prepared based on those Guidelines defunct. Poor governance or inactive CFUGs often fail to conduct GAs or produce mandatory documents such as audit reports, progress reports, or plans for the following year, preventing DFOs from issuing a harvesting permit despite a functional OP being in place. Some CFUGs faced legal cases of financial embezzlement by the Commission for the Investigation of Abuse of Authority (CIAA) and did not get harvest permits.

External factors also affect the implementation of their plans. In Sindhupalchowk, for example, the DFO's five-year plan has expired. Consequently, DFO did not issue a harvest permit even within the technically sound and legally valid OP. Unfortunately, the DFO cannot develop a plan as there is no provincial or federal strategic plan. Market volatility has also reduced timber demand and contractors communicate such signals to the respective CFUG leaders discouraging them from harvesting timber.

9.4 Issues and opportunities in the current planning practice

The GA and OP preparation cases offer valuable insights into the conceptualization, framework, and practices of current CF planning. They highlight its

lack of fundamental planning theories and practices. Their scientific rigor and deliberative processes are flawed.

9.4.1 Flaws in the planning process

The above cases show that forest resource assessment and analysis are often manipulated to fit political correctness and regulatory guidance. There are several ambiguities in the resource assessment, calculation of growing stock, and prescribing AAC. The DFO's judgment are often implicitly influenced by potential CIAA actions. For example, since Nepal's national average growing forest stock has been estimated as 178 m^3/ha, the CIAA sometimes assumes this as the upper limit of the stock of any forest. Accordingly, it tends to ask clarification questions to DFOs whenever a growing stock above this figure is used to prescribe AAC. In Kalopani, it was because of the likelihood of such interrogation that the DFO did not approve the original inventory report. In many dense forests, technicians tend to manipulate the tree heights or the number of saplings to decrease the growing stock figures under the threshold of 178 m^3/ha, undermining scientific integrity. Several other studies have shown this sub-standard practice in resource assessment, analysis, and prescription for harvesting (Baral & Rana, 2021; Rutt et al., 2015).

Similarly, annual plans, which often are products of a few leaders' strategic choices, including pleasing their allies or rationalizing their actions. Usually, general CF members have no dedicated time to question, express their views, and contribute to the planning process. At most, they get 1–2 hours for public discussion once a year during the GA, with no guarantee that the plans adopt those suggestions. The deliberation needed during planning is primarily replaced by political stunts or simple rituals in which only the members' signatures, not their inputs, are valued.

Analysis of the GAs provides three critical insights. First, community engagement in contributing to mandatory institutional functions is declining. The low utility of GAs in shaping actual management practices in the context of increased opportunity costs explains this low participation. As the cases show, the GAs hardly offer a deliberative platform and cannot produce mandatory documents such as the annual progress report, financial audit, and next year's plan. The Kalopani case was just a political stunt and showcase of the chairperson rather than expression by the community members themselves.

Discrepancies between the planning ideals and actual practices showcase the need to reconsider the whole approach to CF planning. Either the process is excessively bureaucratized and disconnected from member priorities, or there may be a serious derailment of CF planning practice, causing it to be away from what is needed and feasible. As a result, it has become a costly regulatory burden to CFUGs and attending members.

9.4.2 Plans rarely guide actions

The OPs are narrowly framed around timber harvest, whereas a range of non-timber forest products, ecosystem services, and biodiversity are largely ignored. Consequently, they are irrelevant to many who use and benefit from forest biomass other than timber. Similarly, CFOPs are hardly referenced in forest management activities beyond revising the AAC to ensure timber harvests rest within the prescribed volume. With minimal oversight from the DFO and local governments, CFUG leaders lack incentives to implement the plans properly. Even well-prepared plans developed through investing huge costs have gone unused because of DFO inaction or higher-level policy decisions that constrain the communities in managing forests and harvesting products.

Moreover, neither the OP nor the annual plans include forest or community transformation strategies. The planning process is legally constrained, leaving limited space for innovation. Timber harvesting and income investment are often constrained by regulatory requirements or narrow leadership agendas. The planning process and legally required documents lack long-term vision and any deliberate strategy that guides moving to the next stage.

It appears that neither the CF members nor stakeholders are interested in CF planning. Despite their vested interest in forest management, these groups show little engagement in the current planning activities. Although a few leaders attend the meeting, their primary motive often appears to be advancing their political agenda or securing their positions. Until CF planning is integrated into the broader local or landscape-level planning process, these stakeholders are unlikely to be interested in the CFOPs or the annual plans. Some legal instruments are increasingly aware of the need for this integration, but implementation is lagging.

Planning has become burdensome for CF leaders. Most are tired of revising their CFOPs and delays in preparing and approving the CFOP, progress report, financial audit, and annual plan. The OP preparation appears costly for a given business scale, and most rely on DFO, NGOs, and project support. The significant backlog in OP is mainly due to its high cost and low utility.

9.5 Framework and principles for a new CF planning practice

Informed by a decade of action research, we propose a radical shift in the structure and process of CF planning as illustrated in Figure 9.4. Structurally, we propose two plans: a contractual plan focusing on legally binding contracts between the State and CFUGs and a strategic plan covering business plans and specific forest management components. Regarding procedural elements, we suggest (i) categorization and differential treatment, (ii) increased collaboration with local governments and experts, and (iii) an inclusive and efficient process.

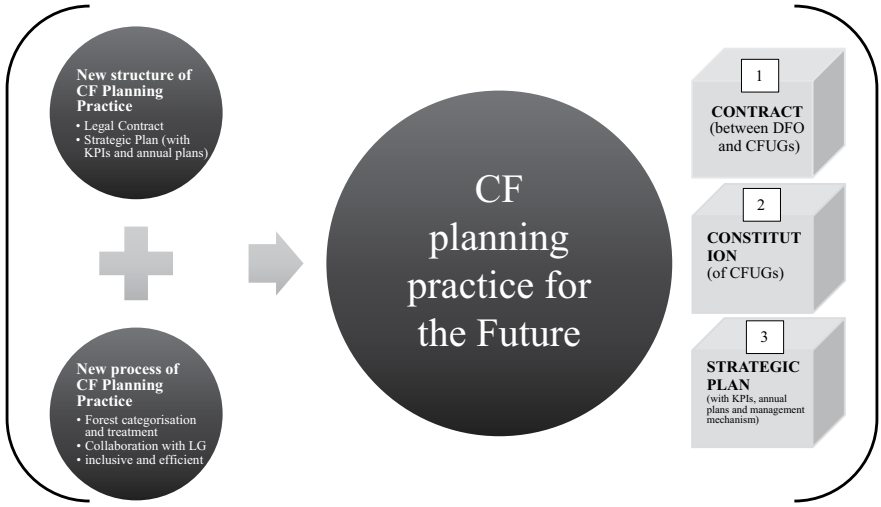

Figure 9.4 A new model and structure of CFUG planning at the local level.

9.5.1 The structural logic of the CF planning practice: Principles that guide action

We propose a simple, concise contract between the DFO and CFUG outlining key standards of forest management, legal compliance, and respective roles and responsibilities. While such contracts exist as an essential section in the OPs, this contract version would remain a perpetual document, requiring revision only with justified rationale and agreement from both parties. Under the broader mandate of the contract, CFUGs should have a long-term strategic plan comprising two components: a forest management plan and a business plan. The strategic plan will ensure CFUG's autonomy in planning and outline long-term strategic direction to increase its relevance and utility. Figure 9.4 presents a summary version of the revised structure of CF planning.

9.5.1.1 Principle 1: Decoupling a strategic plan from a legal contract

Currently, OPs are the legally binding contractual documents between the DFO and CFUG. Alongside these, CF members develop, implement, and monitor technical plans. Since CFUGs manage part of national forests, there is a good rationale for a contractual document specifying (i) the scope of CFUG management rights, (ii) the environmental standards that CFUG must maintain and comply with, and (iii) the roles and responsibilities of DFOs and CFUGs toward achieving CF goals and complying with the standards. The contract, with no fixed end date, can be revised based on mutual understanding and provides a strong safeguard against any risks of unsustainable management.

Beyond the contract, CFUGs need a long-term strategic plan for managing the forest and various economic, social, and institutional activities. The forest

and ecosystem management can include a long-term vision of their forest, ecosystem, level of harvest, enhancement and enrichment activities, choice of silvicultural systems, and socio-ecological security. Similarly, the business component should outline the vision of forest-people relations, the forestry business, human resources, financial plans, and other socio-economic interventions. Ideally, technical revision and implementation of those plans should not be subjected to DFO approval, reducing delays, transaction costs, and inducing proactive leadership of CFUGs in better forest management, while also lowering DFO's administrative burden.

AAC remains the most contentious part of the OP. Despite being a small part of a 100-page document, DFO must be sensitive to it as many CIAA actions against CFUG leaders or DFO staff are based on AAC calculations. As a result, the OP development, approval, and implementation process has become overly administrative, focused more on avoiding contentious legal issues. These issues should be left to the internal operational aspects so that DFO concerns are not in everyday management but to ensure the standards agreed in the contracts are not violated.

9.5.1.2 Principle 2: Strategic plan integrates a business plan and a forest management plan

A strategic plan should have key performance indicators (KPIs) and annual plans, covering forest management and business plans. Currently, CFUGs function under two documents: constitution (no time limit) and OP (usually ten years). In practice, constitutions are mainly in a dormant state and are rarely referenced, revisited only in conflicts or when DFO/CIAA has to take action. The reality of OP implementation is not very different except for the AAC-related provisions. Nearly one-third of an OP is related to forest resource assessment and AAC calculations. The rest is populated with diverse content: a review of previous OP implementation, climate change, biodiversity, enterprise, community development programs, income generation activities, and rules on forest resource use and offenses.

9.5.1.3 Principle 3: Develop an organizational structure with guiding documents

- *Constitution*: This governs the CFUG as an organization. It describes the structures and process of decision-making, rights and responsibilities of various entities, conflict resolution, and dealing with outside agencies.
- *Contract with the State*: Since forest management rights are transferred to CFUGs, this transfer should be based on specific terms and conditions. A two-page contract between the DFO and the CFUG leadership forms this basis. Already practiced in parts, it should mention basic principles, minimum environmental conditions, and standard operational practices. This perpetual contract avoids the need for periodic revision and will substantially reduce the disputes over technical details of AAC or specific silvicultural interventions.

- *Strategic Plan*: Replacing the current OP, the CFUG's strategic plan can be a ten-year plan, which defines the vision and establishes milestones or KPIs to help the CFUG reach its stated vision. It may include forest development, harvest, forest-based enterprise or trade, financial mobilization, human resource development, stakeholder collaboration, and socio-cultural interventions. While aligned with the DFO-CFUG contract, it should have two aspects:
  - *Forest management plan*: Drawing from the strategic plan, this is a silviculture plan, including aspects such as silviculture methods, harvest plots, quantity, forest management, fire lines, ecosystem conservation activities, as well as monitoring.
  - *Business plan*: This is an investment plan in infrastructure, forest-based enterprises, livelihoods, climate change adaptation, social services, and other locally planned activities. Developed through the GA based on CFUG revenue, support from the local government, the DFO, and any other external agency. The annual business plan will be more realistic, adaptive, and achievable, reducing their dependency on forest technicians.

9.5.2 Procedural changes

9.5.2.1 Principles 4: Categorization and differential treatment

Community forests vary widely in size, volume of forest products, market engagement, annual revenue, and nature of forest products/services. Currently, they are subjected to the same regulatory requirements and administrative procedures, irrespective of these variations, which burdens smaller CFUGs with limited income and negligible environmental risk. One plausible proposal is differentiating treatment into different categories to address this issue. Smaller CFUGs could be allowed to operate with minimum formality and those with good incomes and high transactions with the market can be asked to provide detailed documentation. The rationale is that more enormous forests with intensive transactions with the market imply high environmental risks and the possibility of funds mismanagement. Moreover, they can afford the technical and financial services needed to meet regulatory and administrative requirements.

9.5.2.2 Principle 5: Increased collaboration with local government and experts

As per the regulations, CFUGs are required to organize their GA within three months of the new fiscal year. However, this overlaps with peal farming and monsoon seasons until mid-September. As a result, most of the CFUGs organize their GA later in November or December, or struggle to find the needed minimum members on time, resulting in postponed meetings or signatures being collected door-to-door. Moreover, an early GA usually results in a time gap between the endorsement of the plan and its implementation, resulting in

poor implementation. All these practices significantly compromise the utility of the GA, the key forum in which CFUG members could have discussed and endorsed institutional, forest management, and development-related agenda. Therefore, shifting the GA to November or December, when CFUG members are relatively free, was proposed leading to more inclusive, participatory, and realistic planning.

9.5.2.3 Principle 6: Inclusive and efficient process for developing a strategic plan

CFUGs seek to minimize the trade-off between efficiency and deliberation as opportunity costs rise and interest in participating in the CFUG institutional and forest management-related activities decrease. Out of the four documents presented above, the constitution and DFO-CFUG contracts are long-term permanent documents legally binding, needing little revision and leaving limited space for CFUGs to elaborate their plans. In contrast, the strategic plan needs a comprehensive assessment of the biophysical features of their resource base, the socio-economic situation of their community, and market dynamics. Similarly, it demands active engagement of the members and stakeholders.

The CFUG's EC can form a *Strategic Plan Committee (SPC)* comprising the EC members and the Tole representatives. After its formation, the committee can seek technical support from the government, private sector, or NGOs, under an agreed financial arrangement, including a negotiated fee. The technicians can then conduct a biophysical assessment of the forest through a detailed forest inventory and boundary survey. With the support of the DFO and local government, any boundary disputes can be resolved. Similarly, experts/consultants with relevant expertise in socio-economic and market analysis can conduct detailed analyses and present the findings to the committee. Based on these assessments, the committee can identify forest management objectives, such as timber production, biodiversity conservation, tourism, or a combination of these, and a business plan comprising forest-based enterprises, trade, income generation, capacity development, and human resource management.

Experts then develop management options and business strategies to achieve those objectives and return them to the committee, which the SPC reviews and finalizes. The plan is then presented at the GA and will be supported with any suggested revisions. A copy of this plan will be shared with the DFO. There should be no need for approval of this strategic plan. EC develops annual forest management and business plans with support from experts, which will be presented and endorsed by the regular GA.

9.6 Conclusion

This chapter examined Nepal's CF planning framework and practices, presenting several key insights for reframing it. In theory, the CFUGs are responsible for developing and implementing OPs, which encompass multiple elements,

including forest inventory assessments, prescriptions for harvesting and conservation activities, and guidelines for benefit-sharing among users. The planning process remains rigid and overly technical, involving multiple consultations at different levels (hamlet, GAs, and forestry officials) and approvals from government authorities, following complex procedures that often exceed CFUGs' capacity. Annual planning cycles further necessitate periodic reviews, management strategy updates, and coordination with district and provincial forest offices. While these mechanisms are intended to ensure sustainable forest use, the planning process remains largely bureaucratic, requiring multiple layers of approvals and documentation, and time-consuming.

The analysis demonstrates that these challenges reveal significant missed opportunities, primarily due to legal, regulatory, and bureaucratic constraints that create inefficiencies and stifle innovation. The findings show that OPs are often manipulated to fit administrative expectations rather than being developed based on robust scientific or community-driven assessments. This leads to disconnect between the documented plans and their implementation, as CFUGs struggle to navigate conflicting interests, limited technical capacity, and weak enforcement mechanisms. Furthermore, GAs, which are meant to be platforms for participatory planning and decision-making, often devolve into formalities controlled by elite group undermining the inclusivity and legitimacy of CF governance. Additionally, issues such as lack of effective monitoring and the absence of clear incentives for compliance further restrict CFUGs from fully leveraging their potential for community-led forest management.

To address these challenges, we have developed a set of principles and a new planning framework that integrates three key elements: a differentiated planning approach, enhanced collaboration with local governments, and streamlined governance structures. First, CFUGs should be categorized based on capacity, resource potential, and market engagement, with smaller CFUGs subject to less bureaucratic oversight while larger, commercially active CFUGs adopt more structured governance mechanisms. Second, increased collaboration with local governments and expert networks is essential to enhance technical support, knowledge-sharing, and integration with broader land-use planning processes. Third, a revised governance structure should decouple strategic planning from legal compliance. CFUGs should develop a flexible strategic plan that prioritizes long-term community goals, market linkages, and adaptive forest management. This shift involves three major ways: (i) replacing the current OPs with strategic plans tailored to local contexts, (ii) decoupling the legal and contractual aspects from the technical details, (iii) mobilizing available expertise rather than relying solely on volunteer leadership, where CFUGs can exercise their decision-making authority under civic oversight. Although these proposals are largely informed by our research findings, they also draw on insights from long-term engagement with the CF planning process. We believe these new principles and framework will strengthen scientific rigor, enhance participation, and make CF planning more relevant in Nepal's changing socio-economic contexts. Institutionalizing these reforms at

sub-national and national levels can transition CF planning toward a more inclusive, responsive, and sustainable model that serves as a genuine mechanism for community empowerment, sustainable forest management, and economic resilience.

Notes

1 EnLift 1 stands for Enhancing livelihoods and food security from agroforestry and community forestry in Nepal.
2 EnLiFT 2 stands for Enhancing livelihoods from improved forest management in Nepal. Both projects are funded by the Australian Government agency, ACIAR.

References

Ananda, J., & Herath, G. (2003). The use of Analytic Hierarchy Process to incorporate stakeholder preferences into regional forest planning. *Forest Policy and Economics*, *5*(1), 13–26. https://doi.org/10.1016/s1389-9341(02)00043-6

Banjade, M. R. (2013). Learning to improve livelihoods: Applying an adaptive collaborative approach to forest governance in Nepal. In Ojha, H., Hall, A. & Sulaiman, R. (Eds.) *Adaptive collaborative approaches in natural resource governance: Rethinking participation, learning and innovation*. Routledge.

Baral, S., & Rana, P. B. J. (2021). Knowledge power nexus in Nepal's community forest planning. *Forestry: Journal of Institute of Forestry*, *18*, 1–15.

Basnyat, B., Treue, T., Pokharel, R., Lamsal, L., & Rayamajhi, S. (2018), Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, *91*, 5–18.

Benjamin, C. E. (2008). Legal pluralism and decentralization: Natural resource management in Mali. *World Development*, *36*, 2255–2276.

Bourgeois, R., Liswanti, N., Mukasa, C., Zamora, A., Herawati, T., Monterroso, I., Banjade, M. R., Mwangi, E., Larson, A. M., & Mshale, B. (2017). *Guide for co-elaboration of scenarios: Building shared understanding and joint action for reform and security of forest tenure*., Center for International Forestry Research.

Eidt, C., Pant, L., & Hickey, G. (2020). Platform, participation, and power: How dominant and minority stakeholders shape agricultural innovation. *Sustainability*, *12*(2), 461–482.

García-López, G. (2019). Rethinking elite persistence in neoliberalism: Foresters and techno-bureaucratic logics in Mexico's community forestry. *World Development*, *120*, 169–181.

Gilmour, D. A., & Fisher, R. J. (1991). *Villagers, forests and foresters: The philosophy, process and practice of community forestry in Nepal*. Sahayogi Press: Kathmandu.

Habermas, J. (1987 [1981]) (trans.). *The theory of communicative action, Volume 2: Lifeworld and system*. Beacon Press: Boston, MA.

Innes, J. E., & Booher, D. (2004). Reframing public participation: Strategies for the 21st century. *Planning Theory and Practice*, *5*(4), 419–436.

Jusrut, P. (2022). Localization of elite capture in wood charcoal production and trade: Implications for development outcomes of a forest management program in rural Senegal. *Forest Policy and Economics*, 135, https://doi.org/10.1016/j.forpol.2021.102613

Leone, M. (2019). Women as decision makers in community forest management: Evidence from Nepal. *Journal of Development Economics*, *138*, 180–191.

Margerum, R. D. (2002). Collaborative planning: Overcoming obstacles during consensus building. *Journal of Planning Education and Research*, *21*(3), 237–253.

Mcdougall, C. L., Leeuwis, C., Bhattarai, T., Maharjan, M. R., & Jiggins, J. (2013). Engaging women and the poor: Adaptive collaborative governance of community forests in Nepal. *Agriculture and Human Values*, *30*, 569–585.

McManus, P., Shrestha, K., & Yoo, D. (2014). Equity and climate change adaptation: Lessons from Lake Macquarie, Australia. *Urban Climate*, *10*, 1–18.

Nightingale, A., Bhattarai, A., Ojha, H., Sigdel, T., & Rankin, K. (2018). Fragmented public authority and state un/making in the "New" Republic of Nepal. *Modern Asian Studies*, *52*(3), 849–882.

Ojha, H. R., Hall, A., & Sulaiman, R. (Eds.) (2013). *Adaptive collaborative approaches in natural resource governance: Rethinking participation, learning and innovation*. Routledge.

Paudel, K. P., & Ojha, H. (2007). Imposing indicators or co-creating meanings through joint reflection? Lessons from Community Forestry in Nepal. In Guijt, I. (Ed.), *Negotiated learning: collaborative monitoring in forest resource management*. Taylor and Francis.

Rutt, R.L., Chhetri, B.B.K., Pokharel, R., Rayamajhi, S., Tiwari, & Treue, T., (2015). The scientific framing of forestry decentralisation in Nepal. *Forest Policy and Economics*, *60*, 50–56.

Shrestha, K. (2016). *Dilemmas of justice: Collective action and equity in Nepal's Community Forestry*. Adroit Publishers: New Delhi.

Shrestha, K., & Ojha, H. (2017). Theoretical advances in community-based natural resources management: Ostrom and Beyond. In Shivakoti, G., Pradhan, U., & Helmi, H. (Eds.), *Redefining diversity and dynamics of natural resources management in Asia, Volume 1* (pp. 13–40). Elsevier.

Toft, M. N. J., Adeyeye, Y., & Lund, J. F. (2015). The use and usefulness of inventory-based management planning to forest management: Evidence from community forestry in Nepal. *Forest Policy and Economics*, *60*, 35–49.

Yami, M., & Mekuria, W. (2022). Challenges in the governance of community-managed forests in Ethiopia: Review. *Sustainability*, *14*(3), 1–22.

Theme 3

Forest ecology and management


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

10 Community forestry ecologies

Forest dynamics, biodiversity, and emerging challenges

Sujata Shrestha, Uttam Babu Shrestha, Swoyambhu Man Amatya, Ripesh Kharel, and Sony Baral

10.1 Introduction

Nepal's diverse topography and climate supports a wide array of forests and ecosystems ranging from tropical, subtropical, and temperate forests to alpine grasslands, contributing to the country's recognition as a global biodiversity hotspot (Myers et al., 2000; Shrestha, 2008). The country's mountainous landscapes form a mosaic of land uses, including croplands and human settlements, and forests managed under different regimes including protected areas and community forests (Thapa et al., 2016). Community forests, which account for almost 39% of Nepal's total forest cover managed exclusively by local communities, are critical for biodiversity conservation, soil erosion control, water quality and quantity regulation, carbon sequestration, fire management, and forest regeneration. In addition to providing livelihood benefits (see Aryal, this volume), the ecological benefits of community forests are widely acknowledged (see Luintel et al., this volume). However, evidence of their ecological dynamics in response to changing socio-ecological conditions remains limited. This chapter explores the ecological dynamics of community forests at both the community and landscape levels, identifies emerging ecological challenges within community forests, and provides insights to strengthen ecological resilience in changing socio-ecological contexts.

The chapter, primarily based on a literature review and enriched with case studies, provides an overview of Nepal's forest ecosystems, focusing on forest distribution, composition, and structure. It highlights historical trends in forest degradation and restoration while identifying emerging ecological challenges in Community Forestry (CF), such as integration of biodiversity conservation, management of human-wildlife conflict, control of invasive plants, and mitigation of forest fires. The chapter concludes with policy insights to promote restoration, enhance conservation, and management outcomes that are relevant for national and global contexts.

DOI: 10.4324/9781032705613-14
This chapter has been made available under a CC BY-NC-ND license.

10.2 Ecological setting: Forest ecosystem and forest types

Nepal's diverse topography is divided into five physiographic regions: the *Terai*, *Chure*, Middle Mountains, High Mountains, and High Himal. Each of these regions hosts unique forest and ecosystem types. Over the time, various scientists have classified Nepal's forests, contributing to a better understanding of their ecological diversity and specificity. The first classification effort began with Schweinfurth's explorations in 1957, followed by J.D.A. Stainton in 1972, who identified nine climatic and vegetation regions and 35 forest types. Subsequent surveys by J.F. Dobremez (1976) identified 189 ecological parcels, 118 ecosystems, and 75 vegetation types. Later, the Forestry Sector Master Plan (HMGN/ADB/FINNIDA, 1988) categorized 12 forest types, while the Land Resource Mapping Project (LRMP, 1986) recognized only seven. Jackson (1994) reclassified Nepal's vegetation into 24 types. A significant milestone came with the Biodiversity Profile Project (1995), which established 118 ecosystem types, including 112 vegetation types and six non-vegetation categories such as water bodies, glaciers, and cultivated areas (BPP, 1995). Table 10.1 presents the distribution of ecosystems by physiographic region in Nepal.

As of now, the government of Nepal officially recognizes 35 forest types identified by Stainton (1972), categorized into ten major groups: tropical, sub-tropical broadleaved, sub-tropical conifers, lower temperate broadleaved, lower temperate mixed broadleaved, upper temperate broadleaved, upper temperate mixed broadleaved, temperate coniferous, sub-alpine, and alpine scrub. However, the Classification of Ecosystem and Forest Types Mapping Program has more recently classified Nepal's vegetation into 69 types, comprising 54 forests and woodland types, six scrub/shrubland types, and nine grasslands/savanna types (FRTC, 2022). Understanding the changes in forest ecosystems, forest types, and ecological diversity across Nepal's physiographic regions is important to further develop targeted conservation policies, biodiversity management plans and sustainable forest management strategies (Table 10.2).

The diversity in forest classification systems is a testament to Nepal's diverse forest ecosystems, governed by varied climate, geology, and topography, with climate predominantly playing a crucial role in shaping forest structure and

Table 10.1 Distribution of ecosystems by physiographic region in Nepal

Physiographic region	*Ecosystem number*	*Ecosystem coverage (%)*
Terai	12	10.2
Churel Siwalik	14	11.9
Middle Mountains	53	44.9
High Mountains	38	32.2
High Himal		
Others	1	0.8
Total	118	100

Source: BPP (1995).

Table 10.2 Distribution of vegetation types and species associations

Major vegetation type	*Distribution*	*Species association*
Tropical	Below 1000 m	*Shorea robusta* is the main tree species. The other dominant species are *Terminalia alata*, *Terminalia bellerica*, and *Terminalia chebula*. *Adina cordifolia, Trewia nidiflora, Anogeissus latifolia, Bombax ceibe, Acacia catechu, Dalbergia sissoo*. The other associated species in this type are *Mallotus philippinensis*, *Eagle marlelos*, *and Phyllantus embilca*. The underground species are the Curry plant, in some dry areas, *Phonix* species occur abundantly.
Sub-tropical broadleaved	1000–2000 m	*Schima wallichii*, *Castanopsis*, *Albizia* species, and *Cedrela toona* are predominant at this altitude
Sub-tropical conifers	1000–2200 m	*Pinus roxburghii* is the main dominating species.
Lower temperate broad-leaved forest	1700–2700 m	*Alnus nitida, Castanopsis tribuloides* and several species of *Quercus (i.e. Q. lamiginosa*, *Q. floribunda) represents* this forest type.
Lower temperate mixed broad-leaved forest	1700–2200 m	*Cinnamomum bejolgota, C. impressinervicum, Neocinnamomum caudatum, Phobe spp. Litsea spp*
Upper temperate mixed broad-leaved forest	2500–3500 m	*Quercus semeicarpifolia, Acer caesium, Populus ciliate, Vibernum, Arundanaria spp*.
Temperate coniferous forest	2000–3000 m	*Pinus wallichiana, Cedrus deodara, Cupressus torulosa, Tsuga dumosa, Pinus smithiana, Juniperus indica* and *Abies pindro* are some of the tree species.
Sub-alpine forest	3000–4100 m	*Abies spectablies, Betula utilis Rhododendron, Vibernum, Abies spectabilis*,
Alpine scrub	Above 4100 m	*Juniperus, Rhododendron, Abies spectabilis*

Source: Flora of Nepal, 2013; Amatya and Shrestha, 2022.

composition. Key climatic factors shaping vegetation dynamics include temperature, rainfall, and light along with their seasonal variations, which are further influenced by local microclimates such as aspect, slope, elevation, and wind exposure. For example, in Nepal, average temperature decreases by 0.6°C for every 100 meters of elevation gain (Shrestha, 2013). Therefore, the five physiographic zones spanning from the *Terai* to the High Mountains within a vertical distance of 150 km exhibit a remarkable variability in climate, topography, geology, and microclimates. All these factors contribute to a remarkable diversity of forest composition and structure in Nepal.

Based on the land use and land cover data of 2019, forests and other wooded lands cover about 41.69% and 3.62% of Nepal's total area, respectively. Most

of these forests are concentrated in the Middle Mountains (42.3%, 2,611,307 hectares [ha]), followed by the High Mountains (27.6%, 1,701,021 ha) and Siwalik range (21.8%, 1,345,929 ha). In contrast, the High Himal (1.9%, 116,629 ha) and *Terai* (6.4%, 392,240 ha) have the lowest forest cover. Similarly, the distribution of forests across provinces is disproportionate. Koshi, Bagmati, and Lumbini Provinces have the largest forest cover accounting for 18.8%, 18.7%, and 16.2%, respectively (FRTC, 2022). The lowest forest cover is found in Madhesh (3.9%), followed by Gandaki (12.8%), Karnali (13.6%), and Sudur Paschim (16.0%) Provinces. This diverse distribution of forest cover has been shaped not only by the country's diverse physiography but also by the timely initiated forest conservation efforts, which are highlighted in the following section.

10.3 Forest degradation and the role of CF interventions

Following modern advancements in medicine, efforts to control malaria in Nepal's *Terai* region led to a remarkable population surge after 1950. Additionally, increased migration and settlement in the region resulted in massive forest clearance for agricultural expansion, exacerbating pressure on the forests. With more than 90% of the population relying on forest resources for fuelwood, fodder, construction materials, and Non-Timber Forest Products (NTFPs), contributed to accelerated deforestation (Gautam et al., 2004). In response, the government introduced the Private Forest Nationalization Act of 1957, aiming to enhance forest protection, maintenance, and sustainable utilization. However, the act proved counterproductive as it undermined communal responsibility for forest management, shifting control over forests to the state (see Gilmour and Dahal et al., this volume). Consequentially, this shift, coupled with the government's limited capacity to manage forests effectively, led to an increased deforestation and forest degradation during the 1960s and 1970s (Rai, 1997; Ranjit, 2019). This situation was further exacerbated by rapid surge in the population, with the population growth rate reaching 2.6% between 1971 and 1981 (Goldstein et al., 1983), thereby putting additional pressure on the forest resources.

By the 1980s, high population growth rate, migration, agricultural expansion had resulted in severe forest degradation and deforestation, causing soil erosion and siltation in downstream areas. At that time, alarming narratives warned of environmental and socio-economic collapse across the Himalayas and the Indian subcontinent (Eckholm, 1976; Ives & Messerli, 1989). This alarming notion, commonly known as the "Theory of Himalayan Environmental Degradation," heavily influenced much of the environmental discourse during that period. By the mid-1970s, policymakers began to recognize the importance of community participation in forest management, introducing key legislation that laid the foundation for CF (see Gilmour and Dahal et al., this volume).

Following the Forest Act of 1993 (amended in 2019) and the Forest Regulation of 1995, the government prioritized handing over government-managed forests to local communities for protection, management, and utilization as

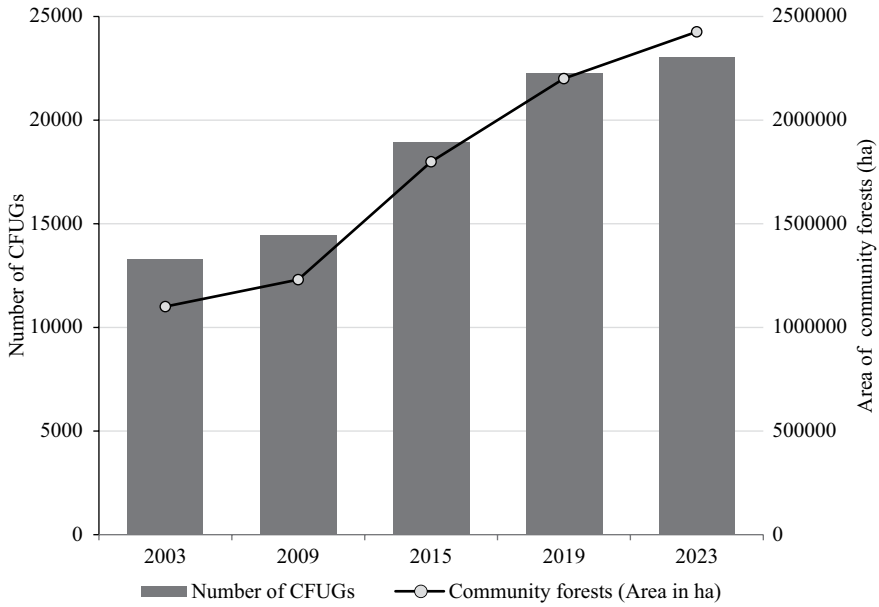

Figure 10.1 Trend of CF over time.

Source: Authors.

community forests. To date, 2.4 million ha of forests, accounting for 39% of the total forest area, have been handed over to 23,682 community forest user groups (CFUGs) (MoFE, 2023). Although the number and area of community forests have almost doubled over the last 20 years from 2003 to 2023 (Figure 10.1), the growth rate has recently slowed due to multiple factors, including decreased forest management activities, reduced use of forest resources, and the lack of additional forest areas suitable for handling to community management. Nevertheless, community forests have contributed to both ecological and livelihood outcomes by maintaining ecological health, improving forest conditions, and providing various ecosystem services.

Studies highlight the pivotal role of CF in reducing forest degradation, restoring ecosystems, and conserving biodiversity (Chapagain & Aase, 2020; Groenendijk, 2008; Shrestha et al., 2018; Oldekop et al., 2019), as well as promoting forest restoration (Pokharel et al., 2005). Between 1994 and 2016, Nepal's forest cover nearly doubled, from 29% to 44.74% (DFRS, 2015), largely due to the impact of the CF program. Both remote sensing and perception-based studies confirm the positive impact of CF in enhancing forest conditions, with sparse forests transitioning into dense forests through community management (Chhetri et al., 2021; Oldekop et al., 2019). Districts with high CF coverage have experienced lower deforestation rates and higher regeneration rates (Shrestha et al., 2018). CF activities such as plantation, fire prevention,

and control of illegal logging and grazing have contributed to these positive outcomes (Dev et al., 2003; Pandit & Bevilacqua, 2011), making CF as a cornerstone of sustainable forest management in Nepal (Shrestha et al., 2018; Gurung et al., 2013).

10.4 Ecological contributions of CF

The distribution of community forests across Nepal's physiographic and administrative regions is highly uneven, with the Middle Mountains hosting the highest number of community forests. Table 10.3 provides an overview of the distribution of community forests across Nepal's physiographic regions.

Similarly, community forests also occupy a significant portion of the area in each of the seven administrative provinces of Nepal, with Lumbini Province having the highest number of participating households (Figure 10.2). It is widely believed that community forests incorporate almost all forest types, due to their extensive distribution across all physiographic and administrative regions (Figure 10.2). However, comprehensive and reliable data on the coverage of diverse forest types within community forests is still lacking.

The ecological contributions of community forests are profound largely due to their widespread distribution across Nepal's diverse physiography and administrative regions and forest types. These ecological contributions include biodiversity conservation, enhanced forest regeneration and restoration, improved water retention and watershed protection, soil conservation and management, carbon sequestration, climate change mitigation, and fire vulnerability management. Moreover, community forests are critical in enhancing timber production, ensuring firewood availability, and enhancing landscape beauty (Poudel et al., 2015). Comparative studies between community forest and other forest management regimes have showed that community managed forests maintain species heterogeneity and promote understory plant regeneration (Pandey, 2007; Paudel & Sah, 2015). Additionally, community forests exhibit a higher density of pole-sized trees compared to non-community forests (Poudel et al., 2014).

Table 10.3 Distribution of CF in terms of physiographic region

Physiographic region	*Number of community forests*	*Household Number*	*Area of Community Forest (ha)*	*Ratio of Household: community forests*
Terai	2,290	734,437	342,208	320.7
Siwalik	2,583	498,236	530,974	192.9
Middle Mountains	13,171	1,401,032	1,133,170	106.4
High Mountains/High Himal	4,982	561,618	419,041	112.7
Total	23,026	3,195,323	2,425,393	138.8

Source: Community Forest Bulletin, CF Study Centre, Babar Mahal, Kathmandu, 2080/81 (2024/2025).

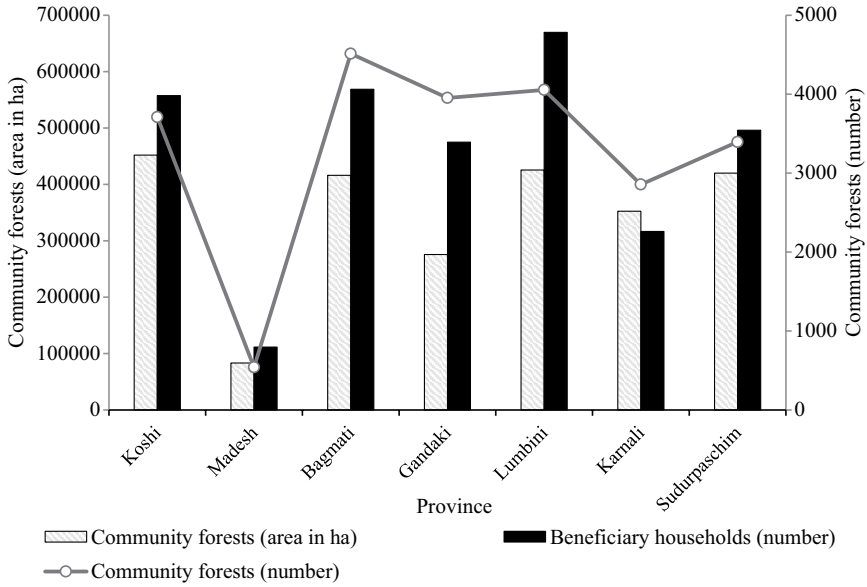

Figure 10.2 Province-wise area number, community forest area, and the number of beneficiary households.

Source: (Data source: CF Bulletin, 2024).

Studies have reported on increased regeneration density in community forests through the application of appropriate silvicultural systems such as thinning dense stands, clearing bush, implementing controlled grazing, planting preferred tree species, and maintaining nurseries (Aryal et al., 2021; Bhatta & Devkota, 2020; Ghimire & Lamichhane, 2021; Khanal & Adhikari, 2018; Kharel et al., 2021). Furthermore, users of community forests are actively involved in the collection and trade of NTFPs, including medicinal and aromatic plants, supporting household subsistence and generating income. Additionally, community forests play a vital role in water provision, effectively regulating water quality and quantity (Birch et al., 2014). Community forests have also enhanced food security by providing income and employment opportunities, supporting inputs for increased food production, providing food resources, and offering renewable energy for cooking (Karki et al., 2018). Furthermore, community forests are vital in carbon sequestration and climate change mitigation.

10.5 CF management and ecological restoration: Current issues and challenges

Despite the positive contributions of CF to biodiversity conservation and ecosystem service enhancement, Nepal's community forests are facing significant challenges that undermine biodiversity and associated ecosystem services.

Large-scale infrastructure development, encroachment and illegal logging, forest fires, and invasive alien species threaten the resilience of these forests (Acharya et al., 2009; Pandey et al., 2013; Rai et al., 2017; Subedi et al., 2022). Furthermore, critical aspects of biodiversity and ecosystem services have not been adequately integrated into the planning and management of community forests. These emerging challenges, along with a rigid and dogmatic approach to community forest management, have negatively affected the health and vitality of these forests. Consequently, their overall resilience has been compromised.

10.5.1 Biodiversity integration in community forests

Biodiversity concerns in Nepal's community forests are not adequately integrated into their management activities, operational plans, and policies (Anup, 2017; Luintel et al., 2018; Shrestha et al., 2010). Local communities often lack awareness of the importance of biodiversity, leading to practices such as favoring preferred species, removing "unwanted species," and collecting leaf litter, which negatively impact biodiversity (Khadka & Schmidt-Vogt, 2008). Practices like planting preferred species and excessive weeding have harmed biodiversity (Acharya, 2004; Paudyal et al., 2015). Similarly, reviews of Community Forest Operation Plans (CFOP) reveal that the conservation of floral and faunal diversity is poorly incorporated (Thani et al., 2019).

Additionally, the increasing wildlife populations with enhanced forest growth and area have led to increasing human-wildlife conflicts such as crop and infrastructure damage and livestock depredation (Baral et al., 2021; Bista & Song, 2021). Notably, species like monkeys, leopards, and elephants are involved in conflicts, especially in fragmented landscapes near protected areas (Acharya et al., 2017). These conflicts result in economic losses and foster negative attitudes toward wildlife, often leading to retaliatory killings (Adhikari, 2018; Koirala et al., 2021). The key drivers of human-wildlife conflict are socio-economic change, alterations in forest ecology, habitat fragmentation, and policy and institutional drivers (Khatri et al., 2024). Addressing these challenges requires improved wildlife management strategies and policies that incentivize communities to balance ecological conservation with their livelihood needs.

10.5.2 Invasive alien species

Plant invasion is a growing concern in Nepal, threatening biodiversity, wildlife habitats, agricultural production, and local livelihoods (Shrestha, 2019; Shrestha & Shrestha, 2021). Invasive Alien Plant Species (IAPS) negatively affect agricultural production, reduce forage availability, and hinder forest regeneration (Shrestha, 2019). Their spread has also been linked to biodiversity loss and increased forest fire risk (Shrestha, 2019). Therefore, the Nepal Biodiversity Strategy and Action Plan (NBSAP) 2014–2020 identifies IAPS as

a major threat to biodiversity (Siwakoti & Shrestha, 2014). Over 180 IAPS are naturalized in Nepal, with 30 species considered invasive (Shrestha et al., 2022; Shrestha & Shrestha, 2021). Notable IAPS such as *Lantana camara*, *Chromolaena odorata*, *ageratum houstonianum*, and *Ageratina adenophora* are widespread in community forests and adjacent open grazing areas. Climate change is expected to expand their potential habitats further, posing a serious threat to the ecological resilience of community forests (Shrestha & Shrestha, 2021). Although CFOPs include periodic removal of weeds as a major activity, the lack of comprehensive policies on IAPS management coupled with low awareness about the IAPS among CFUGs and insufficient funding diminishes collective action and hinders the effective management of IAPS within community forests.

10.5.3 Forest fire

The frequency, intensity, and impact of forest fires are increasing across Nepal, including in community forests. Between 2001 and 2023, the burned area expanded by 0.6% annually (Mishra et al., 2020). The 2023–2024 fire season recorded 758 high-confidence fire alerts, significantly higher than in previous years (ICIMOD, 2024). Over 65% of Nepal's forested area is now at high risk, particularly in the Terai Arc Landscape region (Parajuli et al., 2020). Historical data indicates that 7,050 ha of tree cover were lost to fires during this period (GFW, 2024). Forest fires cause substantial environmental damage, with an annual average of 3,098 incidents that damage approximately 172,041 ha of forest and result in the loss of 7.07 million tons of biomass, equating to 3.30 million tons of carbon emissions (Pandey et al., 2022).

While CFUGs initially led fire prevention efforts, recent years have seen a decline in their engagement. Factors contributing to this decline include a lack of incentives for fire mitigation activities, a low level of collective action on forest management among CFUGs, and shifting livelihoods that have reduced forest dependency—particularly for fuelwood and fodder—leading to higher fuel loads in the community forests. Additionally, climate change-induced droughts create a conducive environment for forest fires. These factors collectively contribute to an increased wildfire risk and reduced efforts to mitigate fires in community forests. This trend underscores the need for better fire management strategies and resources, particularly in community forests.

10.5.4 Lack of valuation and acknowledgment for ecosystem services in CF management

Community forests have fulfilled local communities' subsistence needs by providing various ecosystem goods, including timber and NTFPs. They also offer vital regulating services such as watershed protection, erosion and sediment control, groundwater recharge, water regulation, water purification, and climate change mitigation (Bhandari et al., 2016; Birch et al., 2014; Gurung et al.,

2013; Paudyal et al., 2018; Rai & Shyamsundar, 2016). However, major ecosystem services derived from community forests include fuelwood, fodder, medicinal plants, and water for irrigation (Birch et al., 2014). The Forest Act of 2019 marks a paradigm shift by recognizing the diverse ecosystem services provided by forests, including carbon sequestration, biodiversity protection, and the management of water cycles and watersheds. However, significant gaps exist in the quantification of supporting and cultural services as CFOPs often emphasize provisioning services such as timber and fuelwood (Paudyal et al., 2017; Thani et al., 2019). Therefore, it is essential to align CF management practices with the provisions of the Forest Act while recognizing the diverse ecosystem services that community forests provide.

10.5.5 Data and information scarcity for restoration and management actions

Nepal lacks adequate subnational-level data and a properly segregated database for different forest management modalities. The country also lacks a dynamic and continuously updated mapping system to delineate the boundaries between forest management models (Kharel, 2024). While forests are increasingly being handed over to communities, the Division Forest Office (DFO) still lacks digital boundary coordinates for all community forests under its jurisdiction. Furthermore, the National Forest Inventory (NFI) has not provided granular community forest-specific data (Kharel, 2024).

Local and regional volume tables remain outdated, with significant data gaps on critical aspects such as regeneration dynamics, disturbance levels, and timber quality (Chapagain et al., 2021). The national average growing stock provided by FRA 2010–2014 has inadvertently become the threshold for formulating operational plans and determining the Annual Allowable Cut (Baral & Vacik, 2018). However, this national average often fails to reflect actual site conditions, resulting in the use of generalized data instead of localized assessments (Baral & Vacik, 2018). As a result, CF resource inventories have become mere formalities that align with national metrics rather than reflecting site-specific realities.

Ideally, local-level databases maintained by DFOs should be integrated into national-level systems over time to ensure data accuracy and relevance. Ojha et al. (2022) emphasized that most restoration studies in Nepal have focused mainly on the causes of abandoned cropland, often neglecting to evaluate restoration outcomes and strategies. This further highlights the need for localized, data-driven approaches to forest management and restoration planning tailored to site-specific conditions rather than relying on broad averages.

10.5.6 Encroachment, illegal felling, and infrastructure development

Traditionally, forest encroachment and illegal felling have been significant drivers of deforestation and forest degradation in Nepal, with infrastructure development emerging as an increasingly critical issue in recent years. A study by

Table 10.4 Forest Encroachment Status in major districts of *Terai*

S.No.	*District*	*Total Forest Area (in ha)*	*Encroached Area (in ha)*	*% of Forest Encroached*
1	Kailali	198,239	21,484.00	10.84
2	Kapilvastu	59,025	10,636.00	18.02
3	Rupandehi	25,105	8,346.00	33.25
4	Udaypur	149,125	7,438.00	5
5	Nawalparasi	103,593	6,758.50	6.52
6	Kanchanpur	77,630	6,290.00	8.1
7	Rautahat	25,874	2,874.94	11.11
8	Dang	192,682	2,693.05	1.39
9	Jhapa	17,349	2,065.49	11.9
10	Salyan	121,258	1,851.75	1.53

Source: Adapted from Bhusal et al., 2018; DFRS, 2015.

Bhusal et al. (2018) analyzing forest cover loss in the *Terai* between 1991 and 2010/2011 revealed that conversion of forestland to agriculture was the primary driver, accounting for 62% of the total forest loss. Encroachment activities, such as the establishment of settlements and cultivation under the forest canopy, were observed in 5–7% of plots across different management regimes, except in the core zones of protected areas (PAs) (DFRS, 2015). Illegal logging and encroachment are still the prime concerns in the *Terai* region, contributing to the decline in forest quality (Table 10.4).

Although legally facilitated, forest land acquisition for national priority projects often faces criticism for the extensive clearing of forested sites with minimum attention to community impacts or ecological compensation (Geschewski, 2021). Additionally, the increasing trends of construction of concrete structures for eco-tourism within community forests undermine their ecological integrity. In the mid-hills, rural road construction led by local governments significantly contributes to forestland and watershed degradation, with poorly planned road construction accounting for 43% of landslides (Froude & Petley, 2018). Evidence shows that over 40% of newly triggered landslides intersect roads, with 84% occurring within 40 meters of a road (Vuillez et al., 2018). These landslides result in tree felling and accelerate soil erosion, further degrading the health and resilience of community forests.

10.6 Conclusion

Community forests in Nepal have played a significant role in enhancing forest cover and reducing deforestation, conserving biodiversity, and providing essential ecosystem services that contribute significantly to the livelihoods of local communities. However, despite these positive contributions, their ecological resilience faces emerging challenges. Persistent issues such as forest encroachment, illegal logging, and emerging issues such as large-scale infrastructure

development, particularly the construction of roads and tourism infrastructure, have led to forest degradation, undermining the ecological integrity of community forests, increasing tree loss, soil erosion, and watershed degradation. While CF has proven to be effective in reducing deforestation and regenerating forest areas, limited local-level data, redundant management practices, and poor integration of biodiversity and ecosystem services in operational plans hinder their ability to address emerging challenges.

Addressing these challenges requires a shift toward localized, data-driven forest management strategies that consider site-specific conditions and are supported by robust monitoring systems. Strengthening policies that incentivize CFUGs, improving the control and management of invasive alien species, and enhancing fire prevention efforts are critical steps for improving the resilience of community forests. Additionally, efforts must be made to align CF management practices with the new Forest Act's provisions while recognizing the diverse ecosystem services provided by forests beyond timber and fuelwood.

Bibliography

Acharya, K. P. (2004). Does Community Forests Management Support Biodiversity Conservation? Evidence from Two Community Forests from the Mid Hills of Nepal. *Journal of Forest and Livelihood*, *4*(1), 44–54.

Acharya, K. P., Dangi, R. B., Tripathi, D. M., Bushley, B. R., Bhandary, R. R., & Bhattarai, B. (2009). *Ready for REDD? Taking Stock of Experience, Opportunities and Challenges in Nepal*. Nepal Foresters' Association: Kathmandu, Nepal.

Acharya, K. P., Paudel, P. K., Jnawali, S. R., Neupane, P. R., & Köhl, M. (2017). Can forest fragmentation and configuration work as indicators of human–wildlife conflict? Evidences from human death and injury by wildlife attacks in Nepal. *Ecological Indicators*, *80*, 74–83. https://doi.org/10.1016/j.ecolind.2017.04.037

Adhikari, R. C. (2018). Study of human and monkey conflict in Dhankuta Municipality, Dhankuta, Province 1, Nepal. *Nepalese Journal of Biosciences*, *8*(1), 26–35. https://doi.org/10.3126/njbs.v8i1.51721

Amatya, S. M., Shrestha, K. R., Cedamon, E. (2016). *Nepal Forestry Handbook*. Kathmandu, Nepal. p. 634.903095496AMA

Amatya, S. M. & Shrestha, K. R. (2022). *Nepal forestry handbook*. Nepal Foresters' Association. p. 488.

Anup, K. C. (2017). Community forestry management and its role in biodiversity conservation in Nepal. In S. A. L. Gbolagade (Eds.), *Global exposition of wildlife management*. 51. http://doi.org/10.5772/65926

Aryal, B., Regmi, S., & Timilsina, S. (2021). Regeneration status and species diversity of major tree species under scientific forest management in Kapilbastu district, Nepal. *Banko Janakari*, *31*(2), 26–39. https://doi.org/10.3126/banko.v31i2.41898

Baral, K., Sharma, H. P., Kunwar, R., Morley, C., Aryal, A., Rimal, B., & Ji, W. (2021). Human wildlife conflict and impacts on livelihood: A study in community forestry system in mid-hills of Nepal. *Sustainability*, *13*(23), 13170.

Baral, P., Wen, Y., & Urriola, N. N. (2018). Forest cover changes and trajectories in a typical middle mountain watershed of western Nepal. *Land*, *7*(2), 72.

Baral, S., & Vacik, H. (2018). What governs tree harvesting in Community Forestry—Regulatory instruments or forest bureaucrats' discretion? *Forests*, *9*(10), 649. https://doi.org/10.3390/f9100649

Bhandari, P., Mohan, K. C., Shrestha, S., Aryal, A., & Shrestha, U. B. (2016). Assessments of ecosystem service indicators and stakeholder's willingness to pay for selected ecosystem services in the Chure region of Nepal. *Applied Geography*, *69*, 25–34. https://doi.org/10.1016/j.apgeog.2016.02.003

Bhatta, S. P., & Devkota, A. (2020). Community structure and regeneration status of Sal (Shorea robusta Gaertn.) forests of Dadeldhura district, Western Nepal. *Community Ecology*, *21*(2), 191–201. https://doi.org/10.1007/s42974-020-00021-8

Bhusal, P., Paudel, N. S., Adhikary, A., Karki, J., & Bhandari, K. (2018). Halting forest encroachment in Terai: what role for community forestry?. *Journal of Forest and Livelihood*, *16*(1), 15–34.

Birch, J. C., Thapa, I., Balmford, A., Bradbury, R. B., Brown, C., Butchart, S. H., Gurung, H., Hughes, F. M., Mulligan, M., Pandeya, B., Peh, K. S., Stattersfield, A. J., Walpole, M., & Thomas, D. H. (2014). What benefits do community forests provide, and to whom? A rapid assessment of ecosystem services from a Himalayan forest, Nepal. *Ecosystem Services*, *8*, 118–127. https://doi.org/10.1016/j.ecoser.2014.03.005

Bista, R., & Song, C. (2021). Human-wildlife conflict in the community forestry landscape: a case study from two Middle Hill districts of Nepal. *Human Dimensions of Wildlife*, *27*(6), 554–570. https://doi.org/10.1080/10871209.2021.1980158

Biodiversity Profiles Project (BPP). (1995). *An Assessment of the Representation of the Terrestrial Ecosystems in the Protected Area System of Nepal*. BPP. Publication Number 15. Department of National Parks and Wildlife Conservation, His Majesty's Government of Nepal, Kathmandu.

Chapagain, P. S., & Aase, T. H. (2020). Changing forest coverage and understanding of deforestation in Nepal Himalayas. *Geographical Journal of Nepal*, *13*, 1–28. https://doi.org/10.3126/gjn.v13i0.28133

Chapagain, U., Chapagain, B. P., Nepal, S., & Manthey, M. (2021). Impact of disturbances on species diversity and regeneration of Nepalese Sal (Shorea robusta) forests managed under different management regimes. *Earth*, *2*(4), 826–844.

Chaudhary, R. P., Uprety, Y., Acharya, H. R., & Rimal, S. K. (2023). Deforestation in Nepal: status, causes, consequences, and responses. In Sivanpillai, R. & Shroder, J.F. (Eds.) *Biological and environmental hazards, risks, and disasters* (pp. 277–318). Elsevier.

Chhetri, R., Yokying, P., Smith, A., Van Den Hoek, J., Hurni, K., Saksena, S., & Fox, J. (2021). Forest, agriculture, and migration: contemplating the future of forestry and agriculture in the middle-hills of Nepal. *The Journal of Peasant Studies*, *50*(1), 411–433. https://doi.org/10.1080/03066150.2021.1978983

Community Forest (CF) Bulletin. (2024). Statistics of Community Forest. 20 (1). Community Forest Study Center, Babarmahal, Kathmandu. Community Forest Bulletin, Volume 20.

Department of Forest Research and Survey (DFRS). (2014). *Terai forests of Nepal*. Forest Resource Assessment (FRA) Nepal. DFRS, Kathmandu, Nepal. Publication number 1.

Dev, O. P., Yadav, N. P., Springate-Baginski, O., & Soussan, J. (2003). Impacts of community forestry on livelihoods in the middle hills of Nepal. *Journal of forest and Livelihood*, *3*(1), 64–77.

DFRS. (2015). *State of Nepal's Forest*. Forest Resource Assessment (FRA) Nepal. DFRS, Kathmandu, Nepal. Publication Number 5.

DFRS/FRISP. (1999). *Forest Resources of Nepal (1987-1998), Publication No. 74*. Department of Forest Research and Survey/Forest Resource Information System Project (DFRS/FRISP). Government of Nepal and FRISP, the Government of Finland.

Dobremez, J. F. (1976). *Le Ne´pal: E´cologie et Bioge´ographie [Ecology and Biogeography of Nepal]*. Centre Nationale de la Recherche Scientifique, Paris, France.

DoF. (1966). *Forest Statistics of Terai and Adjoining Regions*. Forest Resources Survey Division, Department of Forests (DoF), Babarmahal, Kathmandu.

Eckholm, E. (1976). Losing Ground. *Environment: Science and Policy for Sustainable Development*, *18*(3), 6–11. https://doi.org/10.1080/00139157.1976.9930747

Flora of Nepal (2013). *Flora of Nepal*. Volume 3. Special Nepal Edition. Central Department of Botany, Tribhuvan University, Kirtipur, Nepal.

Froude, M. J., & Petley, D. N. (2018). Global fatal landslide occurrence from 2004 to 2016. *Natural Hazards and Earth System Sciences*, *18*(8), 2161–2181.

Forest Research and Training Center (FRTC). (2021). *Vegetation Types of Nepal: a report based on review of literature and expert knowledge*. EFTMP Technical Working Document, No. 2. Ecosystem and Forest Types Mapping Program (EFTMP), Forest Research and Training Centre (FRTC). Kathmandu, Nepal.

Forest Research and Training Center (FRTC). (2022). *National land cover monitoring system of Nepal*. FRTC. Kathmandu, Nepal.

Gautam, A., Shivakoti, G., & Webb, E. (2004). A review of forest policies, institutions, and changes in the resource condition in Nepal. *The International Forestry Review*, *6*(2), 136–148. https://doi.org/10.1505/ifor.6.2.136.38397

Gautam, A. P., Webb, E. L., & Eiumnoh, A. (2002). GIS assessment of land use/land cover changes associated with community forestry implementation in the Middle Hills of Nepal. *Mountain Research and Development*, *22*(1), 63–69.

Geschewski, H. (2021). *"They only talk about the trees"-An analysis of relations of power and justice in the (de) construction of Nepal's Second International Airport*. Master Thesis Series in Environmental Studies and Sustainability Science.

Ghimire, P., & Lamichhane, U. (2021). Plant species diversity and crown cover response to vegetation regeneration in community-managed forest in Makawanpur District, Nepal. *Asian Journal of Forestry*, *5*(1). https://smujo.id/ajf/article/view/7716

Global Forest Watch (GFW). (2024). https://www.globalforestwatch.org/. Accessed on 26 August, 2024.

Goldstein, M. C., Ross, J. L., & Schuler, S. (1983). From a mountain-rural to a plains-urban society implications of the 1981 Nepalese census. *Mountain Research and Development*, *3*(1), 61–64. https://www.jstor.org/stable/3673129

Government of Nepal (GoN). (2019). *The Forest Act, 2019. An act made to amend and consolidate law relating to forests*. Act number 12.

Groenendijk, S. (2008). *Shaping Community Forestry in Nepal: A solution for deforestation? A Study of Two Community Forestry Efforts in Nepal*. https://edepot.wur.nl/121108

Gurung, A., Bista, R., Karki, R., Shrestha, S., Uprety, D., & Oh, S. E. (2013). Community-based forest management and its role in improving forest conditions in Nepal. *Small-Scale Forestry*, *12*(3), 377–388.

Gurung, H. (1989). *Regional Patterns of Migration in Nepal*. Papers of the East-West Population Institute, No. 113. E-W Institute, Hawaii.

HMGN/ADB/FINNIDA. (1988). *Master plan for the forestry sector Nepal*. Summary of the programmes. His Majesty's Government of Nepal, Ministry of Forests and Soil Conservation, Kathmandu, Nepal

ICIMOD. (2024). *Forest fire detection and monitoring system in Nepal*. SERVIR. Hindu Kush Himalaya. https://servir.icimod.org/science-applications/forest-fire-detection-and-monitoring-in-nepal/#fireoutlook

Ives, J. D., & Messerli, B. (1989). *The Himalayan Dilemma*: *Reconciling development and conservation*. The United Nations University. London and New York.

Jackson, J. K. (1994). *Manual of afforestation in Nepal (Volume 1,2)*. Forest Research Survey Center, Kathmandu.

Karki, R., Shrestha, K. K., Ojha, H., Paudel, N., Khatri, D. B., Nuberg, I., & Adhikary, A. (2018). From forests to food security: Pathways in Nepal's community forestry. *Small-scale Forestry*, *17*, 89–104.

Khadka, S. R., & Schmidt-Vogt, D. (2008). Integrating biodiversity conservation and addressing economic needs: An experience with Nepal's community forestry. *Local Environment*, *13*(1), 1–13.

Khanal, Y., & Adhikari, S. (2018). Regeneration promotion and income generation through scientific forest management in community forestry: A case study from Rupandehi district, Nepal. *Banko Janakari*, *27*(3), 45–53. https://doi.org/10.3126/banko.v27i3.20541

Kharel, R. (2024). *Systematic Impact Analysis of Forest Resource Assessment (FRA) Nepal 2010-14 on the Forest Sector Policy Processes in Nepal*. A thesis submitted for the partial fulfillment of Master's degree in Forestry, Institute of Forestry, Tribhuvan University, Hetauda Campus, Hetauda, Nepal.

Kharel, R., Acharya, K. R., & Gautam, A. (2021). Regeneration Status and Diversity under Irregular Shelterwood System: A Study from Panchkanya Community Forest, Sunsari, Nepal. *Forestry: Journal of Institute of Forestry, Nepal*, *18*(01), 41–51. https://doi.org/10.3126/forestry.v18i01.41751

Khatri, D., Paudel, D., Poudyal, B. H., Khatri, S., Poudel, D. P., & Marquardt, K. (2024). Examining socio-ecological transitions and new human–wildlife relations in farming landscapes of the Nepal Himalaya. *Journal of Agrarian Change*, *24*(4), e12594.

Koirala, S., Baral, S., Garber, P. A., Basnet, H., Katuwal, H. B., Gurung, S., Rai, D., Gaire, R., Sharma, B., & Pun, T. (2022). Identifying the environmental and anthropogenic causes, distribution, and intensity of human rhesus macaque conflict in Nepal. *Journal of Environmental Management*, *316*, 115276.

Koirala, S., Garber, P. A., Somasundaram, D., Katuwal, H. B., Ren, B., Huang, C., & Li, M. (2021). Factors affecting the crop raiding behavior of wild rhesus macaques in Nepal: Implications for wildlife management. *Journal of Environmental Management*, *297*, 113331. https://www.sciencedirect.com/science/article/pii/S0301479721013931

Land Resources Mapping Project (LRMP). (1986). *Land Utilization Report*. LRMP, Kenting Earth Sciences Limited. His Majesty's Government of Nepal and Government of Canada.

Luintel, H., Bluffstone, R. A., & Scheller, R. M. (2018). The effects of the Nepal community forestry program on biodiversity conservation and carbon storage. *PLoS One*, *13*(6), e0199526.

Maharjan, S., Shrestha, B. B., Joshi, M. D., Devkota, A., Muniappan, R., Adiga, A., & Jha, P. K. (2019). Predicting suitable habitat of an invasive weed Parthenium hysterophorus under future climate scenarios in Chitwan Annapurna Landscape, Nepal. *Journal of Mountain Science*, *16*(10), 2243–2256.

Matin, M. A., Chitale, V. S., Murthy, M. S., Uddin, K., Bajracharya, B., & Pradhan, S. (2017). Understanding forest fire patterns and risk in Nepal using remote sensing, geographic information system and historical fire data. *International Journal of Wildland Fire*, *26*(4), 276–286. https://www.publish.csiro.au/wf/wf16056

Måren, I. E., Bhattarai, K. R., & Chaudhary, R. P. (2013). Forest ecosystem services and biodiversity in contrasting Himalayan forest management systems. *Environmental Conservation*, *41*(1), 73–83. https://doi.org/10.1017/s0376892913000258

McAdoo, B. G., Quak, M., Gnyawali, K. R., Adhikari, B. R., Devkota, S., Rajbhandari, P. L., & Sudmeier-Rieux, K. (2018). Roads and landslides in Nepal: how development affects environmental risk. *Natural Hazards and Earth System Sciences*, *18*(12), 3203–3210.

Ministry of Forest and Environment (MoFE). (2020). *Current Status of Community Based Forest Management Models in Nepal*. MoFE, Singhadurbar, Kathmandu.

Ministry of Forest and Soil Conservation (MoFSC). (1989). *Master Plan for Forest Sector*. Main report. Kathmandu: MoFSC, Nepal.

MoFE. (2023). Ministry of Forests and Environment Annual Report of FY 2022/023; MoFE: Kathmandu, Nepal, 2023. Available online on https://mofe.gov.np/uploads/documents/annual-report-079-80pdf-5895-844-1715750520.pdf [Accessed on January 30, 2025]

MoFSC. (2002). *Forests and Vegetation Types of Nepal*. Tree Improvement and Silviculture Component, Department of Forest. Ministry of Forests and Soil Conservation, His Majesty's Government of Nepal.

Mishra, P. K., Rai, A., & Rai, S. C. (2020). Land use and land cover change detection using geospatial techniques in the Sikkim Himalaya, India. *The Egyptian Journal of Remote Sensing and Space Science*, *23*(2), 133–143.

Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A., & Kent, J. (2000). Biodiversity hotspots for conservation priorities. *Nature*, *403*(6772), 853–858.

Niraula, R. R., Gilani, H., Pokharel, B. K., & Qamer, F. M. (2013). Measuring impacts of community forestry program through repeat photography and satellite remote sensing in the Dolakha district of Nepal. *Journal of Environmental Management*, *126*, 20–29.

Ojha, R. B., Atreya, K., Kristiansen, P., Devkota, D., & Wilson, B. (2022). A systematic review and gap analysis of drivers, impacts, and restoration options for abandoned croplands in Nepal. *Land Use Policy*, *120*, 106237. https://www.sciencedirect.com/science/article/pii/S0264837722002642

Oldekop, J. A., Sims, K. R., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*(5), 421–428. https://www.nature.com/articles/s41893-019-0277-3

Pandey, H. P., Pokhrel, N. P., Thapa, P., Paudel, N. S., & Maraseni, T. N. (2022). Status and practical implications of forest fire management in Nepal. *Journal of Forest and Livelihood*, *21*(1), 32–45.

Pandey, S. S. (2007). *Tree species diversity in existing community based forest management systems in central mid-hills of Nepal*. Uppsala, Sweden: Swedish Biodiversity Centre. Swedish University of Agricultural Sciences.

Pandey, S. S., Cockfield, G., & Maraseni, T. N. (2013). Major drivers of deforestation and forest degradation in developing countries and REDD+. *International Journal of Forest Usufructs Management*, *14*(1), 99–107. https://research.usq.edu.au/item/q20q9/major-drivers-of-deforestation-and-forest-degradation-in-developing-countries-and-redd

Pandit, R., & Bevilacqua, E. (2011). Forest users and environmental impacts of community forestry in the hills of Nepal. *Forest Policy and Economics*, *13*(5), 345–352.

Parajuli, A., Gautam, A. P., Sharma, S. P., Bhujel, K. B., Sharma, G., Thapa, P. B., Bist, B. S., & Poudel, S. (2020). Forest fire risk mapping using GIS and remote sensing in two major landscapes of Nepal. *Geomatics, Natural Hazards and Risk*, *11*(1), 2569–2586. https://doi.org/10.1080/19475705.2020.1853251

Pathak, H. N., Bhuju, D. R., Shrestha, B. B., & Ranjitkar, S. (2021). Impacts of invasive alien plants on ecosystem services of Ramsar lake cluster in middle mountain Nepal. *Global Ecology and Conservation*, *27*, e01597. https://doi.org/10.1016/j.gecco.2021.e01597

Poudel, M. (2015). Examining outcomes of REDD+ through community forestry in rural Nepal. Ph. D. thesis presented to Charles Sturt University, Australia.

Poudel, M., Thwaites, R., Race, D., & Dahal, G. R. (2014). REDD+ and community forestry: implications for local communities and forest management-a case study from Nepal. *International Forestry Review*, *16*(1), 39–54.

Poudel, N. R., Fuwa, N., & Otsuka, K. (2015). The impacts of a community forestry program on forest conditions, management intensity and revenue generation in the Dang district of Nepal. *Environment and Development Economics*, *20*(2), 259–281.

Paudel, S., & Sah, J. P. (2015). Effects of different management practices on stand composition and species diversity in subtropical forests in Nepal: Implications of community participation in biodiversity conservation. *Journal of Sustainable Forestry*, *34*(8), 738–760. https://doi.org/10.1080/10549811.2015.1036298

Paudyal, K., Baral, H., Bhandari, S. P., & Keenan, R. J. (2018). Design considerations in supporting payments for ecosystem services from community-managed forests in Nepal. *Ecosystem Services*, *30*, 61–72.

Paudyal, K., Baral, H., Burkhard, B., Bhandari, S. P., & Keenan, R. J. (2015). Participatory assessment and mapping of ecosystem services in a data-poor region: Case study of community-managed forests in central Nepal. *Ecosystem Services*, *13*, 81–92.

Paudyal, K., Baral, H., Putzel, L., Bhandari, S., & Keenan, R. J. (2017). Change in land use and ecosystem services delivery from community-based forest landscape restoration in the Phewa Lake watershed, Nepal. *International Forestry Review*, *19*(4), 88–101.

Pokharel, B. K., Stadtmüller, T., & Pfund, J. L. (2005). From degradation to restoration: An assessment of the enabling conditions for community forestry in Nepal. *Intercooperation, Swiss Foundation for Development and International Cooperation, Switzerland*, *273*, 13.

Poudel, A. S., Shrestha, B. B., Joshi, M. D., Muniappan, R., Adiga, A., Venkatramanan, S., & Jha, P. K. (2020). Predicting the current and future distribution of the invasive weed Ageratina adenophora in the Chitwan–Annapurna Landscape, Nepal. *Mountain Research and Development*, *40*(2), R61.

Rai, R. K., & Shyamsundar, P. (2016). *Designing a payment for ecosystem services scheme for the Sardukhola watershed in Nepal*. South Asian Network for Development and Environmental Economics.

Rai, S. N. (1997). Management of tropical forests in Nepal. In S. Gyawali, K. Baral and C. Khatiwada (Eds.). *Prabhat, Annual Publication* (p. 5). Pokhara, Nepal: Institute of Forestry

Rai, R. K., Nepal, M., Karky, B. S., Somanathan, E., Timalsina, N., Khadayat, M. S., & Bhattarai, N. (2017). Costs and benefits of reducing deforestation and forest degradation in Nepal. https://doi.org/10.13140/RG.2.2.18893.33768.

Ranjit, Y. (2019). History of forest management in Nepal: An analysis of political and economic perspective. *Economic Journal of Nepal*, *42*(3–4), 12–28.

Regmi, R. R. (1994). Deforestation and Rural Society in the Nepalese Tarai. *Occasional Papers in Sociology and Anthropology*, *4*, 72e89.

Rutters, K. H., Law, B. E., Kucera, R. C., Gallant, A. L., DeVelice, R. L., & Palmer, C. J. (1992). A selection of forest condition indicators for monitoring. *Environmental Monitoring and Assessment*, *20*(1), 21–33.

Sapkota, I. P., Tigabu, M., & Odén, P. C. (2009). Spatial distribution, advanced regeneration and stand structure of Nepalese Sal (Shorea robusta) forests subject to disturbances of different intensities. *Forest Ecology and Management*, *257*(9), 1966–1975.

Schweinfurth, U. (1957). Die horizontale und vertikale Verbreitung der Vegetation in Himalaya. Bonn. Cited in Stainton (1972).

Sharma, S., & Acharya, S. (2017). Human-rhesus macaque conflict at pumdivumdi/tallokodi, Pokhara, West Nepal. *Banko Janakari*, *27*(2), 46–50.

Shrestha, B. B. (2019). Management of Invasive Alien Plants in Nepal: Current Practices and Future Prospects. In S. C. Garkoti, S. J. Van Bloem, P. Z. Fulé, & R. L. Semwal (Eds.), *Tropical ecosystems: Structure, functions and challenges in the face of global change* (pp. 45–68). Springer Singapore. https://doi.org/10.1007/978-981-13-8249-9_4

Shrestha, B. P. (2015). Faunal (mammal) diversity and human wildlife conflict in CF (A case study from Tanahun and Kavrepalanchok districts, Nepal). *Community Forestry in Nepal*, *51*, 1–8.

Shrestha, B. B., & Shrestha, K. K. (2021). Invasions of Alien Plant Species in Nepal: Patterns and Process. In T. Pullaiah & M. R. Ielmini (Eds.), *Invasive Alien Species* (1st ed., pp. 168–183). Wiley. https://doi.org/10.1002/9781119607045.ch20

Shrestha, B. B., Witt, A. B. R., Shen, S., Khuroo, A. A., Shrestha, U. B., & Naqinezhad, A. (2022). Plant Invasions in Asia. In D. R. Clements, M. K. Upadhyaya, S. Joshi, & A. Shrestha (Eds.), *Global Plant Invasions* (pp. 89–127). Springer International Publishing. https://doi.org/10.1007/978-3-030-89684-3_5

Shrestha, S., Shrestha, U. B., & Bawa, K. (2018). Socio-economic factors and management regimes as drivers of tree cover change in Nepal. *PeerJ*, *6*, e4855. https://doi.org/10.7717/peerj.4855

Shrestha, T. B. (2008). Classification of Nepalese forests and their distribution in protected areas. *The Initiation*, *2*(1), 1–9.

Shrestha, T. B. (2013). Ecosystems. In P. K. Jha, F. P. Neupane, M. L. Shrestha and I. P. Khanal (Eds). *Biological Diversity and Conservation* (pp. 277–289). Khumaltar, Lalitpur: Nepal Academy of Science and Technology.

Shrestha, U. B., Shrestha, B. B., & Shrestha, S. (2010). Biodiversity conservation in CF of Nepal: Rhetoric and reality. *International Journal of Biodiversity and Conservation*, *2*(5), 98–104.

Siwakoti, M., & Shrestha, B. B. (2014). *An overview of legal instruments to manage invasive alien species in Nepal. Proceedings of the International Conference on Invasive Alien Species Management*, Chitwan, Nepal, 25–27 March 2014, 101–111. https://www.cabdirect.org/cabdirect/abstract/20183377738

Soussan, J., Shrestha, B. K., Uprety, L. P., (1995). *The Social Dynamics of Deforestation: A Case Study from Nepal*. London and New York: The Parthenon Publishing Group.

Stainton, J. D. A. (1972). *Forests of Nepal*. London: John Murray.

Subedi, P. B., Ojha, P., Mahara, S., & Gautam, D. (2022). Assessment of rate and drivers of deforestation and forest degradation in the lower-tropical region: A case of Punarbas Municipality, Nepal. *Our Nature*, *20*(1).

Thani, P. R., Kc, R., Sharma, B. K., Kandel, P., & Nepal, K. (2019). Integrating biodiversity conservation and ecosystem services into operational plan of community forest in Nepal: status and gaps. *Banko Janakari*, *29*(1), 3–11.

Thapa, G. J., Wikramanayake, E., Jnawali, S. R., Oglethorpe, J., & Adhikari, R. (2016). Assessing climate change impacts on forest ecosystems for landscape-scale spatial planning in Nepal. *Current Science*, *110*(3), 345–352.

Thoms, C. A. (2008). Community control of resources and the challenge of improving local livelihoods: A critical examination of community forestry in Nepal. *Geoforum*, *39*(3), 1452–1465.

Tiwari, S., Paudel, N. S., Sze, J., & Karki, R. (2022). Unravelling the Local Dynamics of Increasing Fires in CF of Mid-hills of Nepal. *Journal of Forest and Livelihood*, *21*(1), 60–71.

Tripathi, S., Subedi, R., & Adhikari, H. (2020). Forest cover change pattern after the intervention of community forestry management system in the mid-hill of Nepal: A case study. *Remote Sensing*, 12(17), 2756.

United Nations Environment Programme (UNEP). (2001). *Nepal: State of the Environment 2001*. Thailand: UNEP.

Vuillez, C., Tonini, M., Sudmeier-Rieux, K., Devkota, S., Derron, M.-H., & Jaboyedoff, M. (2018). Land use changes, landslides and roads in the Phewa Watershed, Western Nepal from 1979 to 2016. *Applied Geography*, *94*, 30–40.

11 Rethinking forest management

Silviculture, technology, and the future of community forestry

Pawan Karki, Shambhu Dangal, Sony Baral, Edwin Cedamon, and Ian K. Nuberg

11.1 Introduction

In Nepal, forest management and silviculture practices are usually shaped by social frameworks, especially by local institutions, rules, and tenure systems. While the term "silviculture" may be unfamiliar and understood differently by the community groups, they have long practiced traditional or indigenous systems for managing forests as part of the wider rural livelihood in the hills of Nepal. In this chapter, we define silviculture as the art and science of cultivating forest crops (Annon, 1966, cited by Dwivedi, 1993) utilizing multiple sources of knowledge. It includes regeneration of the area, creating and maintaining forests, improving forest conditions, controlling the composition, restocking the understocked area, improving site conditions, and tending operation (Dwivedi, 1993). Likewise, forest management is defined as the regulation of forest growth, harvesting, and regeneration, as well as balancing ecological, economic, and social considerations to ensure the long-term health of the forest ecosystems.

Inappropriate silvicultural practices in the 1960s driven by several socio-economic factors resulted in deforestation and degradation in the Himalayas (Ives & Messerli, 1989). This concern subsequently galvanized into a new policy shift in the following decade, leading to introduction of community forestry (CF) in the country with the initial focus on forest restoration. Plantation of suitable species in the barren forest land and degraded forests as enrichment planting and appropriate plantation tending operations such as weeding, cleaning, pruning, and thinning were key silviculture interventions to restore degraded forest areas. These forests were crucial in reversing the deforestation trends and promoting sustainable forest management.

CF emphasizes local participation and sustainable resource use, which creates the opportunity for introducing silviculture practices. Today, Nepal's forest management and silvicultural practices have evolved into a complex mosaic of ideas, technologies, and interventions shaped by specific local ecological conditions, social contexts, and policy and regulatory practices. Participatory CF has significantly increased Nepal's forest cover to 45.52 % by 2024 (FRTC, 2024), and growing stock increased from 131 $m^3\ ha^{-1}$ to 164.76 $M^3\ ha^{-1}$ between

DOI: 10.4324/9781032705613-15
This chapter has been made available under a CC BY-NC-ND license.

1994 and 2011 (MoFE, 2015). However, an increasing number of recent studies show that Nepal's CF is not actively managed with the underutilization of silvicultural potential (Acharya et al., 2022; Dahal & Chapagain, 2012; Dangal & Das, 2018). In Nepal, two primary forest management systems are practiced: (1) growth-to-removal, which focuses on balancing the forest growth rate with the harvesting rate to ensure that the volume of wood removed does not exceed the forest's natural growth, aiming to maintain a sustainable yield over time and (2) silviculture-based forest management, which involves the careful planning and implementation of various forest management practices to influence the establishment, growth, composition, and quality of forests (Baral et al., 2018; James, 2015).

This chapter explores silviculture-based forest management practices within Nepal's CF sector. It takes a historical approach to discussing the emergence of diverse silvicultural systems in relation to CF management in Nepal. Situating CF management in evolving debates around forest science and community knowledge and between conservation and utilization, this chapter seeks to address key questions related to how silvicultural interventions are defined and shaped in specific CF contexts and what outcomes they generate for livelihoods and forest restoration. The chapter also identifies evolving challenges and possible ways forward for more active, equitable, and effective forest management and silvicultural systems in the context of CF in Nepal and beyond.

11.2 Silviculture-based forest management: Trends and practices

Silviculture has been practiced throughout history for establishing, managing, and utilizing forest resources. In Nepal, forest management and silvicultural practices have been shaped by socio-economic conditions and institutional setup for centuries. During periods of abundant forest resources, Nepal's rulers primarily focused on generating revenue through royalties or rents. However, as early as the *Lichhavi* period, many rulers promoted forest protection mechanisms, such as limiting tree felling through selective logging and establishing Temple/Religious Forests, Ban Gadh,[1] Rani ban,[2] ethnic groups managed forests, and so on (Ranjit, 2019).

Massive deforestation and forest degradation occurred during the Rana regimes (1846–1950), driven by financial gain and the export of products, mainly timber, to India. Nepal's forest cover and quality continued declining despite the establishment of the Department of Forests in 1942, nationalization of private forests and *Birta*[3] in 1957 and 1959, and implementation of a strong Forest Act in 1961 (Dahal, 1994). The National Forestry Plan in 1976 marked a significant shift toward formal forest management practices, with a particular emphasis on silviculture (Nagendra et al., 2005). Recognizing the importance of active community involvement, the formation of community forests, where local communities played a pivotal role in managing forest resources, helped empower them.

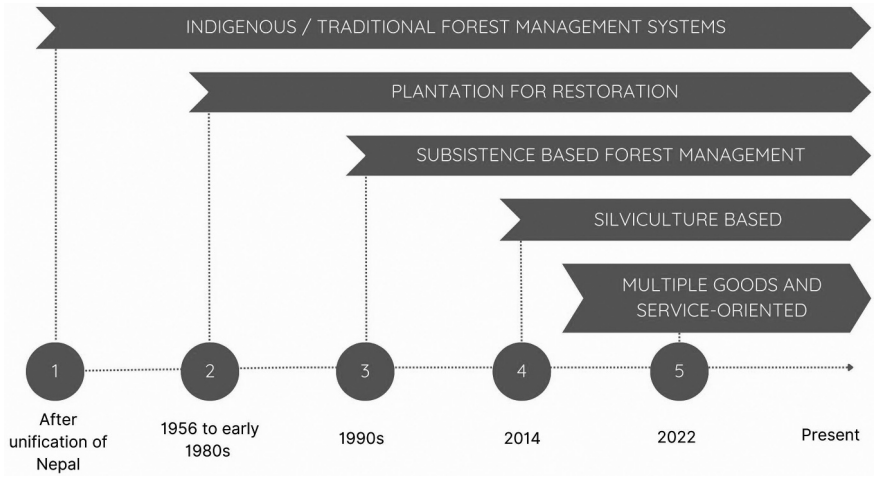

Figure 11.1 An overview of diverse silvicultural approaches in Nepal's CF.

Link for the image: https://www.canva.com/design/DAGPH7dve_E/23667vlZxkZGvgcyDA2yFw/edit

During the 1970s, the government of Nepal, with support from development partners, conducted research on various silvicultural practices to rehabilitate and restore declining forests and degraded lands. This included trials of different species suited to degraded areas, enrichment planting, strict protection measures by the government, and community engagement in plantation and protection efforts. The outcomes of this research were formalized in the Master Plan for Forestry Sector and later codified in the Forest Act 1991 and Regulation 1994. During this time, Nepal successfully established 370,000 hectares of plantation in barren areas and planted millions of seedlings as enrichment planting in degraded lands. The small-scale silviculture practiced since 1990 turned from subsistence-level management to silviculture-based management and gradually started multiple goods and service-oriented management. Nonetheless, all these silviculture practices are currently practiced in Nepal (Figure 11.1) and are driven by the ability of forests to provide goods and services, socio-economic conditions, and markets.

11.2.1 Indigenousltraditional forest management practices: Integration and recognition

Indigenous forest management evolved over centuries as self-governance mechanisms for the conservation and sustainable use of forests are still practiced in Nepal. These systems are developed based on nature, beliefs, and behavior. The CF programs started in the 1980s evolved with the key elements of indigenous forest management (Bhattarai & Khanal, 2005; Poffenberger, 2000; Rai et al., 2011).

Before the unification of Nepal in 1768, the region was governed by various rulers like *Kirats*, *Lichhivis*, *Devas*, and *Mallas* over several centuries (Bhattarai & Khanal, 2005). During these periods, most of the forests were state-owned, and people were required to pay 50% of the products' value rent (Regmi, 1971). During the *Lichhivi* period (300–750 AD), the royal decrees limited tree harvesting, allowing a maximum of 40 selected trees for construction (Ranjit, 2019). The *Malla* dynasty initiated Temple Forests and *Ban Gadh*, which banned hunting while generating revenue from timber, honey, and the supply of elephants to Indian states (Poffenberger, 2000). Traditional forest management systems played a significant role, particularly in the hill regions, although shifting cultivation and selective felling were common (Arnold & Campbell, 1986; Fisher, 1989; Gilmour et al., 1990). After Nepal's unification (1768–1846), forest lands were distributed to the military as *Birta* and *Jagir*. Though the *Kipat* system continued, the indigenous forest management system was gradually converted to feudal control. From 1846 to 1877, forest exploitation became formalized through legal judicial procedures, leading to the large-scale removal of selected trees for sale to India (Hobley et al., 1996). Clear felling for agriculture cultivation in the *Terai* and *Shorhana* in the hills to *Rana* families accelerated deforestation (Ranjit, 2019).

In the hills, many communities established their own systems, such as the *Rani Ban*, for protecting and managing local forests. These traditional practices were often overseen unofficially by *Talukdars* for selective felling (Shrestha, 1999). After the democratic revolution of 1951, the concept of forest management plans emerged (Palit, 1996). However, the nationalization of private and *Birta* forests in 1957 and 1959 led to forests being treated as open access resources. Despite nationalization and the Forest Act of 1961, rampant forest land use change and unsustainable selective felling persisted till 1975.

CF initiated in the 1980s promoted the fundamentals of indigenous practices and legalized most of them, as a result, large area of forests managed traditionally converted to community forests. This conversion process weakened the attachment of forest-dependent indigenous people to their forests. The CF approach couldn't develop confidence among the Indigenous Peoples (IPs) (Wakiyama, 2004); hence, several traditional practices are still in operation and will continue (Table 11.1).

There are numerous such systems practiced by indigenous communities across Nepal. However, documenting and acknowledging these traditional knowledge systems and practices within formal forest management processes is critical for preserving these effective systems (Acharya et al., 2022) to be adopted by future generations around the globe in the current climate crisis. Indigenous practices such as *shreeban*[4] have persisted, often resulting in healthier forest ecosystems characterized by community involvement and adherence to traditional rules regarding resource use (Gautam, 1991; Pokharel, 2000).

Table 11.1 Indigenous silviculture practices in Nepal

Practice	*Location*	*Overview of silviculture practices*
Bheja	Mid Hills (Magar Community)	This practice involves sustainable forest management through rotational fallowing and selective harvesting.
Kharka	Mountain Regions (Sherpa Community)	*Kharkas* are temporary grazing areas managed by mountain communities. They often involve rotational grazing and careful management of vegetation.
Shyagya	Tsum Valley (Manang)	Shyagya is a traditional non-violent conflict resolution system that also incorporates principles of environmental conservation.
Limi Valley	Namkha Rural Municipality, Humla	The Limi Valley's traditional resource management system balances ecological concerns with cultural, religious, and livelihood needs.
Barghars	Tharu Communities	The *Barghars* system is a community-based governance mechanism that includes forest management. It involves collective decision-making and shared responsibility for resource conservation.

11.2.2 Plantation for restoration

Plantation-based forest restoration involves re-establishing forests by planting trees, typically on degraded or barren land, to restore ecosystem functions, improve forest conditions, and support local livelihoods. This also includes intentionally transforming plantation sites into broadleaved forests through practices, like thinning, pre-commercial thinning, and cleaning (Gilmour, 2018; Laudari et al., 2019).

In the 1970s, Nepal faced a severe environmental crisis. Nepal's hills were being degraded due to haphazard tree felling for timber and fuelwood and livestock grazing, which led to increased soil erosion, flooding, and landslides. According to the World Bank (1979), without large-scale reforestation programs, forests in the country's hills would largely disappear by 1990 (NASA Earth Observatory, 2021).

Early restoration efforts (1956–1980s) yielded mixed results because of the limited integration of socio-economic and ecological concerns (Laudari et al., 2022). However, large-scale reforestation started in the late 1970s through collective actions of the government and local communities for plantation and its management predominantly in the mid-hills of Nepal (Dangal & Das, 2018), with nearly 400,000 hectares of plantations were established in the early 1980s (Gilmour et al., 1990). In the *Terai*, the CF program undertook extensive plantations in the late 1980s, using local species such as Sissoo (*Dalbergia sissoo*) and fast-growing exotic species like Teak (*Tectona grandis*), Eucalyptus (*Eucalyptus camaldulensis*), and Poplar (*Populus deltoides*) (MoFSC, 2015).

The process further expanded to Chure region in 2000 through collective actions of government and local communities for plantation and its management. With the initiation of large-scale plantations in the early 1980s (Gilmour et al., 1990), nearly 400,000 hectares of plantations were established, predominantly in the mid-hills of Nepal (Dangal & Das, 2018).

Community-driven silviculture and forest protection are traditional practices in Nepal. The state's ignorance of these practices has resulted in massive deforestation in the past. Realizing this fact, the CF program was initiated during the 1980s and was formalized in Nepal through the Master Plan for Forestry Sector 1987, the Forest Act, 1993, and the Forest Regulation, 1995 (Gilmour, 2017; Pandit & Bevilacqua, 2011; Shahi et al., 2022). The plantation-based restoration process through CF was initiated in Sindhupalchowk and rapidly upscaled in the rest of the countries. As a result, Nepal now has 23,026 community forests, 7,194 pro-poor leasehold forests, 31 collaborative forests, and 203 religious forests covering over 35% of the nation's forest area (CFSD, 2024). The driving force for a successful restoration was the strong presence and influence of forestry donor communities, committed and motivated government officials, a favorable policy environment, support from local bodies, and strong participation from local communities.

Silviculture is about deliberately manipulating a forest to achieve defined objectives (Prakash, 1995). The notion of "appropriate" silviculture is essential when considering silviculture for community forests because silvicultural approaches and prescriptions must balance local needs with forest sustainability (Gilmour, 2018). In many cases, plantation areas of pine forests have been deliberately converted into broadleaved mixed forests, particularly in districts like Kavrepalanchowk and Sindhupalchowk. Periodic measurements taken between 1983 and 1995 in the trial plots established to convert pure pine plantations into mixed broadleaved forests by the Australian forestry projects in Nepal showed a presence of naturally regenerated 50% broadleaved trees in the pure pine plantation adopting proper thinning (NACRMLP, 2005). Similarly, research plots from the Australian Center for International Agriculture Research (ACIAR) funded Enhancing Livelihoods through Forest Management (EnLiFT2) project indicate that broadleaved species have now outpaced pine in terms of regeneration in these areas (Karki et al., 2024).

The two phases of the EnLiFT project (2014–2024) developed management prescriptions through successful piloting in various forest conditions, objectives, and terrain of Sindhupalchowk and Kavrepalanchowk. The most chosen prescriptions by the community and Division Forest Office (DFO) staff are strip shelterwood system, irregular shelterwood system, and disbursed variable thinning to promote broadleaved species. At the policy level, the Bagmati Province has pioneered the development of inclusive guidelines for Sustainable Forest Management in 2022. The guideline provides over 114 silviculture prescriptions to cover 14 forest types with several management objectives and forest conditions (MoFE, 2023). The guideline included the findings of the action research under the EnLiFT project (Figure 11.2).

Figure 11.2 Current condition of a plantation forest requiring immediate silvicultural treatment.

Photo Credit: Pawan Karki.

Plantation in barren land or degraded forests has been the foundation for rehabilitating degraded forests, which is still in practice and will remain in the future. Plantation-based restoration has evolved into a complex system of silviculture in CF today. As a nature-based solution, assisted natural regeneration is widely practiced in Nepal, but it cannot meet the community's interest in growing certain species with the quality requirement.

11.2.3 Subsistence-oriented forest management: Passive management

Subsistence-oriented forest management refers to an approach primarily aimed at fulfilling the basic needs of local communities over forest resources. This management strategy emerged in response to government policies, like the original Master Plan for Forestry Sector, 1989, in Nepal, which was designed to meet the subsistence requirements of local communities for forest products such as fuelwood, fodder, and timber. The focus is on the protection and sustainable use of forest resources while emphasizing minimal extraction beyond the community's immediate needs.

The Community Forest Inventory Guidelines (2000) restrict timber harvest to a maximum of 50% of the Mean Annual Increment (MAI), assuming all forests are understocked. The MAI should ideally be calculated for the entire forest, but current practices focus on harvesting blocks, leading to overstocked

and poorly managed forests. The current practice fails to account for plantations that should be managed based on rotation periods due to limited understanding and confidence among the government forest officers. Consequently, this resulted in traditional protection-oriented forest management, which primarily targeted the removal of dead, dying, decayed, and deformed trees, leading to the proliferation of over-mature forests with varying age categories (Yadav et al., 2009). Despite improvements in forest conditions, forest management in Nepal remains passive and fails to fully capitalize on its economic potential (Baral et al., 2018; Gilmour, 2016; Luintel et al., 2018; Oldekop et al., 2019). Although there have been efforts in forest restoration and expansion under community-based forest management, silviculture activities are often limited to planting, cleaning, and selective felling, rather than comprehensive management (Baral et al., 2018). Under this, small-scale silviculture activities such as thinning, pruning, and cleaning were gradually introduced. These practices provided poles, firewood, litter, and bedding materials for livestock for 80% of countries' forest-dependent communities. Also, these activities offered complementary material for vegetable farming, widely used in the peripheral districts of Kathmandu Valley during the 1990s. This small-scale silviculture intervention largely aimed to improve the quality of restored forests rather than supplying these materials at a large scale.

The prescription for annual harvesting of 50% of the MAI was widely followed to increase growing stock (Baral et al., 2018; Basnyat, 2020). However, the Annual Allowable Harvest (AAH) estimate based on MAI faced criticism due to inventory manipulation for over- or under-harvesting or controlling harvesting have been reported (Baral & Vacik, 2018; Baral et al., 2018). Consequently, many community forest user groups (CFUGs) struggle to meet domestic timber demand. Additionally, the prescriptions in operational plans (OPs) often do not reflect actual forest conditions, rendering forest inventories a mere formality with little practical use for developing management prescriptions.

The process for selling surplus forest products defined by the Forest Product Collection and Sale Distribution Directive 2016 (MoFE, 2016) is reported to be overly complex and lengthy, discouraging users from extracting forest resources beyond their subsistence needs. Many bureaucrats and politicians still view CF primarily as a means of establishing and protecting forests while meeting the subsistence needs of local communities, as initially intended by government policy (Kanel, 2004).

Many communities are managing their community forests for subsistence needs, and market-based management may not be possible due to socio-economic and forest conditions, so it will continue. However, those potentials go beyond subsistence, facing several problems stipulated before. As long-term resources, forests require management based on silvicultural principles from the establishment to final harvesting to enhance productivity and fulfil desired needs. This necessitates clear and flexible technical guidelines within legal frameworks, coupled with capacity building to enhance confidence among forest managers from both government and community.

11.2.4 Emergence of silviculture-based forest management

Silviculture-based forest management is a science-based approach that aims to harmonize human needs with the long-term sustainability of forest ecosystems. Unlike traditional approaches that often prioritize short-term economic gains, this approach emphasizes ecological and economical balance sustainably.

The Sagarnath Forestry Development Project in Nepal exemplifies silviculture-based forest management. This project started in 1978, adopted a silviculture system called clear-felling with plantations of fast-growing species such as Eucalyptus, Sissoo, and Teak across 10,000 hectares, replacing naturally grown Sal forests (*Shorea robusta*) to achieve maximum economic benefits by supplying fuel wood to urban areas.

During the 1990s, several silviculture trials were established to manage the *Terai* Sal forests through forest management, utilization, and development projects. While some trials showed promising results, their replication was limited due to insignificant funding and a lack of understanding among the stakeholders. However, ongoing measurements of these trials have shown encouraging results indicating potential for broader application across, as stated by Rakesh Chandrabansi, Divisional Forest Officer Makawanpur District. Similar trials and demonstration plots were set up in various forest types in the middle hills of Nepal, focusing on shrubland management and simple silviculture prescriptions, and these activities were mostly replicated by the community.

In the 1990s, the government of Nepal attempted to implement a silviculture-based Operational Forest Management Plan in the Bara and Rautahat Districts. Despite plans to involve private entities in maximizing resource production, local resistance and inadequate central government funding prevented successful execution. A subsequent attempt in 2000 aimed to apply silviculture-based forest management in community-managed forests under the Forest Policy of 2000 (Bampton & Cammaert, 2006), leading to amendments in the Forest Act of 1993 to include inventory requirements for community forests (Baral et al., 2018).

A forest may be managed for productive as well as for protective purposes. In response to the challenges posed by MAI-based forest management and its adverse consequences, the government introduced the Scientific Forest Management (SciFM) guideline in 2014 (MoFSC, 2015). This sophisticated framework aimed to imbue forest management with a technical and scientific approach. The SciFM Guideline, advocated for specific silvicultural systems, such as the Indian irregular Shelterwood system, characterized by intensive logging while preserving mature mother trees for regeneration. By 2019, the implementation of the SciFM expanded to 47 districts, covering approximately 200,000 hectares of diverse forest types, including 760 community forests, 26 collaborative forests, and six government-managed forests (MoF, 2019). Despite its expansion, the intricate nature of SciFM posed significant

challenges for Forest User Groups in terms of comprehension, planning, and execution (Basnyat et al., 2018; Poudyal et al., 2019). Criticisms were directed toward the role of technical staff in the SciFM program, particularly regarding the perceived widespread removal of healthy trees in the western lowlands of Nepal under the guise of SciFM. In response, through a cabinet decision dated May 28, 2020, the government imposed a nationwide ban on collecting and harvesting all tree species until further notice. Subsequently, the government endorsed the recommendations for officially terminating the SciFM policy practice in Nepal on January 24, 2021.

Silviculture-based forest management is adopted globally and focuses on enhancing productivity and production of forests goods and services. The primary challenge in opposing SciFM lies more in governance processes than in technical aspects. With improved governance at community and government agencies such as DFOs, Nepal needs this silviculture-based SciFM in many productive forests to improve forest conditions and boost the local economy. The approval of the Sustainable Forest Management Guideline by Lumbini Province in 2022 is an example of the continuation of the approach, as the guideline included most of the ingredients of SciFM guidelines 2014.

11.2.5 Multiple goods and service-oriented forest management

Multiple-use forest management is an integrated approach that balances the production of various goods and services from forests while simultaneously addressing ecological, social, and economic needs. This approach goes beyond timber production, prioritizing non-timber forest products (NTFPs), carbon sequestration, biodiversity conservation, watershed management, and recreational values. In Nepal, this approach is gaining recognition as a more holistic response to the limitations of other approaches, such as the SciFM approach. By adopting a landscape-level perspective, this strategy seeks to optimize benefits across forested areas. It involves managing individual forest patches based on their specific production and protection potential, ensuring a more sustainable and equitable use of forest resources.

Forests offer integrated solutions to address a range of interconnected environmental, social, economic, and health challenges, such as the climate crisis, pollution, and biodiversity loss, collectively referred to as the triple planetary crisis. For example, forest landscape restoration provides numerous benefits, including reducing CO_2 emissions, combating land degradation, and improving habitat for biodiversity (UN, 2024). Silviculture-based forest management, which balances human needs with the long-term sustainability of forest ecosystems, plays a pivotal role here. For instance, in rangeland ecosystems, limiting the living biomass of trees is necessary to maintain the groundwater table. A mature pine tree, for example, can pump at least 120 liters of water per day, with broad-leaved species drawing even more (Smith & Brown, 2018). The more the trees, the more water is pumped from the soil, which can dry out the forest floor and increase the risk of wildfires. A study conducted by the author

in Cambodia demonstrated that proper thinning in Dipterocarp forests delayed leaf shedding by two to three months. In sloping areas, removing mature trees and balancing tree density can reduce the risk of landslides. Thus, density management is critical to achieving multiple objectives, aligning with the principles of both silviculture-based and multiple-use forest management approaches.

New initiatives focus on establishing a national standard for sustainable forest management that promotes multipurpose management, local decision-making, and incorporating indigenous practices (Timsina et al., 2022). Past governance strategies, which prioritized narrow management objectives, let to negative ecological consequences, stifled indigenous and professional silvicultural practices, and neglected the genuine needs of forest-dependent communities (Cedamon et al., 2017; Cedamon et al., 2022). To promote responsible stewardship of forest resources, it is crucial to adopt a multipurpose forest management approach that addresses the diverse interests of communities (Cedamon et al., 2022). This approach aligns with the principles of multiple use forest management, which balances the production of various goods and services from the forests. In the professional forestry domain, formal management frameworks oriented toward multiple goods and services complement traditional industrial timber forestry by integrating non-timber forest product generation, watershed management, and the creation of therapeutic landscapes (Başkent, 2018; Emery & Zasada, 2001). In Nepal, where natural forest dynamics are still poorly understood and management interests vary widely, pursuing sustainable multiple goods and service-oriented management necessitates an adaptive silvicultural approach (Kelty et al., 2013). This adaptive approach is essential to harnessing the full potential of forests to address the interconnected environmental, social, and economic challenges we face today.

The EnLiFT project in Sindhupalchowk District successfully demonstrated a planning process and management model for whole forest management focused on delivering multiple goods and services to the community and beyond. However, replicating this model has been challenging due to limited technical capacity among government officers. Evidence suggests that strictly protected forest landscapes yield fewer goods and services than those managed with silvicultural interventions. Each forest patch within a landscape should be managed based on its specific production and protection potential to meet local, national, and global needs. For instance, production-oriented forest management, grounded on the basic silvicultural principles, can generate income and employment at the local level, addressing pressing issues like unemployment while also increasing royalties at the national level and enhancing biodiversity and climate functions, which are global concerns. Nepal has been actively exploring the impact of management interventions on reducing forest carbon emissions and enhancing carbon stock, particularly within community forests (Lamsal et al., 2018). However, a widespread misunderstanding exists regarding the relationship between production-oriented forest management and forest carbon trade. The Ministry of Forests and Environment at the

Bagmati Province has been pioneering through an attempt to manage forests for multiple goods and services through the Sustainable Forest Management Guideline 2022. However, the results of its implementation are yet to be assessed.

To address the triple planetary crisis coupled with economic and ecological objectives, forest management for multiple goods and services will have better scope in the future. Competency among the forest managers for landscape-level forest management for this objective is crucial, which can be developed through intensive capacity-building.

11.3 Emerging issues

Nepal's forest management has changed dramatically, shifting from traditional, community-based approaches to more formal silviculture-based practices. While initiatives like the SciFM guidelines aimed to improve productivity and sustainability, but fell short due to their complexity and possible adverse effects on the ecosystem. In response, multiple-use forest management is emerging as a more holistic approach, seeking to balance timber production with other significant forest benefits like carbon sequestration and water and biodiversity conservation at the landscape level. Despite these advancements, there are still issues that must be resolved, such as the need for meaningful participation of, and benefit to, the community, more flexible management frameworks, better integration of traditional knowledge, balancing conflicting demands, capacity building, collaboration promotion, and climate change mitigation. Confidence and capacity of communities and forestry officials are key challenges faced for active and equitable forest management in Nepal (Sapkota et al., 2020). The current number of government field staff is limited and can perform only minimum regulatory work. Their technical capacity is also limited due to insufficient updates on new and innovative knowledge. Similarly, at the community level, young people either do not live in villages or are not interested in engaging in forestry work, seeking tangible monetary benefits from forests that the current CF cannot provide.

In addition to timber extraction, managing forests for ecosystem services is another pressing concern. Nepal's forests provide a wide range of ecosystem services, including carbon sequestration, watershed protection, soil conservation, and biodiversity conservation (Gautam & Shivakoti, 2013). The nexus among forest, water, energy, and food systems is critical and are often managed without considering ecosystems and wildlife. As a result, we are facing massive forest fires and human-wildlife crises. Developing a common understanding among the public and other stakeholders for managing forests at the landscape level for multiple goods and services is another challenge.

Furthermore, addressing the disconnection between different knowledge systems, including scientific and indigenous knowledge, is crucial for developing effective forest management strategies (Subedi & Pokharel, 2019). Balancing economic objectives with social and environmental sustainability goals is

essential for promoting more equitable and sustainable forest management practices. Recognizing and integrating local and indigenous knowledge and practices into forest management initiatives can enhance resilience and promote cultural diversity (Shrestha, 2016).

The forestry sector is getting the least priority in annual budgeting, stating that its revenue generation is insignificant. The intangible benefits of forests are far higher than tangible benefits; however, they are not accounted for in the national gross domestic product. Maintaining forest ecosystems and integrity is the government's responsibility, and to obtain potential huge financial benefits, the government should invest funds more than standard allocation.

Timely development of favorable policy frameworks among three tiers of government is critical to promote silviculture-based forest management for multiple goods and services. In addition, the current taxation systems and complex procedures for excess forest product trade hinder management initiatives.

The current limited interface between community and forests has posed several threats to forests, including forest fires, grazing, and the conversion of forests into jungles. To ensure their continued engagement, the poor segment of the community who still live in villages should receive tangible monetary benefits at least equal to nearby market rates.

11.4 Conclusion

Over the past decades, forest management in Nepal has evolved from protection-oriented and subsistence-level practices to a more deliberate, multidimensional system that increasingly incorporates silvicultural principles. While early CF initiatives focused on forest restoration and meeting basic local needs, recent efforts have shifted toward enhancing productivity, ecological health, and livelihood outcomes through science-based interventions. Silvicultural approaches—such as thinning, shelterwood systems, and species diversification—are now more widely applied across different forest types and management regimes. These practices, developed and refined through initiatives like the EnLiFT projects and provincial sustainable forest management guidelines, reflect a growing recognition of forests as multifunctional landscapes that must deliver a range of ecosystem goods and services.

Despite these advances, integrating scientific silviculture with community-based and indigenous knowledge systems remains a key challenge. Technical guidelines and regulatory processes often appear rigid or overly complex to community forest user groups, who may lack the capacity or resources to implement them effectively. Meanwhile, traditional and indigenous forest management systems—grounded in centuries of practical experience and cultural significance—have been under-recognized or excluded from formal silvicultural frameworks. This disconnection limits opportunities for collaborative learning and often leads to mismatches between prescribed management plans and on-the-ground realities. Moreover, forest officials themselves frequently

face limitations in technical training and field engagement, further constraining the implementation of active, adaptive, and inclusive forest management.

To bridge these gaps, a methodological shift is needed—one that emphasizes participatory, adaptive, and iterative processes for forest management. This includes conducting joint forest assessments that merge scientific inventory methods with local ecological knowledge, enabling the co-interpretation of forest conditions and priorities. Co-designing management prescriptions through structured community workshops can ensure that silvicultural treatments align with both ecological objectives and local needs. Embedding adaptive learning mechanisms—such as action research, participatory monitoring, and regular review cycles—into operational plans will allow for ongoing refinement and responsiveness. By focusing on the co-production of knowledge and capacity-building among all stakeholders, this approach lays the groundwork for forest management that is not only scientifically robust but also locally grounded, equitable, and resilient.

Notes

1 Ban Gadh can be interpreted as a "fortified forest" or "protected forest area." The term "Gadh" typically means fort or a protected area, implying that these forests were strategically managed, possibly for security, resource preservation, or religious purposes.
2 Rani Ban refers to "Queen's Forest," which historically indicated forests that were protected for royal or elite use, often associated with the queen or other members of the ruling class. These forests were likely managed for aesthetic, recreational, or resource conservation purposes.
3 Birta was a system of land grants in ancient Nepal during the historical period when land was granted to various persons or institutions be they religious bodies, officials, and nobles-as a reward, favor, or privilege by the ruling elites like kings and Ranas. Birta forests were mostly under the control of the elite, who then exercised total freedom with the forests to their benefits, resulting in serious deforestation.
4 Shreeban represents a form of community-led conservation, where traditional knowledge and spiritual values contribute to maintaining healthier and more sustainable forest ecosystems.

Bibliography

Acharya, K. P., Gautam, D. M., & Karki, A. (2022). Community forestry in Nepal: Challenges and opportunities for effective silvicultural practices. *Forest Policy and Economics*, *137*, 102686.

Arnold, J. M., & Campbell, J. G. (1986). *Collective management of hill forests in Nepal: the community forestry development project*. In *Proceedings of the conference on common property resource management* (Vol. 425, p. 464). Washington, DC: National Academy Press.

Bampton, J., & Cammaert, B. (2006). *Can Timber Rents Better Contribute to Poverty Alleviation Through Community Forestry in the Terai Region of Nepal? International Conference on Managing Forests for Poverty Reduction: Capturing Opportunities in Forest Harvesting and Wood Processing for the Benefit of the Poor*.

Baral, S., & Vacik, H. (2018). What governs tree harvesting in community forestry—regulatory instruments or Forest Bureaucrats' discretion? *Forests*, *9*(10), 649.

Baral, S., Gautam, A. P., & Vacik, H. (2018). Ecological and economical sustainability assessment of community forest management in Nepal: A reality check. *Journal of Sustainable Forestry*, *37*(8), 820–841.

Başkent, E. Z. (2018). A review of the development of the multiple use forest management planning concept. *International Forestry Review*, *20*(3), 296–313.

Basnyat, B. (2020). Commodifying the community forestry: A case from scientific forestry practices in Western Hills of Nepal. *Journal of Forest Research*, *25*(2), 69–75.

Basnyat, B., Treue, T., Pokharel, R. K., Lamsal, L. N., & Rayamajhi, S. (2018). Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, *91*, 5–18.

Bhattarai, A. M. & Khanal, D. R. (2005). *Communities, forests and law of Nepal: Present state and challenges*. Federation of Community Forestry Users, Kathmandu, Nepal.

Bhusal, P., Awasthi, K. R., & Kimengsi, J. N. (2020). User's opinion in scientific forest management implementation in Nepal – A case study from Nawalparasi district. *Cogent Environmental Science*, *6*(1). https://doi.org/10.1080/23311843.2020.1778987

Bhusal, P., Karki, P., & Kimengsi, J. N. (2020). Timber distribution dynamics in scientifically managed community forests: Learning from Nepal. *Forests*, *11*(10), 1032.

Cedamon, E., Bardsley, D., & Nuberg, I. (2022). Changing forestry interests in the mid-hills of Nepal: Implications for silviculture policy and practice. Community forestry policy and legal framework. In N. S. Paudel, H. Ojha, M. R. Banjade, R. Karki, & S. Tamang (Eds.), *Revitalising community forestry in the changing socio-economic crisis*, 61.

Cedamon, E., Nuberg, I., Paudel, G., Basyal, M., Shrestha, K., & Paudel, N. (2017). Rapid silviculture appraisal to characterise stand and determine silviculture priorities of community forests in Nepal. *Small-scale Forestry*, *16*, 195–218.

Community Forestry Supporters' Dialogue (CFSD). (2024). *International Conference on Revitalizing Community Forestry in the Era of Socio-environmental Crisis*. CFSD, Kathmandu, Nepal.

Dahal, D. R. (1994). *A review of forest user groups: Case studies of eastern Nepal*, ICIMOD, Kathmandu, Nepal.

Dahal, G. R., & Chapagain, A. (2012). Community forestry in Nepal: Decentralized forest governance. In C. J. P. Colfer, G. R. Dahal, & D. Capistrano (Eds.), *Lessons from forest decentralization: Money, justice and the quest for good governance* (pp. 67–81). Routledge.

Dangal, S. P., & Das, A. K. (2018). Effect of management practice and age on increment in Pinus patula plantations in Nepal. *Banko Janakari*, 27–37.

Department of Forest Research and Survey (DFRS). (1999). *Forest resources of Nepal (1987–1998)*. Ministry of Forests and Soil Conservation, Kathmandu, Nepal.

Dhakal, M., & Masuda, M. (2009). Local pricing system of forest products and its relations to equitable benefit sharing and livelihood improvement in the lowland community forestry program in Nepal. *Forest Policy and Economics*, *11*(4), 221–229.

Dwivedi, A. P. (1993). *A textbook of silviculture* (pp. 505). Dehradun, India: International Book Distributors.

Emery, M. R., & Zasada, J. (2001). Silviculture and nontimber forest products: Extending the benefits of forest management. *The Timberline*, 10–13.

Fisher, R. J. (1989). Indigenous systems of common property forest management in Nepal (No. 18). *Environment and Policy Institute*, East-West Center.

Forest Research and Training Centre. (FRTC). (2024). *Forest Cover Maps of Local Levels (753) of Nepal*. Department of Forest Research and Survey, Government of Nepal.

Gautam, K. H. (1991). *Indigenous forest management systems in the hills of Nepal* (Doctoral dissertation, Australian National University).

Gautam, A. P., & Shivakoti, G. P. (2013). Payments for ecosystem services in Nepal: A survey of schemes, user's perspective and environmental impacts. *Ecological Economics*, *93*, 76–86.
Gilmour, D. A. (2016). Forest management in Nepal: Challenges and opportunities. *Forests*, *7*(10), 223.
Gilmour, D. (2017). Silviculture and community forestry: looking backwards, looking forwards. In *Proceedings of the 1st National Silviculture Workshop*, Kathmandu, Nepal (pp. 27–50).
Gilmour, D. (2018). Silviculture and community forestry: Looking backwards, looking forwards. *Banko Janakari*, *4*, 6–14.
Gilmour, D. A., King, G. C., Applegate, G. B., & Mohns, B. (1990). Silviculture of plantation forest in central Nepal to maximise community benefits. *Forest Ecology and Management*, *32*(2–4), 173–186.
Government of Nepal (GoN). (2019). *Forest Act, 2019*. Ministry of Forests and Environment, Department of Forests: Kathmandu, Nepal.
Hobley, M., Rai, N., Shrestha, B., Mahat, R., & Bhatia, A. (1996). Forest exploitation and management in Nepal during the Rana regime (1846–1950). *Journal of Forest History*, *30*(3), 124–145.
Hunt, S., Dangal, S., & Shrestha, S. (2001). Minimizing the Cost of Overstocking: Towards a Thinning Regime for Community-Managed Pine Plantations in the Central Hills of Nepal. *Journal of Forest and Livelihood*, *1*(1), 11–13.
Ives, J. D., & Messerli, B. (1989). *The Himalayan dilemma: Reconciling development and conservation*. Routledge.
James, P. (2015). *Silviculture-based forest management: Planning and practices*. Forest Management Press.
Karki, P., Dangal, S., Cedamon, E., Bashyal, M., Paudel, N. S., Karki, R., & Nuberg, I. (2024). *Disperse variable retention, silviculture practice guide: Synthesis of ACIAR-funded EnLiFT2 project silviculture demonstrations*.
Kanel, K. (2004). Community forestry in Nepal: Achievements and challenges. *Journal of forest and Livelihood*, *4*(1), 55–63.
Kelty, M. J., Larson, B. C., & Oliver, C. D. (Eds.). (2013). *The ecology and silviculture of mixed-species forests: A festschrift for David M. Smith* (Vol. *40*). Springer Science & Business Media.
Lamsal, P., Kumar, L., Atreya, K., & Pant, K. P. (2018). Forest ecosystem services in Nepal: A retrospective synthesis, research gaps and implications in the context of climate change. *International Forestry Review*, *20*(4), 506–537.
Laudari, H. K., Pant, B., Timalsina, N., Dhungana, S. P., Poudel, M., & Karky, B. S. (2019). Decentralising REDD+: lessons learned from REDD+ Himalaya project of Nepal. *Journal of Forest and Livelihood*, *17*(1), 49–62.
Laudari, H. K., Aryal, K., Maraseni, T., Pariyar, S., Pant, B., Bhattarai, S., … & Marahattha, A. (2022). Sixty-five years of forest restoration in Nepal: lessons learned and way forward. *Land Use Policy*, *115*, 106033.
Luintel, H., Bluffstone, R. A., & Scheller, R. M. (2018). The effects of the Nepal community forestry program on biodiversity conservation and carbon storage. *PLoS ONE*, *13*(6), 1–19.
Master Plan for the Forestry Sector (MPFS). (1989). *Master Plan for the Forestry Sector (MPFS): Main report*. Kathmandu, Nepal.
Ministry of Finance (MoF). (2019). *Economic Survey 2018/19*. MoF, Kathmandu, Nepal.
Ministry of Forests and Environment (MoFE). (2016). *Forest Product Collection and Sale Distribution Directive*. Government of Nepal.
Ministry of Forests and Environment (MoFE). (2022). *Forest Regulation 2022*. MoFE, Kathmandu, Nepal.

Ministry of Forest and Soil Conservation (MoFSC). (2014). S*cientific Forest Management Guideline*. MoFSC. Kathmandu, Nepal.
Ministry of Forests and Environment (MoFE). (2015). *State of Nepal's forests*. Ministry of Forests and Environment, Government of Nepal, Kathmandu, Nepal.
MoFE. (2023). *Sustainable Forest Management procedure*. MoFE, Bagmati Province.
MoFSC. (2015) *Forest Policy, 2071*. MoFSC. Kathmandu, Nepal.
Nepal-Australia Community Resource Management and Livelihood Project (NACRMLP). (2005). *Final project completion report*. Kathmandu, Nepal: Department of Forests, Government of Nepal and Government of Australia.
Nagendra, H., Karmacharya, M., & Karna, B. (2005). Evaluating forest management in Nepal: views across space and time. *Ecology and Society*, *10*(1), 1–17.
NASA Earth Observatory. (2021). How Nepal regenerated its forests. Retrieved from https://earthobservatory.nasa.gov/images/150937/how-nepal-regenerated-its-forests
Nuberg, I. K., Shrestha, K. K., & Bartlett, A. G. (2019). Pathways to forest wealth in Nepal. *Australian Forestry*, *82*(sup1), 106–120.
Oldekop, J. A., Sims, K. R. E., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*(5), 421–428.
Palit, S. (1996). *Comparative analysis of policy and institutional dimension of Community forestry in India and Nepal, a Discussion Paper*, MNR 96/4, ICIMOD, Kathmandu, Nepal.
Pandit, R., & Bevilacqua, E. (2011). Forest users and environmental impacts of community forestry in the hills of Nepal. *Forest Policy and Economics*, *13*(5), 345–352.
Prakash, A. (1995). *Silviculture and forest management: Principles and practices*. New India Publishing.
Prakash, R. (1986). *Forest management*. International Book Distributors, Dehradun, India.
Poffenberger, M. (Eds.). (2000). *Communities and forest management in South Asia*. WG-CIFM, DFID and IUCN.
Pokharel, B. K. (2000). Indigenous forest management practices in Nepal: A study on Shreeban and community involvement. *Journal of Forest and Livelihood*, *2*(1), 24–31.
Poudel, K. C. (2018). Silviculture for forest management in Nepal. *Banko Janakari*, *4*, 15–20.
Poudyal, B. H., Maraseni, T., & Cockfield, G. (2019). Scientific forest management practice in Nepal: Critical reflections from stakeholders' perspectives. *Forests*, *11*(1), 27.
Prakash, R., & Khanna, L. S. (1979). *Silviculture and management*. New Delhi, India: Khanna Publishers.
Rai, S., Lama, D., & Gurung, T. (2011). *Nature-culture stewardship of the Tsumba people in the Western Himalaya, Nepal*. In ICCA Consortium, *Territories of Life: 2021 Report*. ICCA Consortium.
Ranjit, Y. (2019). History of forest management in Nepal: An analysis of political and economic perspective. *Economic Journal of Nepal*, *42*(3–4), 12–28.
Regmi, M. C. (1971). *A study in Nepali economic history (1768–1845)*. Manjushri Publishing House, New Delhi.
Sapkota, L. M., Dhungana, H., Poudyal, B. H., Chapagain, B., & Gritten, D. (2020). Understanding the barriers to community forestry delivering on its potential: An illustration from two heterogeneous districts in Nepal. *Environmental Management*, *65*(4), 463–477.
Shahi, N., Bhusal, P., Paudel, G., & Kimengsi, J. N. (2022). Forest—People nexus in changing livelihood contexts: Evidence from community forests in Nepal. *Trees, Forests and People*, *8*, 100223.

Shrestha, K. K. (2016). Indigenous knowledge in disaster management: a case of Nepal. *Asian Journal of Development Matters*, *10*(2), 174–179.

Shrestha, K. P. (1999), *Community forestry evolution: Concept and policy, a paper presented in international training course*, RECOFTC, Kathmandu, Nepal, (18 Sep–10 Oct), 1999.

Smith, J., & Brown, L. (2018). Water uptake in mature pine and broad-leaved trees. *Journal of Forestry Research*, *45*(3), 234–245.

Subedi, B. P., & Pokharel, R. K. (2019). Forest management in Nepal: Challenges and opportunities. *Journal of Agriculture and Environment*, *20*, 44–57.

Timsina, S., Sharma, L. N., Ashton, M. S., Poudyal, B. H., Nuberg, I. K., Baral, S., Cedamon, E., Bajracharya, S. B., & Paudel, N. S. (2022). Lessons from managing for the extremes: A case for decentralized, adaptive, multipurpose forest management within an ecological framework. *Forests*, *13*(2), 333. https://doi.org/10.3390/f13020333

United Nations (UN). (2024). *Fourth International Conference on Small Island Developing States*, Antigua and Barbuda, 27–30 May 2024. UN.

Wakiyama, T. (2004). Community forestry in Nepal: A comparison of management systems between indigenous forestry and modern community forestry. In K. Harada & M. Nanang (Eds.), *Policy Trend Report 2004* (pp. 1–20). Hayama, Japan: Institute for Global Environmental Strategies (IGES).

World Bank. (1979). *Forestry sector policy review: Nepal*. World Bank.

Yadav, N. P., Yadav, K. P., Yadav, K. K., & Thapa, N. (2009). Facilitating the transition from passive to active community forest management: Lessons from Rapti Zone, Nepal. *Journal of Forest and Livelihood*, *8*(2), 51–66.

12 Restoring forest ecosystems?

Impact of community forestry on biodiversity, restoration, and ecosystem services

Harisharan Luintel, Ambika P. Gautam, Bishnu Hari Poudyal, Sony Baral, Bishnu Hari Wagle, Menuka Maharjan, and Ambika Paudel

12.1 Introduction

In Nepal, the community forestry (CF) program was initiated in the mid-1970s to halt deforestation and forest degradation while sustainably meeting local communities' need for forest products. The program has expanded forming the nationwide community forestry system (CFS), contributing to forest landscape restoration, biodiversity conservation, and carbon sequestration (Agrawal & Ostrom, 2008; Pokharel et al., 2007). Increased community involvement in forest management within CFS has resulted in conservation and livelihood benefits. However, there are criticisms that the program's potential has not been realized fully (Sapkota et al., 2020), with the multi-functional value of the forests often overlooked (Acharya, 2004). This is partly due to the insufficient attention of CF stakeholders on timber production and broader landscape management (Puri et al., 2020; Yadav et al., 2003).

Drawing on literature, this chapter synthesizes the impacts of CFS on several ecological services, including forest restoration, carbon storage, biodiversity and wildlife conservation, and watershed protection. The synthesis spans different analytical and methodological considerations to evaluate these impacts across multiple scales, from local to landscape and national levels. It draws evidence from qualitative and quantitative studies that utilized field-based assessments or remote sensing and includes disaggregated data to account for the variability in CF outcomes. The analysis discerns how CF impacts vary across environmental contexts. Comparative studies between CFs and other management modalities, such as government-managed forests (GFs) or protected areas (PAs), are presented where available. Furthermore, ecological services over time are presented to illustrate changes in CFs, and robust evidence on carbon storage and biodiversity conservation is provided by comparing CFs to counterfactual scenarios, isolating the unique impact of the CFS. The chapter examines both intended and unintended outcomes, reflecting on national, landscape, and local evidence.

DOI: 10.4324/9781032705613-16
This chapter has been made available under a CC BY-NC-ND license.

12.2 Ecological impacts of community forestry

12.2.1 Impact on forest restoration

The CF program has significantly improved forest conditions and cover through tree plantation, sustainable management, conservation efforts, and natural regeneration promotion (Baral et al., 2018; Chhetri et al., 2023; Niraula et al., 2013; Smith et al., 2023; Tripathi et al., 2020). Interestingly, 86% of respondents in the nationally representative survey on the CF impact study reported improvements in their CF conditions over time (Hobley et al., 2013). The survey indicated that forests managed for an extended period had denser crown cover, and mid-hill forests had higher increase in forest product availability.

Based on the analysis of repeat aerial photographs and time series satellite data of 111 community forest user groups (CFUGs) in Dolakha, Niraula et al. (2013) demonstrated a significantly higher rate of conversion of sparse forests into dense forests in CFs than in other forests. Using Landsat satellite time series data from 1988 and 2016, Smith et al. (2023) found forest cover increased by 58–99% across all eight study CFs. Similarly, a study by Gao et al. (2023), utilizing global satellite data and forest management information, reported a 22% increase in the annual mean leaf area index (LAI) from 1982 to 2020 in Nepal, with the CF program explaining 40% of the temporal variability.

In the Phewa watershed, the CF program significantly restored degraded land more rapidly and cost-effectively than government-led structural engineering investments (Paudyal et al., 2018). Similarly, net improvements in forest cover were observed in the CF-dominated Upper Roshi Watershed of Kavre (Gautam et al., 2004a).

The Forest Resource Assessment (FRA) of 2010–2014 revealed a 5% increase in forest area, enhancing forest cover to 44.74% of Nepal's total land area compared to the National Forest Inventory (NFI) of 1987–1998 (DFRS, 2015). This expansion, particularly in the mid-hills, can be attributed mainly to the success of the CF program (DFRS, 2015; Smith et al., 2023).

The CFs managed for extended periods exhibited denser forests, i.e., stem/hectare (Hobley et al., 2013). Also, the FRA showed an overall higher tree density (i.e., 430 stems/hectare) compared to the NFI (i.e., 408 stems/hectare) (DFRS, 2015). However, the mean stem volume per hectare decreased from 178 cubic meters during 1987–1998 to 164.8 cubic meters in 2010–2014 (DFRS, 2015). This decrease could be associated with differences in diameter distribution, as the FRA reported a higher number of smaller trees and fewer large trees than the NFI.

Multiple factors drive these outcomes of forest restoration in CFs, such as increased local ownership of restoration efforts, key practices like regulating grazing and forest patrols, controlling illegal harvesting, and promoting alternative energy sources (Poudyal et al., 2018; Smith et al., 2023; Tripathi et al., 2020). Efficient resource use, the decline of slash-and-burn agriculture, fewer forest fires, and the reclamation of landslide-prone areas and riverbanks by CFUGs also enhance forest restoration.

12.2.2 Impact on carbon stock

The study on carbon stock in community forests is an emerging phenomenon, as carbon sequestration was not initially a primary objective of CF program. However, as the potential of community forests in climate change mitigation was recognized, scholars started analyzing their impact on carbon stock.

Studies indicate that carbon sequestration rates vary significantly across forest types and geographical locations. For instance, riverine forests in the central tropical region and *Alnus nepalensis* forests in the west and central mid-hills show higher carbon sequestration rates, ranging from 1.30 to 3.21 ton/ha/yr (Baral et al., 2009). Similarly, sub-tropical *Sal* forests in central Nepal sequester about 2.6 tons/ha/year of carbon (Thapa-Magar & Shrestha, 2015). Over time, community forests have shown an increase in carbon stock, albeit at different rates (Pandey et al., 2014; see Rana et al. this volume). Dense-canopy forests and low-stocked middle-altitude forests tend to show higher carbon stock increments than sparse-canopy forests or high-stock forests (Pandey et al., 2014).

Different management interventions influence CF carbon stock levels. For instance, higher carbon stock was reported in the Forest Steward Council-certified community forests than in non-certified ones in central Nepal (Charmakar et al., 2021). Similarly, traditionally managed plantations tend to store more carbon than intensively managed ones, although the correlation between carbon stock and stand density is generally low (Dangal et al., 2017). Carbon stock increases with number of years that the forest has been managed, as seen in various studies (Bhatta & Devkota, 2020; Thapa-Magar & Shrestha, 2015).

Comparative analysis show that community forests generally store less carbon than PAs (Bhatta et al., 2021; Gurung et al., 2015) and Protected Forests (Lamsal et al., 2023), but more than GFs and other types of forests (Gurung et al., 2015). For example, CFs in buffer zones have 25% less above-ground carbon and 66% less soil carbon than PAs (Bhatta et al., 2021). However, they still outperform GFs in carbon storage, highlighting their potential for carbon sequestration under community management.

Taking national-level random samples of above-ground carbon and using a rigorous quasi-experimental matching method to create a counterfactual scenario for CF, Luintel et al. (2018a) evaluated the impact of the CFS on carbon stock. They found that community forests increased carbon stock in forests with lower slopes and open canopies by 25.51 tons/ha and 25.84 tons/ha, respectively. In contrast, the program negatively impacted carbon stock in high-altitude and steep-slope forests, reducing carbon by 22.81 tons/ha and 17.72 tons/ha, respectively. Overall, community forests stored 15.11 tons/ha less carbon than the counterfactual scenario nationally, indicating that the CF program's impact on carbon sequestration is not uniformly positive across all forest types. This variability of carbon stocks on CFs is due to forest types, quality, location, management duration, and intervention, which reflects both trade-offs and synergies, as aligned with Chhatre and Agrawal (2009).

12.2.3 Impact on biodiversity conservation

Previous studies have highlighted the impact of CF by analyzing the impacts on biodiversity conservation, focusing on plant and animal species, improvement of forest habitats, and ecological connectivity. Studies have also evaluated different aspects of biodiversity in CFs, including different spatial scopes (e.g., physiographic regions), forest types, thematic focus, and data sources. These studies offer valuable insights into how the CF program influences biodiversity across different contexts (Table 12.1).

Table 12.1 shows that CF program has contributed to biodiversity conservation in several ways. Notable improvements include restoring degraded forests, enhancing wildlife habitats, and increasing ecosystem services that benefit both local communities and the global environment. However, some studies, such as Shrestha et al. (2010), have pointed out flaws in species selection during silvicultural treatments by certain CFUGs, which may have reduced tree diversity within those forests.

Among the studies mentioned, Luintel et al. (2018a) provide a robust evidence that the CF program enhanced biodiversity. Using cross-sectional data from a nationally representative random sample of 65 CFs and 65 non-CFs and following a rigorous quasi-experimental matching process, they demonstrated a significant positive impact of the CF program on plant diversity, particularly on the adequate number of tree and shrub species. This positive impact was evident nationally, including in higher-slope, open-canopy, and *Terai* forests. On the contrary, they identified an adverse effect of the CF program on plant diversity in high-altitude forests and no discernible impact in hill, lower-altitude, or closed-canopy forests.

Biodiversity improvements in the CFs are primarily due to the restoration of degraded forests and regulated use of forest resources, which includes controlled grazing, limited harvesting, preventing forest fire, enrichment plantations, and protecting erosion-prone and sensitive areas. An example of a successful CF-based biodiversity conservation model is presented in Box 12.1. However, a significant issue lies in the selective preference of CFUGs for a narrow range of tree species, often chosen for their economic value, during silvicultural interventions, leading to increased homogeneity in species and loss of biodiversity (Acharya, 2004; Pandey et al., 2014; Sharma et al., 2021; Shrestha et al., 2010). Similarly, another challenge stems from the passive, protection-oriented forest management approach. Studies, including Acharya (2004), argue that this protectionism neglects the scientific understanding that natural ecosystems benefit from occasional disturbances, promoting diversity in flora and fauna (Viljur et al., 2022). This pattern is believed to be prevalent in many community forests across Nepal.

Lately, the Nepal government has introduced silviculture-based scientific forest management in more productive forests, including some community forests. This initiative aims to enhance forest productivity, but its impact on biodiversity remains unclear. Some recent studies from collaborative forests in the

Table 12.1 Studies investigating the impact of CF program on biodiversity

Author(s) and publication year	*Study site(s)*	*Forest type*	*Focus theme(s)*	*Data source*	*Main finding(s)*
Luintel et al. (2018a)	42 districts, covering all physiographic regions	Various	Biodiversity conservation and carbon storage	Primary data collected from 620 random sample plots distributed across 65 CFs and 65 non-CF	Significant positive effect of CF program on biodiversity
Poudyal et al. (2019a)	Parasi, Nawalpur and Chitwan district	*Sal* (*Shorea robusta*) dominated the natural sub-tropical forests of the *Terai* lowlands	Tree species richness and composition	Primary data collected through forest inventory and assessment of key environmental variables from four purposively selected CFs	Regularly harvested CFs support higher tree species richness, including vulnerable species and composition, as compared to other management regimes
Baral et al. (2018)	Chitwan and Kaski	*Sal* dominated natural forests in *Terai*, and *Schima Castonopisis* dominated forests in the mid-hills	Species diversity, stand structure, richness	Four time series data [2005–2016] from permanent plots	In *Terai*, the pole-size tree dominates with a declining number of trees and regeneration, and trees were over-harvested until 2013 but were under-harvested in recent periods.
Paudyal et al. (2017)	Whole country	Not focused on a particular forest type	Landscape restoration	Literature review and stakeholders' workshop	Restoration outcome from community-based forestry provides many ecosystem services
Paudel and Sah (2015)	Udaypur district	*Sal* dominated natural sub-tropical forests	Plant diversity	Primary data collected from 30 randomly selected units, following the methods described in the International Forestry Resources and Institutions (IFRI) Research Program	Positive effect of community management on biodiversity due to multi-purpose forest management practices, enrichment plantations, and forest fire control

(*Continued*)

Table 12.1 (Continued)

Author(s) and publication year	*Study site(s)*	*Forest type*	*Focus theme(s)*	*Data source*	*Main finding(s)*
Shrestha et al. (2010)	Unclear	Not focused on a particular forest type	Overall biodiversity (both flora and fauna)	Unclear	Increasing wildlife populations but possibly decreasing tree diversity in some CFs due to flaws in species selection during silvicultural treatments
Webb and Gautam (2001)	Dhulikhel, Kabhre district	*Schima-Castanopsis* dominated warm temperate broadleaved forest	Plant diversity	Primary data collected through sample-based forest inventory	CF program contributed to increased forest cover and quality, habitat conditions, and the richness and abundance of tree species
Oli and Subedi (2015)	Tanahun district	Hill *Sal* forest	Vegetation diversity and stand structure	Primary data collected from one CF	True species diversity and species richness increases with crown density

Box 12.1 Baghmara bufferzone community forest: A successful biodiversity conservation model

The Baghmara bufferzone community forest, located in the central lowlands of Nepal, has made remarkable progress in biodiversity conservation through the active involvement of local stakeholders. The community has implemented several measures to manage the forest and its biodiversity, including habitat management activities and forest patrolling. As a result, activities like grazing, hunting, and fuelwood collection have been effectively curtailed. The forest operational plan strictly prohibits practices like poaching, encroachment, and illegal extraction of resources. These efforts have led to positive changes within the forest, including improved distribution of forest products, increased water supply in rivers and wetlands, decreased soil erosion, improved overall forest condition and quality, and increased plant and animal species richness.

Terai region suggest that scientific management has led to increased regeneration but was associated with a decline in tree species diversity (Awasthi et al., 2015; Khanal & Adhikari, 2018; Poudyal et al., 2019a). This reveals the need to balance regeneration with species richness in CFs.

12.2.4 Impact on wildlife conservation

Few studies exist on wildlife conservation in community forests and indicate the positive contributions of CF programs in increasing wildlife populations or diversity. Most studies document wildlife proxies such as improved habitat quality, controlled hunting and poaching, and increased human-wildlife conflict.

Research indicates that CFs have contributed to increase in wildlife populations such as deer and wild boars in and around the forests (Kanel & Niraula, 2004). CFUGs' conservation efforts have improved forest conditions, which enhanced wildlife visitation (Pokhrel, 2007). A recent study using camera traps and historical records in the community forests in *Terai* documented sightings of hyenas, elephants, and other small carnivores (Thapa et al., 2018). Similarly, the CF program's positive impact on the population rise of Bengal Monitor (*Varanus bengalensis*) has been documented (Ghimire & Phuyal, 2013). Higher sighting frequency of wildlife and their damages to agricultural crops are found to be severe in well-restored community forests (Khatri et al., 2024).

Goswami et al. (2014) found that CF promotes wildlife-friendly land use, offering extended and alternative habitats for wildlife. The improved forest conditions and expansion of forest cover (DFRS, 2015; MFSC, 2013) have helped connect previously fragmented forests, resulting in enhanced wildlife habitats and increased animal populations or diversity (Anup, 2017).

Local participation in forest management activities has declined, resulting in denser forests, providing conducive habitat for wildlife (Poudyal et al., 2023). An executive member of a CF in Sindhupalchowk noted that "with the decrease in regular cleaning and thinning activities in the forest in recent years (after the 2015 earthquake), the forest is turning into a bushy jungle, offering a better habitat for monkeys." Similarly, Khatri et al. (2024) confirmed that CF management practices have restored forests and shaped new ecological conditions that favored the growth of wildlife populations.

Local communities have actively implemented measures to combat illegal poaching and wildlife trade (Shrestha et al., 2010). Acharya (2004) documented that Kaligandaki and Bharkhore CFUGs in Western Nepal have strictly prohibited wildlife capture and hunting within their community forests. Additionally, some forest managing communities have even established small zoos within the CF areas to protect endangered species and raise public awareness about wildlife conservation.

There have been a rise in human-wildlife conflicts in and around PAs, BZCFs, and CFs (Acharya et al., 2016; DNPWC, 2017; Shrestha, 2016; Khatri et al., 2024). These conflicts often result in human casualties, psychological distress, and the destruction of crops by wildlife invading agricultural lands. Media reports have increasingly highlighted cases of human-wildlife conflict across the country in recent years.

Poudyal et al. (2022) noted that the denser habitats achieved through the "no management of CFs" approach has inadvertently increased wildlife presence, thereby escalating human-wildlife conflict. They stated that a focus group discussion participant in Ramechhap said, "We never expected that we were conserving forests for wildlife, especially the monkeys, to destroy our crops." Another participant added, "There are no forest management activities going on in the villages; bushes are increasing haphazardly; that is why leopards are finding hiding places near settlements." While forests provide essential shelter to wildlife, they often fail to supply adequate food, leading animals to venture into farmlands and prey on livestock, triggering more frequent and intense human-wildlife conflicts. The increase in dense forest cover, combined with a lack of management interventions, has led to a complex challenge for communities.

12.2.5 Impact on watersheds and water conservation

Research regarding the implications of community forests on watershed conservation, including hydrological cycles, is minimal. The CF program has contributed to preserving watersheds by minimizing deforestation and forest degradation and increasing forest cover. In the Roshikhola watershed of Kavre district, many local CFUG members believed that community forests contributed to water availability in the watershed (Badu et al., 2019). Local communities have actively maintained watershed health and integrity through activities, such as planting trees, conserving forests, promoting natural regeneration, and

implementing soil and water conservation measures. Paudel (2016) found a positive correlation between forest cover, which is generally increased due to the CF program, and water resource availability in two sub-watersheds, Shikharapur in Baitadi and Banlekh in Doti. Ellison et al. (2012) and Li et al. (2017) have also highlighted the beneficial effects of forest cover on the hydrological cycle.

Forests are essential in reducing surface runoff and maintaining soil stability, which in turn improves water quality by minimizing sedimentation (Das et al., 2019). Forests act as natural filters, capturing pollutants and reducing sedimentation, thus enhancing water quality, critical for clean drinking water and agriculture. Paudyal et al. (2015) documented significant improvements in water quality after 25 years of CF implementation in the Charnawoti and Dolati watersheds and tributaries of the Tamakoshi River in Dolakha district. Likewise, Khanal (2020) found that communities in the Resunga Hill watershed in Gulmi ranked the provision of clean water as one of the primary benefits of CF.

Forest attributes such as tree density, canopy closure, leaf area index, and species composition significantly affect the evapotranspiration rate (Ellison et al., 2012; Schwärzel et al., 2020; Wattenbach et al., 2007). Managing stand structure, species composition, and forest cover in community forests influences evapotranspiration and enhances infiltration, leading to increased groundwater recharge. For example, in the Charnawoti and Dolati watersheds, local communities observed an increase in freshwater, such as rise in groundwater stock due to percolation and retention, which became available for drinking, irrigation, and hydropower after 25 years of CF program (Paudyal et al., 2015). This is also illustrated by Paudyal et al. (2017) that documented a positive correlation between forest cover and density with groundwater recharge.

Some studies, however, suggest that plantations of certain species on degraded land can constrain groundwater recharge and even exacerbate water scarcity. For instance, in the Kulekhani watershed, local communities revealed that *Pinus wallichiana* plantation caused the traditional ponds and water springs to dry up, slowing the infiltration rate, and reducing groundwater recharge (Maharjan, 2024). Similarly, in the Roshikhola watershed, local people perceived that pine forests caused diminishing water quantity (Badu et al., 2019). These declines may be due to higher water consumption by pine species and lower soil permeability (Ghimire et al., 2013, 2014; Baral, 2012).

12.3 Discussions

The objectives of the CF program included halting deforestation and forest degradation, ensuring sustainable supplies of forest products, and conserving biodiversity (Adhikari, 1990; Gautam et al., 2004b). Initially, the program did not explicitly prioritize wildlife conservation, carbon storage, and watershed protection (Bartlett, 1992; Kanel & Niraula, 2004). Also, the awareness of

community forest operational plans among CFUGs was limited (Baral & Vacik, 2018; Ghimire et al., 2022), leading to passive management practices (Yadav et al., 2003). This passive approach overlooked the need for proactive resource management to optimize the services provided by community forests (Gritten et al., 2015; Sapkota et al., 2020). Recently, however, several CFUGs have begun implementing forest management activities such as cleaning, thinning, pruning, and harvesting to fulfill domestic needs for forest products and promote sustainable forest management (Puri et al., 2020). This transition has occurred despite the socio-economic challenges posed by rural out-migration and broader societal transitions (Poudyal et al., 2023).

CFUGs have adopted a holistic approach to forest management, integrating a wider range of ecosystem services such as biodiversity conservation, freshwater regulation, soil erosion control, recreation, ecotourism, and carbon sequestration (Paudyal et al., 2017). Many are actively involved in addressing wildlife poaching, forest fire, excessive grazing, forest encroachment, and unsustainable harvesting (Luintel et al., 2018a; Poudyal et al., 2019b). Gradually, this expanded conservation role has fostered a strong sense of local stewardship (MoFE, 2018). However, the impact of these efforts varies with the local context. Tailoring management interventions to the specific conditions of each CFUG can further enhance the program's effectiveness.

In most of the cases, impact of CF program has been observed at the forest unit level, but their environmental services extend to broader scales, i.e., landscape and national or global levels. These broad-reaching impacts demonstrate that the CF program is crucial in supporting global environmental goals, such as those outlined in the Convention on Biological Diversity (CBD) and the Reducing Emission from Deforestation and Forest Degradation (REDD+) program (Luintel et al., 2018b).

While Nepal's forest policies are generally supportive of the CF program, several challenges remain in realizing its full potential. First, there is a lack of comprehensive legislation and targeted programs addressing key impact areas such as forest restoration, carbon stock enhancement, biodiversity/wildlife conservation, and watershed protection, leading to the compromised implementation of the CF program (Bartlett, 1992; Kanel & Niraula, 2004). Second, the economic and socio-environmental contributions of the CF program to local, regional, and global levels are not adequately understood, limiting stakeholder engagement and promotion efforts (Gilmour, 2016). Third, there are insufficient incentives for forest-managing communities to protect economically less valuable native species, leading to the homogenization of forest ecosystems (Acharya, 2004; Sharma et al., 2021). Fourth, there is a lack of systematic and periodic monitoring of the CF program's impacts on ecosystem services, resulting in insufficient evidence of CF's contribution to critical ecological benefits (Luintel et al., 2018a). Finally, human-wildlife conflict has become a serious issue (Poudyal et al., 2023; Khatri et al., 2024), with government responses proving inadequate in addressing this growing challenge (MoFE, 2018).

There is a pressing need for robust periodic impact evaluations of the CF program, including quasi-experimental research, to explore the extent and reasons for its effectiveness. This should include examining how communities interpret and implement the CF programs and the support required (Luintel et al., 2018a). Such research would help clarify the connections between local CF initiatives and landscape and global environmental services. Evaluating the ecological impacts of the CF program on agricultural productivity, local livelihoods, the local and national economy, large-scale habitat connectivity, and the sustenance of ecosystem services would be beneficial.

Research would be more effective if it examined all potential impacts of CFs in a single study to provide a holistic understanding of the program, highlighting potential trade-offs or synergies between different outcomes like carbon storage and biodiversity conservation. Understanding these interactions could help identify environmental co-benefits, enhance management tools, optimize forestry operations, and incentivize forest management, ultimately leading to more efficient forestry practices. Periodic monitoring and systematic permanent plot databases at national and landscape levels are essential for this approach.

While recognized for safeguarding watersheds and improving water availability, concerns persist regarding the adverse effects of plantation forests, particularly Pinus and Eucalyptus, on water resources in Nepal (Badu et al., 2019; Ghimire et al., 2014; Ghimire et al., 2013; Maharjan, 2024). Effective management requires integrating scientific evidence on forest water interactions into policies. Expanding research on these relationships offers opportunities to develop inclusive management strategies. A thorough understanding of the forest cover impacts on water yield, particularly under changing climate conditions, can inform landscape-level projects, policies, and ecosystem management strategies with long-term benefits.

12.4 Conclusion

The evidence presented in this chapter confirms that Nepal's CF program has significantly contributed to forest restoration, biodiversity conservation, carbon sequestration, and watershed protection. Forest cover and density have increased, particularly in the mid-hills, due to natural regeneration and community-led restoration efforts. Carbon stock accumulation has been positive overall but varies by forest type, with some CFs storing less carbon than protected areas. Biodiversity outcomes have generally been favorable, with increased species richness and improved habitat connectivity, though some CF management approaches have led to species homogenization. Similarly, CFs have enhanced watershed conservation by reducing soil erosion and improving groundwater recharge, but plantation choices in some areas have affected local water availability. These findings highlight the overall positive impact of CF, with trade-offs across different environmental services.

These findings suggest three key conceptual insights. First, CF outcomes are dynamic and context-dependent, influenced by physiographic variation, forest type, and management approaches. Second, trade-offs and synergies shape ecological services, with carbon sequestration gains not always aligning with biodiversity conservation, and passive protection strategies sometimes leading to lower structural diversity in forests. Third, CF has evolved from a conservation-driven model to a multi-functional landscape approach, generating ecosystem benefits that extend beyond forest boundaries. This transformation signals the need for adaptive governance and site-specific management strategies to maximize both environmental and socio-economic outcomes.

These findings and insights have important implications for policy and practice to support the revitalization of CFS as a more integrated, evidence-based approach that balances conservation and sustainable resource use. Policy frameworks should incentivize diverse forest management strategies that optimize both carbon storage and biodiversity, beyond the tendency to limit to passive management. Strengthening proactive monitoring and adaptive management will help address emerging challenges such as species homogenization and human-wildlife conflict. Additionally, governance structures should support community participation beyond subsistence forestry, expanding CF's role in ecosystem restoration, water security, and climate adaptation. CF policies should also integrate new financial mechanisms, such as carbon markets and payments for ecosystem services, to ensure long-term sustainability. As CF continues to evolve, a landscape-level approach—linking forest, water, and rural livelihoods—will be critical to enhancing resilience and ensuring long-term ecological and social benefits.

Bibliography

Acharya, K. P. (2004). Does community forests management support biodiversity conservation? Evidence from two community forests from the Mid Hills of Nepal. *Journal of Forest and Livelihood*, *4*(1), 44–54.

Acharya, K. P., Paudel, P. K., Neupane, P. R., & Köhl, M. (2016). Human-wildlife conflicts in Nepal: Patterns of human fatalities and injuries caused by large mammals. *PLoS ONE*, *11*(9), 1–18. https://doi.org/10.1371/journal.pone.0161717

Adhikari, J. (1990). Is community forestry a new concept? An analysis of the past and present policies affecting forest management in Nepal. *Society & Natural Resources*, *3*(3), 257–265.

Agrawal, A., & Ostrom, E. (2008). Decentralization and community-based forestry: Learning from experience. In L. Webb & G. P. Shivakoti (Eds.), *Decentralization, forests and rural communities: Policy outcomes in South and Southeast Asia* (pp. 44–67). New Delhi: SAGE Publications.

Anup, K. C. (2017). Community forestry management and its role in biodiversity conservation in Nepal. In S. A. L. Gbolagade (Eds.), *Global exposition of wildlife management*. Vol. 51. http://doi.org/10.5772/65926

Awasthi, N., Bhandari, S. K., & Khanal, Y. (2015). Does scientific forest management promote plant species diversity and regeneration in the Sal (Shorea robusta) forest? A case study from Lumbini Collaborative Forest, Rupandehi, Nepal. *Banko Janakari*, *25*(1), 20–29.

Badu, M., Nuberg, I., Cedamon, E., & Sharma, S. (2019). Management of the forested catchments of Nepal's mid-hills amid mismatched perceptions of Forest–Water relationships: Challenges and opportunities. *Mountain Research and Development*, *39*(4), 27–36.

Baral, S., & Vacik, H. (2018). What governs tree harvesting in community forestry—regulatory instruments or Forest Bureaucrats' discretion? *Forests*, *9*(10), 649.

Baral, S., Gautam, A. P., & Vacik, H. (2018). Ecological and economic sustainability assessment of community forest management in Nepal: A reality check. *Journal of sustainable forestry*, *37*(8), 820–841.

Baral, S. K., Malla, R., & Ranabhat, S. (2009). Above-ground carbon stock assessment in different forest types of Nepal. *Banko Janakari*, *19*(2), 10–14.

Baral, T. (2012). *Evapotranspiration from Natural and Planted Forests in the Middle Mountains of Nepal*. MS thesis. The University of Twente, Netherland.

Bartlett, A.G. (1992). A review of community forestry advances in Nepal. *The Commonwealth Forestry Review*, *17*(2), 95–100.

Bhatta, S. P., & Devkota, A. (2020). Carbon stock in the community managed Sal (Shorea robusta) forests of Dadeldhura district, western Nepal. *Southern Forests: A Journal of Forest Science*, *82*(1), 47–55. https://doi.org/10.2989/20702620.2019.1686690

Bhatta, S., Poudel, A., & Yam Bahadur, K. C. (2021). A comparative study of carbon stocks in the Sal forest (Shorea robusta) in core and buffer zones of Shuklaphanta National Park, Nepal. *Forestry: Journal of Institute of Forestry, Nepal*, *18*(1), 52–60. https://doi.org/10.3126/forestry.v18i01.41757

Charmakar, S., Oli, B. N., Joshi, N. R., Maraseni, T. N., & Atreya, K. (2021). Forest carbon storage and species richness in FSC certified and non-certified community forests in Nepal. *Small-scale Forestry*, *20*(2), 199–219. https://doi.org/10.1007/s11842-020-09464-3

Chhatre, A., & Agrawal, A. (2009). Tradeoffs and synergies between carbon storage and livelihood benefits from forest commons. *Proceedings of the National Academy of Sciences*, *106*(42), 17667–17670.

Chhetri, R., Yokying, P., Smith, A., Van Den Hoek, J., Hurni, K., Saksena, S., & Fox, J. (2023). Forest, agriculture, and migration: Contemplating the future of forestry and agriculture in the middle-hills of Nepal. *Journal of Peasant Studies*, *50*(1), 411–433. https://doi.org/10.1080/03066150.2021.1978983

Chowdhary, C. L., Conroy, W., Gritten, D., Pairojmahakij, R. S., Poudyal, B. H., Sapkota, L. M., & Triraganon, R. (2017). Integrated climate change adaptation: Towards an emancipatory community forestry-based approach. *International Forestry Review*, *19* (December), 24–40. https://doi.org/10.1505/146554817822407448

Dangal, S.P., Das, A. K., & Paudel, S. K. (2017). Effectiveness of management interventions on forest carbon stock in planted forests in Nepal. *Journal of Environmental Management*, *196*, 511–517, https://doi.org/10.1016/j.jenvman.2017.03.056

Das, S., Nepal, M., Rai, R. K., Bhatta, L. D., & Khadayat, M. S. (2019). Valuing water provisioning service of Broadleaf and Chir Pine forests in the Himalayan region. *Forest Policy and Economics*, *105*, 40–51. https://doi.org/10.1016/j.forpol.2019.05.017

Department of Forest Research and Survey (DFRS). (2015). *State of Nepal's forests*. Ministry of Forests and Soil Conservation, Government of Nepal. https://frtc.gov.np/downloadfiles/StateofNepalsForestsDFRS_1457599484-1729667336.pdf

Department of National Parks and Wildlife Conservation (DNPWC). (2017). *Profiling of protected and human wildlife conflicts associated wild animals in Nepal*. DNPWC. Kathmandu, Nepal.

Ellison, D., Futter, M. N., & Bishop, K. (2012). On the forest cover-water yield debate: From demand-to supply-side thinking. *Global Change Biology*, *18*(3), 806–820.

Gao, S., Wang, L., Hao, L., & Sun, G. (2023). Community forestry dominates the recent land greening amid climate change in Nepal. *Environmental Research Letters*, *18*(10), 104014. https://doi.org/10.1088/1748-9326/acf8de

Gautam, A. P. (2006). Combining geomatics and conventional methods for monitoring forest conditions under different governance arrangements. *Journal of Mountain Science*, *3*(4), 325–333.

Gautam, A. P., Shivakoti, G. P., & Webb, E. L. (2004a). Forest cover change, physiography, local economy, and institutions in a mountain watershed in Nepal. *Environmental Management*, *33*(1), 48–61. https://doi.org/10.1007/s00267-003-0031-4

Gautam, A. P., Shivakoti, G. P., & Webb, E. L. (2004b). A review of forest policies, institutions, and changes in the resource condition in Nepal. *International Forestry Review*, *6*(2), 136–148.

Gautam, A. P., Webb, E. L., & Eiumnoh, A. (2002). GIS assessment of land use-land cover changes associated with community forestry implementation in the Middle Hills of Nepal. *Mountain Research and Development*, *22*(1), 63–69.

Ghimire, C.P., Bonell, M., Bruijnzeel, L.A., Coles, N.A., & Lubczynski, M. W. (2013). Reforesting severely degraded grassland in the Lesser Himalaya of Nepal: Effects on soil hydraulic conductivity and overland flow production. J*ournal of Geophysical Research: Earth Surface 118*(4), 2528–2545.

Ghimire, C. P., Lubczynski, M. W., Bruijnzeel, L. A., & Chavarro-Rincón, D. (2014). Transpiration and canopy conductance of two contrasting forest types in the Lesser Himalaya of Central Nepal. *Agricultural and Forest Meteorology*, *197*, 76–90.

Ghimire, H. R., & Phuyal, S. (2013). Impacts of community forestry on the Bengal monitor, Varanus bengalensis (Daudin, 1802): An empirical study from Nepal. *Biawak*, *7*(1), 11–17.

Ghimire, P., Baral, S., Khanal, P., Bolakhe, S., & Sharma, G. B. (2022). Exploring the relevance of community forest operational plan: Users' perspective and implementation status. *Banko Janakari*, *32*(2), 52–62.

Gilmour, D. (2016). Forty years of community-based forestry: A review of its extent and effectiveness. *FAO Forestry Paper* (176), 1–140. https://openknowledge.fao.org/server/api/core/bitstreams/0903135c-ed67-41ca-8976-fc7351fcdf07/content

Goswami, V. R., Sridhara, S., Medhi, K., Williams, A. C., Chellam, R., Nichols, J. D., & Oli, M. K. (2014). Community-managed forests and wildlife-friendly agriculture play a subsidiary but not substitutive role to protected areas for the endangered Asian elephant. *Biological Conservation*, *177*(September), 74–81, https://doi.org/10.1016/j.biocon.2014.06.013

Gritten, D., Greijmans, M., Lewis, S. R., Sokchea, T., Atkinson, J., Nguyen Quang, T., Poudyal, B., Chapagain, B., Sapkota, L. M., Mohns, B., & Paudel, N. S. (2015). An uneven playing field: Regulatory barriers to communities making a living from the timber from their forests–examples from Cambodia, Nepal, and Vietnam. *Forests*, *6*(10), 3433–3451.

Gurung, M. B., Bigsby, H., Cullen, R., & Manandhar, U. (2015). Estimation of carbon stock under different management regimes of tropical forest in the terai arc landscape, Nepal. *Forest Ecology and Management*, *356*, 144–152.

Hansen, B. B. (2004). Full matching in an observational study of coaching for the SAT. *Journal of the American Statistical Association*, *99*(467), 609–618.

Hobley, M., Jha, C., & Poudel, K. (2013). *Persistence and Change: Review of 30 years of community forestry in Nepal*. Multi Stakeholder Forestry Programme, Government of Nepal. https://doi.org/10.13140/RG.2.1.1769.0086

Kanel, K. R., & Niraula, D. R. (2004). Can rural livelihood be improved in Nepal through community forestry. *Banko Jankari*, *14*(1), 19–26.

Khanal, B. (2020). *Exploring different services generated from Resunga Hill Forest and its Implication for Sustainable Forest Management: A study of Resunga Hill Forest of Gulmi district*. MSc thesis. Institute of Forestry, Tribhuvan University, Nepal.

Khanal, Y., & Adhikari, S. P. (2018). Regeneration promotion and income generation through scientific forest management in community forestry: A case study from Rupandehi district, Nepal. *Banko Janakari*. Special Issue No. 4.

Khatri, D., Paudel, D., Poudyal, B. H., Khatri, S., Poudel, D. P., & Marquardt, K. (2024). Examining socio-ecological transitions and new human–wildlife relations in farming landscapes of the Nepal Himalaya. *Journal of Agrarian Change*, *24*(2), e12594.

Lamichhane, B. R., Persoon, G. A., Leirs, H., Poudel, S., Subedi, N., Pokheral, C. P., Bhattarai, S., Gotame, P., Mishra, R., & De Iongh, H. H. (2019). Contribution of buffer zone programs to reduce human-wildlife impacts: The case of the Chitwan National Park, Nepal. *Human Ecology*, *47*(1), 95–110.

Lamsal, P., Aryal, K. R., Adhikari, H., Paudel, G., Maharjan, S. K., Khatri, D. J., & Sharma, R. P. (2023). Effects of forest management approach on carbon stock and plant diversity: A case study from Karnali Province, Nepal. *Land*, *12*(6), 1233.

Li, Q., Wei, X., Zhang, M., Liu, W., Fan, H., Zhou, G., Giles-Hansen, K., Liu, S., & Wang, Y. (2017). Forest cover change and water yield in large forested watersheds: A global synthetic assessment. *Ecohydrology*, *10*(4). https://doi.org/10.1002/eco.1838

Luintel, H., Bluffstone, R. A., & Scheller, R. M. (2018a). The effects of the Nepal community forestry program on biodiversity conservation and carbon storage. *PLoS One*, *13*(6). https://doi.org/10.1371/journal.pone.0199526

Luintel, H., Bluffstone, R. A., & Scheller, R. M. (2018b). Assessments of biodiversity, carbon, and their relationships in Nepalese Forest Commons: Implications for global climate initiatives. *Forest Science*, *64*(4), 418–428. https://doi.org/10.1093/forsci/fxx024

Maharjan, M. (2024). *Understanding the water security in the peri-urban region: A case study from Thaha Municipality, Makwanpur District, Nepal*. Research Report. Funded by APN, Japan.

Ministry of Forests and Environment (MoFE). (2018). *Twenty-five years of achievements on biodiversity conservation in Nepal*. Environment and Biodiversity Division, MoFE.

Ministry of Forest and Soil Conservation (MFSC). (2013). *Persistence and change: Review of 30 years of community forestry in Nepal*. Government of Nepal.

Niraula, R. R., Gilani, H., Pokharel, B. K., & Qamer, F. M. (2013). Measuring impacts of community forestry program through repeat photography and satellite remote sensing in the Dolakha district of Nepal. *Journal of Environmental Management*, *126*, 20–29. https://doi.org/10.1016/j.jenvman.2013.04.006

Oldekop, J. A., Sims, K. R. E., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*, 421–428. https://doi.org/10.1038/s41893-019-0277-3 https://www.nature.com/articles/s41893-019-0277-3#citeas

Oli, B. N., & Shrestha, K. (2009). Carbon status in forests of Nepal: An overview. *Journal of Forest and Livelihood*, *8*(1), 63–66.

Oli, B. N., & Subedi, M. R. (2015). Effects of management activities on vegetation diversity, dispersion pattern and stand structure of community-managed forest (*Shorea robusta*) in Nepal. *International Journal of Biodiversity Science, Ecosystem Services & Management*, *11*(2), 96–105. https://doi.org/10.1080/21513732.2014.984334

Pandey, S. S., Cockfield, G., & Maraseni, T. N. (2014). Dynamics of carbon and biodiversity under REDD+ regime: A case from Nepal. *Environmental Science and Policy*, *38*, 272–281. https://doi.org/10.1016/j.envsci.2014.01.005

Pandit, R., Neupane, P. R., & Wagle, B. H. (2017). Economics of carbon sequestration in community forests: Evidence from REDD+ piloting in Nepal. *Journal of Forest Economics*, *26*, 9–29.

Paudel, G. & Shrestha, T. K. (2019). Crop depredation by monkey outside protected area in Nepal; costs, conditions and perceptions. *Indian Forester*, *144*(10), 929–935.

Paudel, J. (2016). Assessment of climate and forest cover change and its implications on water availability and use practices: a case study from two mountain sub-watershed, M. Sc. Thesis submitted to Tribhuwan University, Institute of Forestry, Pokhara, Nepal.

Paudel, S., & Sah, J. P. (2015). Effects of different management practices on stand composition and species diversity in subtropical forests in Nepal: Implications of community participation in biodiversity conservation. *Journal of Sustainable Forestry*, *34*(8), 738–760. https://doi.org/10.1080/10549811.2015.1036298

Paudyal, K., Baral, H., Burkhard, B., Bhandari, S. P., and Keenan, R. J., (2015). Participatory assessment and mapping of ecosystem services in a data-poor region: Case study of community-managed forests in central Nepal. *Ecosystem Services*, *13*, 81–92.

Paudyal, K., Baral, H., Lowell, K. & Keenan R. J. (2017). Ecosystem services from community-based forestry in Nepal: Realising local and global benefits. *Land Use Policy*, *63*, 342–355.

Paudyal, K., Putzel, L., Baral, H., Chaudhary, S., Sharma, R., Bhandari, S., Poudel, I., & Keenan, R. J. (2018). From denuded to green mountains: Process and motivating factors of forest landscape restoration in Phewa Lake watershed, Nepal. *International Forestry Review*, *19*(4), 75–87. https://doi.org/10.1505/146554817822330515

Pokharel, B. K., Branney, P., Nurse, M., & Malla, Y. B. (2007). Community forestry: Conserving forests, sustaining livelihoods and strengthening democracy. *The Journal of Forest and Livelihood*, *6*(2), 8–19.

Pokhrel, G. K. (2007). Role of community forests in faunal diversity conservation: A case study of the community forests within Satbariya range post of Dang district, Nepal. Doctoral dissertation. Faculty of Environmental Science.

Poudyal, B. (2016). *Potential of payment for ecosystem services (PES) in Begnas Lake watershed*. MSc Thesis. Institute of Forestry, Tribhuvan University, Nepal.

Poudyal, B. H., Maraseni, T. N., & Cockfield, G. (2018), Evolutionary dynamics of selective logging in the tropics: A systematic review of impact studies and their effectiveness in sustainable forest management. *Forest Ecology and Management*, Vol. 430, pp. 166–175.

Poudyal, B. H., Maraseni, T. N., & Cockfield, G. (2019a). Impacts of forest management on tree species richness and composition: Assessment of forest management regimes in Tarai landscape Nepal. *Applied Geography*, *111*(102078). https://doi.org/10.1016/j.apgeog.2019.102078

Poudyal, B. H., Maraseni, T. N., & Cockfield, G. (2019b). Implications of selective harvesting of natural forests for forest product recovery and forest carbon emissions: Cases from Tarai Nepal and Queensland Australia. *Forests*, *10*(8), 693.

Poudyal, B. H., Khatri, D., Paudel, D. P., Paudel, D., and Khatri, S. (2022). Hilly lives in peril: need for effective policies (in Nepali). Policy Discussion Series, South Asian Institute of Advanced Studies (SIAS), https://sias-southasia.org/wp-content/uploads/2023/01/Final_Wildlife-Issue-Policy-Brief_2023-01-09.pdf (sias-southasia.org).

Poudyal, B. H., Paudel, D., Marquardt, K. & Khatri, S. (2023). Examining forest transition and collective action in Nepal's community forestry. *Land Use Policy*, *134*, 106872.

Puri, L., Nuberg, I., Ostendorf, B., & Cedamon, E. (2020). Locally perceived social and biophysical factors shaping the effective implementation of community forest management operations in Nepal. *Small-scale Forestry*, *19*, 291–317.

REDD Implementation Centre (REDD-IC). (2018). *Biodiversity monitoring protocol for REDD+*. REDD-IC, Ministry of Forests and Environment.

Sapkota, L. M., Dhungana, H., Poudyal, B. H., Chapagain, B., & Gritten, D. (2020). Understanding the barriers to community forestry delivering on its potential: An illustration from two heterogeneous districts in Nepal. *Environmental Management*, *65*(4), 463–477.

Schwärzel, K., Zhang, L., Montanarella, L., Wang, Y., Sun, G., (2020). How afforestation affects1397 the water cycle in drylands: A process-based comparative analysis. *Global Change Biology 26*(2), 1398, 944–959.

Sharma, B. K., Chalise, M. K., & Solanki, G. S. (2011). Large wildlife population in Baghmara bufferzone community forest, Nepal. *Ecoprint: An International Journal of Ecology*, *18*, 55–62. https://doi.org/10.3126/eco.v18i0.9411

Sharma, L. N., Tamang, S. R., Poudel, Y. B., Subba, A., Timsina, S., Adhikari, B., Shrestha, H., Gautam, A. P., Kandel, D. R., Watson, M. F., & Paudel, N. S. (2021). Biodiversity beyond protected areas: Gaps and opportunities in community forest. *Journal of Forest and Livelihood*, *20*(1), 45–61.

Sherchan, R., Rijal, K., & Bajracharya, S. B. (2016). Assessing contribution of local community in biodiversity conservation at Laharepauwa of Rasuwa, Nepal. *Journal of Ecology and the Natural Environment*, *8*(6), 90–98.

Shrestha, B. P. (2016). Faunal (mammal) diversity and human wildlife conflict in community forests. A case study from Tanahun and Kavrepalanchok districts, Nepal. *Proceedings of a National Workshop- Mainstreaming Biodiversity and Ecosystem Services into Community Forestry in Nepal*, August 2015, 51–57. Department of Forest, Federation of Community Forestry Users Nepal, & Bird Conservation Nepal.

Shrestha, U. B., Shrestha, B. B., & Shrestha, S. (2010). Biodiversity conservation in community forests of Nepal: Rhetoric and reality. *International Journal of Biodiversity and Conservation*, *2*(5), 98–104.

Smith, A. C., Hurni, K., Fox, J, & Van Den Hoek, J. (2023). Community forest management led to rapid local forest gain in Nepal: A 29-year mixed methods retrospective case study. *Land Use Policy*, *126*(March), 106526. https://doi.org/10.1016/j.landusepol.2022.106526.

Thapa, K., Gnyawali, T. P., Chaudhary, L., Chaudhary, B. D., Chaudhary, M., Thapa, G. J., Khanal, C., Thapa, M. K., Dhakal, T., Rai, D. P., Bhatta, S. R., Upadhya, D., Bhandari, A. R., & Joshi, D. (2018). Linkages among forest, water, and wildlife: A case study from Kalapani community forest in Lamahi bottleneck area in Terai Arc Landscape. *International Journal of the Commons*, *12*(2), 1.

Thapa-Magar, K. B., & Shrestha, B. B. (2015). Carbon stock in community managed hill Sal (*Shorea robusta*) forests of central Nepal. *Journal of Sustainable Forestry*, *34*, 384–501. https://doi.org/10.1080/10549811.2015.1031251

Thing, S. J., & Poudel, B. S. (2017). Buffer zone community forestry in Nepal: Examining tenure and management outcomes. *Journal of Forest and Livelihood*, *15*(1), 57–70.

Tripathi, S., Subedi, R., & Adhikari, H. (2020). Forest cover change pattern after the intervention of community forestry management system in the mid-hill of Nepal: A case study. *Remote Sensing*, *12*(17). https://doi.org/10.3390/RS12172756

Van Den Hoek, J., Smith, A. C., Hurni, K., Saksena, S., & Fox, J. (2021). Shedding new light on mountainous forest growth: A cross-scale evaluation of the effects of topographic illumination correction on 25 years of forest cover change across Nepal. *Remote Sensing*, *13*(11). https://doi.org/10.3390/rs13112131

Viljur, M., Abella, S. R., Adámek, M., Alencar, J. B. R., Barber, N. A., Beudert, B., Burkle, L. A., Cagnolo, L., Campos, B. R., Chao, A., Chergui, B., Choi, C., Cleary, D. F. R., Davis, T. S., Dechnik-Vázquez, Y. A., Downing, W. M., Fuentes-Ramirez, A., Gandhi, K. J. K., Gehring, C., … Thorn, S. (2022). The effect of natural disturbances on forest biodiversity: An ecological synthesis. *Biological Reviews*, *97*(5), 1930–1947. https://doi.org/10.1111/brv.12876

Wattenbach, M., Zebisch, M., Hattermann, F. et al. (2007). Hydrological impact assessment of afforestation and change in tree-species composition – A regional case study for the Federal State of Brandenburg (Germany). *Journal of Hydrology*, *346*, 1–17.

Webb, E., & Gautam, A. (2001) Effects of community forest management on the structure and diversity of a successional broadleaf forest in Nepal. *International Forestry Review*, *3*(2), 146–157.

Yadav, N. P., Dev, O. P., Springate-Baginski, O., & Soussan, J. (2003). Forest management and utilization under community forestry. *The Journal of Forest and Livelihood*, *3*(1), 37–50.

13 Forest-farm interface

Integrating private and community forestry for landscape-level management

Nicola McGunnigle, Ian Nuberg, Douglas K. Bardsley, Edwin Cedamon, and Bishnu Hari Pandit

13.1 Introduction

In the middle hills of Nepal, the dynamics of rural livelihoods are linked to broader forest landscapes, including community forests, private forests, and revegetation on abandoned agricultural land. Traditional farming systems incorporate cropping, livestock, and forests that provide organic matter for compost and livestock feed. However, rapid social and bio-physical changes in recent decades are generating challenges for landscape management. Up to 30% of agricultural land has been abandoned, driven by complex and interacting social, environmental, political, and economic dynamics (Jaquet et al., 2015; Paudel et al., 2020; Rai et al., 2019). Labor-intensive crops, high costs of production, and low productivity on often marginal land vulnerable to soil loss and natural disasters are all compounding drivers of declining agriculture in the middle hills. Out-migration and remittance economy are driven by youth to stay and do agricultural work (Ojha et al., 2017). Consequently, women and the elderly are often left behind, enhancing labor shortages, feminizing agriculture, and increasing negligence of productive land management (Bhattarai et al., 2015; Goodrich et al., 2017).

Forest restoration is an unanticipated consequence of land abandonment in Nepal (Chapagain et al., 2019; Chidi et al., 2019; Oldekop et al., 2018). While forests are viewed synonymously with provisioning livelihoods and income generation as well as regulating services, forest succession in the middle hills is yet to be perceived similarly, as abandoned cropland threatens agricultural production and food security (Jaquet et al., 2019; Pandey & Bardsley, 2015). Improved access to trees and forest resources, though, has reduced pressure on community and government-managed forests (Dahal et al., 2020; Pandit et al., 2014). The intentional growth of trees outside of forests on private land provides forest products such as fodder, fuelwood, medicinal plants, and fruit tree species, particularly for households at greater distance from community forests (Rai et al., 2017).

DOI: 10.4324/9781032705613-17
This chapter has been made available under a CC BY-NC-ND license.

The evolution and understanding of the relevance of multifunctional landscapes in Nepal resonate with the broader debate on how community and household scale resource management systems can be integrated at the landscape-level for improved socio-ecological resilience (Song et al., 2020). Despite the growing level of convergence around integration, there is little understanding of its rationale and possibility in terms of ecological, institutional, and policy perspectives.

This chapter assesses the interface of community and private forests at a landscape-level in response to shifting livelihood sources, land uses, and household dependence on community forests. Demonstrated through literature and case studies, the role of community forests and the impact of emerging forests on private land is explored to consider the future of landscape-level forest ecosystems that benefit biodiversity conservation and livelihoods. The emerging landscape has demonstrated the importance of reconsidering the fragmented approach to managing forest ecosystem services (separating community forest and private land) toward landscape-level integration of forests, trees outside the forests, private land, communal forest areas, livelihoods, and socio-ecological systems. There is also a need to explore institutional arrangements that enable collective action and investment of labor and resources to support livelihoods from forested landscapes. The ideas presented examine the current utilization and perceptions of user-managed community forests, private forests, and forests regenerating on private land.

13.2 Socio-ecological landscape of the middle hills

The middle hills physiographic zone extends west to east throughout the length of Nepal between the Terai and high mountains, comprising a rich montage of forests and intensive farming. With elevations ranging from 200 meters above sea level (masl) to over 3,000 masl, the middle hills climate spans sub-tropical to temperate monsoonal, supporting rain-fed and irrigated terraced agriculture. Accounting for 35% of Nepal's total land area, the middle hills also support approximately 40% of Nepal's population across 39 districts (GoN, 2019, 2021). While subsistence agriculture has traditionally engaged majority of them as the primary source of livelihood, more recently out-migration and off-farm livelihoods have shifted agricultural dependence and practices.

Since the 1970s, community forests have provided resources to households reliant on forest products (firewood, fodder, timber) for their livelihoods. Community forest management is largely focused in the middle hills, where community forests cover 64% of the land area and 61% of households belong to one of 22,000 community forest user groups (CFUGs) (GoN, 2019). Over the last three decades, there has been a reduced demand for forest products from community forests as planted and naturally regenerating forests on private land have supplemented the supply and provided more accessible and affordable products (Carter & Gilmour, 1989; Bhawana et al., 2021). In places,

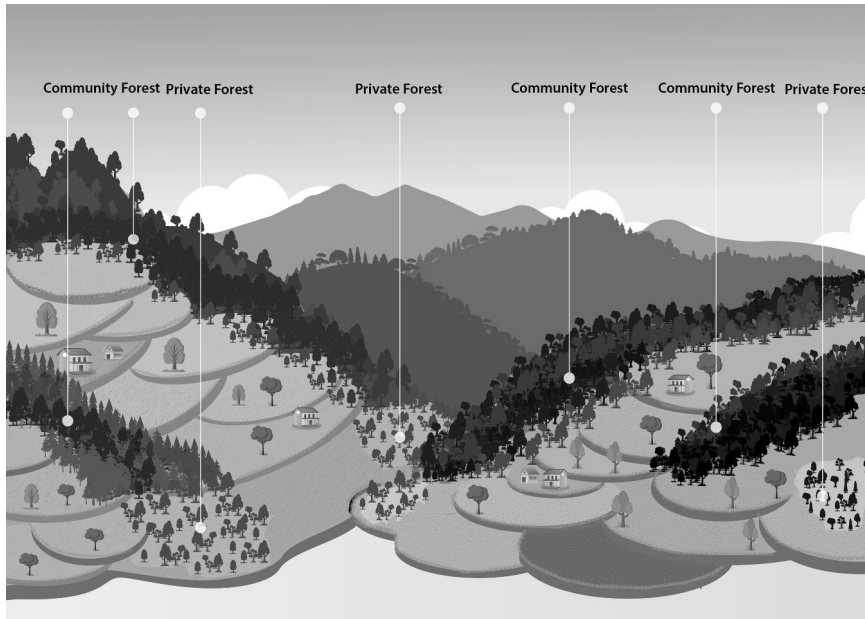

Figure 13.1 Typical farming-forest landscape in Nepal's middle hills, incorporating trees in agricultural systems and private and community forests.

Illustrator: Sanjeeb Bajracharya.

the forest-farm interface is merging as forests encroach upon agricultural land, and private forest patches abut community forests (Figure 13.1).

Three case studies were carried out in Gandaki Province in central Nepal to understand privately owned land utilization and land use change, and to investigate rural households' perceptions of forest landscapes and resources. Surveys of 100 households each were undertaken in three study areas: municipalities of Kaski, Tanahu, and Gorkha Districts, with wards selected in each of the three municipalities to represent the socio-ecological diversity of the hills. Ward number 24 in Pokhara Municipality (former village development committee [VDC] Kaskikot), Kaski, is on the rural fringe of Pokhara. Kaskikot had the highest land utilization (72% irrigated cropland, 90% rainfed cropland) and lowest migration rate (median 1.6 persons per household). The education levels of the household were higher than the two other districts surveyed. Tanahu District is situated between Pokhara and Kathmandu. Households in ward number 4 in Bandipur Rural Municipality relied less, on average, on farm income than the other two districts surveyed, with small businesses contributing a significant portion of primary livelihoods. Households had the least number of land parcels and the lowest irrigated land utilization rates (41% fully used). Ajirkot Rural Municipality in Gorkha District is considerably more rural, located 50 km by road to the district capital of Gorkha. Ward

Table 13.1 Community forest area and household numbers in study sites

Site	*CF area (ha)*	*No. of CFUGs*	*No. households*
Ajirkot Rural Municipality, Gorkha	2689	38	4413
Bandipur Rural Municipality, Tanahun	3723	37	3952
Kaskikot, former VDC ward 24, Pokhara	630	26	2450
Total	7042.29	101	10815

Source: Data obtained from respective Division Forest Offices, 2024.

numbers 3 and 5 represented communities more reliant on agriculture for their primary livelihoods (88% of households) and a greater ethnic diversity. Land utilization rates were lowest (49% irrigated cropland, 20% rain-fed cropland), with higher rates of forest succession on abandoned land. Lower land utilization is likely a consequence of higher rates of out-migration and fewer people per household (median 2.3 persons per household), limiting labor availability to cultivate larger farms. Education levels of both the household head and household, in general, were lower in Ajirkot than in the other study areas.

In the study areas, the area of community forest number of CFUGs, and participating households are larger in the rural municipalities of Ajirkot and Bandipur, compared to Kaskikot (shown in Table 13.1). However, the wards surveyed exhibited higher proportions of community forest users than the municipality in general, with 88% of surveyed households in Kaskikot, 71% in Bandipur, and 95% in Ajirkot accessing resources from community forests. The urban nature of the majority of Pokhara Municipality, depending less on forest resources such as fuelwood and livestock fodder, can explain the lower proportion of CFUGs at this study site.

13.3 Private forestry integral to local livelihoods

The integration of trees in rural farming systems has ordinarily supported agricultural livelihoods by providing fodder, fuelwood, and building and craft materials. Regardless of income or primary livelihood status, most (85%) of survey respondents at the case study sites utilized forest products from community and private forests, with 74% sourcing resources from community forests. Forests on private land were perceived by landholders as "forests" if trees were actively planted, managed, or maintained. By this definition, 12% of survey respondents accessed resources from private forests, often in addition to community forests. Private forests were valued most highly in locations where the highest number of them were identified (Ajirkot Rural Municipality). While most private forests contributed directly to household needs, households with mature forests benefited from private timber sales. An increased trend of timber flows from private forests to the market has been observed in recent years, indicating a growing interest in private forest management, supported by the

Table 13.2 Perceived direct benefits of regenerating tree species on private land (survey participants)

Direct benefits (provisioning)	*No. tree species*	*Frequency of responses*
Income	21	75
Wood fuel	25	340
Fodder	34	356
Timber	9	32
Medicinal	10	42
Food/fruit	11	19
Other direct benefit	4	6

expanding access to markets through increased road networks in rural areas (Amatya & Lamsal, 2017). Planting of fodder hedgerows on existing farmlands contributed to livestock fodder. Increased land productivity has also been achieved as crops grown in the understorey (fodder grasses, banana, tomato, cardamom, chili, and ginger) have also been shown to provide additional income (Pandit et al., 2019).

The perceived direct benefits of forests naturally regenerating on abandoned private land were parallel to those from formally recognized forests, with tree species most highly valued for livestock fodder, forage, and fuelwood (Table 13.2). Some two-thirds (66%) of survey respondents had experienced natural regeneration on their unused or underutilized land, with 80% of forest regeneration described as natural succession. In comparison, 20% had been actively planted or managed. Most households had not actively suppressed or removed trees to recultivate crops. In the case studies, some farmers maintained naturally regenerated trees, intending to sell the timber upon maturation. In contrast, others had actively planted forest species such as *Pinus roxburghii*, *Tectonis grandis*, *Shorea robusta*, and *Michelia champaca*. The long-term value of forests was recognized as an investment in their unused land, with one survey respondent in Kaskikot commenting that the value of trees will increase with the decrease in the volume of trees as urbanization expands in the surrounding area.

Tree species regenerating on private land included many species that are common with community forest species. These were familiar to case study participants and found to thrive in the ecological areas. The most frequently recognized regenerating tree species included *Schima wallichii*, *Castanopsis indica*, *A. nepalanus*, *S. robusta*, and *Ficus* species, favored for fodder, fuelwood, and timber. Production of non-timber forest products (NTFPs) that complement the forest landscape and demand for less labor-intensive activities include cash crops grown in agroforestry systems. Cardamom planted beneath fast-growing native tree species *A. nepalensis* was adopted in Ajirkot Rural Municipality on formerly irrigated croplands, which has proven to generate high income for households (Cedamon et al., 2017). Identification of NTFPs and processing knowledge is generally limited among many communities, and district forest

offices (DFOs) are reported to have limited expertise in NTFP cultivation and enterprises (Acharya et al., 2009). Recognition of medicinal and aromatic plants was noted at the survey sites, and cultivation exists on a small scale on private land. Upscaling medicinal and aromatic plant cultivation and production for an economic enterprise requires technical and market chain development (Acharya et al., 2009).

The benefits of private forests to rural livelihoods are constrained by technical knowledge, market chains, and forest regulations. Species regeneration and selection for planting depends on appropriate agro-climates, provision of or access to seedlings, and household needs and preferences for products based on livelihood or income-generating potential. Despite this, private forests are the primary source of timber and fuelwood sold in the current market (Amatya & Lamsal, 2017), and to encourage harvest and sale of some species that were formerly banned, restrictions have been eased for sale from private forests. Such a move highlights the potential of private forest contributions to commercial timber production compared to community forestry (CF), where commercial use is more regulated. However, perceptions of rigid policy remain, from private forest registration to marketing. While most survey participants cited forests as a valuable income source, some households considered regulations too onerous for small-scale harvesting. The number of registered private forests held by DFOs is disproportionate to the number of private forests, suggesting that farmers have remained indifferent about registering forests on private land (Amatya & Lamsal, 2017). In the case study area, farmers expressed fear that the government could take over forested land. Most households across all age groups considered opportunities from increased forestation across the landscape to be greater than problems. Opportunities were most associated with income, employment, and forest resources, but the potential for tourism in afforested landscapes was also recognized as promoting aesthetic values associated with a greener and "cleaner" environment. Wildlife conflict, however, was a significant disincentive to increased forestation, with increasing wildlife due to increased forest cover leading to crop destruction and livestock depredation (Chazdon et al., 2020). Nonetheless, the realized and potential benefits of private forestry in agricultural landscapes are integral to livelihoods and enhanced ecosystem functions.

13.4 The ecological logic of landscape-level integration

In the middle hills, the biophysical landscape integrates trees, crops, pollinators, soil organisms, and livestock despite the institutional separation of different components such as farmland, private forest, or community forests. Increased tree cover in any one part of the landscape improves biophysical functions and enhances the resilience of the ecological system. In the case study areas, survey participants perceived regulating services such as increased land stability, soil improvement, improved groundwater recharge, and decreased rainfall runoff as benefits from many regenerating forest species (Table 13.3).

Table 13.3 Perceived indirect benefits of regenerating tree species on private land (survey participants)

Indirect benefits (regulating services)	*No. tree species*	*Frequency of responses*
Land stability	32	366
Soil improvement	25	249
Increased groundwater recharge	16	218
Decreased rainfall runoff	26	245
Other indirect benefit	2	2

Compared to other land uses, water infiltration is generally higher, runoff volumes lower under trees (Joshi & Tiwari, 2014), and water quality is improved compared to agricultural land (Birch et al., 2014). In steep landscapes with young and fragile soils, such as Nepal's middle hills, moderation of rainfall runoff can reduce flood and landslide potential (Dhungana et al., 2020). Increasing forests across the landscape can help to reduce vulnerability to climate change-induced natural hazards, such as flooding and landslides, and the societal flow-on effects of land and livelihood losses.

Forest regeneration is widely beneficial for biodiversity conservation and ecosystem restoration. Community-managed forests in Nepal have contributed to a substantial increase in forest cover, and improved forest conditions compared to government-managed forests (Paudyal et al., 2017). Tree species diversity in the landscape, including regenerating forests on private land, is greater than in community forests (Shrestha et al., 2010). Increasing wildlife populations are also observed in and around community forests, although forest encroachment on agricultural land has led to increasing human-wildlife conflict (Bista & Song, 2021). In the dual global crises of biodiversity loss and climate change, the increase in forests across Nepal's middle hills could deliver abundant opportunities to revitalize diverse habitats to enhance Nepal's rich biodiversity and mitigate climate change through carbon sequestration. In naturally regenerated forests carbon sequestration is calculated, on average, to be 40 times greater than in plantations (Lewis et al., 2019). Although well-managed private forests show evidence of high carbon stocks and substantial potential for economic benefits, implementing carbon trading schemes in private forests presents challenges at household and policy levels (Joshi et al., 2023).

Across all landscapes in Nepal, seedlings are provided free of charge by the DFO nurseries irrespective of forest management activities and whether plantations are for community or private land. One survey participant who had received *M. champaca* seedlings from her local forestry office planted on an uncultivated terrace "so the land will no longer be bare," also noted the benefits to biodiversity and land stability. In addition, private tree nurseries sell a range of tree seedlings, ranging from indigenous fodder species to commercially oriented high-value fruit trees and NTFPs. Recognizing forests across landscapes as an integral component of natural resource management, whether private or community, is beneficial to the restoration and preservation of ecosystem functions.

13.5 The socio-political logic of landscape-level integration

Integration of forests at the landscape-level could improve both access to forest resources and equity of forest management in Nepal, which we identify as the socio-political logic of integration. Despite the expansion of forests and development of a sound policy framework, structured social and gendered inequalities still exist in community forest governance and benefit sharing (Cedamon et al., 2019; Karki et al., 2018; Oli et al., 2016). With the feminization of agriculture due to high male out-migration, there is increased participation of women in forestry management but growing disinterest in young people, with a decline in the sense of community in rural areas (Bhawana et al., 2021). An increase in forestation on former cropland and provisions from private forests more accessible to time-poor and elderly members of rural communities are providing significant portions of livestock fodder and market timber (Amatya & Lamsal, 2017; Bhawana et al., 2021). Therefore, benefits would be more widely distributed across the community when releasing forest wealth from both private and community forests (Nuberg et al., 2019).

Developing forest products from private land and agroforestry interventions could help alleviate poverty and food insecurity. Yet, in the case study areas, households that relied primarily on agriculture to maintain food security were less likely to favor landscape-level forestation. Increased food security potential for land-rich households is shown to have strong potential from market-oriented timber production as a long-term investment for farming-forest households, with supplementary income earned from high-yielding fodder production, livestock, and NTFPs. In contrast, for land-poor households, remittances remain the strongest route to food security (Cedamon et al., 2019). Households in the case study areas that sourced their primary livelihood from off-farm sources had little interest in sourcing income from potential timber sales compared to households with mixed (on-farm and off-farm) livelihood sources and were less likely to favor landscape-level forestation.

Livelihood capital influences farmers' adaptive capacity for combining forest with agricultural activities, which is largely driven by financial capital from remittance income (Cedamon et al. 2018). Cedamon et al. (2019) further suggest that households with lower education levels tend to have less adaptive capacity than households with higher education levels. Factors that have the potential to improve adaptive capacity to the shifting agrarian-forest landscape identified by case study participants included several important aspects:

- Improving knowledge, such as recognizing benefits of the tree species that are regenerating,
- Possessing an interest in learning,
- Applying forest protection (from grazing, invasive species) and forest management,
- Requiring institutional support (e.g., compensation for loss of crop production, seed stock for favored species), and
- Showing a desire for improved road access (providing easier market access).

Improved connections to external expertise and markets are also a prerequisite to equitable and sustainable livelihoods sourced from NTFP initiatives (Gauli & Hauser, 2009; Lamsal et al., 2017).

Another dimension of private-community arrangement is demonstrated through private leasehold forestry, targeting poor and marginalized households that have not necessarily benefited through CF arrangements. By leasing degraded forests to selected households, leasehold forestry has significantly improved the condition of forests while reducing household poverty and food insecurity. Livelihoods have been improved with increased ownership of land and livestock, and better access to forest resources has saved households' time collecting fodder and fuelwood, which is spent on activities that enhance quality of life, including education and diversified income sources (Bhattarai et al., 2007; Pandey et al., 2023). Furthermore, the development of community and institutional connections has built confidence and consensus to address the needs and problems of the groups involved (Kafley & Pokharel, 2017). While challenges and uncertainty remain around tenure rights and coordinating stakeholders across levels of governance, the arrangement has strengthened women's leadership and improved participation and income equality of poor and marginalized groups (Kafley & Pokharel, 2017; Sharma et al., 2014). This integration of variously managed and different forests in the landscape can improve social equity.

13.6 The policy logic of landscape-level integration

Forests and agriculture are regulated across separate sectors and policies in Nepal, with more recently formulated agroforestry policy instruments overseen by both sectoral ministries of forest and agriculture. Provisions for managing agroforestry and environmental services from forest areas are included in Nepal's Forests Act 2019, to acknowledge the integration of trees in the wider farming-forest landscape. The Forest Sector Strategy 2016 promotes agroforestry on private and less productive farmland, while the Agroforestry Policy 2019 recognizes multipurpose land use and prioritizes agroforestry in vacant, barren, fallow, and marginal farmland. The integration of forests is promoted at a landscape-level through these policy instruments.

Policy measures adopted to address decreasing agricultural production and increasing abandoned land often contradict each other, failing to keep up with the broader systemic changes (Nepal et al., 2020; Ojha et al., 2017). With the Foreign Employment Act (2007) stimulating employment abroad, reforestation on abandoned land is increasing at a greater rate in areas with higher international migration levels (Oldekop et al., 2018). However, the Agriculture Development Strategy (2015–2035) seeks to discourage migration by engaging youth in agriculture (Ojha et al., 2017). Forest transitions and the integration of naturally regenerating trees within multifunctional landscapes are not explicitly recognized in policy. In transitioning fallow and marginalized farmland to multipurpose and more forested landscapes, having uncultivated

Box 13.1 Cluster level forest management – example from EnLiFT

The idea of cluster-level forest management emerged in response to community concerns on forest resource management at a ward-level community forest user group meeting. The small scale and high transaction costs of operations, a lack of technical and institutional services, and long and exhaustive regulatory requirements had disincentivized investment in forest management. To oversee forest management across the stakeholder groups, a committee was formed of stakeholder representatives, and a forest technician appointed to assist the cluster with operational plans and reports for forest management and institutional development. Trainings and workshops to develop the capacity of community forest user groups in the cluster included aspects such as fire management, skills, and leadership development, while a portable saw mill has expanded operational capacity. The model has been replicated to form clusters in other areas to integrate and improve landscape-level forest management.

croplands can be penalized through sanction of the Land Use Act 2019, which encourages land consolidation for crop productivity.

Integration can also be supported by the benefit of the economy of scale when management operations, technology, or marketing are shared among groups of community, leasehold, and private forests. Likewise, the lack of institutional arrangements to coordinate work at the landscape-level can also receive much-needed attention. Both dimensions are well illustrated by the example of municipality-level CF clustering demonstrated in action research such as EnLiFT (Enhancing Livelihood from Improved Forest Management in Nepal) and the evolution of the association of private forestry traders. As demonstrated in EnLiFT 2 (see Box 13.1), forming a cluster mechanism for forest management of variably managed forest types in and around a specific area is a strategy that could make the forestry business economically viable (Tiwari et al., 2023).

13.7 Private and community forestry – complementary or competition?

Under a future-assumed scenario where labor availability will remain in short supply, and the lack of year-round irrigation of crops continue to challenge productivity, large-scale production-focused agriculture is largely unlikely in the middle hills, regardless of financial or other incentives. Community-managed forestry will most likely remain as mosaics of protected forests with only passive management and utilization because of regulatory, economic, and labor constraints in the hills. In this context, emerging forests on private land will likely play an increasing role in rural livelihoods and timber markets.

The emergence of competing and complementing forest supplies provides an opportunity to articulate an integrated community-private forest management system. The potential realization of benefits from community forests since inception has not been achieved due to poor silviculture, weak forest product markets and restrictive regulations, with many *Pinus* species now due for harvest or replacement. When these are harvested, and during the cycle of replacement growth, timber from private forests could become an important supplementary resource, forcing change to existing forest regulations. Native, fast-growing species such as *A. nepalensis*, which are naturally regenerating on private land, might contribute to this market gap. Private forestry could fill these market gaps while community forests enter a new cycle of harvesting and regrowth (potentially a new era of market-oriented regulation), thus complementing forest market supplies.

An agrarian-forest transition is still perceived as encroaching on productive agricultural land by both rural households and policymakers. Yet, mixed farming systems, such as agroforestry, that integrate trees with crops and/or production of livestock fodder may better complement existing community and private forest systems. Such land use changes are already being implemented in the case study areas, with survey respondents recognizing the potential for increased purchasing power from agroforestry. Improving market access for smallholders improves income and food security, with market-oriented agroforestry interventions increasing food security for up to an additional six months (Cedamon et al., 2019; Pandit et al., 2019).

Greater biodiversity in mixed farming systems, including private forests, contributes to improved landscape-level biodiversity that complements community forests' role in land restoration. Survey respondents recognized biodiversity and aesthetic values associated with community and regenerating forests, suggesting that there are multiple locally recognized benefits of landscape-level forestation. Respondents also demonstrated adaptation to the shifting landscape, enhancing household resilience through new livelihood measures and recognizing ecosystem services that benefit climate and conservation. While diversity benefits conservation outcomes and local livelihoods, increased landscape-level forestation assists natural and global goals on biodiversity conservation, sustainable development, and climate change mitigation.

Governance of and equity within CFUGs remains stratified by gender and caste (Cedamon et al., 2019; Oli et al., 2016). With out-migration from the middle hills, increased participation of women and elderly in CFUGs is increasing equity. However, many of these remaining members cannot participate in community forestry due to time or physical constraints (Bhawana et al., 2021). Forest regeneration on formerly cultivated land is common in female-headed households, and including these women in the decision-making and financial processes could deliver benefits with more equitable outcomes. Such governance could improve both access and equity across forest types, ensuring sustainable forestry in the future.

13.8 Conclusion

Despite the success of CF in Nepal, the changing political and economic contexts require us to envision the resilience of community forestry and its livelihood outcomes at the landscape level, where private forestry is an integral and increasing component. Integrating community-private forest management at a broader landscape-level could equalize forest supplies and demands, provide opportunities for income generation, and improve equitable governance of and livelihood outcomes from forests. A forested landscape might also decrease dependence on agricultural production in Nepal's middle hills, thus enhancing resilience in the shifting socio-ecological system that integrates sustainable livelihoods with improved biodiversity conservation.

The regeneration of forests on private land provides many beneficial resources traditionally accessed from community forests, and this role has been complementary when CF has faced increased regulatory constraints and collective action challenges at the community level. Timber is already significantly sourced from private forests in Nepal, and there is potential for additional supplies from naturally regenerating forests, notably to fulfil forest resource demands during the post-harvest growth cycle of community forest plantations. Forest restoration could foster new livelihood options and improved ecosystem resilience through diverse species and a range of interventions allowable on private land, such as agroforestry systems, incorporating food production and alternative income sources to improve food access. Integrating private and community forestry systems can provide multiple benefits; however, a shift in perceptions and policy positions would be required to exploit the opportunity.

The case for landscape-level integration of private and community forestry systems challenges conventional sectoral silos and underscores the need for a cross-scalar regime of resource governance. Rather than viewing these systems as parallel or competing, their complementarity should be explicitly recognized in policy frameworks that move beyond fixed land-use categorizations. The ecological logic of integration aligns with resilience thinking, where multifunctional landscapes offer adaptive capacities to both social and environmental shifts. Importantly, this integration creates pathways for rural households to strategically engage with policy complexities—leveraging private forestry's flexibility while benefiting from community forestry's collective governance. A policy shift is necessary to institutionalize this dynamic interdependence, ensuring regulations do not hinder but rather facilitate diversified forest contributions to livelihoods, conservation, and local economies. Adaptive policies that recognize fluid land-use transitions, support cooperative models of private-community forestry interaction, and enable decentralized decision-making will be critical in fostering long-term sustainability and equity in forest governance.

Bibliography

Acharya, G. R., Koirala, P. N., Neupane, L. & Devkota, S. C. (2009). Livelihood option from minor forest produce: the context of non-timber forest product and poverty reduction in mid hills of Nepal. *Journal of Wetlands Ecology*, *2*(1), 57–66.

Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, *24*(3), 347–364.

Amatya, S. M., & Lamsal, P. (2017). Private forests in Nepal: Status and policy analysis. *Journal of Forest and Livelihood*, *15*(1), 120–130.

Bhatta, L. D., Van Oort, B. E. H., Rucevska, I., & Baral, H. (2016). Corrigendum to: Payment for ecosystem services: possible instrument for managing ecosystem services in Nepal. *International Journal of Biodiversity Science Ecosystems Services & Management*, *12*(3), 237.

Bhattarai, B., Beilin, R., & Ford, R. (2015). Gender, agrobiodiversity, and climate change: A study of adaptation Practices in the Nepal Himalayas. *World Development*, *70*, 122–132.

Bhattarai, B., Dhungana, S. P., & Ojha, H. (2007). Poor-focused common forest management: lessons from Leasehold Forestry in Nepal. *Journal of Forest and Livelihood*, *6*(2), 20–29.

Bhawana, K. C., Race, D., Fisher, R., & Jackson, W. (2021). Changing rural livelihoods and forest use transition in the middle hills of Nepal. *Small-Scale Forestry*, *20*(3), 479–501.

Birch, J. C., Thapa, I., Balmford, A., Bradbury, R. B., Brown, C., Butchart, S. H., Gurung, H., Hughes, F. M., Mulligan, M., Pandeya, B., Peh, K. S., Stattersfield, A. J., Walpole, M., & Thomas, D. H. (2014). What benefits do community forests provide, and to whom? A rapid assessment of ecosystem services from a Himalayan forest, Nepal. *Ecosystem Services*, *8*, 118–127.

Bista, R., & Song, C. (2021). Human-wildlife conflict in the community forestry landscape: A case study from two Middle Hill districts of Nepal. *Human Dimensions of Wildlife*, *27*(6), 554–570.

Carter, A. S., & Gilmour, D. A. (1989). Increase in tree cover on private farm land in central Nepal. *Mountain Research and Development*, *9*(4), 381–391.

Cedamon, E., Nuberg, I. & Shrestha, K. (2017). How understanding of rural households' diversity can inform agroforestry and community forestry programs in Nepal. *Australian Forestry*, *80*(3), 153–160.

Cedamon, E., Nuberg, I., Pandit, B. H. & Shrestha, K. K. (2018). Adaptation factors and futures of agroforestry systems in Nepal. *Agroforestry systems*, *92*, 1437–1453.

Cedamon, E. D., Nuberg, I., Mulia, R., Lusiana, B., Subedi, Y. R., & Shrestha, K. K. (2019). Contribution of integrated forest-farm system on household food security in the mid-hills of Nepal: assessment with EnLiFT model. *Australian Forestry*, *82*(sup1), 32–44.

Chapagain, P. S., Ghimire, M., & Shrestha, S. (2019). Status of natural springs in the Melamchi region of the Nepal Himalayas in the context of climate change. *Environment Development and Sustainability*, *21*(1), 263–280.

Chazdon, R. L., Brancalion, P. H. S., Laestadius, L., Bennett-Curry, A., Buckingham, K., Kumar, C., Moll-Rocek, J., Vieira, I. C. G., & Wilson, S. J. (2016). When is a forest a forest? Forest concepts and definitions in the era of forest and landscape restoration. *Ambio*, *45*(5), 538–550.

Chazdon, R. L., Lindenmayer, D., Guariguata, M. R., Crouzeilles, R., Benayas, J. M. R., & Chavero, E. L. (2020). Fostering natural forest regeneration on former agricultural land through economic and policy interventions. *Environmental Research Letters*, *15*(4), 1–18.

Chazdon, R. L., & Uriarte, M. (2016). Natural regeneration in the context of large-scale forest and landscape restoration in the tropics. *Biotropica*, *48*(6), 709–715.
Chidi, C. L., Sulzer, W., & Pradhan, P. K. (2019). Landscape dynamics in the northeast part of Andhikhola watershed, Middle hills of Nepal. *Geographical Journal of Nepal*, *12*(1), 41–56.
Dahal, G. R., Pandit, B. H., & Shah, R. (2020). Abandoned agricultural land and its reutilisation by adoption of agroforestry: A case study from Kaski and Parbat Districts of Nepal. *Journal of Forest and Livelihood*, *19*(1), 1.
Dhungana, N., Silwal, N., & Upadhaya, S. (2020). Rural coping and adaptation strategies for climate change by Himalayan communities in Nepal. *Journal of Mountain Science*, *17*(6), 1462–1474.
Folke, C., Haider, L. J., Lade, S. J., Norström, A. V., & Rocha, J. (2021). Commentary: Resilience and Social-Ecological Systems: A Handful of Frontiers. *Global Environmental Change*, *71*(3), 102400.
Gauli, K. & Hauser, M. (2009). Pro-poor commercial management of non-timber forest products in Nepal's Community forest user groups: Factors for success. *Mountain Research and Development*, *29*(4), 298–307, 210.
Gilani, H. R., Yoshida, T., & Innes, J. L. (2017). A Collaborative Forest Management user group's perceptions and expectations on REDD+ in Nepal. *Forest Policy and Economics*, *80*, 27–33.
Goodrich, C. G., Manjari, M., & Suman, B. (2017). Status of gender, vulnerabilities and adaptation to climate change in the Hindu Kush Himalaya: Impacts and implications for livelihoods, and sustainable mountain development. *ICIMOD Working Paper*, no. 2017/3.
Government of Nepal (GoN). (2019). *Environment Statistics of Nepal*. Central Bureau of Statistics, National Planning Commission, GoN.
GoN. (2021). *National Population and Housing Census 2021 National Report*. National Statistics Office, Office of the Prime Minister and Council of Ministries, GoN.
Holling, C. S., & Gunderson, L. H. (2002). Resilience and adaptive cycles. In L. H. Gunderson & C. S. Holling (Eds.), *Panarchy: Understanding transformations in human and natural systems* (pp. 25–62). Washington DC: Island Press.
Jaquet, S., Kohler, T., & Schwilch, G. (2019). Labour migration in the middle hills of Nepal: Consequences on land management strategies. *Sustainability*, *11*(5), 1–19.
Jaquet, S., Schwilch, G., Hartung-Hofmann, F., Adhikari, A., Sudmeier-Rieux, K., Shrestha, G., Liniger, H. P., & Kohler, T. (2015). Does outmigration lead to land degradation? Labour shortage and land management in a western Nepal watershed. *Applied Geography*, *62*, 157–170.
Joshi, B., & Tiwari, P. C. (2014). Land-use changes and their impact on water resources in Himalaya. In *Environmental deterioration and human health* (pp. 389–399). Springer.
Joshi, R., Shrestha, T. K., Mishra, B., Gautam, J., Maharjan, B., Gosai, K. R., Maraseni, T. and Neupane, B. (2023). Assessment of carbon sequestration in private forests across two different physiographic regions of Nepal: Implications for conservation and climate change mitigation. *Scientifica*, *2023*(1), 6599067.
Kafley, G. P., & Pokharel, K. (2017). Pro-poor leasehold forestry: A community-based tenure regime in Nepal. *Journal of Forest and Livelihood*, *15*(1), 43–56.
Karki, R., Shrestha, K. K., Ojha, H. R., Paudel, N., Khatri, D. B., Nuberg, I., & Adhikary, A. (2018). From forests to food security: Pathways in Nepal's Community Forestry. *Small-Scale Forestry*, *17*(1), 89–104.
Kunwar, R., & Bussmann, R. (2006). Ficus species in Nepal: A review. *Lyonia*, *11*(1), 85–97.
Lamsal, P., Pant, K., & Bhatta, D. (2017). Forest-based micro and small enterprises in Nepal: review of status, constraints, scope and approach effectiveness. *International Forestry Review*, *19*(1), 42–54.

Lewis, S. L., Wheeler, C. E., Mitchard, E. T., & Koch, A. (2019). Regenerate natural forests to store carbon. *Nature*, *568*(7750), 25–28.
McGunnigle, N., Bardsley, D., Nuberg, I., Cedamon, E., & Pandit, B. H. (2023). The succession of farmers' perceptions of transitioning landscapes–A case study of agroforestry in the Middle Hills of Nepal. *Human Ecology*, *51*(4), 699–717.
Mutillod, C., Buisson, É., Mahy, G., Jaunatre, R., Bullock, J. M., Tatin, L., & Dutoit, T. (2024). Ecological restoration and rewilding: Two approaches with complementary goals? *Biological Reviews*, *99*(3), 820–836.
Nepal, P., Khanal, N. R., Zhang, Y., Paudel, B., & Liu, L. (2020). Land use policies in Nepal: An overview. *Land Degradation & Development*, *31*(16), 2203–2212.
Nuberg, I. K., Shrestha, K. K., & Bartlett, A. G. (2019). Pathways to forest wealth in Nepal. *Australian Forestry*, *82*(sup1), 106–120.
Ojha, H. R., Shrestha, K. K., Subedi, Y. R., Shah, R., Nuberg, I., Heyojoo, B., Cedamon, E., Rigg, J., Tamang, S., & Paudel, K. P. (2017). Agricultural land underutilisation in the hills of Nepal: Investigating socio-environmental pathways of change. *Journal of Rural Studies*, *53*, 156–172.
Oldekop, J. A., Sims, K. R., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*(5), 421–428.
Oldekop, J. A., Sims, K. R., Whittingham, M. J., & Agrawal, A. (2018). An upside to globalization: International outmigration drives reforestation in Nepal. *Global Environmental Change*, *52*, 66–74.
Oli, B. N., Treue, T., & Smith-Hall, C. (2016). The relative importance of community forests, government forests, and private forests for household-level incomes in the Middle Hills of Nepal. *Forest Policy and Economics*, *70*, 155–163.
Open Data Nepal. (2024). *Forest user Group National Level Database (up to 2072)*. Accessed 8 May 2024, https://opendatanepal.com/dataset/forest-user-group-national-level-database-upto-2072/resource/1164bafe-a82b-467e-b8f3-0365e55d3a60
Pandey, B., Paudel, G., Timilsina, B., & Bastola, A. P. (2023). Assessment of the role of leasehold forest in livelihood improvement in Gorkha District, Nepal. *International Journal of Agricultural and Applied Sciences*, *4*(1), 120–126.
Pandey, R. (2019). Farmers' perception on agro-ecological implications of climate change in the Middle-Mountains of Nepal: A case of Lumle Village, Kaski. *Environment, Development and Sustainability*, *21*(1), 221–247.
Pandey, R., & Bardsley, D. K. (2015). Social-ecological vulnerability to climate change in the Nepali Himalaya. *Applied Geography*, *64*, 74–86.
Pandit, B., Ojha, H. R., Shrestha, K., Nuberg, I., & Amatya, S. (2014). *Why cannot local communities do forestry business? Analysis of barriers in the value chain of private forestry products in Nepal*. Sixth national Community Forestry Conference.
Pandit, B. H., Nuberg, I., Shrestha, K. K., Cedamon, E., Amatya, S. M., Dhakal, B., & Neupane, R. P. (2019). Impacts of market-oriented agroforestry on farm income and food security: Insights from Kavre and Lamjung districts of Nepal. *Agroforestry Systems*, *93*, 1593–1604.
Paudel, B., Wu, X., Zhang, Y. L., Rai, R., Liu, L. S., Zhang, B. H., Khanal, N. R., Koirala, H. L., & Nepal, P. (2020). Farmland abandonment and its determinants in the different ecological villages of the Koshi river basin, central Himalayas: Synergy of high-resolution remote sensing and social surveys. *Environmental Research*, *188*, 1–18.
Paudyal, K., Baral, H., Bhandari, S. P., & Keenan, R. J. (2018). Design considerations in supporting payments for ecosystem services from community-managed forests in Nepal. *Ecosystem Services*, *30*, 61–72.
Paudyal, K., Baral, H., Lowell, K., & Keenan, R. J. (2017). Ecosystem services from community-based forestry in Nepal: Realising local and global benefits. *Land Use Policy*, *63*, 342–355.

Rai, R., Zhang, Y., Paudel, B., & Khanal, N. R. (2019). Status of farmland abandonment and its determinants in the transboundary Gandaki river basin. *Sustainability*, *11*(19), 5267.

Rai, R. K., Dhakal, A., Khadayat, M. S., & Ranabhat, S. (2017). Is collaborative forest management in Nepal able to provide benefits to distantly located users? *Forest Policy and Economics*, *83*, 156–161.

Schmidt, H., Pandit, B., Kammann, C., & Taylor, P. (2017). Forest gardens for closing the global carbon cycle, *The Biochar Journal 2017*, 48–62.

Sharma, B. P. (2016). Contribution of leasehold forests in reducing income inequality. *Economic Journal of Development Issues*, *17*(1–2), 19–28.

Sharma, S. K., Deml, K., Dangal, S., Rana, E., & Madigan, S. (2015). REDD+ framework with integrated measurement, reporting and verification system for Community Based Forest Management Systems (CBFMS) in Nepal. *Current Opinion in Environmental Sustainability*, *14*, 17–27.

Sharma, L. N., Vetaas, O. R., Chaudhary, R. P. & Maren, I. E. (2014). Pastoral abandonment, shrub proliferation and landscape changes: A case study from Gorkha, Nepal. *Landscape Research*, *39*(1), 53–69.

Shrestha, U. B., Shrestha, B. B. & Shrestha, S. (2010). Biodiversity conservation in community forests of Nepal: Rhetoric and reality. *International Journal of Biodiversity and Conservation*, *2*(5), 98–104.

Shrestha, K., Ojha, H. R., Paudel, G., Paudel, N., & Pain, A. (2017). Reframing community forest governance for food security in Nepal. *Environmental Conservation*, *44*(2), 174–182.

Song, B., Robinson, G. M., & Bardsley, D. K. (2020). Measuring multifunctional agricultural landscapes. *Land*, *9*(8), 260.

Storrs, A., & Storrs, J. (1998). *Trees and Shrubs of Nepal and the Himalayas*. Book Faith India.

Tiwari, S., Karki, R., Paudel, N. S., Chhetri, P., Karki, S., Pandit, B. H., Shrestha, K. K., Baral, S., Banjade, M., Cedamon, E., Nuberg, I., & Ojha, H. (2023). *Cluster Level Forest Management Mechanism. A case of evolution and development in Chautara. Enhancing Livelihood from Improved Forest Management (EnLiFT2)*. Vol. 2023-06. Kathmandu, Nepal.

UN Environment Programme, Convention on Biological Diversity (UN-CBD). (2021). *Nepal - Biodiversity Facts*. UN-CBD.

Theme 4

Climate change


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

14 Restoring systems thinking

Climate risks, autonomous adaptation, and enabling policy in community forestry

Prativa Sapkota, Kumar Darjee, Pragati Sharma, Sital Rijal, and Hemant Ojha

14.1 Introduction

How and to what extent community forestry (CF) adapts to climate change is still an under-explored area of research. The role of CF in providing diverse ecosystem services that support the livelihoods of rural communities is widely acknowledged (Chettri et al., 2021; Paudyal et al., 2017), but studies of the role of community forests in climate change adaptation are limited. One of the reasons for limited research and policy action is the complexity associated with the adaptation of CF, as it involves understanding the manifolds of relationships. More recently, a growing body of research has emerged on multiple aspects of community resilience and CF (Dhungana et al., 2018); few attempts have been made to assess the systemic potential of CF in adaptation.

Community forests are an integral part of people's livelihoods in the Middle Hills of Nepal, and climate change has triggered complex and multifaceted impacts on forest ecosystems and communities dependent on them (Khanal et al., 2019). Studies of various related dimensions have revealed the potential of CF in adaptation, such as the assessment of prospects of food security (Karki et al., 2018; Munang et al., 2013), the well-established institution of CF mediating local-level adaptations (Agrawal & Perrin, 2009; Sapkota et al., 2018), social network improving the overall prospects of adaptation at local communities (Adger, 2003), and the analysis of CF as an adaptive social-ecological system (Sapkota et al., 2019). There's a lack of a more profound analysis of how and to what extent the impacts of climate change on forest ecosystems and forest-dependent livelihoods are addressed. Whenever the linkages between climate change and forests are discussed, they are mainly examined from mitigation prospects, such as carbon market assessment. In the absence of adaptation-focused studies of CF, the vulnerability of forest ecosystems and communities relying on them have received little importance in policies and practices in forest governance and climate adaptation domains.

Emerging research shows that community forest user groups (CFUGs) have been employing a variety of adaptive strategies to address the impact of climate change, from diversifying productivity to promoting climate resilient

DOI: 10.4324/9781032705613-19
This chapter has been made available under a CC BY-NC-ND license.

forest management through planting locally suited species, diversifying forests, and restoring degraded forests (Dhungana et al., 2020; Sapkota et al., 2019). This chapter aims to showcase how Nepal's CF responds to climate impacts/vulnerability by drawing on research evidence and case stories, as well as experiential engagement and insights from authors working on the agenda for over two decades. We explore this linkage by drawing on social-ecological system (SES) thinking, which provides an important framework for understanding complex interactions between CF and climate adaptation. By highlighting adaptive responses evident from different case examples, we aim to provide some insights for decision-makers in identifying the gaps in current approaches and exploring the future directions that may enhance the resilience of the CF system in Nepal. The scope of this chapter is limited to the context of CF as defined in Ojha et al. (in this book), mainly covering the Middle Hills region and drawing on evidence and research since the 2010s when adaptation efforts formally started in Nepal.

We organize this chapter in five sections. In Section 14.2, we define the conceptual underpinning of adaptation in CF, where we unpack the intricacies of multiple co-evolving relationships between forests and communities as a prerequisite to understanding climate adaptation from a system perspective. In Section 14.3, we illustrate the context of vulnerability and the impact of climate change on the forest ecosystems under community management, including how vulnerability is being created/produced at the forest livelihoods interface. In Section 14.4, we showcase various adaptation strategies adopted by CFUGs under changing climatic contexts, including the changing dynamics in people's livelihoods, referring to an example of pastoral communities. We identified different themes to understand current approaches to adaptation (potentially maladaptation too). For instance, one of the themes includes the changing roles of CFUGs in a changing context, where we examine how local institutions and governance structures have shaped adaptation efforts and how the roles of CFUGs have changed through multiple co-evolving changes, including climate change. In Section 14.5, we analyze institutions/governance to explore what changes are required to sustain positive adaptation/livelihood changes (or challenges/maladaptation identified) mentioned above, and we conclude in Section 14.6 by summarizing the implications of the findings for policymakers and identifying some areas for future research.

14.2 Applying the social-ecological systems lens for understanding adaptive responses of CF

CF and climate adaptation have independently received attention among scholars, policymakers, and practitioners as critical aspects of sustainable development. Still, there is limited understanding of how these two are conceptually linked. We use the SES lens to understand the adaptive response of CF. Change is a fundamental aspect of SES and emerges through multiple co-evolving dynamics at different scales (time and space), and this means the

understanding of adaptation is a complex and multifaceted task (Folke et al., 2010; Sapkota et al., 2019). The SES lens helps understand climate risk and adaptation as a complex issue involving multiple interactions and dynamic interrelationships between governance structures, society, and the environment.

Unpacking the nuances of these relationships between society and the environment is a prerequisite to understand the prospects of adaptation under increasing climate risks and changing socio-economic contexts. Moreover, it is essential to acknowledge how these relationships underpin socio-economic inequalities that produce differential vulnerability to climate change (Sapkota et al., 2016). As climate change manifests globally, its impacts are disproportionately felt at the local level (IPCC, 2023), posing threats to local communities, groups, and individuals (Ribot, 2014).

This dimension is particularly critical in Nepali society, where social inequalities and marginalization are deeply rooted and have persisted for a long time despite numerous social and political reforms and policy changes. Furthermore, these inequalities have resulted in differential access to decision-making and inequitable access to benefits from the management of community forests. These disparities ultimately affect the capacity of the community to respond effectively to various drivers of change (Sapkota et al., 2016). We unpack these complexities as a basis for understanding the extent to which Nepal CF adapts to climate change.

Central to understanding these complexities is the dimension of institutions and governance, which shape vulnerability and adaptation to climate change (Agrawal, 2008; Ojha et al., 2016). Studies also reveal that local institutions create differential social and economic opportunities for different individuals and groups based on their caste, ethnicity, gender, and socio-economic status, producing different adaptation choices and options for other groups (Sapkota et al., 2018). While decentralized governance is assumed to allow for more autonomy at the local level (facilitating better integration of local knowledge and priorities), the actual outcomes in terms of adaptation to climate change are not explored well in the context of CF and climate adaptation.

The adaptation of forests and communities relying on them are two separate domains. Still, they are inextricably linked to each other, especially in the context of Nepal's CF. We emphasize the two-way interrelationships between the community and the forest ecosystem from the SES lens. Before returning to systems analysis, we emphasize the need to understand the vulnerability and adaptation of forest ecosystems before understanding the adaptation of communities relying on them. This is because forest ecosystems themselves are sensitive to climate change in various ways, and without first considering their adaptability, a comprehensive understanding of the adaptation of communities reliant on them cannot be gained. Likewise, how knowledge about climate change is created and shared is an essential aspect of adaptation, as local communities residing close to nature possess an intuitive understanding of atmospheric changes over extended periods (Laidler, 2006).

14.3 Contexts of climate change and associated impacts

Despite the broader realization that forest ecosystems are impacted by climate change in many ways, the vulnerability of forests and ecosystems to climate change is one of the least studied areas in Nepal. As impacts of climate change are localized and context-specific and as there are more than 20,000 registered CFUGs across multiple socio-ecological zones, it can be misleading to generalize the effects of climate change in community forests through a small-scale review of evidence. Yet, as most of the forests managed by CFUGs are located in hilly and mountainous regions, we focus our review on these regions, where different studies suggest that mountain ecosystems are particularly vulnerable to climate change. Furthermore, the projection of future risks shows the intensified severity of these impacts in this region (Wester et al., 2019). This means understanding the adaptive potential of CF needs to be grounded in the analysis of prospects of forest ecosystem resilience under changing climatic contexts.

While local people may lack expertise in quantifying the scale of climate change, they exhibit strong knowledge in identifying impacts linked to their livelihood activities. Their awareness of environmental shifts and perceptions of climate change are developed through consistent interactions with their surroundings, including daily weather conditions (Darjee et al., 2022). For instance, a recent study by Darjee et al. (2022) concluded that inhabitants of CFUGs in mountainous areas have observed the disappearance of snow from nearby peaks and reduced water sources in the forest due to rising temperatures. Excessive rainfall, experienced as degradation in potato quality and quantity, has been noted by locals, emphasizing their ability to connect climate shifts with tangible consequences. Other studies also reveal how residents in Middle Hills of Nepal have experienced a myriad of impacts associated with climate change, such as prolonged drought, delayed or complete absence of pre-monsoon rain, increased seedlings mortality after forest plantation, increased incidence of forests and agricultural crop disease and pest infestations, increased occurrence of invasive species, etc. (Sapkota et al., 2019; Dhungana et al., 2018). Local communities reported these impacts based on their lived experience.

Evidence also shows that knowledge of local communities helps trace diverse ecological changes. For instance, Middle Hill residents have observed declining house sparrow and Himalayan bulbul populations as temperatures rise. At the same time, mountainous areas have experienced an increase in the density of these birds, leading to significant invasions affecting crops such as wheat, barley, and mustard (Darjee et al., 2022). This shift in fauna distribution serves as compelling evidence of the impact of temperature rise, particularly notable in mountain regions (Darjee et al., 2022; Shrestha & Aryal, 2011; Shrestha et al., 2019; Tiwari et al., 2010). This implies that CFUGs have a rich understanding of their local environment, enabling them to detect and comprehend climatic issues within their specific context.

These examples help us understand how climate change is profoundly impacting the livelihoods of forest-dependent people. However, these impacts are not as simple and requires unpacking complex relationships between livelihood dynamics, forests, and existing governance structures. For instance, the increasing trend of out-migration from rural areas in Nepal can be linked to various climate risks, such as reduced agricultural productivity, increased water scarcity leading to increased workload, and increased incidences of floods and landslides, which are driving factors in out-migration and the search for better alternatives (World Bank and International Finance Corporation, 2022).

14.4 Changing forests-people relationships in the context of climate change

Recently, people's relationships within CF are changing, and these dynamics underpin complex and co-evolving changes in the social-ecological system. The increasing trend of out-migration in Nepal is one example of how climate change interacts with other environmental and socio-economic dynamics that affect the overall change in the system. Many studies' insights help us understand how migration has affected existing forest-people relationships, such as changing land use practices (Oldekop et al., 2018) and evolving community engagement in forest management (Bista et al., 2023).

Changing leadership dynamics is another crucial aspect of change, triggered mainly by male out-migration. For instance, many CFUGs have witnessed increasing women leadership in recent times. Male out-migration might be one of the reasons, as some previous studies showed (Giri & Darnhofer, 2010). However, the rising prevalence of women in leadership roles also holds significance within multiple social and environmental changes. For instance, women's involvement in leaf litter, fuelwood collection, and fodder gathering makes them primary forest users and more familiar with local terrain, location of forest fire lines, and fuel loading. Different CFUGs have found these aspects particularly crucial in the early detection and control of forest fires. While looking at policies and conversations with policymakers and government staff implementing policies, there's no acknowledgment of such aspects of fire management in forest governance.

Examples of forest fires are also relevant to understanding this nexus; for instance, reduced human activities in forests (due to declining dependence on forests) have been leading to the accumulation of dry leaves, branches, and grasses, spreading of invasive species serving as fuel for forest fires (Tiwari et al., 2022). Moreover, limited community engagement also implies decreased monitoring of forests (Tiwari et al., 2022), a crucial aspect of early detection of forest fires. Incidences of forest fires in Nepal are linked to climate change. As the mountain's environment becomes warmer, the risk of forest fire emerges as a key concern for climate loss and damage beyond what local communities adapt. Still, these changing dynamics of forest-people relationships have further exaggerated the impacts of fires on ecosystems and people's lives,

significantly when the intensity and scale of fires are increasing under the warming climate and perhaps more windy conditions.

Another critical aspect of co-evolving change is that not everyone is affected by these changes in similar ways. The literature widely cites migration as an attribute of adaptive capacity but looking at migration patterns and how migration intersects with existing socio-economic disparities in complex ways, it helps to recognize the limited prospects of migration as an adaptation option for marginalized groups (Sapkota et al., 2016). For instance, individuals with access to education have more opportunities to migrate to urban centers or abroad. Still, marginalized groups may have limited access to such opportunities due to a lack of migration resources or networks. Even under reduced pressure on forests for multiple reasons, as explained, there are limited prospects for marginalized communities in CFUG. For instance, despite living close to forests, the engagement of these communities in CFUG is weaker than that of other community members, as evidenced by multiple cases, ultimately affecting how climate risks interact with the forest-people relationship. Many of these households do not even have membership in CFUGs, and they quickly go unnoticed in research, policy, and practices. In such a context, the question of why marginalized communities have less or no active participation in CFUG (that may potentially enhance their adaptive capacity) can help unpack underlying causes of vulnerability instead of drawing a misleading narrative of uninterested marginalized groups in CF.

Changing values of the forest have also reshaped forest people relations and the adaptation capacity of CF. For instance, the value of forests is no longer limited to providing forest products for local subsistence livelihood. Still, it has expanded to recognize other values, such as providing fresh water, regulating climate, creating forests for recreation, etc. (Paudyal et al., 2015). This is particularly relevant in peri-urban areas like Nagarjun, Dhulikhel, Panchkhal, etc., where the dependence of people on CF is increasing as opposed to rural and remotely located areas, which in general shows decreasing dependence due to out-migration and changing occupational dynamics. In peri-urban areas, where people's dependence isn't necessarily on forest products, people conserve forests mainly for water source protection. People have felt increasing pressure to safeguard drinking water sources due to increasing drought and water demands from nearby cities. People renew their membership to ensure a regular drinking water supply, even when they don't use fuelwood or fodder. This indicates a more substantial relationship emerging between forests and communities in peri-urban areas in the changing climatic context. Similar dynamics of the forest-people relationship were observed in a few other places, where communities have become more active recently to keep the forest fire incidences under control. After witnessing increased fire incidences with an accumulation of firewood and leaf litter, CFUG members (who were inactive otherwise) started intervening in forest management to control the forest fire.

Managing multiple forest values across scales signals the relevance of complex, adaptive, and multi-scale governance. One example is a collaboration

between upstream and downstream communities in managing forests for water resources. For instance, institutional arrangements for managing water resources would be complex, where coordinated efforts from upstream and downstream communities are required to mitigate conflicting interests. Another example of complex and multi-scale governance induced by climate change is REDD+ implementation in CF, which is based on the recognition of regulation service of forest ecosystems for climate mitigation potential. Consequently, forestry sector governance has been dominated by climate change since the 2010s. At the same time, adaptation hasn't received much attention; hence, there are few or no efforts to reform policies and governance structures that would prioritize the adaptation needs of forest ecosystems and communities dependent on them. Nevertheless, different CFUGs have employed various adaptive strategies to cope with climate risks. In the next section, we will present different adaptation strategies adopted by CFUGs, examining whether or to what extent current approaches to CF management allow the flexibility required to accommodate change to support adaptive actions.

14.5 Autonomous adaptive response from CFUGs

In this section, we return to the question of whether or how CF in Nepal responds to climate change's impacts through different examples. A limited understanding of how different forest management options react to changing climates in Nepal has hindered the integration of climate change into CFUGs' management plans. However, evidence demonstrates different efforts to incorporate climate change into CFUG plans and practices.

14.5.1 Proactive initiatives of CFUGs for climate change adaptation

The escalating climate impacts experienced by local communities have compelled them to proactively engage their cognition and knowledge in local adaptation efforts (Darjee et al., 2023). The effects of climate change are intricately intertwined with various aspects of local livelihoods. Local communities taking proactive measures are informed and driven by resources available to them locally, including indigenous knowledge, available funds, traditional practices, and community networks. As Grothmann and Patt (2005) proposed in the socio-cognitive model of proactive private adaptation to climate change impacts, individuals engage in private adaptation through three cognitive dimensions: risk appraisal, adaptation appraisal, and adaptation intention. They assess threats posed by local environmental conditions, evaluate their ability to adapt based on available resources and skills, and then take action to the best of their abilities. Studies also indicate the limitations of local communities and institutions in adapting to climate risks (Ojha et al., 2022).

In response to climate challenges, communities have implemented various proactive adaptation measures. For example, diversifying species, transitioning to more resilient crops, adjusting farming techniques, and adopting improved

seeds or varieties for annual crops (Darjee et al., 2023). Proactive practices also center on livestock promotion, incorporating strategies such as grass banking, conservation stocking, and introducing yearling cattle and other livestock varieties to enhance resilience (Roche, 2016). These empirical examples of proactive adaptation by CFUGs demonstrate that local communities observe climate change and its impacts and take action against it based on their available self-efficacy. Empirical and analogical analyses essentially inform the acquisition of knowledge and the adaptation processes through which individuals or communities adeptly respond to changing environments over time (Smit et al., 1999). This suggests that local organizations like CFUGs and agricultural groups have demonstrated effectiveness in implementing adaptation activities, as argued by many scholars (Paudel et al., 2013).

Studies conducted across different CFUG cases also demonstrate that CFUGs have proactively identified and implemented different adaptive measures at local levels. For instance, Rajdevi CFUG, Gorkha is promoting diversification of income generation through cash crop cultivation, the establishment of local saving and credit cooperatives for emergency needs, waiving the five-year restriction for new members recognizing the increased risk and vulnerability posed by climate change (Darjee et al., 2021). Similarly, Thuli CFUG, Kavre, is managing forests by dividing the whole forests into smaller blocks (reducing the risks of pests and diseases and potentially spreading of fire), conversion of monoculture pine plantation to diverse forests including locally suited species potentially leading to ecologically resilient forests, constructing rainwater harvest pond in forests, integrating climate change as an important aspect of forest management plan, selecting species suited to local climatic conditions during plantation to mitigate seedling mortality risks (Sapkota et al., 2019). However, current adaptation efforts taken by different CFUGs are constrained by multiple factors such as limited authority and flexibility in accommodating adaptive change, e.g., restrictions on prescribed burning, regulated autonomy in selecting species based on preferences and suitability to local climatic contexts, lack of acknowledgment of differentiated vulnerability, lack of clearly defined roles of stakeholders under the context of change and uncertainty.

14.5.2 Adaptation and livelihood changes

One of the critical dimensions of climate adaptation and CF nexus is livelihood dynamics. For generations, forests in Nepal have provided a safety net for millions of people through multiple forest products and services such as fuelwood, timber, fodder, non-timber forest products, and water source protection. Various social and environmental factors have recently triggered livelihood change in different parts of Nepal, affecting co-evolved forest-people relationships. The previous section on changing forest-people relationships draws on

multiple examples of the social-ecological system's co-evolving dynamics. Based on these examples, it is explicit that climate change has posed complex and multifaceted challenges in the livelihoods of rural and forest-dependent communities. While people's dependence on forests has been reducing recently, climate change and its impacts on farming livelihoods are one of the reasons. But paradoxically, increasing incidences of famine and food insecurity due to climate change have led people to depend more on forests, looking for alternatives.

Adaptation studies informed by livelihood approaches widely acknowledge the potential of forest ecosystems to meet the food security needs of people living near forests (Adhikari et al., 2016; Munang et al., 2013). Agriculture is one of the sectors most affected by climate change, with erratic rainfall patterns, frequent drought, and flash floods causing fertile soil to wash away. These have cumulatively led to declined agricultural productivity, increasing food insecurity. These consequences are more severe in marginalized communities that have limited income options. Community forests have consistently been recognized for their potential to diversify income and increase prospects for food production in myriad ways (Karki et al., 2018). For instance, community forests have always provided essential resources for subsistence farming, such as leaf litter, grass, and fodder. CF has also offered direct food sources such as vegetables, fruits, and mushrooms, providing alternatives during food shortages. The role of CFs in subsistence farming system production has been widely acknowledged, but the food security potential of community forests through direct food production hasn't received as much attention. For instance, wild foods are crucial for the livelihoods of Indigenous communities such as Chepang (Piya et al., 2011), but restrictive policies and institutions of CFUGs control such practices (Box 14.1).

Box 14.1 Case on transhumance pastoralism as adaptive strategy

Pastoral livelihoods are facing multifaceted challenges due to transformative shifts induced by climate change. In this context, transhumance pastoralism (THP) is emerging as one of the adaptive strategies, which involves seasonal movement of livestock considering diverse grazing opportunities in different ecological zones (Gentle & Thwaites, 2016). THP has triggered conflicts between pastoral communities and CFUGs due to lack of clarity in policies that recognize THP as an adaptive strategy for mountain pastoral communities, potentially leading to extinction of such practice. Navigating these challenges induced by climate change and an ambiguous system of landscape governance requires acknowledging the dynamics and complex relationship of communities and ecosystem.

Recognizing THP as an adaptation strategy in policies requires acknowledging spatial and temporal linkages of social-ecological system, while the current forest and landscape governance mechanism doesn't recognize such complexity. Moreover, this is an issue of equity and justice to recognize knowledge and worldview of diverse ethnic communities as the practice of pastoralism underpin indigenous worldviews and practices. But the dominant knowledge system in forests/environmental policies heavily draw on expert-centric knowledge (Sapkota et al. forthcoming) and lacks recognizing and integrating differing worldviews and practices. The policies clearly restrict mobility of pastoral communities, affecting the way different adaptive strategies among pastoral livelihoods are recognized.

14.5.3 Changing roles of CFUGs under changing context

As CFUGs adapt to climate risks, their roles and institutional functioning have also changed. The role of CFUGs has expanded from managing forests to achieving multiple goals. Aspects of CFUGs such as leadership, well-established networks, improved communication, and decision-making have cumulatively improved overall prospects of adaptation (Sapkota et al., 2018). For example, the role played by CFUGs and demonstration of resilience during the time of crisis, such as civil conflict (Karna et al., 2010), earthquakes, and COVID-19 (Gentle et al., 2020), helps to understand the emerging potential of CFUG institutions at the time of change and uncertainty.

Not limited to forest management, local institutions of CFUGs were also helpful in recognizing sectoral issues such as food security, water management, soil conservation, and agroforestry. Understanding these is crucial in ensuring the resilience of the social-ecological system. Examples of Local Adaptation Plans for Action (LAPA) are also relevant to understanding the changing roles of CFUGs under changing contexts. The LAPAs are specifically designed to implement sectoral adaptation plans at the local level. The LAPAs implemented through the existing institutional mechanism of CFUG have been operating more efficiently than those without linkages to CFUG regarding community participation and integration of institutional learning from CF management. As elaborated below, different aspects of CFUGs have been crucial in implementing LAPAs, such as effective local leadership, efficient facilitation, strong social networks, and active communication channels.

Decentralized governance mechanisms of CFUGs have been instrumental in promoting participatory decision-making for implementing local adaptation action plans. These mechanisms have been proven effective in identifying genuine challenges faced by local communities as CFUGs have facilitated greater awareness of climate change and associated impacts on local livelihoods, ensuring that adaptation strategies are tailored to the specific needs of local communities. Moreover, compared to places with no CFUGs, it was

much easier to implement LAPAs in communities associated with CF. CFUGs have also provided an effective platform to facilitate socially valuable learning in other natural resource sectors such as agriculture, water, cumulatively leading to the improved adaptive capacity of local communities to the impacts of climate change. However, the potential of CFUG as a local institution is not fully realized in the context of climate change. For instance, forest fire management is relevant to understanding the ambiguous roles of communities under changing contexts despite the potential (Box 14.2).

Box 14.2 Case on forest management amid increasing frequency and severity of forest fires

Forests ecosystems are increasingly affected by incidence of forest fires (Parajuli et al., 2015; Bhujel et al., 2017), but there's limited studies conducted in Nepal to examine whether these incidences of forest fires were directly linked to climate change. Nevertheless, the studies that observed correlation of forest fire incidence with dry seasons (Bhujel et al., 2022; Thapa et al., 2021) were helpful to understand that these incidences of forest fires are potentially induced or intensified by climate change. Based on a country-wide study, impact of forest fires on forests and people have been observed in many ways (Matin et al., 2017). Some studies show forest fires are less severe in mountains and Middle Hills in comparison to Terai and inner Terai region, but recently Middle Hills districts such as Parbat, Baglung, Gulmi, Pyuthan, Arghakhachi, and Palpa have reported a surge in forest fire incidences. These incidences have caused myriad of impacts on forest ecosystems and people's life including loss of human lives. Moreover, these fires have contributed to carbon emissions, increased air pollution, loss of thousands of houses and cattle sheds (Bhujel et al., 2022).

Despite the severity of forest fires in Nepal, government has demonstrated a passive observer role in managing forest fires, such as waiting for monsoon rain to extinguish fires instead of taking proactive approach that involves identifying fire risks, developing strategies to prevent fires through controlled burning, clearing of fuel load, and building firebreak lines etc. Moreover, there are no clear policies and guidelines that define the role of communities in forest fire management despite having multiple agencies seemingly collaborating in responding to the forest fires. CFUGs do not even have access to the basic firefighting equipment, infrastructure, and trainings. Cumulatively these have put lives of many CFUG members at stake, as they get involved in managing forest fires without proper training and resources.

During recent visits to CFUGs in Middle Hill districts such as Baglung, Chitwan, Nagarjun, Panchkhal, and Dhading, we observed that one of the reasons for getting more active in CFUG activities recently (despite the decreased dependence on forests) is to control forest fires. This shows proactive efforts of CFUGs in managing forest fires. However, amid increasing cases of forest fires through the country, new narratives are emerging such as "communities are deliberately burning their forests" for multiple benefits including getting rid of wildlife such as monkeys (based on conversations with forest officials). These narratives draw on problematic framing of communities (such narratives were common during the 1970s – Himalayan degradation theory), and this may potentially reinforce ethos of centralized forest management.

14.6 Enhancing CFUG adaptive capacity: Critical challenges and insights

Returning to whether or not CF is adapting to climate change, the answer is not straightforward for multiple reasons. First, the impact of climate change on forest ecosystems and livelihoods is complex and context-specific, making understanding adaptation a complex subject. Depending on climate hazards, the system of governance, and adaptive capacity, different communities are affected by climate change in various ways. Similarly, forest ecosystems respond to climate change in diverse ways based on the species, ecological regions, management interventions, etc. However, it is one of the least investigated areas in Nepal's context, limiting how these challenges are addressed via forest policies. Further complexity arises from the impacts transcending sectoral boundaries of water, agriculture, food security, governance, etc., while the current policies and practices addressing environmental change operate in sectoral silos. Climate adaptation policies treat such complexities through simplistic and deterministic approaches. For instance, communities dependent on climate-sensitive sectors such as forests, agriculture, and water resources have been primarily affected. Still, climate adaptation policies and practices do not recognize the complexity inherent in sectoral interconnectedness.

Second, environmental policies and practices dominantly draw on expert-centric knowledge systems that undermine differing worldviews and perspectives. Examples of transhumance pastoralism (THP) and how policies do not recognize it as an adaptive strategy, as well as examples of fire management, where the practice of prescribed burns is prohibited, clearly show how traditional and Indigenous knowledge is undermined in policies. The importance of the plural knowledge system is increasingly recognized as necessary when dealing with uncertainty.

Third, CF draws on the same size-fits-all approach – which raises the question of how CF may address differentiated vulnerabilities. For instance, the importance of forests and ecosystems in climate adaptation is increasingly

highlighted through pragmatic concepts such as ecosystem-based adaptation, which only reinforces the idea that addressing ecosystem vulnerability will automatically reduce the vulnerability of communities reliant on them, overlooking the complexity associated with differential vulnerabilities and institutional resistance that may hinder the adaptation of marginalized sections. Such a uniform approach to CF also implies a lack of consideration of how different ecosystems respond under changing climatic contexts, impeding how climate change is integrated into forest management.

Last but not least, despite having wider recognition of CFUGS as a local institution with the potential for climate change adaptation at the community level, it is not recognized genuinely in policies and practices. The forestry sector in Nepal is currently dominated by climate change mitigation governance, mainly through REDD+, and adaptation prospects for community forests are trivialized. Mitigation primarily draws on top-down approaches to governance for multiple reasons, such as global accountability and technical complexities. While adaptation underpins bottom-up and participatory-driven approaches, there is a mismatch between community forests and adaptation at the local level.

14.7 Conclusion

The impact of climate change on forest ecosystems and livelihoods depending on them is not simple but complex and multifaceted. This chapter explored adaptation responses and prospects for CF by unpacking these relationships through a social-ecological system lens. Findings cannot be generalized as they are mixed observations throughout CFUGs, and CFUGs operate in diverse socio-ecological contexts across diverse geographic regions of Nepal. Yet, acknowledging the complex and dynamic nature of people-environment relationships, we have identified essential insights as to how Nepal's CF adapts to climate risks and what governance and institutional lessons we can learn to enable inclusive adaptation.

Adaptation of CF to climate change is associated with various contextual factors. A growing body of evidence shows that the out-migration of people from rural areas has reduced dependence on forests in most rural contexts. In contrast, in peri-urban areas, pressure on forests has increased. In the rural context, community forests have been left unmanaged and unused. At the same time, active involvement of CFUGs is observed in urban areas, albeit for new objectives such as ecotourism and protecting water recharge points. Such changing relationships between people and forests are, at the same time, adaptation to changing climatic contexts.

CFUGs have adopted different adaptive strategies at the community level, either autonomously or with some efforts in planning, but these efforts are limited. Moreover, CFUG efforts are hindered by multiple factors, both internally and on higher scales. Internally, local elites tend to dominate CFUG decision-making and planning processes. In contrast, the voices and knowledge of women, *Dalits*, and marginalized groups tend to be ignored, resulting in adaptation decisions ignoring the concerns of the latter. External barriers include restrictive regulations

hindering autonomous and planned adaptation, ambiguous policies in defining roles of communities in the changing circumstances, different forms of bureaucratic resistance justified through dominant technocratic knowledge, and a development mindset that ignores differentiated vulnerabilities and adaptive capacity from a systems lens. Despite these, CF as a social-ecological system is adapting to climate change and changing socio-economic contexts, ranging from responding to different climate risks using local knowledge to integrating climate interventions in their operational plans.

Three key lessons are pertinent here. First, the community has a rich source of knowledge and ideas on understanding and responding to climate risks. Still, the internal governance of CFUGs harnesses the potential of collective action and learning. Second, the planned adaptation capacity of CFUGs has been compromised by regulatory factors and development mindsets that emphasize sectoral and local scales, overlooking complex socio-ecological systems. Finally, it is crucial to identify what hinders the autonomous response of local communities to respond to climate adaptation in different contexts and complement that with additional support.

References

Adger, W. N. (2003). Social capital, collective action, and adaptation to climate change. *Economic Geography*, *79*(4), 387–404. https://www.jstor.org/stable/30032945

Adhikari, J., Ojha, H., & Bhattarai, B. (2016). Edible Forest? Rethinking Nepal's Forest Governance in the Era of Food Insecurity. *International Forestry Review*, *September*.

Agrawal, A. (2008). The role of local institutions in adaptation to climate change. *International Forestry Research and Institutions Program (IFRI) Working Paper*.

Agrawal, A., & Perrin, N. (2009). Climate adaptation, local institutions and rural livelihoods. In W. N. Adger, I. Lorenzoni, & K. L. O'Brien (Eds.) *Adapting to climate change: Thresholds, values, governance* (pp. 350–367). Cambridge: Cambridge University Press.

Bhujel, K. B., Maskey-Byanju, R., & Gautam, A. P. (2017). Wildfire dynamics in Nepal from 2000–2016. *Nepal Journal of Environmental Science*, *5*, 1–8.

Bhujel, K. B., Sapkota, R. P., & Khadka, U. R. (2022). Temporal and spatial distribution of forest fires and their environmental and socio-economic implications in Nepal. *Journal of Forest and Livelihood*, *21*(1), 1–13.

Bista, R., Graybill, S., Zhang, Q., Bilsborrow, R. E., & Song, C. (2023). Influence of rural out-migration on household participation in community forest management? Evidence from the Middle Hills of Nepal. *Sustainability*, *15*(3), 2185.

Chettri, N., Aryal, K., Thapa, S., Uddin, K., Kandel, P., & Karki, S. (2021). Contribution of ecosystem services to rural livelihoods in a changing landscape: A case study from the Eastern Himalaya. *Land Use Policy*, *109*, 105643.

Darjee, K. B., Neupane, P. R., & Köhl, M. (2022). Do local perceptions of climate variability and changes correspond to observed climate changes? A comparative study from Nepal as one of the most climate-vulnerable countries. *Weather, Climate, and Society*, *14*(1), 205–222.

Darjee, K. B., Neupane, P. R., & Köhl, M. (2023). Proactive adaptation responses by vulnerable communities to climate change impacts. *Sustainability*, *15*(14), 10952.

Darjee, K. B., Sunam, R. K., Köhl, M., & Neupane, P. R. (2021). Do national policies translate into local actions? Analysing coherence between climate change adaptation policies and implications for local adaptation in Nepal. *Sustainability*, *13*(23), 13115.

Dhungana, N., Silwal, N., Upadhaya, S., Regmi, S. K., & Adhikari, S. (2018). Local people's perception and awareness of climate change: A case study from community forests in Lamjung District, Western Nepal. *Banko Janakari*, *28*(2), 60–71. https://doi.org/10.3126/banko.v28i2.24189

Dhungana, N., Silwal, N., Upadhaya, S., Khadka, C., Regmi, S. K., Joshi, D., & Adhikari, S. (2020). Rural coping and adaptation strategies for climate change by Himalayan communities in Nepal. *Journal of Mountain Science*, *17*(6), 1462–1474.

Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T., & Rockström, J. (2010). Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society*, *15*(4), 1–19.

Gentle, P., & Thwaites, R. (2016). Transhumant pastoralism in the context of socioeconomic and climate change in the mountains of Nepal. *Mountain Research and Development*, *36*(2), 173–182.

Gentle, P., Maraseni, T. N., Paudel, D., Dahal, G. R., Kanel, T., & Pathak, B. (2020). Effectiveness of community forest user groups (CFUGs) in responding to the 2015 earthquakes and COVID-19 in Nepal. *Research in Globalization*, *2*, 100025.

Giri, K., & Darnhofer, I. (2010). Outmigrating men: A window of opportunity for women's participation in community forestry? *Scandinavian Journal of Forest Research*, *25*(sup9), 55–61.

Grothmann, T., & Patt, A. (2005). Adaptive capacity and human cognition: The process of individual adaptation to climate change. *Global Environmental Change*, *15*(3), 199–213.

Intergovernmental Panel on Climate Change (IPCC). (2023). *Summary for Policymakers. Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II, and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.

Karki, R., Shrestha, K. K., Ojha, H., Paudel, N., Khatri, D. B., Nuberg, I., & Adhikary, A. (2018). From forests to food security: Pathways in Nepal's community forestry. *Small-scale Forestry*, *17*, 89–104.

Karna, B. K., Shivakoti, G. P., & Webb, E. L. (2010). Resilience of community forestry under conditions of armed conflict in Nepal. *Environmental Conservation*, *37*(2), 201–209.

Khanal, P., Wagle, B. H., Upadhaya, S., Ghimire, P., & Acharya, S. (2019). Perceived climate change impacts and adaptation strategy of indigenous community (Chepangs) in rural mid-hills of Nepal. *Forestry: Journal of Institute of Forestry, Nepal*, *16*, 48–61.

Laidler, G. J. (2006). Inuit and scientific perspectives on the relationship between sea ice and climate change: The ideal complement? *Climatic Change*, *78*(2–4), 407–444. https://doi.org/10.1007/s10584-006-9064-z

Matin, M. A., Chitale, V. S., Murthy, M. S., Uddin, K., Bajracharya, B., & Pradhan, S. (2017). Understanding forest fire patterns and risk in Nepal using remote sensing, geographic information system and historical fire data. *International Journal of Wildland Fire*, *26*(4), 276–286.

Munang, R., Thiaw, I., Alverson, K., Goumandakoye, M., Mebratu, D., & Liu, J. (2013). Using Ecosystem-Based adaptation actions to tackle food insecurity. *Environment Science and Policy for Sustainable Development*, *55*(1), 29–35. https://doi.org/10.1080/00139157.2013.748395

Ojha, H. R., Ghimire, S., Pain, A., Nightingale, A., Khatri, D. B., & Dhungana, H. (2016). Policy without politics: Technocratic control of climate change adaptation policy making in Nepal. *Climate Policy*, *16*(4), 415–433.

Ojha, H. R., Khatri, D. B., Shrestha, K. K., Adhikari, B., & Pokharel, K. (2022). Investigating institutional limits to climate adaptation: A case study of landslide in the mountains of Nepal. *New Angle: Nepal Journal of Social Science and Public Policy*, *7*(1), 57–78.

Oldekop, J. A., Sims, K. R., Whittingham, M. J., & Agrawal, A. (2018). An upside to globalization: International outmigration drives reforestation in Nepal. *Global Environmental Change*, *52*, 66–74.

Parajuli, A., Chand, D. B., Rayamajhi, B., Khanal, R., Baral, S., Malla, Y., & Poudel, S. (2015). Spatial and temporal distribution of forest fires in Nepal. In *XIV World Forestry Congress, Durban, South Africa* (pp. 7–11).

Paudel, N. S., Ojha, H., Karki, R., & Gurung, N. (2013). Integrating climate change adaptation with local development: Exploring institutional options. *Journal of Forest and Livelihood*, *11*(1), 1–13.

Paudyal, K., Baral, H., Burkhard, B., Bhandari, S. P., & Keenan, R. J. (2015). Participatory assessment and mapping of ecosystem services in a data-poor region: Case study of community-managed forests in central Nepal. *Ecosystem Services*, *13*, 81–92.

Paudyal, K., Baral, H., Lowell, K., & Keenan, R. J. (2017). Ecosystem services from community-based forestry in Nepal: Realising local and global benefits. *Land Use Policy*, *63*, 342–355.

Piya, L., Lal, M. K., & Joshi, N. P. (2011). Forest and food security of indigenous people: A case of Chepangs in Nepal. *Journal of International Development and Cooperation*, *17*(1), 113–135.

Ribot, J. (2014). Cause and response: vulnerability and climate in the Anthropocene. *Journal of Peasant Studies*, *41*(5), 667–705.

Roche, L. M. (2016). Adaptive rangeland decision-making and coping with drought. *Sustainability*, *8*(12), 1334.

Sapkota, P., Keenan, R. J., Paschen, J. A., & Ojha, H. R. (2016). Social production of vulnerability to climate change in the rural middle hills of Nepal. *Journal of Rural Studies*, *48*, 53–64.

Sapkota, P., Keenan, R. J., & Ojha, H. R. (2018). Community institutions, social marginalization and the adaptive capacity: A case study of a community forestry user group in the Nepal Himalayas. *Forest Policy and Economics*, *92*, 55–64.

Sapkota, P., Keenan, R. J., & Ojha, H. R. (2019). Co-evolving dynamics in the social-ecological system of community forestry—prospects for ecosystem-based adaptation in the Middle Hills of Nepal. *Regional Environmental Change*, *19*, 179–192.

Shrestha, A. B., & Aryal, R. (2011). Climate change in Nepal and its impact on Himalayan glaciers. *Regional Environmental Change*, *11*, 65–77.

Shrestha, U. B., Shrestha, A. M., Aryal, S., Shrestha, S., Gautam, M. S., & Ojha, H. (2019). Climate change in Nepal: A comprehensive analysis of instrumental data and people's perceptions. *Climatic Change*, *154*, 315–334. https://doi.org/10.1007/s10584-019-02418-5

Smit, B., Burton, I., Klein, R. J., & Street, R. (1999). The science of adaptation: A framework for assessment. *Mitigation and Adaptation Strategies for Global Change*, *4*, 199–213.

Thapa, S., Chitale, V. S., Pradhan, S., Shakya, B., Sharma, S., Regmi, S., Bajracharya, S., Adhikari, S., & Dangol, G. S. (2021). Forest fire detection and monitoring. In B. Bajracharya, R. B. Thapa, & M. A. Matin (Eds.), *Earth observation science and applications for risk reduction and enhanced resilience in Hindu Kush Himalaya Region: A decade of experience from SERVIR* (pp. 147–167). Cham: Springer.

Tiwari, K. R., Awasthi, K. D., Balla, M. K., & Sitaula, B. K. (2010). Local people's perception on climate change, its impact and adaptation practices in Himalaya to Terai regions of Nepal. UNM Digital Repository, University of New Mexico. https://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=1047&context=nsc_research

Tiwari, S., Paudel, N. S., Sze, J., & Karki, R. (2022). Unravelling the local dynamics of increasing fires in community forests of mid-hills of Nepal. *Journal of Forest and Livelihood*, *21*(1), 60–71.

Wester, P., Mishra, A., Mukherji, A., & Shrestha, A. B. (2019). *The Hindu Kush Himalaya assessment: Mountains, climate change, sustainability and people* (p. 627). Springer Nature.

World Bank & International Finance Corporation (IFC). (2022). Nepal – Country Climate and Development Report. *International Finance Corporation (IFC)*. Retrieved from https://www.ifc.org/en/insights-reports/2022/nepal-country-climate-and-development-report

15 The carbon promise

Climate change mitigation potential of community-managed forestry in Nepal

Eak Rana, Tek Narayan Maraseni, Thakur Bhattarai, and Mohan Poudel

15.1 Introduction

Forests are critical to climate change; they regulate the world's environment, harbor biodiversity, and contribute to the local livelihoods of millions of people worldwide. Forests play a crucial role in regulating the world's climate due to their unique ability to remove atmospheric carbon dioxide (CO_2) at a rate equivalent to one-third of the amount released annually by burning fossil fuels (FAO, 2022, p. vi) and store it as carbon in different pools. Forests are the source of CO_2; however, halting deforestation and maintaining forests could avoid emitting 3.6±2 gigatons of carbon dioxide equivalent ($GtCO_2e$) per year between 2020 and 2050, including about 14% of what is needed up to 2030 to keep planetary warming below 1.5°C, while safeguarding more than half the Earth's terrestrial biodiversity (FAO, 2022). Moreover, restoring degraded forest lands, about 1.5 billion hectares (ha), could cost-effectively capture and store another 0.9–1.5 $GtCO_2e$ per year from the atmosphere between 2020 and 2050.

The global community has placed forestry as a strategy to achieve a 30% solution to keep global warming below 2°C through forest conservation and increase their carbon removal capacity (Da Silva et al., 2018; Lewis et al., 2019). Forests and land use sector have increasingly been recognized as cost-effective climate mitigation strategies (Graham & Movius, 2019; McKinsey & Company, 2013), and this can provide one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2°C (Griscom et al., 2020). Climate mitigation through forestry is increasingly recognized when the world is failing dangerously short of the goals set by the 2015 Paris Agreement on Climate Change (Yin et al., 2023).

The contribution of community-managed forestry to climate change mitigation has also been increasingly recognized worldwide (Aggarwal et al., 2021; Bray & Durán, 2022; Fa et al., 2020; Gilmour, 2016; RRI, 2018; Delma et al., 2024). Community-managed forestry plays a critical role in reducing carbon emissions and enhancing carbon sequestration and storage. Nepal's community-managed forestry, especially Community Forestry (CF), can contribute to climate change mitigation primarily through two pathways. Firstly, the devolution of management responsibility to local forest groups as CF limits the

DOI: 10.4324/9781032705613-20

This chapter has been made available under a CC BY-NC-ND license.

further loss or transformation of forests to other land use systems (avoid deforestation) (Muttaqin et al., 2019; Oldekop et al., 2019). Secondly, restoring degraded forests through activities undertaken by CF enhances carbon removal and storage capacity (Erbaugh et al., 2020; Pandey et al., 2016).

Besides, CF promotes sustainable practices of forest management that can contribute to climate mitigation while meeting forest product needs and supporting forest-dependent livelihoods (Ojha et al., 2009; Paudel et al., 2022). In Nepal, CF is seen as a major contributor to increasing the country's forest cover (FRTC, 2024), enhancing forest ecosystem services (Poudyal et al., 2019), and increasing species diversity and forest attributes (Thani & Kandel, 2021).

Because of such potential, CF has been integrated as a major strategy of several incentive-based carbon mitigation strategies, such as REDD+[1] initiatives in developing countries, including Nepal (Atmadja et al., 2022; REDD IC, 2018). However, there is limited evidence to justify CF as an efficient and effective approach to climate solutions, especially emission reduction and carbon removal. Likewise, there are limited assessments of the existing policy and institutional arrangements concerning enhancing CF's carbon potential, thereby unlocking the financial benefits from REDD+ and other incentive-based carbon initiatives.

In this context, this chapter assesses how and to what extent Nepal's CF can contribute to the global goal of climate change mitigation by evaluating its potential in terms of carbon sequestration outcomes, drawing on several recent reports, research, and project-based lessons from Nepal. The assessment first reviewed the biophysical outcomes of CF in terms of carbon stock status and carbon sequestration (removal) capacity. The chapter then highlighted institutional and policy factors that enable or constrain CF's potential for climate change mitigation.

15.2 Carbon stock in Nepal's CF

Globally, CF represents an area of around 513 million ha containing nearly 38 billion tons of carbon, equivalent to 29 times the annual emissions from all passenger vehicles in the world (Stevens et al., 2014). In the case of Nepal, around 2.35 million ha of natural forests are being managed under this system through over 22,000 community forest user groups (CFUGs) (Pandey & Pokhrel, 2021). CF constitutes around 35% of the country's total forests (6.61 million ha including other wooded land) (DFRS, 2015).

Oli and Shrestha (2009) estimated a total of 890 million tons of carbon stock in Nepal's forests. The total stocks include five carbon pools, including above and below ground (root), leaf litter, shrubs, and soil organic carbon. Their estimation shows that nearly one-fifth (about 183 million tons) of the total carbon stock is contained in community forests. DFRS (2015) estimated a total of 1,054.97 million tons of carbon stock in Nepal's forests, including community forests, indicating an increase in total carbon stock over the years.

Carbon stock status varies across the physiographic regions (DFRS, 2015), forests and vegetation types (Ghimire, 2021; Subedi et al., 2010), and management approaches (Lamsal et al., 2023). As shown in Table 15.1, CF generally

Table 15.1 Carbon stock status in community forests and government-managed forests

S N	*Sources/Authors*	*Carbon measurement regions*	*Per ha Carbon stock (tC) across the management approaches*		*Major forest types and species*	*Carbon pools included in the measurement*	*Physiographic regions*
			Community forestry	*Government managed forests*			
1	Gurung et al. (2015)	*Terai* Arc Landscape (TAL) areas	237	189.16	Tropical forests, including Shorea and mixed forest	Above & below ground, shrubs, leaf litter & soil.	*Terai* and *Siwalik*
2	Mbaabu et al. (2014)	*Kayarkhola* watershed, Chitwan	244	140	Sub-tropical forests with Shorea and mixed	Above & below ground, shrubs, leaf litter & soil	*Terai*
3	Subedi et al. (2022)	*Siwalik* Region	72.32	68.22	Sub-tropical Shorea with Terminalia spps.	Above ground	*Siwalik*

Table 15.2 Study findings of carbon stock increment in community forests

SN	*Sources/ Authors*	*Annual carbon dioxide sequestration (tCO_2)*	*Scale of measurement*	*Included Carbon pools*	*Stock or Increment*
1	ANSAB, ICIMOD & FECOFUN (2012)	9.78 to 12.94 tCO_2/ha	Watershed level CF	Above and below ground, herbs and regeneration, leaf litter, and soil	Annual increment
2	Rana et al. (2008)	5.13 tCO_2/ha	Group Level CF	Above and below ground, herbs and regeneration, and leaf litter	Annual increment
3	Bhattarai et al. (2012)	7.46 tCO_2/ha	Watershed Level CF	Above and below ground, herbs and regeneration, leaf litter, and soil	Annual increment
4	Shrestha et al. (2014)	7.11 tCO_2/ha	Watershed Level CF	Above and below ground, herbs and regeneration, leaf litter, and soil	Annual increment
5	Anup et al. (2018)	5.6 tCO_2/ha	Group level CF	Above and below ground, herbs and regeneration, leaf litter, and soil	Annual increment

contains higher stock than in other management systems, especially the government-managed forests (Gurung et al., 2015; Mbaabu et al., 2014; Subedi et al., 2022).

There is a positive increment of carbon stock within community forests. As shown in Table 15.2, other carbon assessment studies have demonstrated a positive trend of carbon increment within community forests. The increment results from enhanced CO_2 sequestration or carbon removal revived by restoration activities, sustainable harvesting, and avoiding degradation activities, including overgrazing, forest fires, and illegal logging (Rana et al., 2017).

15.3 Institutional and policy context for carbon sequestration in Nepal's CF

Positive outcomes in carbon sequestration from CF are associated with various policy instruments and institutional arrangements. At a broader level, the devolution of forest management rights and responsibilities of local communities through CF has been an effective strategy to reduce deforestation and enhance sustainable management of forest resources, leading to the reduction of carbon emissions and strengthening removal capacity. The participatory decision-making process of forest user groups rejuvenates collective efforts in framing sustainable forest management plans, guiding collective actions to

improve forest conditions and carbon removal (Bluffstone et al., 2015; Hajjar et al., 2021; Pandey et al., 2016). Such inclusive decision-making and planning processes facilitate the implementation of sustainable forest management practices. Besides, the participatory forest management approach enhances mutual trust among forest users, which reduces incidents of illegal logging, overgrazing, and encroachment. These activities ultimately increase forest productivity by reviving the degraded forests, thereby enhancing carbon stock and removal capacity (Bluffstone et al., 2015).

Similarly, Nepal's first National REDD+ strategy (2018) provides institutional recognition of community-managed forests, including CF, in emission reduction and removal (MoFE, 2018). As shown in Table 15.3, the World Bank-funded Emission Reduction (ER) Program, Nepal's first result-based carbon initiative, has placed CF as the major strategy of emission reduction, whereby it is expected to achieve nearly one-third of its total emission reduction target (34.2 million tCO_2e) from community-managed forests (REDD IC, 2018). Likewise, a recently proposed result-based initiative administered by the Lowering Emissions by Accelerating Forest Finance (LEAF) coalition for Nepal's three provinces – Bagmati, Gandaki, and Lumbini, has also conceived CF as a core strategy for achieving its emission reduction target (30 million tCO_2e).

Carbon-focused initiatives such as ICIMOD-led REDD+ piloting and the first result-based ER Program in Nepal's TAL area have encouraged local forest groups to conserve their forests by limiting harvesting quotas and implementing sustainable management activities. For example, Sharma et al. (2017) observed relatively higher carbon stock in REDD+ piloted community forests than in non-project community forests. Several CFUGs involved in REDD+ pilot projects improved their Forest Operation Plan (FOP) with activities for enhancing carbon removal (Maraseni et al., 2014; Rana et al., 2017).

Some of the forest and climate change-related policies and guidelines in Nepal have highlighted CF as a major approach to emission reduction and carbon removal due to the positive outcomes available from early mover REDD+ initiatives (Havukainen et al., 2022; Staddon, 2009). For example, the Forestry Sector Strategy (2016–2025) has stipulated CFUGs as a key institution at the local level for anchoring carbon removal measures. Similarly, Nepal's Second Nationally Determined Contribution (NDC), which was prepared to fulfill the UNFCCC's requirement, has envisioned increasing the coverage of community-managed forests, including CF, to 60% of the country's forest area to achieve the national emissions reduction commitment (GoN, 2022).

Despite such enabling arrangements, there are several policy constraints in capitalizing on CF's emission reduction and carbon removal potential, thereby making profitable carbon initiatives, including REDD+ (Khatri et al., 2022). One of the major constraints is the lack of policy-level coordination among three tiers of government within the forestry sector. Forest carbon rights fall under the jurisdiction of the federal government, while the national forest rights are vested in the provincial government with the implementation

Table 15.3 Lists of result-based carbon initiatives in Nepal

SN	*Carbon initiatives*	*Coverage of forest management approaches*	*Forest area (ha) coverage*	*Status of Carbon credit transaction*	*Financial support or Managing entity or buyer*	*Estimated Emission Reduction*	*Project (Crediting) Period*
1	REDD+ pilot project implementation led by ICIMOD	Only Community Forests	10,266 ha of 105 CF of Nepal's three watersheds (*Charnawati* w/s Dolakha, *Kayarkhola* w/s Chitwan and *Ludikhola* w/s Gorkha)	Non-market, ex-ante (Pilot scale), non-market	NORAD (Donor)	No target set; the average annual per ha CO_2 increment was 9.83 between 2010 and 2013	2010–2013
2	Emission Reduction (ER) Program in coherence to REDD+	Forests under all management regimes (i.e., community-managed, government-managed) except private forests	1.2 million ha across 13 districts of Nepal's TAL area	Market. Transfer-based[2] (i.e., carbon credits are transferred to the donors of the Carbon Fund of the FCPF)	World Bank (managing entity)	Absolute emission reduction target (34.2 million tCO_2e) concerning the reference level (0.895 million tCO_2e/year)	2020–2025 (crediting period for the payment. But the target will be achieved over the 10-year lifespan of the project outcome)
3	Building a Resilient of Churia Region of Nepal (BRCRN)	Forest under all management approaches	The forest (an accounting area) is not specified. However, the project has proposed forest activities.[3]	Non-market.[4] ER is not mandatory, but a target is set to be achieved through a set of forest activities.	Green Climate Fund (GCF) supports projects led by the Ministry of Forests and Environment (MoFE)	Absolute emission reduction target without reference level. The target is 0.574 million tCO2e per year (11.48 million tCO_2e in the 20-year lifespan of project outcomes (Page 49, BRCRN-Project Funding Document)	2020–2026 (Project implementation period is seven years)

(*Continued*)

Table 15.3 (Continued)

SN	*Carbon initiatives*	*Coverage of forest management approaches*	*Forest area (ha) coverage*	*Status of Carbon credit transaction*	*Financial support or Managing entity or buyer*	*Estimated Emission Reduction*	*Project (Crediting) Period*
4	LEAF Coalition-Emission Reduction Program	Forests under all management approaches	3.20 million ha across three Provinces (Bagmati, Gandaki, and Lumbini)	Market. Transfer-based	Coordinated by EMERGENT – a non-profit organization based in the US. Buyers will be corporate agencies or partner countries	A crediting level is calculated based on the average value for five years, 2017–2021; as per the Letter of Intent with EMERGENT (administrative agent), the target is to reduce the emission of 30 million tCO_2e	2022–2026
5	Forests for Prosperity Project (FFPP)	Forests of 50 Local Governments of 20 districts of two provinces (Madhesh and Lumbini Provinces)	112,329 ha (CF and Collaborative Forest)	Non-market (goal is set under the project funded by the grant and loan of the World Bank)	Loan and grant provided by the World Bank to the government of Nepal	The target is to increase sequestration of 17.74 million tCO_2e over 30 years	The project period is July 2020–September 2025

responsibilities of REDD+ supportive forest management activities (GoN, 2019, p. 21). For example, both Nepal's REDD+ governance structure (the National REDD+ Steering Committee – chaired by the Minister of MoFE, and the National REDD+ Coordination Committee – chaired by the secretary of MoFE) as suggested in Nepal's first National REDD+ Strategy do not represent provincial representatives (MoFE, 2018). The strategy has just stipulated the establishment of a REDD+ desk at the provincial forest ministry. However, there is a complete policy and institutional lack to connect the provincial-level REDD+ desk with the federal-level REDD+ institutional structure.

Another issue lies in the multi-level and multi-sectoral nature of governance, presenting a challenge to the outcomes of REDD+ (Cadman & Maraseni, 2012; Cadman et al., 2017). Coordination failures are evident between sectors across various levels, notably among ministries within the country and central and provincial governments (Dahal et al., 2021; Larson et al., 2018). This is probably because REDD+ is included in the Forest Ministry's Policy, Regulation, and Rule (PRR) framework, but is not adequately integrated into the PRR of other sectors/ministries. For example, agroforestry falls under the purview of multiple ministries. Therefore, vertical and horizontal coordination between these ministries and their respective departments is crucial.

Similarly, Nepal's CF are constrained by the lack of permanent land titles and forest land ownership (Dahal et al., 2017). The land tenure and carbon rights are vested in the federal government, which provides the forest groups and local communities with little chance to negotiate the carbon price (GoN, 2022; Paudel & Vedeld, 2015). Additionally, the current regulatory provisions have provided a limited scope to forest groups and Indigenous Peoples' (IPs) representation in the decision-making body of carbon benefit distribution (GoN, 2022, p. 126).

Local communities, especially IPs and other marginalized forest-dependent communities, are frequently framed in international REDD+ discourse as "victims" and "beneficiaries." Their vast knowledge and skills in Traditional Ecological Knowledge are grossly underestimated in Nepal's forestry sector and carbon-related policy documents (Sherpa et al., 2018). For example, the Benefit Sharing Plan (BSP) of the World Bank's ER Program does not consider the contribution of forests under customary practices (MoFE, 2022).

15.4 Opportunities and Challenges for Integrating CF in Carbon Initiatives

Several forest-based carbon initiatives, such as Reducing Emissions from Deforestation and Forest Degradation, and Conservation and Enhancement of Forest Carbon Stocks (REDD+), are implemented globally, including in Nepal (Atmadja et al., 2022; Maraseni et al., 2020) where the majority of the forests are under community management (Fa et al., 2020 Erbaugh et al., 2020). The involvement of community-managed forests is to leverage their institutional and biophysical potential to achieve the mitigation targets.

Nepal is a pioneer in designing institutional and policy arrangements for the REDD+ initiative. Initially, ICIMOD coordinated a pilot-scale carbon initiative in 2009 through CF of Nepal's three watersheds. Nepal initiated a result-based jurisdictional REDD+ in collaboration with the World Bank in 13 districts of the TAL area (FCPF, 2021) (see Table 15.3).

The engagement of CF in those carbon initiatives is primarily substantiated by CF's sustainable forest management practices, which enhance permanence and avoid leakage, leading to the achievement of net carbon removal and environmental integrity (Agrawal & Angelsen, 2009). The participatory decision-making process for the collective goal of forest management operated by legal institutions (e.g., CFUGs) has increased the scope of CF in enhancing carbon removal capacity.

Forest carbon initiatives can potentially fill the "incentive gap" for local communities (Hagen, 2014) at a time when local communities are financially under-benefited from CF (Paudel et al., 2022). CFUGs' engagement in these initiatives offers an opportunity to capitalize on their contribution to the global climate mitigation goal. Besides, CFUGs can enhance their skills in forest carbon monitoring and updating carbon data, which they can apply to formulate better forest management plans (Bluffstone et al., 2015).

Additionally, carbon initiatives through CF can deliver other non-carbon forest goods and services (co-benefits), including biodiversity conservation, water cycle conservation, improved governance, and livelihood support (Joshi et al., 2013; Potts et al., 2013; Sharma et al., 2017). This legitimizes the CF's contribution to achieving other multilateral environmental agreements, including the Convention on Biodiversity Conservation and Sustainable Development Goals. Improvement of forest conditions due to carbon initiatives can enhance forest and social resilience, strengthening adaptive capacity to adverse climate change impacts (Joshi et al., 2013).

Nepal's CF were initially developed to protect and avert the degraded forests and support the subsistence livelihoods of marginalized forest-dependent communities. Hence, the CF governance arrangements cannot address some specific requirements of REDD+ and similar carbon initiatives. Similarly, the revised forestry sector laws and policies have not encouraged CF to align with carbon initiatives except for offering some fundamental provisions.

Despite some financial benefits, the involvement of CFUGs in carbon initiatives increases the additional responsibility of CFUGs (Maraseni et al., 2014). Such result-based initiatives are regulated by the market standards, which CFUGs are required to be eligible for benefits. Findings of some studies of carbon initiatives, especially REDD+ through CF in Nepal and elsewhere, have indicated evolving social and financial risks in forest groups. Maraseni et al. (2014) and Poudel et al. (2017) observed an increased frequency and length of meetings of forest groups who are involved in the REDD+ initiative.

Although several co-benefits (e.g., livelihood, governance, and biodiversity) are integrated into REDD+ goals, carbon remains the primary performance metric for which project developers can receive payments from REDD+ (Ojha

et al., 2019; Turnhout et al., 2017). Carbon-focused initiatives can change existing forest management practices (Aryal et al., 2024) and can negatively affect CF biodiversity (Rana et al., 2017; Reside et al., 2017). Rana et al. (2017) observed that some CFUGs restricted resource use following the REDD+, which desperately prevented some forest-dependent occupational caste groups, such as blacksmiths (in Nepal), from using specific forest product needs (e.g., coal). Failure to compensate local contributions by REDD+ payments can further exacerbate the livelihoods of forest-dependent communities (Collins et al., 2022; Mulder et al., 2021). This suggests a need for equitable sharing of carbon benefits between and within CF with a proper utilization plan of these benefits to stimulate CF's carbon contribution and livelihoods improvement. Besides, pro-decentralization authors see the integration of CF in forest carbon initiatives as a threat that can centralize the current trend of community-oriented forest governance structure (Phelps et al., 2010; Khatri et al., 2018). Retaining carbon rights by the federal government and providing limited opportunities for IPs and local communities to participate and negotiate in the benefit-sharing decision-making process (Forest Development Fund Operation Committee outlined in articles 108 and 109 of the Federal Forest Regulation, 2022) are some examples that signify the intention of the government to recentralize forest governance. Conflicting resource-sharing provisions among government entities and local community can also demotivate CFUGs for long-term engagement in carbon initiatives (Dahal et al., 2021).

The challenge also includes maximizing carbon benefits for Nepal's CF through the current regulatory framework, including the provisions made in Articles 6.2, 6.4, and 6.8 of the Paris Agreement and REDD+ under the UNFCCC (Morita & Matsumoto, 2023). Because of CF, Nepal is among the countries with high forest cover and low deforestation rates. Still, we are not incentivized, as REDD+ is purely based on the performance of emission reduction and carbon removal and does not consider historical contributions.

Additional costs and responsibility pose significant challenges to making REDD+ and similar carbon initiatives profitable to CF. For example, the ongoing result-based initiative of the World Bank's FCPF in Nepal is designed to pay USD 5 per tCO_2e (FCPF, 2021). This value is low compared to even the average price of the voluntary carbon market (7.37 USD per ton of CO_2e) (Donofrio et al., 2021; Ecosystem Marketplace, 2023) and insufficient to cover the costs borne by the CF (Pandit et al., 2017). This informs that CF are economically infeasible for REDD+ at the prevailing carbon price, which hinders Nepal's national commitment to achieve NDCs and net-zero emission targets through community-managed forestry as a major strategy (GoN, 2020).

15.5 Discussion

Available information from emerging research suggests that CF has a high potential for emission reduction and carbon removal. This potential is attributed to the collective efforts of local communities in adopting sustainable

management and executing protection and restoration activities, with a significant degree of tenure security offered by forest legislation. Strong institutional arrangements, social networks, and participatory decision-making practices within CF governance further bolster their efforts of sustainable management, thereby enhancing their contribution to achieving Nepal's national commitment to climate mitigation. CF can harness benefits and generate additional income opportunities from carbon initiatives such as REDD+, for which Nepal has established some institutional and regulatory arrangements.

Despite such potential, local communities, including IPs, have limited opportunities to decide the carbon price and its distribution, primarily due to prevailing state-owned forest land tenure and exclusionary exclusive carbon-related regulatory framework. The lack of institutional coordination among the three tiers of government, meaningful involvement of local communities, and an integrated system of carbon accounting, monitoring, and reporting has further constrained maximizing benefits from such initiatives, which ultimately discourages CF's involvement in the REDD+ initiative. Lack of recognition of CF's contribution to mitigation and coordinated cross-sectoral governance can not only lead to missed opportunities to benefit from carbon initiatives but also failure to achieve Nepal's emission reduction targets set in the second NDC (2020) and long-term strategy for Net Zero Emissions (2021). This finding suggests that the existing forestry sector regulatory provisions under the federal governance structure need to be revisited to revitalize multi-level and interagency government coordination.

Besides, lessons of preliminary carbon initiatives signal that REDD+ and similar carbon initiatives can increase additional costs and time commitment to members of forest groups relative to expected benefits and become ineffective, particularly in small forest groups. The carbon price set (USD 5 per tCO_2e) for ongoing and future REDD+ initiatives (i.e., World Bank's FCPF-funding Emission Reduction Program) is lower than the global average Voluntary Carbon Market (VCM) and is clearly insufficient to cover the costs incurred by local forest groups. While the carbon benefits sharing-related regulatory framework (e.g., Forest Development Fund Operation Committee) is already exclusionary and does not favor forest groups, underrated carbon prices can demotivate forest groups to engage not only in REDD+ but also to pursue their regular, sustainable management activities. This indicates that the existing regulatory structure of carbon benefit distribution is required to be revisited and made inclusive with a scope of involving CFUGs and IPs organization representatives.

In this context, Nepal can explore and adopt self-sustaining carbon projects like Vietnam (Duc et al., 2023). As the first and pioneer country in Asia, Vietnam implements a national payment for forest environmental services (PFES) program and attempts to integrate REDD+ into PFES, drawing on the lessons from the World Bank's Emission Reduction Program. Nepal can also think of devising such a domestic framework whereby the government, in

collaboration with private companies, can develop sustainable financing mechanisms for forest ecosystem services, including carbon.

15.6 Conclusion

Some of the key conclusions are: (i) Available information indicates that CF has a carbon sequestrate potential resulting from sustainable management and restoration activities substantiated by the strong institutional foundation, collective efforts, and participatory decision-making practices; (ii) due to carbon potential, CF is conceived as one of the major strategies in result-based REDD+ and similar forest carbon initiatives in Nepal, however, exclusionary carbon benefit decision-making policy arrangements, absence of carbon-focused institutional and functional coordination, limited carbon monitoring capcity, and inconsistent policies among three tiers of governments of the forestry sector can demotivate local communities from long-term sustainable forest management leading to failure in achieving REDD+ outcomes; (iii) carbon-focused initiatives through CF have demanded additional time and responsibilities with increased costs of forest groups – however, the carbon benefits are not reconciled with the local contribution to forest management; (iv) the contribution of traditional practices of local communities, especially IPs, women, and marginalized groups, are underestimated and not fully recognized by Nepal's forestry sector and carbon-related policy documents (e.g., Forest Development Fund Operation Committee outlined in Forest Regulation, 2022).

Overall, the existing policy provisions within Nepal's forestry sector are inadequate to minimize the risks and optimize opportunities as they were unable to address climate change-related issues associated with CF, IPs, and local communities. Hence, to capitalize on the scope of CF and other community-managed forestry in carbon initiatives with emerging provisions under the Paris Agreement toward achieving multidimensional outcomes (including Nepal's NDCs and Long-term Strategy for Net Zero Emission) may require redefining the roles of CF with explicit policy provisions including land tenure security, recognition of customary forest management practices, inclusive decision-making arrangements, and equitable benefit-sharing among the government, IPs, and local communities.

Notes

1 Reducing Emissions from Deforestation and Forest Degradation, and conservation and enhancement of carbon and sustainable management of forests.
2 A form of result-based finance wherein payment is made to transfer of emission reductions to the buyers (Streck et al., 2017).
3 Activities include 1,300 ha of demonstration plantation of native species, 1,000 ha of riparian plantation, 5,000 ha public land forest, 16,500 ha of private forest plantation, assisted plantation in 15,990 ha community-managed forests) under 11 districts of three provinces stretching over 26 river systems.

4 Non-market payments are made based on the result of emission reduction. However, the emission may remain in the project country and may be used toward achieving that country's NDC.

References

Aggarwal, S., Larson, A., McDermott, C., Katila, P., & Giessen, L. (2021). Tenure reform for better forestry: An unfinished policy agenda. *Forest Policy and Economics*, *123*, 102376. https://doi.org/10.1016/j.forpol.2020.102376

Agrawal, A., & Angelsen, A. (2009). Using community forest management to achieve REDD+ goals. *Realizing REDD+: national strategy and policy options*, *1*, 201–212.

ANSAB, ICIMOD, & FECOFUN. (2012). *A Monitoring Report on Forest Carbon Stocks Changes in REDD Project Sites. REDD+ Pilot Project – Ludikhola, Kayarkhola, and Charnawati*. ANSAB, ICIMOD & FECOFUN.

Anup, K. C., Manandhar, R., Paudel, R., & Ghimire, S. (2018). Increase of forest carbon biomass due to community forestry management in Nepal. *Journal of Forestry Research*, *29*(2), 429–438.

Aryal, K., Maraseni, T., Subedi, B. P., Laudari, H. K., Ghimire, P. L., Khanal, S. C., & Timilsina, R. (2024). REDD+ at risk: Emerging ten questions that REDD+ must answer. *Environmental Science & Policy*, *156*, 103744.

Atmadja, S. S., Duchelle, A. E., De Sy, V., Selviana, V., Komalasari, M., Sills, E. O., & Angelsen, A. (2022). How do REDD+ projects contribute to the goals of the Paris Agreement? *Environmental Research Letters*, *17*(4), 044038.

Bhattarai, T., Skutsch, M., Midmore, D., & Rana, E. B. (2012). The carbon sequestration potential of community-based forest management in Nepal. *International Journal of Climate Change*, *3*(2), 233–254.

Bluffstone, R., Somanathan, E., Jha, P., Luintel, H., Bista, R., Toman, M., Paudel, N. S., & Adhikari, B. (2015). Collective action and carbon sequestration in Nepal. *Journal of Forest and Livelihood*, *13*(1), 1–7.

Bray, D. B., & Durán, E. (2022). Mexican community forestry as a global model for biodiversity conservation and climate change adaptation and mitigation. In *Routledge handbook of community forestry* Edited by J. Bulkan, J. Palmer, A. M. Larson and M. Hobley, pp. 493–506. London and NewYork: Routledge.

Cadman, T., & Maraseni, T. (2012). The governance of REDD+: An institutional analysis in the Asia Pacific region and beyond. *Journal of Environmental Planning and Management*, *55*(5), 617–635.

Cadman, T., Maraseni, T., Ma, H. O., & Lopez-Casero, F. (2017). Five years of REDD+ governance: The use of market mechanisms as a response to anthropogenic climate change. *Forest Policy and Economics*, *79*, 8–16.

Collins, A. C., Grote, M. N., Caro, T., Ghosh, A., Thorne, J., Salerno, J., & Mulder, M. B. (2022). How community forest management performs when REDD+ payments fail. *Environmental Research Letters*, *17*(3), 034019.

Da Silva, J. G., Steiner, A., & Solheim, E. (2018). *Forests: A natural solution to climate change, crucial for a sustainable future*. UN-REDD Programme, 3.

Dahal, B., Joshi, R., Poudel, B., & Panta, M. (2021). Community Forestry Governance in Federal System of Nepal. *Journal of Policy & Governance*, *1*(1), 30–45.

Dahal, G. R., Pokharel, B. K., & Pokhrel, P. R. (2017). Why Does Tenure Security Matter in Community Forestry? A critical reflection from Nepal. *Journal of Forest and Livelihood*, *15*(1), 15–26.

Delma, S., Gilmour, D., Ota, L. S., Warner, K., Temphel, K. J., & Herbohn, J. (2024). Carbon stocks and sequestration potential of community forests in Bhutan. *Trees, Forests and People*, *16*, 100530.

DFRS. (2015). State of Nepal's Forests. *Forest Resource Assessment (FRA) Nepal, DFRS*. Kathmandu, Nepal.

Donofrio, S., Maguire, P., Myers, K., Daley, C., & Lin, K. (2021). *Markets in Motion: State of the Voluntary Carbon Markets 2021 – Installment 1*.

Duc, V. T., Truong, S. C., Thanh, L. N., Thu, H. L. T., & Casse, T. (2023). *Integrated Effect of the Payment for Forest Environmental Services (PFES) in Vietnam*. In *IntechOpen eBooks*. https://doi.org/10.5772/intechopen.112900

Ecosystem Marketplace (2023). *State of the Voluntary Carbon Markets 2023*. Washington, DC: Forest Trends Association.

Erbaugh, J. T., Pradhan, N., Adams, J., Oldekop, J. A., Agrawal, A., Brockington, D., Pritchard, R., & Chhatre, A. (2020). Global forest restoration and the importance of prioritizing local communities. *Nature Ecology & Evolution*, *4*(11), 1472–1476.

Fa, J. E., Watson, J. E., Leiper, I., Potapov, P., Evans, T. D., Burgess, N. D., Molnar, Z., Fernandez-Liamazares, A., Duncan, T., Wang, S., Austin, B. J., Jonas, H., Robinson, C., Malmar, P., Zander, K.K., Jackson, M.V., Ellis, E., Brondizio, E. S., & Garnett, S. T. (2020). Importance of Indigenous Peoples' lands for the conservation of Intact Forest Landscapes. *Frontiers in Ecology and the Environment*, *18*(3), 135–140.

FAO. (2022). *The State of the World's Forests 2022. Forest pathways for green recovery and building inclusive, resilient, and sustainable economies*. Rome, FAO. https://doi.org/10.4060/cb9360en, and sustainable economies. Rome, FAO. https://doi.org/10.4060/cb9360en

FCPF. (2021). *Emission Reduction Payment Agreement – People and Forests – A Sustainable Forest Management-Based Emission Reduction Program in the Terai Arc Landscape, Nepal*. https://www.forestcarbonpartnership.org/country/nepal

FRTC. (2024). *National Land Cover Monitoring System of Nepal, 2020–2022*. Forest Research and Training Centre (FRTC). Babarmahal, Kathmandu, Nepal.

Ghimire, P. (2021). Carbon storage dynamics of different forest types in central, Nepal. *Indian Journal of Ecology*, *48*(1), 196–203.

Gilmour, D. (2016). Forty years of community-based forestry: A review of its extent and effectiveness. *FAO forestry paper*, (176).

GoN. (2019). *The Forest Act 2019 (2076 BS)*. Government of Nepal, Kathmandu, Nepal.

GoN. (2020). Second Nationally Determined Contribution (NDC). GoN. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20Second/Second%20Nationally%20Determined%20Contribution%20%28NDC%29%20-%202020.pdf

GoN. (2022). *Forest Regulation, 2022 (2079 BS)*. The Government of Nepal, Ministry of Forests and Environment. Kathmandu, Nepal.

Graham, P., & Movius, D. (2019). International Mitigation Partnerships for Forests-An Architecture of Cooperative Approaches Under Article 6 of the Paris Agreement. https://forestdeclaration.org/wp-content/uploads/2021/10/International-Mitigation-Partnerships-for-Forests-Goals-7-9.pdf

Griscom, B. W., Busch, J., Cook-Patton, S. C., Ellis, P. W., Funk, J., Leavitt, S. M., Lomax G., Turner, W. R., Chapman, M., Engelmann, J., Gurwick, N. P., Landis, E., Lawrence, D., Malhi, Y., Murray, L.S., Navarrete, D., Roe, S., Scull, S., Smith, P., … Worthington, T. (2020). National mitigation potential from natural climate solutions in the tropics. *Philosophical Transactions of the Royal Society B*, *375*(1794), 20190126.

Gurung, M. B., Bigsby, H., Cullen, R., & Manandhar, U. (2015). Estimation of carbon stock under different management regimes of tropical forests in the Terai Arc Landscape, Nepal. *Forest Ecology and Management*, *365*, 144–152.

Hagen, R. (2014). *Lessons learned from community forestry and their relevance for REDD+. Report prepared for USAID*. Forest Carbon, Markets and Communities (FCMC) Program, Arlington, VA. Available at: www.fcmcglobal.org

Hajjar, R., Oldekop, J. A., Cronkleton, P., Newton, P., Russell, A. J., & Zhou, W. (2021). A global analysis of the social and environmental outcomes of community forests. *Nature Sustainability*, *4*(3), 216–224.

Havukainen, M., Mikkilä, M., & Kahiluoto, H. (2022). Climate policy reform in Nepal through the lenses of the institutional analysis and development framework. *Sustainability*, *14*(12), 7391.

Joshi, L., Karky, B. S., Poudel, K. C., Bhattarai, K., Dangi, R., Acharya, K., Uprety, B., Singh, V., Chand, N., & Manandhar, U. (2013). Co-benefits of REDD+ in community-managed forests in Nepal. *Journal of Forest and Livelihood*, *11*(2), 65–68.

Khatri, D., Maskey, G., & Adhikari, B. (2018). REDD+ and Community Forestry in Nepal: Strengthening or paralysing decentralised governance? *Journal of Forest and Livelihood*, *16*(1), 35–55.

Khatri, D. B., Nightingale, A. J., Ojha, H., Maskey, G., & Lama 'Tsumpa', P. N. (2022). Multi-scale politics in climate change: The mismatch of authority and capability in federalizing Nepal. *Climate Policy*, *22*(8), 1084–1096.

Lamsal, P., Aryal, K. R., Adhikari, H., Paudel, G., Maharjan, S. K., Khatri, D. J., & Sharma, R. P. (2023). Effects of forest management approach on carbon stock and plant diversity: A case study from Karnali Province, Nepal. *Land*, *12*(6), 1233.

Larson, A. M., Sarmiento Barletti, J. P., Ravikumar, A., & Korhonen-Kurki, K. (2018). Multi-level governance: Some coordination problems cannot be solved through coordination. In *Transforming REDD+: Lessons and New Directions*, edited by A. Angelsen, C. Martius, V. De Sy, A.E. Duchelle, A.M. Larson, and T.T. Pham, pp. 275 (Bogor: Centre for International Forestry Research.

Lewis, S. L., Wheeler, C. E., Mitchard, E. T., & Koch, A. (2019). Restoring natural forests is the best way to remove atmospheric carbon. *Nature*, *568*(7750), 25–28.

Maraseni, T. N., Neupane, P. R., Lopez-Casero, F., & Cadman, T. (2014). An assessment of the impacts of the REDD+ pilot project on community forest user groups (CFUGs) and their community forests in Nepal. *Journal of Environmental Management*, *136*, 37–46.

Maraseni, T. N., Poudyal, B. H., Rana, E., Khanal, S. C., Ghimire, P. L., & Subedi, B. P. (2020). Mapping national REDD+ initiatives in the Asia-Pacific region. *Journal of Environmental Management*, *269*, 110763.

Mbaabu, P. R., Hussin, Y. A., Weir, M., & Gilani, H. (2014). Quantification of carbon stock to understand two different forest management regimes in Kayar Khola watershed, Chitwan, Nepal. *Journal of the Indian Society of Remote Sensing*, *42*, 745–754.

McKinsey & Company (2013). *Pathways to a Low Carbon Economy: Version 2 of the Global Greenhouse Abatement Cost Curve*. https://www.mckinsey.com/capabilities/sustainability-and%20resource-productivity/our-insights/pathways-to-a-low-carbon-economy

MoFE. (2018). *Nepal National REDD+ Strategy (2018–2022)*. MoFE, Government of Nepal.

MoFE. (2022). *Main Report Benefit Sharing Plan of the REDD+ Emission Program Reductions for Terai Arc Landscape Districts. Ministry of Forests and Environment, REDD Implementation Centre*. https://www.redd.gov.np/post/benefit-sharing-plan-of-emission-reduction-program-2022-1

Morita, K., & Matsumoto, K. I. (2023). Challenges and lessons learned for REDD+ finance and its governance. *Carbon Balance and Management*, *18*(1). https://doi.org/10.1186/s13021-023-00228-y

Mulder, M.B., Caro, T., & Ngwali, A. S. (2021). A silver lining to REDD: Institutional growth despite programmatic failure. *Conservation Science and Practice*, *3*(1), e312.

Muttaqin, M. Z., Alviya, I., Lugina, M., & Hamdani, F. A. U. (2019). Developing community-based forest ecosystem service management to reduce emissions from deforestation and forest degradation. *Forest Policy and Economics*, *108*, 101938.

Ojha, H., Persha, L., & Chhatre, A. (2009). Community forestry in Nepal: A policy innovation for local livelihoods. *International Food Policy Research Institute*, *913*, 123–159.

Ojha, H., Maraseni, T., Nightingale, A., & Bhattarai, B. (2019). Rescuing forests from the carbon trap. *Forest Policy and Economics*, *101*, 15–18.

Oldekop, J. A., Sims, K. R. E., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*, 421–428.

Oli, B. N., & Shrestha, K. (2009). Carbon status in forests of Nepal: An overview. *Journal of Forest and Livelihood*, *8*(1), 62–66.

Pandey, S. S., Cockfield, G., & Maraseni, T. N. (2016). Assessing the roles of community forestry in climate change mitigation and adaptation: A case study from Nepal. *Forest Ecology and Management*, *360*, 400–407.

Pandey, H. P., & Pokhrel, N. P. (2021). Formation trend analysis and gender inclusion in community forests of Nepal. *Trees, Forests and People*, *5*, 100106.

Pandit, R., Neupane, P. R., & Wagle, B. H. (2017). Economics of carbon sequestration in community forests: Evidence from REDD+ piloting in Nepal. *Journal of Forest Economics*, *26*, 9–29.

Paudel, N. S., & Vedeld, P. O. (2015). Prospects and challenges of tenure and forest governance reform in the context of REDD+ initiatives in Nepal. *Forest Policy and Economics*, *52*, 1–8.

Paudel, G., Carr, J., & Munro, P. G. (2022). Community forestry in Nepal: A critical review. *International Forestry Review*, *24*(1), 43–58.

Phelps, J., Webb, E. L., & Agrawal, A. (2010). Does REDD+ threaten to recentralize forest governance? *Science*, *328*(5976), 312–313.

Potts, M. D., Kelley, L. C., & Doll, H. M. (2013). Maximizing biodiversity co-benefits under REDD+: A decoupled approach. *Environmental Research Letters*, *8*(2), 024019.

Poudel, M., Rana, E., & Thwaites, R. (2017). REDD+ and community forestry in Nepal. In *Community Forestry in Nepal*, Edited by R. Thwaites, R. Fisher and M. Poudel. (pp. 147–170). New York: Routledge.

Poudyal, B. H., Maraseni, T., & Cockfield, G. (2019). Impacts of forest management on tree species richness and composition: Assessment of forest management regimes in Tarai landscape Nepal. *Applied Geography*, *111*, 102078.

Rana, E. B., Shrestha, H. L., & Silwal, R. (2008). Participatory carbon estimation in community forest: Methodologies and learnings. *The Initiation*, *2*(1), 91–98.

Rana, E., Thwaites, R., & Luck, G. (2017). Trade-offs and synergies between carbon, forest diversity and forest products in Nepal community forests. *Environmental Conservation*, *44*(1), 5–13.

REDD IC. (2018). *Emission Reduction Program Document. People and Forests- A Sustainable Forest Management-Based Emission Reduction Program in the Terai Arc Landscape*, *Nepal*.

Reside, A. E., VanDerWal, J., & Moran, C. (2017). Trade-offs in carbon storage and biodiversity conservation under climate change reveal risks to endemic species. *Biological Conservation*, *207*, 9–16.

RRI. (2018). *A Global baseline of carbon storage in collective lands: Indigenous and local community contributions to climate change mitigation*. Rights and Resources Initiatiave (RRI).

Sharma, B. P., Shyamsundar, P., Nepal, M., Pattanayak, S. K., & Karky, B. S. (2017). Costs, co-benefits, and community responses to REDD+ a case study from Nepal. *Ecology and Society*, *22*(2). https://doi.org/10.5751/es-09370-220234

Sherpa, P. D., Rai, T. B., & Dawson, N. (2018). Indigenous Peoples' Engagement in REDD+ Process: Opportunities and Challenges in Nepal. *REDD+ in Nepal: Experiences from the REDD Readiness Phase. Edited by* S. Dhungana, S. M. Poudel, and T. S. Bhandari 70. REDD Implementation Centre, Ministry of Forests and Environment, Government of Nepal.

Shrestha, S., Karky, B. S., & Karki, S. (2014). Case study report: REDD+ pilot project in community forests in three watersheds of Nepal. *Forests*, *5*(10), 2425–2439.

Staddon, S. (2009). Carbon financing and community forestry: A review of the questions, challenges and the case of Nepal. *Journal of Forest and Livelihood*, *8*(1), 25–32.

Stevens, C., Winterbottom, R., Springer, J., & Reytar, K. (2014). *Securing rights, Combating Climate change: How Strengthening Community Forest Rights Mitigates Climate Change*. World Resources Institute. https://www.wri.org/research/securing-rights-combating-climate-change

Streck, C., Howard, A., Rajão, R., Dahl-Jorgensen, A., Bodnar, P., Lesnick, M., & Torii, N. (2017). *Options for enhancing REDD+ collaboration in the context of Article 6 of the Paris Agreement*. Meridian Institute.

Subedi, B. P., Pandey, S. S., Pandey, A., Rana, E. B., Bhattarai, S., Banskota, T. R., Charmakar, S., & Tamrakar, R. (2010). *Forest carbon stock measurement: guidelines for measuring carbon stocks in community-managed forests*. Kathmandu: ANSAB, FECOFUN, ICIMOD, NORAD. https://ansab.org.np/publication/guidelines-for-measuring-carbon-stocks-in-community-managed-forests/

Subedi, B., Lamichhane, P., Magar, L. K., & Subedi, T. (2022). Aboveground carbon stocks and sequestration rates of forests under different management regimes in the Churia region of Nepal. *Banko Janakari*, *32*(1), 15–24.

Thani, P. R., & Kandel, P. (2021). Species richness in community forestry and exploration of the relationship among area, flora, and fauna. *Research Journal of Agriculture and Forestry Sciences, ISSN*, *2320*, 6063.

Turnhout, E., Gupta, A., Weatherley-Singh, J., Vijge, M. J., De Koning, J., Visseren-Hamakers, I. J., Herold, M., & Lederer, M. (2017). Envisioning REDD+ in a post-Paris era: Between evolving expectations and current practice. *Wiley Interdisciplinary Reviews Climate Change*, *8*(1). https://doi.org/10.1002/wcc.425

Yin, C., Pereira, P., Zhao, W., & Barcelo, D. (2023). Natural climate solutions. The way forward. *Geography and Sustainability*, *4*(2), 179–182. https://doi.org/10.1016/j.geosus.2023.03.005

Theme 5

Livelihoods, gender, and equity


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

16 Beyond natural capital

Leveraging community forestry for livelihoods and local economies

Kishor Aryal

16.1 Introduction

Forests are a crucial part of global ecosystems, and they have played a vital role in sustaining critical ecosystem services and the socio-economic development of many forest-dependent communities (Acharya et al., 2020; Aerts & Honnay, 2011). Forest resources support various provisioning (i.e., food and fiber) and non-provisioning (carbon and climate regulation, biodiversity, and water regulations) ecosystem services, which are fundamental for livelihood support, rural economy, and social well-being (Aryal et al., 2022b, 2023b; Ojha et al., 2022; Pandey et al., 2023). However, the continuity of those services depends on the strong linkages between forests and forest-dependent communities. For example, excessive resource extraction and human interventions might deplete the forest resources, impacting livelihood (Arrow et al., 2004; López-Carr, 2021). On the other hand, sustainable management and conservation of forest resources could be the most stable and reliable source of livelihood and rural income (Brown, 2021; Nerfa et al., 2020). In this regard, Nepal's community forestry (CF) has been popularly acknowledged as a solid institutional foundation to link forests and livelihood.

Since the inception of the CF program in Nepal in the late 1970s, there has been substantial growth in the area of forests managed by community forest users' groups (CFUGs) (Laudari et al., 2022, 2019). Over 22,000 CFUGs have been involved in managing more than one-third of the total forest area of Nepal, directly benefiting about half of the total population of Nepal (Aryal et al., 2019; Laudari et al., 2024). It has been widely recognized that CF has been instrumental in halting deforestation, helping to solve ecological crises, and reversing the so-called Himalayan degradation (Guthman, 1997; Laudari et al., 2019). Similarly, the livelihood contribution of CF cannot be ignored, although the documentation of CF's livelihood contribution is limited, especially at the individual household level. As a mountainous country with a higher proportion of the population living in rural and remote areas of Nepal, CF has been instrumental in institutionalizing conservation, management, and sustainable use of forest products to support rural livelihood, community development, and human well-being (Acharya, 2002; Maraseni et al., 2019).

DOI: 10.4324/9781032705613-22
This chapter has been made available under a CC BY-NC-ND license.

Yet, there are some concerns about the limitation of CF in building financial capital and overall livelihood outcomes, especially for marginalized and disadvantaged groups of people and communities. The spectrum and understanding of livelihood and economy might differ from place to place (urban and rural setting); nevertheless, CF has been a primary measure of providing various direct (food, fodder, fuelwood, construction material, medicines, and others) and indirect (soil fertility, erosion control, water regulation, windbreaks, and other) livelihood benefits to a significant proportion of the population (Aryal et al., 2019).

Assessment of livelihood impacts in the context of CF is crucial, not only to understand how CF initiatives contribute to economic stability and well-being of the communities but also to scrutinize biophysical outcomes and environmental sustainability (Laudari et al., 2024; Shahi et al., 2022). Livelihoods encompass resource access, social equity, and ecological integrity, forming a foundation for sustainable development and human well-being (Ekanayake et al., 2022; Ojha et al., 2022). Evaluation of the roles of CF and its impact on various livelihood assets can lead to a better understanding of the diverse benefits, challenges, and gaps in the linkages of forests and livelihoods, especially for forest-dependent communities.

Sustainable development and human well-being rest on five essential livelihood capital assets—human, social, financial, built, and natural (Costanza et al., 2021; Fang et al., 2014; Bijaya et al., 2016). The characteristics of those livelihood assets are not always uniform across places and communities. Yet, those assets cannot be capitalized without effective community institutions and management regimes (Costanza et al., 2021; Kaskoyo et al., 2017). In this context, CF can be a global showcase for institutionalizing harmony through the functional relationship between forests and people by improving livelihoods. Although few studies have been done on the livelihood aspects of CF at the local level (Adhikari et al., 2024; Devkota et al., 2017a; Thwaites et al., 2017), there is a research gap in the broader national-level overview of the livelihood outcomes of CF. Against this backdrop, this chapter discusses the livelihood outcomes of CF in Nepal and its prospects and challenges. Specifically, the conceptual framework of sustainable livelihoods and CF that follows this Introduction section. After that, we shed light on various livelihood outcomes and discuss potential pathways and challenges of CF to form a basis for overall economic growth and well-being. This chapter is expected to help policymakers and academia to accelerate sustainable development through local forestry practices.

16.2 Community forestry and sustainable livelihoods

CF programs in Nepal were initially designed to reverse the threats of ecological crisis and Himalayan degradation in the late 20th century (Ojha et al., 2009; Spielman and Pandya-Lorch, 2010). However, the program's architecture has

continuously been improvised to meet the emerging needs of local communities while protecting and managing forest resources (Aryal et al., 2022a; Laudari et al., 2024). Along with the changing demographic and socio-economic landscape of Nepali communities due to migration (internal: rural to urban and international) as well as diversification of livelihood opportunities as compared to that of 40 years ago, the CF program has confronted with many challenges to strengthen forest and livelihood linkages (Sapkota et al., 2019; Thwaites et al., 2017). Yet, CF has been considered a promising institutional approach to address the livelihood needs of the communities, especially in the rural areas of the mountains and Himalayas. The concern is understanding how and to what extent CF has successfully built various livelihood capitals thus far and its potential to contribute to the United Nations (UN) Sustainable Development Goals (SDGs) and the countries' and communities' overall economic well-being.

The nexus of CF and livelihoods has been remarkably complemented in pursuing SDGs (Aryal et al., 2019). As SDGs encompass a comprehensive development pathway for achieving social, economic, and environmental goals, CF has also been acclaimed for addressing those components that can be comprehended from the perspective of livelihood capitals. Livelihood is considered an asset or activity, including the accessibility of individuals or communities to it. It establishes a means of living for individuals or communities based on some formal or informal social institutions (Kaskoyo et al., 2017). Livelihood capitals are the means of resources that form a basis for the individuals or communities to navigate their living and social and economic well-being. Broadly, livelihood capitals are categorized into five primary types: human, social, financial, built, and natural, which are not just abstract biophysical or socio-economic assets but also outline the ways by which those assets can be leveraged to create better livelihoods and improve overall well-being (DFID, 1999; Kaskoyo et al., 2017). While human capital denotes individuals' knowledge, skills, and health, social capital embraces various networks, relationships, social values, and norms, enabling multiple pathways to livelihood improvement through individuals and cooperation among community members (Pretty, 2003).

Similarly, financial capital constitutes a significant part of economic security by encompassing various financial instruments, such as access to monetary resources, loans and credits, and other income-generating activities (Ekanayake et al., 2022). Built capital refers to technology and services as well as physical infrastructure, and natural capital includes other natural biophysical resources that communities can rely on to ensure sustenance and enhance economic activities and overall quality of life (Costanza et al., 1997; Bijaya et al., 2016). In this context, based on a comprehensive literature review and participant observations, this chapter aims to analyze the impact of CF on sustainable livelihoods through its contribution to various measurable indicators of SDGs.

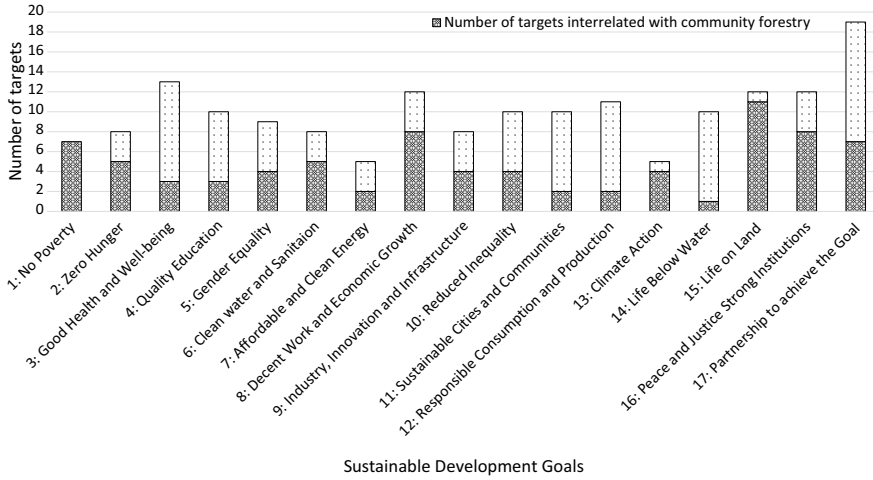

Figure 16.1 Number of SDG targets that are interrelated with and contributed by CF in Nepal.

Source: Aryal et al., 2019.

16.3 Livelihood outcomes of Nepal's CF

CF in Nepal has been acknowledged for supporting multiple dimensions of society, including social, economic, ecological, and institutional aspects of livelihood and development. For example, a study found that CF in Nepal contributes to all 17 goals and 80 targets of SDGs (Figure 16.1), with various scales of the institutional interface (i.e., 29 core, 38 complementary, and 13 supplementary contributions). In this regard, the livelihood outcome of CF is widespread and holistic. The specific contributions of CF to various livelihood capital assets are described in the following subsections.

16.3.1 Human capital

Capacity building, skill development, and knowledge empowerment are among the core components of CF, through which individuals within the community are empowered to access various means of livelihood through the learning-by-doing approach (Chapagain and Banjade, 2009; Devkota et al., 2017b; Bijaya et al., 2016). For instance, the CF of Nepal has been contributing to building knowledge and capacity as required by SDGs (SDG 1.5, SDG 2.3, SDG 2.4, SDG 2.5, SDG 4.7, SDG 13.3, SDG 13. B, and SDG 17.9) (Aryal et al., 2019), promotion and empowerment of indigenous and community knowledge, and achieving sustainability outcomes based on the existing knowledge base (Dahal and Cao, 2017; Laudari et al., 2024, 2022; Pandit and Bevilacqua, 2011). Because about 2.9 million households are engaged in CF in Nepal, the contribution of CF in building human capital would substantially impact the uplifting of both the local and national human capital standards.

Awareness campaigns, training, workshops, demonstrations, and exposure visits for CFUG members organized by the government (i.e., Division Forest Offices or Training Centres) and non-government organizations are among the key interventions for building human capital in CF (Maraseni et al., 2019; Spielman and Pandya-Lorch, 2010). Besides, a series of formal and information discussions, preparation of CF regulatory documents (i.e., constitution and operation plan [OP]), and periodic reporting and monitoring of CFUGs' activities are crucial in strengthening human capital at the local level. As an autonomous organization, some individuals within the CFUGs are obliged to take responsibility for leading the group and mobilizing the organization, by which the individuals are empowered and hence could build human capital through CF (Thapa et al., 2020; Yadav et al., 2015). Policy provision of inclusive executive committees of CFUGs has been instrumental in empowering women and marginalized individuals in CF. Investment of CF in community development activities such as health and education has also successfully supported human assets. Besides the knowledge of forest management and silvicultural operation skills (Awasthi et al., 2020), occasional programs about health, education, and sports might be crucial in helping human assets.

Although CF has significantly contributed to building human capital, it has not been free from challenges. For instance, the program structure of capacity building and training has not been changed, but information and technological development is at a considerable momentum of change (Baynes et al., 2015a; Sapkota et al., 2020). Besides, the current practices of capacity building and empowerment activities are yet to synchronize with socio-economic changes, population structure, rural-urban linkages, and youth engagement in the forestry sector (Brown, 2021; Fox, 2018). Further, elite capture and concentration of the empowerment activities to the communities' cream layer (upper layer of community groups) are persistent in the CF (Kimengsi and Bhusal, 2022; Persha and Andersson, 2014). Increasing investment in the community health and education sector is necessary to address the emerging challenges of human capital formation.

16.3.2 Social capital

Social capital is crucial for meaningful participation and collective action to share resources and information through building social bonds and networks to enhance livelihood opportunities, such as education and employment (Pretty, 2003). CF has become a formidable social movement comprised of over 22,000 CFUGs. Their district-, provincial- and federal-level networks and strong connection with (I)NGOs, political parties, and donors have successfully built social capital through CF in Nepal. The drawdown of social capital depends on coordination and cooperation, cultural harmony, trust and social bonding, community membership, and ownership (Bijaya et al., 2016; Gentle et al., 2020; McDougall and Banjade, 2015). The collective action practiced within CF ideally promotes mutual respect among members, consultation with

a wide spectrum of its members, and consensus-based decision-making, participation, and solidarity among users in community development. Social security programs and protection of vulnerable groups, including gender and social inclusion, through inclusive institutional structures and equitable benefit sharing under CF, have been contributing to various social objectives of SDGs (SDG 1.2, SDG 1.3, SDG 1.4, SDG 5.1, SDG 5.5, SDG 10.2, SDG 10.3, SDG 10.4, SDG 16.7, and SDG 16. A) (Aryal et al., 2019). Autonomous local institutions, democratic practices and procedures, multi-disciplinary tasks, inclusive executive committees, and cross-sectoral coordination with other grassroots organizations have significantly contributed to building social capital within CF, which has augmented various livelihood opportunities.

The social capital building process in CF includes CFUG members' identification and negotiation with the different community actors, functional participation, inclusive decision-making, economic well-being ranking and identification of vulnerable groups, prioritization of livelihood activities, lateral coordination among other CFUGs and vertical communication with district, provincial and federal alliances, and coordination with various other cross-sectoral institutions working for the community development (Acharya, 2002; Aryal et al., 2022a; Kimengsi and Bhusal, 2022). Active engagement in forest management, community development activities, and benefit-sharing mechanisms have been influential in building trust, mutual understanding, and social bonding (Gentle et al., 2020). CFUGs are among those institutions that have played a central role in local development and maintaining democracy at the local level intact during a decade-long civil war in Nepal from the mid-1990s. By building on the social assets, CFUGs and their networks have influenced forest sector policies.

Having most of the rural population engaged in CF has also eased CFUG members, including women and marginalized groups, to be involved in other organizations such as cooperatives, saving-credit groups, youth clubs, and women's groups for social welfare and development (Kimengsi and Bhusal, 2022; Yadav et al., 2017, 2015). However, a few issues challenge community cohesion within CF. For example, disagreement and division in CFUGs based on their affiliation/inclination with different political parties and using CFUGs as a platform for political interests by local and national level politicians distort the social capital under CFUGs (Aryal et al., 2022a, 2023c). Poor governance, financial irregularities by executive members, elite capture, and the problem of social exclusion still exist in many CFUGs (Khadka, 2009), and these problems need to be fixed to build better social capital in the interest of whole communities.

16.3.3 Financial capital

Access to financial resources, such as income and investment, access to financial services, and provisioning of savings and credits form a crucial aspect of community livelihood. CF has been a breakthrough in many rural communities nationwide for establishing rural revolving funds, enabling needy households to

function in their daily subsistence activities, and starting new small businesses and micro-enterprises. Regarding financial capacity, CF in Nepal has contributed to SDG 1.4, SDG 2.3, SDG 3. C, SDG 5. A, SDG 8.3, SDG 8.10, SDG 9.3, SDG 15. A, SDG 15. B, and SDG 17.1 (Aryal et al., 2019). The engagement of CFUG members, including those from financially challenged groups, in establishing micro-credit schemes and revolving funds has substantially empowered the communities and accelerated the mobilization of local resources for the rural economy (Bijaya et al., 2016; Gentle et al., 2020). Easy access to soft loans and other banking services, training and development activities in financial control and accounting systems, provisioning of leasing lands within CF to pro-poor communities for income-generating activities, and community-based cooperatives have been instrumental in building financial capital.

Financial transactions during forest products harvesting and sales, CFUG members' contributions, fines and penalties, government program budgets, and support from other development organizations must be independently managed by CFUG (Bhandari et al., 2019; Oli et al., 2016). Further, investment and allocation of the annual budget for forest development, community development, and pro-poor development activities, as guided by the approved operational plan and constitution of the CFUGs, have empowered the financial capacity of community members in rural and remote areas of Nepal. Public hearings of the income and expenditure of CFUGs and independent auditing of the account statement have further supported the smooth functioning and regulation of the financial capital from CF (Maraseni et al., 2019). The multiplier effect of that financial transaction in the rural banking sector and micro-enterprises have been the backbone for establishing small-scale enterprises, which have expanded various livelihood opportunities in Nepal's rural and remote areas. Small-scale sawmills and furniture industries, commercial vegetable farming and livestock husbandry, retail shops, and non-timber forest products marketing are popular sectors driving financial capital through CF.

The positive contribution of CF in generating financial assets is immense. Nevertheless, there has been increasing evidence of corruption and financial irregularities in the CFUGs, non-transparent and elite capture in the CFUGs budget, faulty auditing and inefficient public hearing processes, political pressure for a donation from CFUGs funds, and compounding debt trap, which has challenged the built up of financial assets in the communities (Aryal et al., 2022a). Transparent decision-making, financial capacity enhancement of the communities, robust regulatory mechanisms to prevent fraud and corruption, and enabling policies to invest in industries and enterprises must be the future concerns to comprehend financial assets.

16.3.4 Physical capital

CFUGs have invested in various community development activities and infrastructure, such as rural roads and trails, electrification, water supply management, community buildings, school facilities, and other development activities

(Bhandari et al., 2019; Devkota et al., 2017a). Program-based activities from CF to support built capital are supportive in achieving various SDGs (SDG 2. A, SDG 7B, SDG 9.1, SDG 9.3, and SDG 11.1) (Aryal et al., 2019). Community infrastructure development is one of the significant investment areas for CFUGs, and it has also been legally provisioned in Nepal. As a general trend, more than half of the CFUGs' income is invested in built infrastructure locally. In the context of poor delivery of state investment in remote areas, built capital formed through CF has been instrumental in increasing access and exposure of rural communities to the market, creating multi-fold impacts in generating and supporting means of livelihood.

Community development funds in CFUGs come from selling forest products and CFUG members' regular contributions. Availability of good quality forests, frequency of plantation and rehabilitation programs, climatic suitability, activeness of CFUG, and adoption of appropriate silvicultural operations determine CFUGs' income (Khanal and Adhikari, 2018; Pokharel, 2009). Moreover, other socio-demographic factors determine whether the harvested products are consumed within the respective CFUGs or if they are sold to the open market. Built capitals support the local livelihood and economy and connect the rural economy to the urban market economy, opening new livelihood opportunities for the local people. In this regard, built capital from CF has also been considered the vehicle for rural development in Nepal.

Although local infrastructure support by CF has substantially improved basic physical infrastructure and access to health and education, its approach is often criticized. For example, most rural infrastructure is built without proper environmental consideration (i.e., environmental assessment), degrading soil quality and increasing exposure to climate and water-induced hazards (Chalise et al., 2019; Pandit and Bevilacqua, 2011). Unplanned development, lack of coordination among different development agencies, alleged financial irregularities, and biased political influence in decision-making to build infrastructure are the other common issues associated with built assets from CF. Prioritization of local needs, the participatory and inclusive process from design to implementation of built infrastructure, and due consideration of environmental assessment while contributing to physical capital would further sustain the role of CF in capitalizing constructed assets.

16.3.5 Natural capital

Conservation and restoration of forests are the main objectives of CF, which has been crucial in building natural capital through the restoration and management of forests and farmlands, conservation of wetlands and water resources, habitat support and biodiversity conservation, land productivity enhancement, pollution control, and climate regulation (Laudari et al., 2022). CF in Nepal is the driving force to achieve SDG 13 and SDG 15 as well as other SDG targets, such as SDG 2.3, SDG 2.4, SDG 15.2, SDG 2.5, SDG 3.9, SDG 6.3, SDG 6.5, SDG 6.6, and SDG 6. B (Aryal et al., 2019). Community

awareness about the importance of forest resources as natural capital, development of tree plantation as a culture (in many social events, campaigns, and occasions), livelihood dependency on forest products, and integrated efforts from the government sector, development partners, and civil society organizations for forest and landscape restoration have all contributed to building natural capital from CF (Aryal et al., 2023a; Bijaya et al., 2016; Laudari et al., 2019). Because of those continuous efforts, Nepal has successfully reversed the rate of deforestation, restored many wildlife species and habitats, and conserved wetlands and water resources.

In addition, in the absence of solid regulatory influences in rural and remote areas (due to lack of easy access and geographical difficulties), CF has been the only institution that bears both rights and responsibilities of forest protection, management, and use (Baral, 2018; Sapkota et al., 2018). Mandatory legal provision to invest in forest development activities by CFUGs, planned management activities based on the approved operational plan of the forests, requirement of regular reporting of the forest development activities to the government authority, and periodic monitoring and supervision from technicians (government authorities) have been essential measures to build natural capital in the communities. Degraded land rehabilitation (i.e., conservation plantation), grazing control, community mobilization in forest fire control, cleaning and tending operation of forests, and restoration of wildlife habitat are significant activities of CF to build natural capital (Bijaya et al., 2016; Kaskoyo et al., 2017). Natural capital is a critical asset for numerous direct and indirect livelihood support activities, including but not limited to food sources, timber and firewood, fodder and litter, genetic resources, nutrient cycling, erosion control, and land productivity enhancement.

CF has made substantial improvements in building natural capital. Yet, the forest management and conservation approach has been contested in recent years. For example, conventional forest management practice is blamed for being passive and not giving the full potential of the forests. On the other hand, intensive silviculture-based activities are too technical to be operated by CFUGs alone with their existing knowledge and expertise (Aryal et al., 2023c). In this regard, a debate between scientific and sustainable (conventional) forestry is a pressing issue in Nepal's CF (Aryal et al., 2022a). Rather than injecting scientific knowledge into the Indigenous communities, community empowerment by aligning scientific understanding without compromising the Indigenous expertise would contribute to sustaining the unprecedented efforts of CF in building natural capital.

16.4 Persistence and change in CF's contributions to livelihoods

The success of CF in restoring and protecting forestland has been credited to two main reasons. First, it has legalized and institutionalized the traditional practices and customary rights of the community members living near the forests (Laudari et al., 2022). Second, the CF has contributed to conserving

forests and demonstrated a potential for significantly improving local people's livelihoods. With improved forests and, to some extent, adoption of inclusive and equitable benefit-sharing mechanisms in place, CF has ensured access to timber, fuelwood, and fodder, as well as contributed to livelihood support programs (i.e., goat keeping, beekeeping, vegetable farming, agroforestry support, and fruit tree plantation), and facilitated easy access to soft loan, micro-credit, and revolving funds (Adhikari et al., 2018; Baynes et al., 2015b; Birch et al., 2014; Dahal et al., 2017; Lund et al., 2014; Oli et al., 2016; Paudel, 2012). The pattern of livelihood, however, has changed in recent years. Migration from rural areas to urban cities, labor migration, and remittance as the significant source of income in many households, abandonment of farmland, and other various socio-demographic dynamics have changed in recent decades (Brown, 2021; Fox, 2018). Yet, the program approach of CF has remained the same (except for a few procedural changes) all over the country. Due to this, the craze over CF has plummeted, many CFUGs are less functional or in a passive state, and the interest in forest management activities is diminishing.

The legacy and contribution of CF to livelihoods are at stake in how the CF program will be transformed to address society's emerging challenges and needs. Examining the decreasing trends of the population depending on agriculture and (youth) migration, the approach of CF needs transformation toward commercialization and industrialization instead of the existing subsistence-based forest management and utilization system (Chapagain and Banjade, 2009; Khanal and Adhikari, 2018; Pandey et al., 2017; Paudel and Weiss, 2013; Poudel et al., 2014). Because of the increased exposure to regional and national markets, CF should capitalize on its existing institutional strength to boost the potential of social transformation and economic well-being of the current and future generations. CFUG-friendly government policy, especially in harvesting and sales of forest products, facilitative role of state actors rather than hierarchical power and control, youth engagement and development of entrepreneurial capacity of CFUGs, and rural employment-based community development activities should be tied with the CF program to ensure livelihood support and inclusive growth from forestry sector in Nepal.

16.5 Conclusion

CF in Nepal has been playing a crucial role in sustaining the livelihood of half of the country's population through the supply of food, fiber, and other provisioning and non-provisioning ecosystem services. It has contributed toward achieving about half of the total targets of the UN SDGs. Evidence shows that CF contributes to all five important capitals essential for a livelihood—human, social, financial, built, and natural capital. However, the extent of contribution varies across capitals and categories of benefiting households. Besides, CF is not just a resource management approach but an institutional innovation in the forestry sector of Nepal by which individuals, as well as the whole community, participate in the process of building diverse livelihoods capitals—capacity

building and skill development, social learning, trust and social bonding, organizational network and coordinated efforts, and collective actions to achieve the common goals of conservation and development.

Our analysis shows that CF has achieved more in building natural capital (restoration of forest cover) than creating incomes and employment for user households (financial capital). Yet, it has been a key vehicle for building social and physical capital for people across the country. It has shown to be a promising approach for recovering and restoring natural capital to sustain primary life forms and contribute to the built infrastructure and financial services to ease the livelihoods of forest-dependent people, especially in Nepal's rural and remote areas. However, overall livelihood outcomes are far less than the potential. This is partly because CF is still seen as a means to restore forests, with regulatory restrictions on converting natural capital into financial or economic capital. Moreover, the existing framework of the program has not been very effective in addressing the changing demographic dynamics and emerging socio-economic drivers of communities. In this regard, a broad-based economic development framework, clarity in policy regimes, and specification of management modalities depending on the peculiar context seem to be an immediate need to leverage the potential of this robust institutional development to support the livelihood of forest-dependent communities and achieve SDGs. By addressing the remaining policy hurdles and governance problems, CF can be a role model for local institutions for global communities to drive inclusive growth and economic well-being.

References

Acharya, K.P., 2002. Twenty-four years of community forestry in Nepal. *International Forestry Review*, *4*, 149–156. https://doi.org/10.1505/IFOR.4.2.149.17447

Acharya, R.P., Maraseni, T., Cockfield, G., 2020. Assessing the financial contribution and carbon emission pattern of provisioning ecosystem services in Siwalik forests in Nepal: Valuation from the perspectives of disaggregated users. *Land Use Policy 95*, 104647. https://doi.org/10.1016/j.landusepol.2020.104647

Adhikari, S., Baral, H., Nitschke, C., 2018. Adaptation to climate change in Panchase Mountain Ecological Regions of Nepal. *Environments 5*, 42. https://doi.org/10.3390/environments5030042

Adhikari, S., Harada, K., Dahal, N.K., Gurung, R., 2024. Scientific forest management practices in Nepal: Perceptions of forest users and the impact on their livelihoods. *Journal of Forest Research 29*, 159–168. https://doi.org/10.1080/13416979.2023.2275901

Aerts, R., Honnay, O., 2011. Forest restoration, biodiversity and ecosystem functioning. *BMC Ecology 11*, 29. https://doi.org/10.1186/1472-6785-11-29

Arrow, K., Dasgupta, P., Goulder, L., Daily, G., Ehrlich, P., Heal, G., Levin, S., Mäler, K.-G., Schneider, S., Starrett, D., Walker, B., 2004. Are we consuming too much? *Journal of Economic Perspectives 18*, 147–172. https://doi.org/10.1257/089533004216237 7

Aryal, K., Awasthi, N., Maraseni, T., Laudari, H.K., Gotame, P., Bist, D.B., 2023a. Calibrating Nepal's scientific forest management practices in the measure of forest restoration. *Land Use Policy 127*, 106586. https://doi.org/10.1016/j.landusepol.2023.106586

Aryal, K., Laudari, H.K., Maraseni, T., Pathak, B.R., 2022a. Navigating policy debates of and discourse coalitions on Nepal's Scientific Forest Management. *Forest Policy and Economics 141*, 102768. https://doi.org/10.1016/j.forpol.2022.102768

Aryal, K., Laudari, H.K., Ojha, H.R., 2019. To what extent is Nepal's community forestry contributing to the sustainable development goals? An institutional interaction perspective. *International Journal of Sustainable Development & World Ecology 0*, 1–12. https://doi.org/10.1080/13504509.2019.1627681

Aryal, K., Maraseni, T., Apan, A., 2023b. Spatial dynamics of biophysical trade-offs and synergies among ecosystem services in the Himalayas. *Ecosystem Services 59*, 101503. https://doi.org/10.1016/j.ecoser.2022.101503

Aryal, K., Maraseni, T., Apan, A., 2023c. A call for 'management authorship' in community forestry. *Environmental Science & Policy 139*, 204–208. https://doi.org/10.1016/j.envsci.2022.10.023

Aryal, K., Maraseni, T., Apan, A., 2022b. How much do we know about trade-offs in ecosystem services? A systematic review of empirical research observations. *Science of The Total Environment 806*, 151229. https://doi.org/10.1016/j.scitotenv.2021.151229

Awasthi, N., Aryal, K., Bahadur Khanal Chhetri, B., Bhandari, S.K., Khanal, Y., Gotame, P., Baral, K., 2020. Reflecting on species diversity and regeneration dynamics of scientific forest management practices in Nepal. *Forest Ecology and Management 474*, 118378. https://doi.org/10.1016/j.foreco.2020.118378

Baral, S., 2018. Attempts of Recentralization of Nepal's Community Forestry. *Forestry: An International Journal of Forest Research 15*, 97–115. https://doi.org/10.3126/forestry.v15i0.24925

Baynes, J., Herbohn, J., Smith, C., Fisher, R., Bray, D., 2015a. Key factors which influence the success of community forestry in developing countries. *Global Environmental Change 35*, 226–238. https://doi.org/10.1016/j.gloenvcha.2015.09.011

Baynes, J., Herbohn, J., Smith, C., Fisher, R., Bray, D., 2015b. Key factors which influence the success of community forestry in developing countries. *Global Environmental Change 35*, 226–238. https://doi.org/10.1016/j.gloenvcha.2015.09.011

Bhandari, P.K.C., Bhusal, P., Paudel, G., Upadhyaya, C.P., Khanal Chhetri, B.B., 2019. Importance of Community Forestry Funds for Rural Development in Nepal. *Resources 8*, 85. https://doi.org/10.3390/resources8020085

Bijaya, G. C., Cheng, S., Xu, Z., Bhandari, J., Wang, L., Liu, X., 2016. Community Forestry and Livelihood in Nepal: A review. *The Journal of Animal & Plant Sciences 26*(1), 1–12.

Birch, J.C., Thapa, I., Balmford, A., Bradbury, R.B., Brown, C., Butchart, S.H.M., Gurung, H., Hughes, F.M.R., Mulligan, M., Pandeya, B., Peh, K.S.-H., Stattersfield, A.J., Walpole, M., Thomas, D.H.L., 2014. What benefits do community forests provide, and to whom? A rapid assessment of ecosystem services from a Himalayan forest, *Ecosystem Services 8*, 118–127. https://doi.org/10.1016/j.ecoser.2014.03.005

Brown, H.C.P., 2021. Youth, migration and community forestry in the Global South. *Forests, Trees and Livelihoods 30*, 213–225. https://doi.org/10.1080/14728028.2021.1958065

Chalise, D., Kumar, L., Kristiansen, P., 2019. Land degradation by soil erosion in Nepal: A review. *Soil Systems 3*, 12. https://doi.org/10.3390/soilsystems3010012

Chapagain, N., Banjade, M.R., 2009. Community forestry and local development: Experiences from the Koshi Hills of Nepal. *1*(8), 78–92. https://doi.org/10.3126/jfl.v8i2.2310

Costanza, R., Atkins, P.W.B., Hernandez-Blanco, M., Kubiszewski, I., 2021. Common asset trusts to effectively steward natural capital and ecosystem services at multiple scales. *Journal of Environmental Management 280*, 111801. https://doi.org/10.1016/j.jenvman.2020.111801

Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R.V., Paruelo, J., Raskin, R.G., Sutton, P., van den Belt, M., 1997. The value of the world's ecosystem services and natural capital. *Nature 387*, 253–260. https://doi.org/10.1038/387253a0

Dahal, D.S., Cao, S., 2017. Sustainability assessment of community forestry practices in Nepal: Literature review and recommendations to improve community management. *Proceedings of the National Academy of Sciences, India Section B 87*, 1–11. https://doi.org/10.1007/s40011-015-0627-5

Dahal, G.R., Pokharel, B.K., Khanal, D.R., Pokhrel, P.R., 2017. Why does tenure security matter in community forestry? A critical reflection from Nepal. *Journal of Forest and Livelihood 15*(1), 15–26.

Devkota, B., Thwaites, R., Race, D., 2017a. *Community forestry and community development in Nepal, in: Community Forestry in Nepal*. Routledge.

Devkota, B., Thwaites, R., Race, D., Thwaites, R., Race, D., 2017b. Community forestry and community development in Nepal [WWW Document]. *Community Forestry in Nepal*. https://doi.org/10.4324/9781315445168-5

DFID, 1999. *Sustainable livelihoods guidance sheets*. UK.

Ekanayake, E.M.B.P., Xie, Y., Ahmad, S., Geldard, R.P., Nissanka, A.H.S., 2022. Community Forestry for livelihood Improvement: evidence from the intermediate zone, Sri Lanka. *Journal of Sustainable Forestry 41*, 1–17. https://doi.org/10.1080/10549811.2020.1794906

Fang, Y., Fan, J., Shen, M., Song, M., 2014. Sensitivity of livelihood strategy to livelihood capital in mountain areas: Empirical analysis based on different settlements in the upper reaches of the Minjiang River, China. *Ecological Indicators 38*, 225–235. https://doi.org/10.1016/j.ecolind.2013.11.007

Fox, J., 2018. Community forestry, labor migration and agrarian change in a Nepali village: 1980 to 2010. *The Journal of Peasant Studies 45*, 610–629. https://doi.org/10.1080/03066150.2016.1246436

Gentle, P., Maraseni, T.N., Paudel, D., Dahal, G.R., Kanel, T., Pathak, B., 2020. Effectiveness of community forest user groups (CFUGs) in responding to the 2015 earthquakes and COVID-19 in Nepal. *Research in Globalization 2*, 100025. https://doi.org/10.1016/j.resglo.2020.100025

Guthman, J., 1997. Representing Crisis: The Theory of Himalayan Environmental Degradation and the Project of Development in Post-Rana Nepal. *Development and Change 28*, 45–69. https://doi.org/10.1111/1467-7660.00034

Kaskoyo, H., Mohammed, A., Inoue, M., 2017. Impact of community forest program in protection forest on livelihood outcomes: A case study of Lampung Province, Indonesia. *Journal of Sustainable Forestry 36*, 250–263. https://doi.org/10.1080/10549811.2017.1296774

Khadka, M., 2009. *Why does exclusion continue in Nepal's Community Forestry? Aid, knowledge and power in forest policy process*. Shaker Publishing, Limburg, Netherlands.

Khanal, Y., Adhikari, S., 2018. Regeneration promotion and income generation through scientific forest management in community forestry: a case study from Rupandehi district, Nepal. *1* 45–53. https://doi.org/10.3126/banko.v27i3.20541

Kimengsi, J.N., Bhusal, P., 2022. Community Forestry Governance: Lessons for Cameroon and Nepal. *Society & Natural Resources 35*, 447–464. https://doi.org/10.1080/08941920.2021.2006844

Laudari, H.K., Aryal, K., Maraseni, T., 2019. A postmortem of forest policy dynamics of Nepal. *Land Use Policy 104338*. https://doi.org/10.1016/j.landusepol.2019.104338

Laudari, H.K., Aryal, K., Maraseni, T., Pariyar, S., Pant, B., Bhattarai, S., Kaini, T.R., Karki, G., Marahattha, A., 2022. Sixty-five years of forest restoration in Nepal: Lessons learned and way forward. *Land Use Policy 115*, 106033. https://doi.org/10.1016/j.landusepol.2022.106033

Laudari, H.K., Sapkota, L.M., Maraseni, T., Subedi, P., Pariyar, S., Kaini, T.R., Lopchan, S.B., Weston, C., Volkova, L., 2024. Community forestry in a changing context: A perspective from Nepal's mid-hill. *Land Use Policy 138*, 107018. https://doi.org/10.1016/j.landusepol.2023.107018

López-Carr, D., 2021. A Review of Small Farmer Land Use and Deforestation in Tropical Forest Frontiers: Implications for Conservation and Sustainable Livelihoods. *Land 10*, 1113. https://doi.org/10.3390/land10111113

Lund, J.F., Baral, K., Bhandari, N.S., Chhetri, B.B.K., Larsen, H.O., Nielsen, Ø.J., Puri, L., Rutt, R.L., Treue, T., 2014. Who benefits from taxation of forest products in Nepal's community forests? *Forest Policy and Economics 38*, 119–125. https://doi.org/10.1016/j.forpol.2013.04.010

Maraseni, T.N., Bhattarai, N., Karky, B.S., Cadman, T., Timalsina, N., Bhandari, T.S., Apan, A., Ma, H.O., Rawat, R.S., Verma, N., San, S.M., Oo, T.N., Dorji, K., Dhungana, S., Poudel, M., 2019. An assessment of governance quality for community-based forest management systems in Asia: Prioritisation of governance indicators at various scales. *Land Use Policy 81*, 750–761. https://doi.org/10.1016/j.landusepol.2018.11.044

McDougall, C., Banjade, M.R., 2015. Social capital, conflict, and adaptive collaborative governance: exploring the dialectic. *Ecology and Society 20*(1), 1–23.

Nerfa, L., Rhemtulla, J.M., Zerriffi, H., 2020. Forest dependence is more than forest income: Development of a new index of forest product collection and livelihood resources. *World Development 125*, 104689. https://doi.org/10.1016/j.worlddev.2019.104689

Ojha, H., Paudel, N.S., Timsina, J., Chaudhary, S., Baral, H., 2022. Ecosystems Services from Community Forestry: Prospects and Challenges for Improving Local Livelihoods in Nepal, in: Timsina, J., Maraseni, T.N., Gauchan, D., Adhikari, J., Ojha, H. (Eds.), *Agriculture, natural resources and food security: Lessons from Nepal*, Sustainable Development Goals Series. Springer International Publishing, Cham, pp. 337–356. https://doi.org/10.1007/978-3-031-09555-9_19

Ojha, H.R., Cameron, J., Kumar, C., 2009. Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics, Discourse and Expertise in Forest and Environmental Governance* 11, 365–374. https://doi.org/10.1016/j.forpol.2008.11.003

Oli, B.N., Treue, T., Smith-Hall, C., 2016. The relative importance of community forests, government forests, and private forests for household-level incomes in the Middle Hills of Nepal. *Forest Policy and Economics 70*, 155–163. https://doi.org/10.1016/j.forpol.2016.06.026

Pandey, H.P., Aryal, K., Aryal, S., Maraseni, T.N., 2023. Understanding local ecosystem dynamics in three provinces of the lowlands of Nepal. *Science of The Total Environment 867*, 161501. https://doi.org/10.1016/j.scitotenv.2023.161501

Pandey, S.S., Maraseni, T.N., Reardon-Smith, K., Cockfield, G., 2017. Analysing foregone costs of communities and carbon benefits in small scale community based forestry practice in Nepal. *Land Use Policy 69*, 160–166. https://doi.org/10.1016/j.landusepol.2017.09.007

Pandit, R., Bevilacqua, E., 2011. Forest users and environmental impacts of community forestry in the hills of Nepal. *Forest Policy and Economics 13*, 345–352. https://doi.org/10.1016/j.forpol.2011.03.009

Paudel, A., Weiss, G., 2013. Fiscal policy and its implication for community forestry in Nepal [WWW Document]. https://doi.org/info:doi/10.1505/146554813807700074

Paudel, D., 2012. In search of alternatives: Pro-poor entrepreneurship in Community Forestry. *The Journal of Development Studies 48*, 1649–1664. https://doi.org/10.1080/00220388.2012.716152

Persha, L., Andersson, K., 2014. Elite capture risk and mitigation in decentralized forest governance regimes. *Global Environmental Change 24*, 265–276. https://doi.org/10.1016/j.gloenvcha.2013.12.005

Pokharel, R.K., 2009. Pro-poor programs financed through Nepal's Community Forestry Funds: *Does Income Matter? mred* 29, 67–74. https://doi.org/10.1659/mrd.996

Poudel, M., Thwaites, R., Race, D., Dahal, G.R., 2014. REDD+ and community forestry: implications for local communities and forest management- a case study from Nepal [WWW Document]. https://doi.org/10.1505/146554814811031251

Pretty, J., 2003. Social capital and the collective management of resources. *Science 302*, 1912–1914. https://doi.org/10.1126/science.1090847

Sapkota, L.M., Dhungana, H., Poudyal, B.H., Chapagain, B., Gritten, D., 2020. Understanding the Barriers to Community Forestry Delivering on its Potential: An Illustration From Two Heterogeneous Districts in Nepal. *Environmental Management 65*, 463–477. https://doi.org/10.1007/s00267-019-01224-0

Sapkota, P., Keenan, R.J., Ojha, H.R., 2019. Co-evolving dynamics in the social-ecological system of community forestry—prospects for ecosystem-based adaptation in the Middle Hills of Nepal. *Reg Environ Change 19*, 179–192. https://doi.org/10.1007/s10113-018-1392-9

Sapkota, P., Keenan, R.J., Ojha, H.R., 2018. Community institutions, social marginalization and the adaptive capacity: A case study of a community forestry user group in the Nepal Himalayas. *Forest Policy and Economics 92*, 55–64. https://doi.org/10.1016/j.forpol.2018.04.001

Shahi, N., Bhusal, P., Paudel, G., Kimengsi, J.N., 2022. Forest—People nexus in changing livelihood contexts: Evidence from community forests in Nepal. Trees, *Forests and People 8*, 100223. https://doi.org/10.1016/j.tfp.2022.100223

Spielman, D.J., Pandya-Lorch, R., 2010. *Proven successes in agricultural development: A technical compendium to millions fed*. International Food Policy Research Institute, Washington, DC.

Thapa, S., Prasai, R., Pahadi, R., 2020. Does gender-based leadership affect good governance in community forest management? A case study from Bhaktapur district. *Banko Janakari 30*, 59–70. https://doi.org/10.3126/banko.v30i2.33479

Thwaites, R., Fisher, R., Poudel, M., 2017. *Community forestry in Nepal: Adapting to a changing world*. Routledge.

Yadav, B.D., Bigsby, H., MacDonald, I., 2017. Rules of benefit distribution: A dynamic impact on Nepalese community forestry organizations. *Journal of Sustainable Forestry 36*, 177–197. https://doi.org/10.1080/10549811.2016.1275700

Yadav, B.D., Bigsby, H., MacDonald, I., 2015. How can poor and disadvantaged households get an opportunity to become a leader in community forestry in Nepal? *Forest Policy and Economics 52*, 27–38. https://doi.org/10.1016/j.forpol.2014.11.010

17 Beyond tokenism

Women's leadership and the struggle for inclusive participation in community forestry

Srijana Baral, Krishna K. Shrestha, Sarada Tiwari, Sikshya Adhikary Rana, and Upama Koju

17.1 Introduction

Community-based natural resource management remains predominantly male-dominated; women and people of diverse gender identities are underrepresented (Sunderland et al., 2014). In Nepal, while the community forestry (CF) program has been acknowledged for its conservation outcomes (Baral et al., 2019; Oldekop et al., 2019), there has been a struggle to realize its full potential in improving livelihoods (Nuberg et al., 2019) and promoting equitable forest governance (Agarwal, 2001; Baral et al., 2018). Despite efforts to foster social inclusion and gender equality, the benefits of CF for inclusion and empowerment remain questionable, especially for disadvantaged, poor, and marginalized women (Khadka et al., 2014). A growing body of research shows that entrenched societal norms and policy implementation gaps continue to hinder gender-equitable forest management practices in Nepal (Bhattarai, 2020), placing forest-dependent women at risk of exclusion from access and control over the decision-making process. Gender equality has become a buzzword with little progress on the ground.

Over four decades of CF in Nepal have been invested in institutionalizing participatory processes and engaging grassroots communities in forest management (Ojha & Hall, 2023). The underlying assumption of these reforms is that all community members would have equal opportunities to participate and benefit from forest resources. However, evidence highlights that the complex social dynamics in Nepal often prevent the effective implementation of gender-inclusive policies to offer equality of opportunities (Baral et al., 2024; Buchy & Subba, 2003). This disparity between policy intention and societal realities impedes affirmative actions aimed at gender equity.

There is ample evidence that engaging women in decision-making has resulted in positive conservation outcomes (Leone, 2019). Yet, progress has been limited in Nepal's CF, focusing mainly on increasing women's numbers in the community forest executive committees (CFEC) rather than fostering their meaningful participation. Data indicates that women constitute approximately 42% of community forestry user group (CFUG) members (Giri et al., 2022), reflecting the

DOI: 10.4324/9781032705613-23
This chapter has been made available under a CC BY-NC-ND license.

impact of affirmative policies and quota systems in terms of numbers. However, women's agency and influence in decision-making and benefit-sharing remains limited, shaped by complex intersecting socio-economic conditions (Mai et al., 2011). Only a few women leaders have benefited from these policies, while most women remain marginalized in leadership roles: they stay silent or are silenced. The perpetuation of women's exclusion in the decision-making arena is complex and deeply entrenched in socio-cultural relations that are strengthened by the implementation of public policy, primarily driven by men.

This chapter unpacks the dilemmas behind women's effective participation and leadership in Nepal's CF. Despite four decades of implementation and progressive forestry policies, meaningful participation of women remains elusive (Baral et al., 2024), with limited access to decision-making power, equitable benefits, and genuine empowerment. The analysis is based on case studies from the "Enhancing Livelihood from Improved Forest Management (EnLiFT2)" project funded by the Australian Center for International Agricultural Research (ACIAR). We collected data from Kavrepalanchok and Sindhupalchok Districts in Central Nepal for over five years. Informed by broader Feminist Political Ecology (FPE) and integrated with diverse gender frameworks such as Harvard's Gender Analytical Framework, Moser's approaches to Equity, Equality, and Empowerment, Sarah Longway's Empowerment Framework, and Naila Kabeer's agency structure and Relationship Framework, we offer an integrated analysis of women's leadership in Nepal's CF. This study diagnoses women leaders' challenges and provides critical insights into advancing gender-equitable CF in Nepal.

17.2 Conceptual framework

We situate our study into the ideas of FPE (Elmhirst, 2015; Rocheleau et al., 2013), which conceptualizes gender not as synonymous to "women" but as a dynamic process intersecting with social, political, legal, and ecological dimensions. These interactions shape differentiated access to and control over natural resources between men and women and even among women across various spatial and temporal scales (Nightingale, 2006; Sundberg, 2016). By extending beyond mere differences in participation and benefits between women and men in collective resource management (Leder, 2022), FPE provides a nuanced understanding of gender dynamics within community forestry in Nepal. Diverse gender frameworks were applied as they offer a comprehensive lens to assess women's participation, resource control, and leadership in CFUGs.

We first applied the Harvard Gender Role Framework (Overholt et al., 1984) to explore gender dynamics in community forestry, particularly in planning and management (Sayuti & Valentino, 2022). The socio-economic activity profile highlights that while women are predominantly involved in non-decisive roles and household tasks, men occupy more decisive roles (Kinasih & Wulandari, 2021). Despite having access to resources, women often lack control over them due to entrenched power dynamics. Community norms, social

hierarchies, and legal structures reinforce these inequalities (Juma et al., 2023). However, the Harvard Framework's limitations, mainly its narrow focus on economic roles and neglect of broader socio-cultural factors, necessitated incorporating other frameworks (Devkota, 2006; Kinasih & Wulandari, 2021).

To address these gaps, we also integrated Moser's Gender Planning Framework, which identifies the triple roles of women in productive, reproductive, and community spheres (Moser, 1989; Mwangi, 2017). This framework highlights how institutional barriers hinder women leaders from meeting their practical and strategic needs (Quisumbing & Pandolfelli, 2010). Although Moser's framework has been critiqued for overlooking age, class, and ethnicity (Custer Jr, 2010), it effectively centers on gender concerns within broader development agendas (Moser, 2014). We combined the Social Relations Framework (Kabeer, 1994) to examine how gender inequalities are reproduced within institutions. These integrated frameworks collectively reveal that women's limited recognition as primary resource managers perpetuates unequal power distributions, hindering their CF leadership.

17.3 Research methods and case studies

17.3.1 Research approach and methods

Planning studio as a diagnostic tool was used in the EnLIFT2 project to identify research and policy gaps in assessing the needs of CFUGs. This approach is recognized for its ability to explore practical problems through creative interactions (Higgins & Morgan, 2000), guided research, and intervention design. As part of the process, a literature and policy review on gender equity in forest management by Tamang et al. (2020) identified research priorities in Nepal's changing context, highlighting the persistent challenges faced by women's leadership in community forestry (Baral et al., 2024).

Based on the research gaps as identified by the planning studio, interventions focused on capacity-building, such as "Women Leadership Development in Forest Management" workshops (n = 4), addressed topics on gender-responsive budgeting and overcoming barriers to women's leadership. These workshops served as critical platforms for data collection, complementing key informant interviews (KIIs) (n = 31), focus group discussions (FDGs) (n = 8), and five years of researcher' observation and actions in the field. Semi-structured interviews with women leaders explored gender roles, decision-making challenges, and the balance between household and CF responsibilities. We also integrate insights from informal observation and interactions with the communities gathered throughout the project, providing comprehensive evidence on gender dynamics in CF.

17.3.2 Case study sites

For this chapter, we bring the cases from the Bhumlu cluster in Kavrepalanchok (Kavre) and the Chautara cluster in Sindhupalchok Districts. Both clusters were established under the EnLiFT2 project to better facilitate CF and CFUG

functions. The Bhumlu cluster includes wards 4 and 5 of Bhumlu Rural Municipality in Kavre, while the Chautara cluster includes wards 8 and 13 of Chautara Sangachokgadhi Municipality in Sindhupalchok. These areas have a long history of pine plantation supported by the Australian government in the 1980s and 1990s, alongside natural forests actively managed by local users, dependent on forest resources like fuelwood and fodder. Socially, Brahmin/Chhetri groups are the majority (31.3% in Bhumlu and 37% in Chautara) among various ethnicities. Women's leadership averages around 50% in executive committees, with the Fagar Khola CFUG having 100% women representation, contrasting with the Deupokhari CFUG's minimal women leadership.

17.3.3 Data collection and analysis

Harvard's Gender Roles Framework, Moser's Gender Planning Framework, the Equity, Equality, and Empowerment Framework, and the Social Relations Framework were integrated into a comprehensive package for gender analysis in the two clusters. Relevant forestry policies, acts, regulations, guidelines, and strategies from the government of Nepal were reviewed to assess their gender prescriptions, which informed the development of narratives and the storyline for this chapter.

17.4 Results: Barriers to women's leadership in CF

The results show that despite several affirmative policy provisions and four decades of CF in Nepal, marginalization and exclusion of women's leadership persists. There is evidence of increasing women's involvement in decision-making positions in CF due to the strong determination of political entities, programmatic backing, and technical interventions at the grassroots level (Pandey & Pokhrel, 2021). Several major factors include the gendered role in CF planning and management, structural barriers, and discrepancies between policies and practices.

17.4.1 Contested narratives of women leadership

In CF, forest policies define leadership roles, reserving quotas for women. The CFUG handovers or renewals require women to hold either the chairperson or secretary positions. The Forest Regulation 2022 initially limited this to either chairperson or vice chairperson and secretary or treasurer roles. However, recent amendments restored the original provision, allowing women's leadership to flourish.

We found significant contestations regarding the perception of leadership when discussing women's roles in CF. Leadership is often linked to affiliation with dominant parties and associated with men, defined by the "5 Es": exposure, experience, efficiency, education, and esteem. Women often view men in the groups as better suited for leadership, even in spaces intended to empower them. During workshops, women consistently selected the sole male participant as their leader, underscoring the political bias in their perception of leadership.

In the research sites, approximately 37% of the women held key leadership positions (chairperson, secretary, or treasurer) during 2021–2022, with only 16% as chairpersons in both Bhumlu and Chautara clusters. National data indicates that men occupy 94% of key decision-making roles across CFUGs, leaving women with only 6%, indicating that authentic leadership remains male-dominated despite the mandatory inclusion of women (Giri et al., 2022).

Mandatory provisions for women's participation in CFUGs have opened leadership opportunities, albeit with limitations. For instance, a female CFUG chairperson used her leadership experience to claim her candidacy for the deputy mayor position in local elections. "*I have the guts to claim the position; though the Party (political party) did not consider my candidacy this time, they are aware I'm a potential candidate for the next election; this confidence is due to my engagement in community forestry*," she said.

Women leaders with solid family support perform more effectively, as one leader shared, "*I am proud of my position; it has increased my role in conservation*." However, it often narrowly translates into mere permission to participate, compelling women to complete household chores before attending meetings. This dual burden leaves little time for leadership activities, particularly for women whose husbands have migrated for foreign employment. Many struggle to participate in the meetings despite holding decision-making roles due to conflicting responsibilities.

Additionally, women's limited education and exposure to forestry issues hinder their confidence in contributing to decision-making. Gender roles vary across communities: in Brahmin/Chhetri communities, roles are rigidly defined, while in Tamang communities, household-level negotiations are more common. Marginalized caste women are particularly hesitant to take on leadership roles due to societal stigmatization. The socialization of gender inequality in terms of leadership has limited its acceptance and confidence by rural women. One workshop participant noted, "If we speak loudly, we are called leaders as an insult… our society believes in *pothi baaseko ramro hudaina* (crowing of a hen is unfortunate)."

The women leaders acknowledge that their roles in CF leadership have paved the way for their involvement in local politics and governance. However, when we unpack "women leadership," this often centers on a select few women with multiple roles in various committees at the local level, such as water management, road construction, and school management. Among the women leaders, middle-aged, single women with fewer family obligations are more likely to benefit from these roles, as they possess the "leadership qualities" valued by society, such as public speaking and engagement in mandatory meetings.

Although women's leadership is numerically increasing, their stake in decisions remains tokenistic. Gender considerations fall beyond the scope of the "technical purview" of forestry policy and extension mechanisms, which ignore women's spaces, their confined roles, and the exclusions women face in the CF spectrum and workspace (Giri et al., 2022).

Political elites often choose women leaders, with tokenistic appointments reinforcing existing patriarchal norms rather than empowering marginalized women. Even though women were interested in leadership positions, they waited for men to nominate or validate their interests. In one of the research sites, the municipal chairperson pointed out a lady of his convenience as the CF chairperson. One of the CF chairpersons shared that, "*we are social beings, so we cannot go against our father-in-law, brother-in-law, brother or husband, and make decisions in the CF*." As a result, women's candidacy and representation are often head-hunted, favored, and tokenized, thus leading to pseudo-leadership. The simple fact of adopting quotas and other prescriptions is nevertheless not enough to cast aside centuries of male dominance and the inherited patriarchal culture (Giri et al., 2022). There are doubts that such palliative solutions, in this case, to include women in CFUG committees, can be seen as a new, subtler form of women's exploitation (Murer & Piccoli, 2022). Moreover, placing women leaders in a decision-making role without proper orientation on the job description becomes an added burden, and expressed difficulties in making decisions without consulting them.

17.4.2 Institutional accountability and functioning

Institutionally, the design and formation of CFUG governing bodies are primarily shaped by male leaders. The forest policies require women to occupy 50% of the executive committee, with either chairperson or secretary being women (this provision has now changed with forest regulations 2022). Thus, we could see approximately 50% of women in the executive committee in the study area (Table 17.1). Despite women occupying leadership positions, they often serve as de jure leaders with the legal mandate and positional authority to make decisions.

Despite policy efforts, gendered differences persist in forest management roles and resource access and control. Women are considered the stewards of sustainable forest resource management in the social context of high male out-migration and changing people-forest relationships. However, the results show that women's role is deemed important for protective and non-economic roles (Figure 17.1) and it shrinks as the trees grow. Hence, everyday environmental practices are adequate to produce inequality and differences in gendered access and control over the resources at the household and community level (Truelove, 2011).

The traditional division of labor between men and women is reflected in women having higher access to forest resources than men as they are the ones who frequently visit for the collection of essential forest resources. However, men have higher access and control in forest products with larger commercial benefits, i.e., timber and medicinal plants. On a household basis, women in the family make decisions regarding everyday use, while men make the decisions regarding timber and high-value Non-Timber Forest Products (NTFPs)

Table 17.1 Study area characteristics

S.No.	*Name of the CFUG*	*District*	*Area(ha)*	*Household*	*EC Members*		*Women EC members (%)100*
					Male	*Female*	
1	Fagar Khola CFUG	Kavre	58.48	84	0	9	100
2	Chapani Gadidanda CFUG	Kavre	83.5	117	6	5	45
3	Lakuri Rukh Bhulbhule CFUG	Kavre	39.2	88	5	4	44
4	Dharapani CFUG	Kavre	43	64	8	3	27
5	Rachchhma CFUG	Kavre	45.7	48	4	3	43
6	Chaurkuna Bhirpani CFUG	Kavre	46.9	175	5	6	55
7	Chhekarpa CFUG	Kavre	6.5	105	5	4	44
8	Kalapani	Kavre	86.5	396	4	7	64
9	Shreechhap Deurali	Sindhupalchok	78.3	256	8	7	47
10	Sansaridanda	Sindhupalchok	96.59	213	6	5	45
11	Tarebhir CFUG	Sindhupalchok	52.43	103	5	6	55
12	Kamala Mai CFUG	Sindhupalchok	16.5	116	4	5	56
13	Deurali Chyandanda CFUG	Sindhupalchok	39.08	125	4	5	56
14	Bajhekapase CFUG	Sindhupalchok	60.15	196	5	6	55
15	Rani Pokhari CFUG	Sindhupalchok	74.49	114	4	5	56
16	Deupokhari	Sindhupalchok	181.77	111	8	3	27

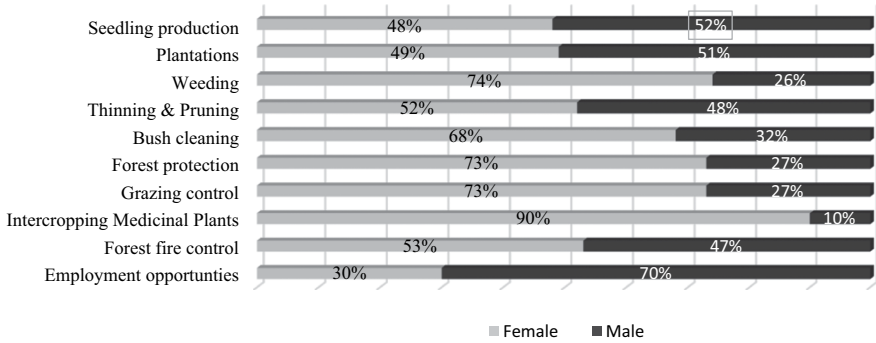

Figure 17.1 Local community participation in CF operations.

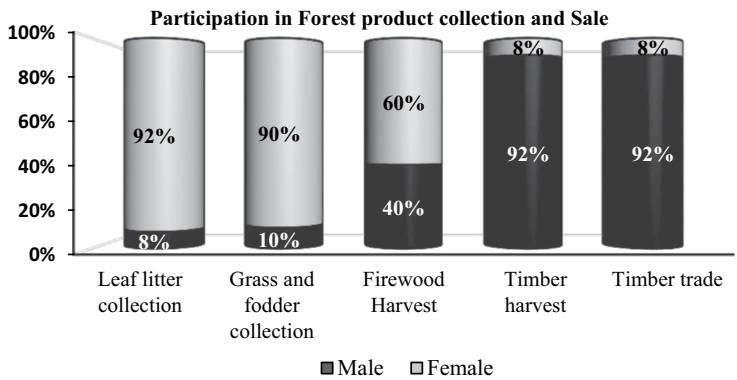

Figure 17.2 Women's role in CF activities.

(Figure 17.2). Women feel insecure in the "male tasks" regarding timber harvest and sale (Figure 17.3), due to a lack of knowledge and market negotiation skills (Leder, 2022). Even in CFUGs with high male migration, the women's leadership is limited as they lack space in timber and fund-related meetings and agendas (Lama et al., 2017). This shows that, though women's access to most resources is higher than men's, their control over those resources is comparatively low.

This trend of gender differential access and control is institutionalized by the socialized gender inequality in the forestry sector, and affects women's and men's decision-making roles in forest governance. Thus, the involvement of women in sustainable forest management is hindered by various factors such as rules of entry, social norms, and gendered perceptions that marginalize them from active participation (Marin & Kuriakose, 2017). Additionally, the sharing of decision-making powers and household responsibilities regarding forest resource use is often skewed, with minimal gendered sharing observed in activities like collecting firewood (Duguma et al., 2022).

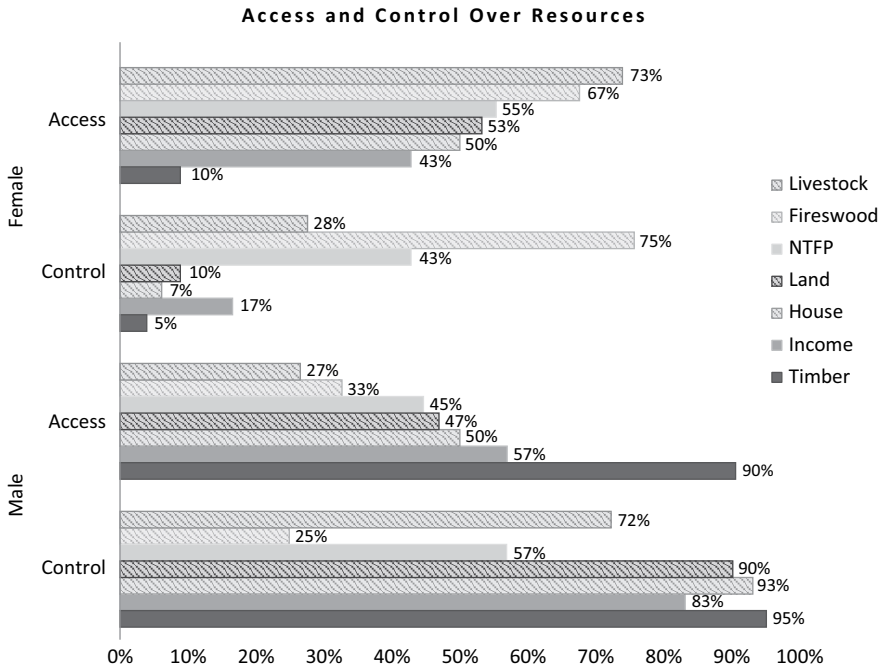

Figure 17.3 Gender-based percent access and control over household resources.

Moreover, the decision-making institutions of CF, such as the Executive Committee meetings and general assemblies (GA), mainly act as rituals. Local political leaders, the Divisional Forest Officers (DFO)/their sub-ordinates, and CF leaders attend the programs, and everyone seeks space to deliver speeches, which consequently shrinks the space for actual discussions and decisions for women. If the assembly is expected to elect the new committee members, the process is not democratic, and the village elites select women based on favoritism rather than their competency.

One of the women who was the secretary of the CFUG would rarely participate in the EC meetings; it was rather her husband who would take the role and act as a decision-maker on her behalf. In addition, women's participation and leadership roles vary according to the meeting agenda, but the signatures are of high value. The women must put their signatures even if they are absent from the meeting. "*As a compulsion, the executive titles are associated in the name of women, but it does not have any meaning*," shared one of the women representatives. This is because of the policy provision to ensure women's participation/leadership in CF. Forestry officials do not endorse the decisions without evidence of women's leadership in the decision-making process and check for proof of physical participation, but one-dimensional framings around women's identities and roles end up overlooking multiple forms of

oppression and exclusions. Existing laws and policies do not support how women negotiate their roles in households, communities, and the market (Resurrección et al., 2019).

Since CF institutions don't capacitate these women leaders, most women do not understand the meaning of being in the position. For example, one of the women treasurers was in the executive committee because "*dai haru* (big brothers)" wanted her to be in the position. The so-called "brothers" convinced her, saying that she had nothing to do except sign the cheques, which led her to be blamed for significant corruption. They used another lady with the same name as evidence in the bank to misuse the CFUG fund. The women treasurer was shocked when the issue was raised in GA. She lived in trauma until the issue was sorted.

17.4.3 Changing forest-women relations and shifting priorities

The relationship between the forest people has changed over the decades, as has the relationship between women and forests. CFs initially focused on restoring denuded hills, but now, they have well-stocked forests to offer economic benefits. In changing forest-society dynamics, gender equality and social inclusion (GESI) remain poorly accepted by various actors, prioritizing profit and economic security over emerging issues, including subtler forms of women's marginalization (Giri et al., 2022). Women's leadership in commercial forests is largely unrecognized, which exacerbates their sense of powerlessness (Sunam & McCarthy 2010), leaving them marginalized or ignored. Several actors in the timber value chain tend to boycott women leaders from deals. Though the enhanced exposure of women leaders in CF has created some level of awareness of male suppression, the contestation between gender equality and the patriarchal norms denying women access to power and gender injustice is high (Murer & Piccoli, 2022).

The priorities of CF funds lie in community development often neglecting women's needs and aspirations. For example, in one case, women's request for leadership programs were disregarded, with the CFUG leadership deeming them less critical than the construction of a community building that would benefit the entire community. In addition, infrastructure projects like road construction, which tend to favor men's interests (Sedhain & Galang, 2022), highlight the neglect of women's agendas. These examples illustrate how women's agendas and leadership are ignored in the patriarchal society. The CFUGs would rather keep the funds in the banks than invest in diverse activities favoring women and the marginalized. Six out of seven cases of CFUGs showed large amounts of funds reserved in the bank; five of them had over NPR 2 million as reserve funds.

One reason for the reserve funds in banks within CFUGs is to mitigate suspicions of financial misconduct, particularly if funds are misused or timber is sold outside the community forest. Women leaders exhibit heightened fear in managing these funds due to past instances where innocent women have

suffered severe consequences despite their lack of wrongdoing. Although women have started realizing the oppression, injustice, and deprivation of rights they face, they still encounter significant challenges. For example, female leaders have reported being manipulated and dominated by male committee members. A woman chairperson from one CFUG shared, "*we even must listen to several allegations from users when we hold any social responsibility. No other women supported me during that time, and no one listened to my voice*." This chairperson faced difficulties in her role, including false allegations regarding timber harvests from male members of the EC. The personal costs of challenging entrenched norms can be substantial, leading some women to prefer conformity over confrontation.

Technical complexities also hinder women's participation in forestry planning. Workshops show that only 5% of women were found to have participated in the planning process due to technical knowledge demands and bureaucratic dominance. Activities like boundary surveys, block division, forest inventory, data analysis, prescribing silviculture treatments, and annual allowable harvest are strenuous for non-technical persons to understand. Since women users are assumed to be ignorant of even basic technical knowledge, the planners and decision-makers largely ignore their participation. The regulatory requirements and increasing technical dominations in the forest management plans gradually alienate the CFUGs from the planning process (Baral et al., 2018; Basnyat et al., 2018).

Migration from rural to urban areas and abroad, primarily involving young men seeking better economic opportunities, is a significant trend in many countries (ILO, 2020). Despite this shift, male migration has not translated into increased participation for women in CFUG ECs, where critical decisions are made. Traditional gender norms drive this persistent exclusion, institutional barriers favoring literacy and male networking, and men's entrenched control over local forestry institutions (Lama et al., 2017).

The distinction between nominal and substantive participation often reflects a response to external pressures, especially from international funders, coupled with resistance to shifting cultural norms. Although adopting gender equality rhetoric at the national level necessitates some level of acknowledgment of women's claims, these claims are frequently contested and rarely fully supported (Murer & Piccoli, 2022). The discrepancy between traditional Nepalese values and international expectations contributes to inconsistencies in both policy and practice (Murer & Piccoli, 2022).

17.4.4 The policy intentions for gender equality

Nepal has made steady progress in formulating policies and strategies for addressing social inequality, including gender. Notable policy intentions are reflected in Nepal's commitments to several international commitments, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Declaration and Platform for Action,

and the UN Declaration on the Rights of Indigenous People (UNDRIP). These commitments are well reflected in the Constitution of Nepal 2015, dedicated to eliminating all forms of discrimination, fostering inclusion, and achieving economic equality and social justice. In addition, Nepal has enacted the National Gender Equality Policy 2020, and several ministries, including the Ministry of Forest and Environment, and the Ministry of Agriculture, Water Supply and Sanitation, have established GESI units with provisions for gender-responsive budgeting and monitoring (NSIS, 2020). In the forestry sector, there has been gradual progress toward recognizing gender equality through laws, policies, strategies, and guidelines. However, it was in 2001, with the amendment of the Community Forestry Guidelines that provisioned to include both male and female members from a household as members in the CFUG constitutions. In its second revision, 2009 successfully provided 50% women representation in the executive committee. Community Forest Development Guideline 2014 (Third Revision) was amended to ensure 50% of women's representation in CF's general assembly and at least 50% of CFUG executive committee members. The Gender Equality and Social Inclusion Strategy of 2008 paved the path for women's inclusion in all forestry programs in Nepal and has helped boost their involvement in this critical community issue. The strategy provided the operational guideline for incorporating gender issues in forestry. The Forest Sector Strategy (2016–2025) has identified gender equality, social inclusion, and transparency as one of the eight strategic pillars of the strategy. It has supported the promotion of gender equity, inclusive development, and social and economic upliftment for the poor, women, *Dalits*, *Janajatis*, Indigenous people, and other marginalized groups.

However, the Forest Regulation 2022 shrunk the women's position in the CFEC by changing the women's quota to either chairperson, treasurer, vice-chairperson, or secretary of the CF. In this context, women are likely to be vice-chairpersons and treasurers, weaker in decision-making than the chairpersons and secretary of the CFUG committee. The provisions are reverted through the amendment of Forest Regulation in 2024 after policy discourses. However, the policy intentions are often questioned where women's inclusion has primarily been seen in increasing the numbers in committees, not focusing on the quality of representation and genuine empowerment (Baral et al., 2024). The one-dimensional approach of ensuring participation and inadequate attention to applying the policies on the ground creates a mirage of the involvement of women in CF (Resurrección et al., 2019).

17.5 Pitfalls and potentials of improving women's leadership

This chapter has demonstrated the challenges faced by women in leadership within CF, focusing on socially constructed barriers that limit gender equality. The concept of leadership itself is contested, as deeply entrenched patriarchal norms position women primarily as homemakers and caregivers rather than leaders. This societal view is a significant reason for slow progress in achieving

gender equality in leadership roles (Baruah & Reyes, 2017). Additionally, women in leadership are frequently exposed to gossip, reprimand, or violence, which is further exacerbated by gendered meeting spaces, such as tea stalls, that exclude women from essential discussions (Baral et al., 2024).

The gap between policy intentions and practice in promoting women's leadership remains significant. Although forestry policies and quotas have been introduced to encourage women's participation, they often fall short due to institutional, legislative, normative, and infrastructural measures (Wagle et al., 2017). These hindrances are attributed to the cultural dimensions of the country. The quota system, while generating some women leaders, is often dominated by a few elites, limiting broad-based participation. Moreover, these quotas do not necessarily translate into more democratic legitimacy of women's effective leadership (Burnet, 2011). Although the numerical increase in women leaders can be attributed to foreign aid projects and male outmigration, it has not resulted in substantial improvements in the quality of women's leadership in natural resource governance (Cook et al., 2023).

To improve women's leadership, redefining gender roles is crucial. The traditional division of labor in households and collective actions, for instance, planning and managing community forests, demotivates women from stepping into leadership positions. Local governments and CFUGs should provide gender-sensitive training for both men and women, emphasizing inclusive participation. The design features of CF institutions often hinder women's leadership due to patriarchal norms that rely heavily on majority rule and consensus, which may not always protect minority's interests (Cook et al., 2023). Capacity-building programs focusing on institutional governance, the bundle of rights, and leadership recognition are essential to equip women with the skills, knowledge, and resources needed to engage in decision-making actively. This includes training programs, workshops, and mentoring initiatives to enhance women's leadership, negotiation, and technical skills. Developing women champions at the local level who advocate for their rights within CFUGs and government agencies is another effective strategy.

Further, women's decision-making spaces still need to be improved, as they often hesitate to speak up in meetings dominated by influential individuals, such as GAs and executive committee meetings. These meetings focus on formalities rather than substantive discussions on CF issues. To create more inclusive spaces, CFUGs should hold pre-meeting discussions with interest groups, especially women, to ensure their concerns are represented. Additionally, integrating women's voices into policy development and decision-making processes is critical for inclusive leadership (Elias et al., 2020).

Furthermore, recognition of women's knowledge and contributions is crucial for promoting their leadership in CF. Despite their active role in forest conservation, women's knowledge and skills in forest management are largely unrecognized. Their traditional knowledge is often marginalized in favor of scientific or expert-driven approaches. Integrating women's perspectives and valuing their traditional knowledge in planning, implementing, and monitoring

forest resources is essential for their inclusion. Engaging more women in these processes will enhance their leadership and contribute to more suitable forest management.

Addressing cultural and internalized barriers to gender equality is vital for enhancing women's leadership. The intersection of marginalization, domination, and exclusion from political power must be recognized and addressed (Murer & Piccoli, 2022). Developing women's agencies and their capacity to make decisions that improve their livelihoods and well-being can contribute to more sustainable and equitable communities. Nepal's constitutional provision requiring political parties to nominate women candidates for local leadership positions, such as chief or deputy chief at the local level, has created opportunities for women to hold power, though deeply rooted patriarchal norms still limit their effectiveness. Enhancing women's agency through social media, women-led NGOs, and other platforms highlighting their achievements can help challenge these norms in rural areas.

17.6 Conclusion

We provide a critique of not only the quota system but also the thinly conceived policy measures, weak implementation measures, and constant masculine domination in discourse, practice, and institutional processes that hinder women's leadership and participation in CF. Evidently, the policy recognizes the need for women leadership, but the implementation practice is flawed, creating the implementation gap. Women's presence is recognized, but their agency is neglected. Numbers are rising, but the influence on decision-making is insignificant. Women's leadership quality needs more concrete efforts. The women's quota was found to have had a negligible impact on substantive participation.

The enhanced exposure of female committee members to the discrepancy between the gender equality discourse introduced in CF and the persistent male domination seemed to create, in a few women performing as critical actors, an enhanced awareness of male suppression. This awareness is a prerequisite for contestation. But when women are empowered, they become self-aware of their discriminated status, rights, and potentialities vis-à-vis obtaining necessary knowledge about the existing policies and laws in favor of women's advancement, claim and gain access to, and control over the productive resources. The policy and political intent of women's empowerment clash with the ground reality of deeply entrenched socio-cultural norms that see women as subordinate to men in family, community, and national affairs.

Thus, we argue that the quota systems and policy arrangements are the initial stages of working toward gender equality and social inclusion. More importantly, the government should act upon the policies to bridge the gaps of inequalities in CF. CF as an institutionalized and decentralized forest management system has provided ample opportunities to rural women; however, the shifts from numerical leadership to the second generation of women participation issues where more efforts toward the quality of participation are

necessary. There are examples where inclusive policy provisions have excluded women leaders. For example, women are responsible for being CFUG chairperson/secretary or treasurer while providing adequate skills, knowledge, and capacity to perform the roles. Advancement of policy provisions should align with societal development to sustain the positive aspirations of the government.

References

Agarwal, B. (2001). Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development*, *29*(10), 1623–1648.

Baral, S., Meilby, H., & Chhetri, B. B. (2019). The contested role of management plans in improving forest conditions in Nepal's community forests. *International Forestry Review*, *21*(1), 37–50.

Baral, S., Meilby, H., Chettri, B. B. K., Basnyat, B., Rayamajhi, S., & Awale, S. (2018). Politics of getting the numbers right: Community Forest inventory of Nepal. *Forest Policy and Economics*, *91*, 19–26.

Baral, S., Shrestha, K. K., & Tiwari, S. (2024). Persistence of women's exclusion in Nepal's community forestry practice. *Geoforum*, *155*, 104092.

Baruah, N., & Reyes, J. (2017). *Nepal elections: More women have a seat at the table, but will they have a voice?* Asia Foundation. https://asiafoundation.org/2017/12/13/nepal-elections-women-seat-table-will-voice/

Basnyat, B., Treue, T., Pokhrel, R. K., Lamsal, L. N., & Rayamajhi, S. (2018). Legal-sounding bureaucratic re-centralisation of community forestry in Nepal. *Forest Policy and Economics*, *91*, 5–18.

Bhattarai, B. (2020). How do gender relations shape a community's ability to adapt to climate change? Insights from Nepal's community forestry. *Climate and Development*, *12*(10), 876–887.

Buchy, M., & Subba, S. (2003). Why is community forestry a social and gender-blind technology? The case of Nepal. *Gender, technology and development*, *7*(3), 313–332.

Burnet, J. E. (2011). Women have found respect: Gender quotas, symbolic representation, and female empowerment in Rwanda. *Politics and Gender*, *7*(3), 303–334. https://doi.org/10.1017/S1743923X11000250

Cook, N. J., Benedum, M. E., Gorti, G., & Thapa, S. (2023). Promoting women's leadership under environmental decentralisation: The roles of domestic policy, foreign aid, and population change. *Environmental Science & Policy*, *139*, 240–249.

Custer Jr, S. (2010). United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA): Protection and Assistance to Palestine Refugees. In S. M. Akram, M. Dumper, M. Lynk, & I. Scobbie (Eds.), *International law and the Israeli-Palestinian conflict* (pp. 55–78). Routledge.

Devkota, D. (2006). Access to and control over household resources: A consistency check using gender analysis and household survey data. *Nepal Agriculture Research Journal*, *7*, 98–102.

Duguma, L. A., Nzyoka, J., Obwocha, E., Minang, P., Wainaina, P., & Muthee, K. (2022). The forgotten half? Women in the forest management and development discourse in Africa: A review. *Frontiers in Forests and Global Change*, *5*, 948618.

Elias, M., Grosse, A., & Campbell, N. (2020). Unpacking 'gender' in joint forest management: Lessons from two Indian states. *Geoforum*, *111*, 218–228. https://doi.org/10.1016/j.geoforum.2020.02.020

Elmhirst, R. (2015). Feminist political ecology. In T. Perreault, G. Bridge, & J. McCarthy (Eds.), *The Routledge handbook of political ecology* (pp. 519–530). Routledge.

Giri, K., Bhattarai, B., Tamang, S., Wagle, R., & Dhungana, S. (2022). Gender equality and social inclusion in community forestry: Status, trends and future prospects. In N. S. Paudel, H. Ojha, M. R. Banjade, R. Karki, & S. Tamang (Eds.), *Revitalising community forestry in the changing socioeconomic context of Nepal* (pp. 72–81). ForestAction Nepal.

Higgins, M., & Morgan, J. (2000). The role of creativity in planning: The "creative practitioner." *Planning Practice and Research*, *15*(1–2), 117–127. https://doi.org/10.1080/713691881

ILO (2020). *COVID-19 labour market impact in Nepal*, International Labour Organization (ILO), Kathmandu.

Juma, E. A., Omondi, P., & Kareri, R. W. (2023). Gendered Sharing of Decision-making Powers, Responsibilities and Rights over Non-Timber Forest Resources in Cherangany Hills Forest, Kenya. *East African Journal of Environment and Natural Resources*, *6*(1), 28–42.

Kabeer, N. (1994). *Reversed realities: Gender hierarchies in development thought*. Verso.

Khadka, M., Karki, S., Karky, B. S., Kotru, R., & Darjee, K. B. (2014). Gender equality challenges to the REDD initiative in Nepal. *Mountain Research and Development*, *34*(3), 197–207.

Kinasih, S. R., & Wulandari, I. (2021). Pembagian Kerja Berdasarkan Gender dalam Pengelolaan Agroforestri di Hulu DAS Citarum. *Umbara*, *6*(1), 29–44.

Lama, A. S., Kharel, S., & Ghale, T. (2017). When the men are away: Migration and women's participation in Nepal's Community Forestry. *Mountain Research and Development*, *37*(3), 263–270. https://doi.org/10.1659/MRD-JOURNAL-D-16-00092.1

Leder, S. (2022). Beyond the 'Feminization of Agriculture': Rural out-migration, shifting gender relations and emerging spaces in natural resource management. *Journal of Rural Studies*, *91*, 157–169.

Leone, M. (2019). Women as decision makers in community forest management: Evidence from Nepal. *Journal of Development Economics*, *138*, 180–191.

Mai, Y. H., Mwangi, E., & Wan, M. (2011). Gender analysis in forestry research: Looking back and thinking ahead. *International Forestry Review*, *13*(2), 245–258.

Marin, A. B., & Kuriakose, A. T. (2017). *Gender and sustainable forest management: Entry points for design and implementation*. Washington, DC: Climate Investment Funds.

Moser, C. O. (1989). Gender planning in the third world: Meeting practical and strategic gender needs. *World Development*, *17*(11), 1799–1825.

Moser, C. O. (2014). *Gender planning and development: Revisiting, deconstructing and reflecting*. England: Development Planning Unit, The Bartlett, University College London.

Murer, C., & Piccoli, A. (2022). Affirmative policy in Nepal's Community Forestry: Does it make a difference in terms of social sustainability? *Sustainability (Switzerland)*, *14*(9), 1–19. https://doi.org/10.3390/su14095598

Mwangi, J. W. (2017). *A gender assessment of water resource management in Kisamis, Kajiado County*. Doctoral dissertation, University of Nairobi.

Nightingale, A. (2006). The nature of gender: Work, gender, and environment. *Environment and Planning D: Society and space*, *24*(2), 165–185.

NSIS. (2020). State of social inclusion in Nepal: Caste, ethnicity and gender. Evidence from Nepal Social Inclusion Survey 2018.

Nuberg, I. K., Shrestha, K. K., & Bartlett, A. G. (2019). Pathways to forest wealth in Nepal. *Australian Forestry*, *82*(sup1), 106–120.

Ojha, H., & Hall, A. (2023). Transformation as system innovation: Insights from Nepal's five decades of community forestry development. *Innovation and Development*, *13*(1), 109–131.

Oldekop, J. A., Sims, K. R., Karna, B. K., Whittingham, M. J., & Agrawal, A. (2019). Reductions in deforestation and poverty from decentralized forest management in Nepal. *Nature Sustainability*, *2*(5), 421–428.

Overholt, T. C., Anderson, M. B., Cloud, K., & Austin, J. E. (1984). *Gender roles in development projects. A case book* (p. 326).

Pandey, H. P., & Pokhrel, N. P. (2021). Formation trend analysis and gender inclusion in community forests of Nepal. *Trees, Forests and People*, *5*, 100106.

Resurrección, B. P., Goodrich, C. G., Song, Y., Bastola, A., Prakash, A., Joshi, D., Liebrand, J., & Shah, S. A. (2019). In the shadows of the Himalayan Mountains: Persistent gender and social exclusion in development. In P. Wester, A. Mishra, A. Mukherji, & A. B. Shrestha (Eds.), *The Hindu Kush Himalaya assessment mountains, climate change, sustainability and people* (pp. 491–516). Springer International Publishing. https://doi.org/10.1007/978-3-319-92288-1

Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (2013). *Feminist political ecology: Global issues and local experience*. Routledge.

Quisumbing, A. R., & Pandolfelli, L. (2010). Promising approaches to address the needs of poor female farmers: Resources, constraints, and interventions. *World Development*, *38*(4), 581–592.

Sayuti, R. H., & Valentino, N. (2022, December). Perspective in community forest management in Central Lombok Regency. In *IOP Conference Series: Earth and Environmental Science*, *1107*(1), 012117.

Sedhain, J., & Galang, E. I. N. E. (2022). Gendered values, roles, and challenges for sustainable provision of forest-based ecosystem services in Nepal. In I. Misiune, D. Depellegrin, & L. E. Vigl (Eds.), *Human-nature interactions* (pp. 101–112). Springer, Cham. https://doi.org/10.1007/978-3-031-01980-7_9

Sunam, R. K., & McCarthy, J. F. (2010). Advancing equity in community forestry: Recognition of the poor matters. *International Forestry Review*, *12*(4), 370–382.

Sundberg, J. (2016). Feminist political ecology. *International encyclopedia of geography: People, the earth, environment and technology: People, the earth, environment and technology*, 1–12.

Sunderland, T., Achdiawan, R., Angelsen, A., Babigumira, R., Ickowitz, A., Paumgarten, F., Reyes-Garcia, V., & Shively, G. E. (2014). Challenging perceptions about Men, Women, and forest product use: A global comparative study. *World Development*, *64*, S56–S66.

Tamang, S., Karki, R., Paudel, N. S., Timsina, S., Banjade, M. R., & Shrestha, K. K. (2020). Gender Equity in Forest Management: Literature Review for Identifying Research Priorities in Nepal's Changing Context. *Research Paper Series on Agroforestry and Community Forestry in Nepal, 2020-05*, 1–12. ForestAction Nepal.

Truelove, Y. (2011). (Re-) Conceptualizing water inequality in Delhi, India through a feminist political ecology framework. *Geoforum*, *42*(2), 143–152.

Wagle, R., Pillay, S., & Wright, W. (2017). Examining Nepalese Forestry Governance from gender perspectives. *International Journal of Public Administration*, *40*(3), 205–225. https://doi.org/10.1080/01900692.2015.1091015

18 The business potential of community forestry

Regulatory barriers, market uncertainty, and community struggles

Govinda Paudel, Naya S. Paudel, Craig Johns, Dinesh Paudel, Dil Khatri, Krishna K. Shrestha, and Hemant Ojha

18.1 Introduction

Community forestry (CF) in Nepal has made considerable progress in forest conservation, but its impact on generating local income and employment has been considered moderate (Luintel et al., this volume; Gritten et al., 2015; Paudel et al., 2022; Pokharel, 2012). There is a growing realization that CF's economic contribution should be increased for households and individual users by improving the economic utilization of surplus forest products (Bhatta et al., 2021; FAO, 2018; Kanel and Ojha, 2005; Subedi et al., 2014). This aligns with the shifting global policy narrative since the 1990s focusing on generating jobs and income through community forest enterprises (CFEs) (Anderson et al., 2006; ASFN, 2017; Tomaselli & Hajjar, 2011). This policy narrative is animated by expected outcomes including, increased the production of timber and non-timber forest products (NTFPs), meeting local needs for forest products, and increased flow of raw materials for forest-based enterprises that, in turn, create jobs and income (Antinori & Bray, 2005; Del Gatto et al., 2018; Peredo & Chrisman, 2006).

Since the 1990s, national and donor-funded projects have supported some of the community-based forestry enterprises, aiming to maximize timber production and promote associated enterprises (GoN, 2014). For instance, a Swiss forestry project introduced the concept of pro-poor enterprises to foster partnerships between communities and private investors (Paudel, 2012; Pokharel & Nurse, 2004). UNDP provided financial, technical, and business development services to small enterprises (UNDP, 2016). However, most donor-funded projects prioritized NTFPs-based enterprises (Subedi & Khanal, 2014). Private sector companies, such as Himalayan Bio-trade Ltd., emerged to develop partnerships with communities and established market linkages with international buyers. Meanwhile, the Nepal government revised some key policies such as the Forest Sector Strategy, periodic development plans, and forest acts and regulations to create an enabling business environment (GoN, 2015, 2019; NPC, 2024).

Despite these attempts, CFEs have achieved far less than anticipated (GoN 2016; MSFP, 2012). A government study found that forest-based enterprises

DOI: 10.4324/9781032705613-24
This chapter has been made available under a CC BY-NC-ND license.

had "little or had limited success" (GoN, 2016). Development projects also acknowledged that initiatives taken to promote forest enterprises were unsuccessful (MSFP, 2012). Many foreign aid-supported enterprises have ceased operations or are experiencing operational loss. For instance, two sawmills closed in our research sites (Chaubas and Chautara) provide exemplary cases of such failure. Our research suggests that the CFEs struggled to survive due to policy/institutional constraints and unfavorable markets. For example, inadequate and uncertain raw material supply and exhaustive regulatory and administrative requirements in the transportation, processing, and marketing of timber resulted in high transaction costs and reduced profitability (Adhikary et al., 2019; GoN, 2016; Paudel et al., 2018; Shrestha et al., 2022).

The chapter sheds light on whether and to what extent CF can be commercialized, whether CF can operate businesses, and whether current policies are conducive to forestry business. We tackle this question by bringing insights from over a decade-long action research and reviewing relevant literature, existing policies, and current practices. Empirical data were collected from (i) value chain workshops and interviews with key industry stakeholders, (ii) forest policy labs, and (iii) detailed analysis of two CFEs. We begin by reviewing literature and debate about community-based forest enterprises and then move on to the general context of forestry business in Nepal. After outlining approaches and methods, we present our cases. We then present key analytical themes and discuss whether and how community-based forest enterprises work. Finally, we conclude by drawing key conceptual and policy implications.

18.2 CFEs: Wider debate and analytical framework

CFEs have received international attention in recent decades, largely focusing on economic benefits with little discussion on entrepreneurship. Entrepreneurship entails organizing the capacity and willingness of individual(s) or institution(s) in a profit-making business (Moroz & Hindle, 2012; Zahra et al., 2009), requiring considerable innovation, risks, and uncertainty to maximize profits and generate income and employment opportunities (De Carolis & Saparito, 2006). Development economics research has established that the increased rural poverty and deteriorating livelihoods are the result of a lack of enterprising activities, economic inefficiency, inability to participate in the market, and a tendency to produce only for subsistence use (Craig & Porter, 2006; Macqueen, 2008; Scherr et al., 2004; World Bank, 1994). Promoting enterprises based on the principles of economic efficiency and entrepreneurship at the local level has become a key global economic agenda. Acknowledging the potential of enterprises to promote growth, governments in the Global South and donor communities have worked together to increase economic growth by introducing policies that reduce government control and promote a market-based economy (Paudel & Paudel, 2010; World Bank, 2010).

Neoliberal policies, however, have been criticized for exploiting forest resources (and people) and controlling local production processes (Agbeibor, 2006; Antinori & Bray, 2005; Marshal et al., 2003). In response, CFEs emerged as a way to meet the twin objectives of conservation and economic growth,

assuming that community enterprises can contribute to livelihood improvement, sustainable forest management, and environmental conservation (Antinori & Bray, 2005; Del Gatto et al., 2018; Peredo & Chrisman, 2006; Wunder, 2001). For instance, studies from Mexico and other Latin American countries demonstrate the emergence of social enterprises (Anderson et al., 2006; Peredo & Chrisman, 2006) and highlight their potential to improve the socio-economic condition of local communities (Anderson et al., 2006; Tomaselli & Hajjar, 2011). Experiences of Southeast Asian countries such as Indonesia and Vietnam also suggest that the communities' forest-based business operations can enhance economic and environmental benefits provided such enterprises can exercise autonomy from the government (Le et al., 2013). These experiences suggest that community-based businesses have the potential to bring social, economic, and environmental improvements (Soviana, 2015). Moreover, scholars highlight the ability of community-based enterprises to address local needs and environmental concerns, transform communities into entrepreneurs, and generate returns on investment (Anderson et al., 2006; Antinori & Bray, 2005; Peredo & Chrisman, 2006).

For the empirical analysis, we assess two CFEs against the key characteristics of a business, such as investment, profit-making actions, risks, and reinvestment. Investment and profit potential are essential for sustaining enterprises, with reinvestment from both internal (profits) and external sources driving growth (Chakravarty & Xiang, 2011). However, economic efficiency and investment prospects alone do not guarantee sustainable operation and growth.

Reinvestment depends on financial and diverse non-financial enabling (or disabling) factors like property rights (Cull & Xu, 2005), policy environment, business capability, market prospects, technological innovation (or adoption), and institutional arrangement. We will examine the two CFEs cases in light of these characteristics, as depicted in Figure 18.1, to help unpack the challenges around CFEs in Nepal.

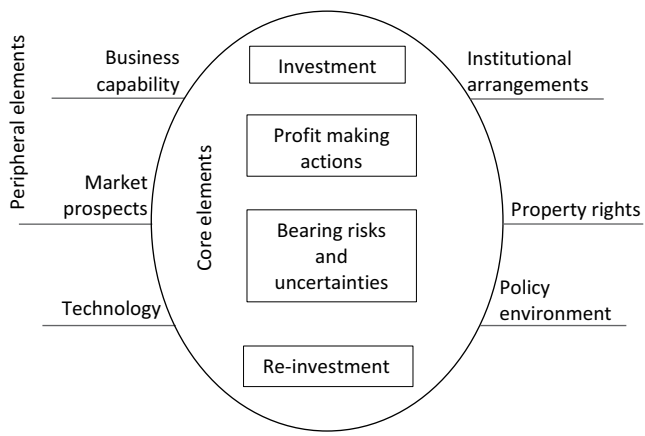

Figure 18.1 Key factors of enterprise development and growth.

Source: Chakravarty and Xiang, 2011; Cull and Xu, 2005.

18.3 CFEs in the Nepali context

Achieving prosperity through forestry, especially through CFEs, is as one of the key goals of the forest sector in Nepal (NPC, 2024). Accordingly, the forest sector has been recognized as "economic sector" (GoN, 2015), with policies aiming to protect, promote, and utilize forests and encourage investment. These constitutional and policy commitments to economic development have been reflected in the periodic plans. For example, the current 16th plan (2024/2025 to 2028/2029) prioritizes green employment, an environmentally friendly economy, and local value addition. The government and its development partners have promoted forest enterprises by creating an enabling policy environment, fostering market linkages, and developing entrepreneurial skills (ANSAB, 2009; Subedi et al., 2002; Subedi et al., 2014).

The Micro-Enterprise Development Program (MEDEP), which has been implemented for over 20 years, is a flagship program of the government and UNDP aiming to reduce poverty through enterprises. The program claimed to have promoted over 40,000 businesses across the 35 districts of Nepal (GoN, 2010), including two of our case study CFEs. According to one estimate, approximately USD 73 million has been invested in small-scale forest enterprises, producing outputs equivalent to USD 144 million and substituting import of wood/wood products worth USD 135–150 million.

Despite this potential and seemingly positive policy commitment, economic returns from these enterprises have been modest. It is a paradox that despite ever-increasing timber imports from overseas, national attention to the active use of CF timber has been limited (Paudyal et al., 2021). On the one hand, timber and other forest products worth millions of dollars have remained unutilized in the forests. On the other hand, CFEs struggle to get a supply of raw materials and maintain sustainable operations that could benefit the local communities (FAO, 2018; Gritten et al., 2015; Shrestha et al., 2022). This situation has raised questions about the extent to which Nepal can create economic opportunities from the resources generated from CF and whether community-based forest enterprises help support rural livelihoods.

18.4 Methodology

Our approach is participatory action research working with communities and policymakers to undertake experimental work to facilitate enterprise-oriented management of community forests in the two districts. We draw on decade-long action research interventions on CFEs. Using a case study approach, we examine how the CFEs operated, analyze their performance, and explore how actors and policies shape the business environment that constrains or promotes their growth. The two local-level cases include the Chaubas Community Sawmill in Kavrepalanchowk and the Portable Sawmill in Sindhupalchowk (Figure 18.2). We adopt a qualitative inquiry (Lune & Berg, 2017) to analyze the socio-economic dynamics around the development of enterprises.

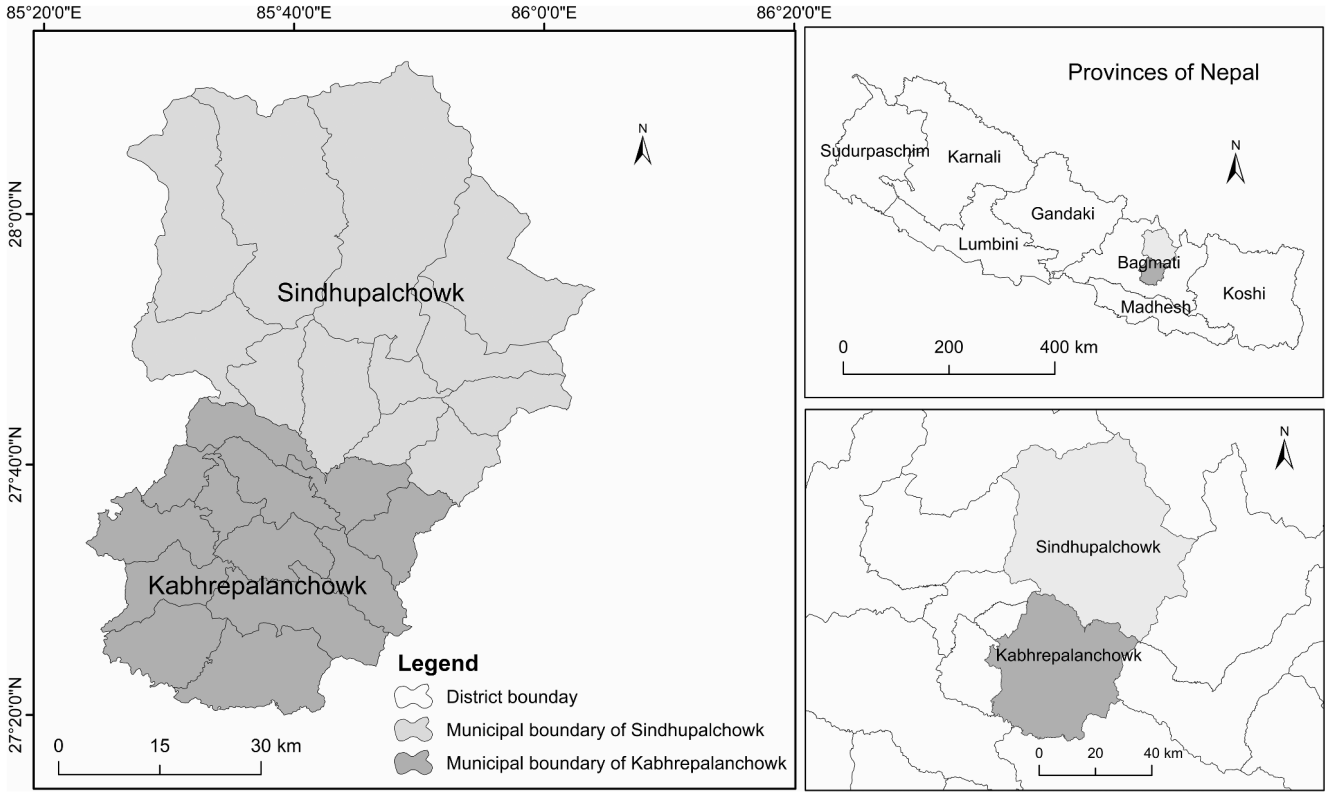

Figure 18.2 Case study sites for the research.

Source: Authors.

The empirical insights and field data were collected from three different but intricately connected sources. Firstly, we used two enterprise cases: the Chaubas Community Sawmill in the Kavrepalanchowk District, which provided insights into the status of the sawmill, the local process that helped establish and run the sawmill, and broader legal, economic, and political and a portable sawmill in Sindhupalchowk, where training, testing, and experimentation provided insights into how to operate it and whether there are prospects of upscaling and institutionalizing it.

Secondly, we also drew on five policy labs conducted with local stakeholders organized between 2020 and 2023 to foster policy debate and contribute to research-informed policy making, focusing on the policy and institutional aspects of CFEs. In the labs, researchers presented research findings among the key stakeholders to generate (or suggest) innovative solutions to particular policy problems.

In addition, we draw from six business literacy workshops conducted in the case study districts. Owners and managers of the sawmills and furniture companies discussed the policy and legal provisions relating to the forestry business, identified gaps, assessed the prospects of forest-based enterprises, and explored potential coping strategies. Expert consultations, interviews with government officials and other support agencies, and focus group discussions with entrepreneurs provided complementary data. We also reviewed key policy documents relating to forestry enterprises that involve a detailed examination of the contents of policies that are publicly available (Tracy, 2020).

18.5 Findings

The findings of this study are segmented into two case studies and two project activities. First, we provide cases of an attempt to revive the Chaubas Community Sawmill and experiment with the operation of a portable sawmill. Then, we provide a brief account of research activities viz policy labs and the value chain workshops to identify barriers to forestry enterprises and ways to enhance research-policy linkages.

18.5.1 Case 1: Chaubas Community Sawmill

The sawmill was established in 1996 as a joint venture among four community forest user groups (CFUGs) with support from an Australian forestry project. The project provided technical assistance, logistics, and start-up funding. The sawmill profited for the first few years but failed to sustain its operation as the external support declined. Finally, it ceased operations, leaving behind unattended machines and unsecured buildings and shades.

In 2013, the project team collaborated with the local communities and forest officials to revive the sawmill. This engagement provided an opportunity to understand the local dynamics of CFE operation. To find a viable institutional arrangement to govern and run the sawmill, the research team facilitated

discussions between communities, the sawmill management board, and forest authorities. In addition, business planning support and seed money were provided to kick-start the sawmill's operation. Forest authorities, the Cottage and Small Industries Office, and the Federation of Community Forest Users confirmed their support in operating the sawmill. Despite such attempts and commitments, the sawmill could not sustain its operation.

One key issue was the complexities arising from unsupportive policies that do not recognize CFUGs as legal business entities. As a result, the sawmill had to be registered as a private firm even though the CFUGs wanted it to get registered as a community firm. The Department of Cottage and Small Industries required the identity (e.g., citizenship card) of the individual(s) to register any businesses, meaning that from a legal point of view, all assets, investments, and profits become properties of individuals whose identities were presented during the registration, not the community. Members of CFUGs did not have the trust and enthusiasm to increase investment in a privately registered sawmill. In addition, the policies restricted sawmills from directly purchasing timber from its CFUGs members, having to get it through an open bidding. Besides, timber supply was always uncertain and unpredictable due to sudden and frequent bans on felling trees. In addition, the sawmill management board lacked business orientation and capacity, and could not maintain business secrecies as the decisions needed to be made transparently during the meeting. Individuals on the management board did not see any (private) incentive to invest their time and expertise in this collective endeavor. Community leaders were also reluctant to collaborate with the private sector, and private investors were unwilling to invest in the mill, doubting that the mill management board or its member groups would increase their commitment.

Key lessons from this case include the regulatory provisions on timber harvest, trade, and enterprise registration that do not favor communities. Nepal's legal framework does not recognize communities as business entities, and the concept of community business, e.g., those run by CFUGs, is absent. Additionally, issues like intra-community conflicts, lack of business capacity, and low trust hindered (and undermined) the sawmill's performance.

18.5.2 Case 2: Experimentation of portable sawmill

The research team also undertook action research on a portable sawmill in Sindhupalchowk District to understand the prospects of mobile sawmilling within community forests. Traditional sawing facilities were labor-intensive, unsafe, inefficient, and produced low-quality timber. In addition, stationary sawmills are mainly located around district headquarters or roadhead towns and transporting logs to and from these sawmills is costly for a large population. So, they have become obsolete and unavailable to communities (Aryal et al., 2022) and communities are looking for alternatives, where portable sawmills could be a viable option.

The research team organized multiple meetings with forest officials, municipality, communities, their networks, and other relevant stakeholders to discuss the prospects of portable sawmilling. The research supported communities in forming and registering a multi-stakeholder body called the Cluster Level Forest Management Committee. The Divisional Forest Office (DFO) agreed to provide its portable sawmill to this committee for experimental operation. The cluster committee then contracted with DFO and obtained the government-owned machine, a Canadian-made Norwood LumberMate Portable Sawmill, for experimental purposes. During the experiment, the sawmill processed over 3,000 cubic feet of timber. We collected data on technical performance, fuel efficiency, timber quality, convenience of use, social acceptability, and cost-effectiveness. It was found that the sawmill was cheap, safe, easy to operate, and produced quality lumbers.

Despite the prospects of a viable sawmilling, it could not be institutionalized. The first major hurdle was a lack of operational guidelines and low enthusiasm among the forest official, who questioned how to monitor the sawmill's operation across the district. Additionally, uncertainty in timber supply and DFO's reluctance to take it further, given the lack of resources for further institutionalization hindered progress. Though the action research has opened up some legal space, those initiatives could not be materialized.

18.5.3 Activity 1: Policy labs

The role of policy actors and practitioners in utilizing research findings while making policies or implementing them is often questioned. Literature suggests that policy labs can enhance research-policy linkage by highlighting two merits of the policy lab approach. First, it links research with policy, enhances research communication, and facilitates policy uptake of research (Ojha et al., 2019). Second, it provides policymakers and practitioners with innovative solutions for policy problems (Olejniczak et al., 2020; Wellstead & Nguyen, 2020; Wellstead et al., 2021).

The policy lab approach entails five steps (Figure 18.3): First, researchers identify specific policy problems for academic attention. Second, they collaborate with relevant stakeholders to conduct research. Third, the policy actors, researchers, practitioners, and relevant stakeholders sit together for a policy lab to present and discuss the findings. Fourth, they document the commitments of each of the stakeholders in light of the new evidence. The final step is the review of those commitments to assess implementation and identify future research needs.

The research team conducted three policy labs to foster dialogue among policy actors, practitioners, and researchers. The first lab focused on policy issues and operational hurdles related to timber transportation and sawmilling. This policy lab identified policy inconsistency, administrative hurdles, and managerial and technical capacity as the major constraints to CFEs.

The second policy lab focused on issues associated with timber management, harvest, and sale from private forests. The policy lab identified key

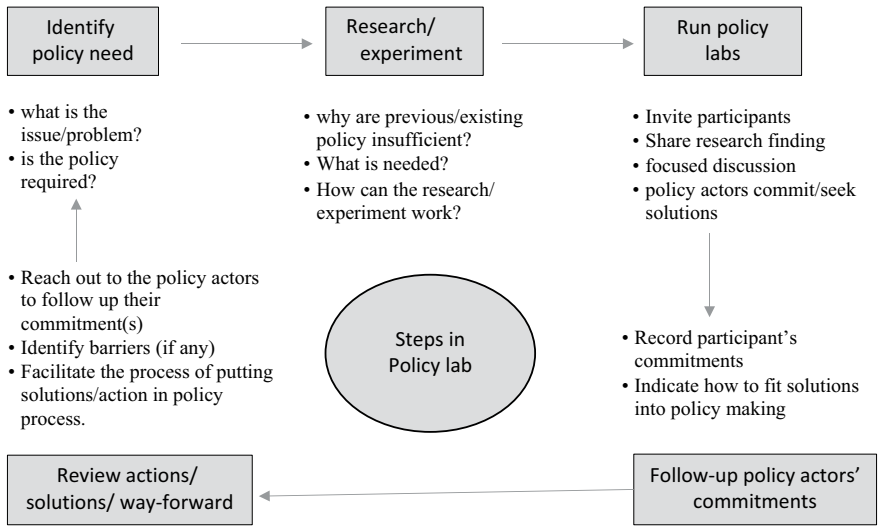

Figure 18.3 Key steps of conducting policy lab.

Source: Authors.

barriers to timber production, transportation, and marketing and discussed the potential ways to tackle these obstacles. Private forest growers are also members of the CFUG, and many of the legal challenges surrounding the timber trade in CF and private forests are common, overlapping, and pressing.

The third policy lab discussed the prospects and challenges of operating portable sawmills. It aimed to share the learning from the experimentation of portable sawmills with the policy actors and see the prospects of upscaling and institutionalizing portable sawmilling. Forest officials and municipal representatives agreed to develop a detailed business case for the portable sawmilling, an operating guideline, and prepare plans for future expansion and upscaling.

18.5.4 Activity 2: Business literacy workshops

Business literacy workshops were aimed at identifying and analyzing the policy environment on forestry business and exploring strategies to expand the existing space. These workshops brought together the key actors, namely CFUG representatives, furniture makers, carpenters, and timber contractors, to share experiences about regulatory and operational barriers, such as increased restrictions, complicated regulations, uncertain policy decisions, new taxes on CF, and the dominance of a few companies which limited competition. The participants also discussed the value chains of primary forest products and how entrepreneurs could benefit from value addition and marketing.

The entrepreneurs shared their everyday struggles with regulatory and administrative challenges that discourage establishing and operating forestry

businesses. These included increased restrictions on harvesting and marketing of forest products, complicated regulatory requirements, unpredictable policy decisions, ban on tree felling, and imposing new taxes on CF. In addition, the auction process was dominated by a few big companies that discouraged smaller businesses. The recent transition to federalism further complicated the regulatory environment, with unclear divisions of roles, responsibilities, and rights among the federal, provincial, and local governments. Timber traders and sawmillers also faced unpredictable raw material supply. The existing timber value chain is long, opaque, and burdened by over-regulation, multiple taxes, inconsistent government policies, all hindering forest enterprise operations.

Overall, the two cases of action research viz policy labs and business literacy workshops provide a general picture of the policy environment in which forestry enterprises operate. Despite seemingly supportive political commitments, a business-enabling environment is lacking. The regulatory barriers create an unsafe and unfair operating environment for entrepreneurs.

18.6 Discussion

This section evaluates empirical data in relation to the core elements of enterprise development and growth, focusing on the prospects for investment and profit-making in forestry enterprises. It examines whether and how CFUGs can run businesses. The research team has tried to determine the significance of enabling factors such as business capability, market prospects, institutional arrangements, and policy environment (see Figure 18.1) in forestry enterprises' sustainable operation and growth. This analysis is significant because the development and growth of forestry enterprises is vital to understanding and overcoming factors leading to enterprise failure. We examine three pertinent questions: (1) Whether and to what extent CF can be commercialized, (2) Whether CFUGs can operate businesses, and (3) Do we have an enabling policy environment, the legal and procedural processes, for enterprise development?

18.6.1 Whether and to what extent can Nepal's CF be commercialized?

Research outside Nepal shows optimism about CFEs helping achieve twin objectives of conservation and development (Antinori & Bray, 2005). However, our research suggests that unclear policy direction and complex regulatory and administrative practice hinder the development of CFEs, which continues despite external technical and financial support. Our findings reveal the practical and contextual complexities that constrain the entrepreneurial use of surplus forest products in CF.

In Nepal, research by ANSAB indicates that the forestry sector could generate employment for 1.4 million people annually, with forest-based industries generating over half a billion dollars (Subedi et al., 2014). The sale of unprocessed logs in CF alone would generate capital of approximately USD 280 million (Paudel et al. 2014). Other studies have shown that the quality and

quantity of forest products in Nepal have increased significantly (Bluffstone et al., 2015; Bowler et al., 2012). Forest resource assessment has reported a 5% increase in forest area from the earlier evaluation (DFRS, 2015). Despite growing demand for forest products and services, commercial use of CF products is extremely challenging.

In the past, government, development partners, and external support organizations invested in programs to materialize the prospects of generating forest-based economic opportunities. Case study districts also have forests with harvestable trees, and communities were interested in felling matured stands to sell them on the market. Nationally, there is a market for timber as Nepal has been importing about four million cubic feet of sawn timber in the last five-year period (Paudyal et al., 2021). Expanding markets, improving development infrastructure, and increasing banking and insurance networks across the country can be capitalized to upscale and expand forestry enterprises (FAO, 2018). However, realizing this potential requires an enabling policy environment.

Some scholars argue that CFEs cannot perform well and are not competitive. Instead, they suggest private-sector leadership in forest enterprises (Badini et al., 2018). Others criticize free market-centric development believing that it exploits local resources and people, arguing that economic growth is achieved at the cost of environmental degradation and rural communities (Igoe & Brockington, 2007). Others also argue that community-run businesses struggle to survive not because they are inappropriate institutions for business but because they lack an enabling policy environment, business development services, and capacity (Gnych et al., 2020; Greijmans et al., 2014; MSFP, 2014). Constraints in raw material supply, transportation, processing, and marketing further deter investment and innovation (Adhikary et al. 2019; GoN 2016; Paudel et al., 2014). The expectation of bringing prosperity through CFEs is difficult without creating an enabling policy environment, enhancing entrepreneurial capability, and increasing business support services.

18.6.2 Can CFUGs operate a business and can market work for communities?

The question of why some collective enterprises fail while others succeed is complex. We observed that the Chaubas community sawmill, collectively run by communities, had struggled to survive due to policy constraints, limited business capacity, and benefit-sharing mechanisms. These factors, along with business partnerships, determine the success or failure of community businesses.

Debates persist over whether a free market can benefit forests and the community without compromising the community's autonomy. The proponents of free market concepts argue that state control hinders enterprise growth (McCarthy, 2005; Petrova, 2014), while critics claim market efficiency-based model does little to benefit rural communities or the environment (Brockington, 2003; Igoe & Brockington, 2007; Petrova, 2014). Therefore, we emphasize the need for a hybrid approach in which state and non-state actors, including the

private sector, reorganize and collaborate to generate environmentally responsible economic activities in forestry. Partnerships with the private sector could help community enterprises enhance their business capacity, attract investment, and support value addition and marketing. We also need to analyze the limits and possibilities of community groups. Limits can be small in scale, lack of market capacity or information, and/or its institutional limits. Note that CFUGs are institutionalized for protecting resources and supporting subsistence living rather than doing business. Further research and experimentation are needed to explore the opportunities and appropriate institutional re-arrangement and community-private partnership to benefit from CFEs.

Our analysis shows that it is challenging, if not impossible, for communities to operate businesses across all value chain levels, and that enterprises with collective management struggle to survive without clear incentive mechanisms. People are less motivated by collective profits that do not guarantee individual gain. In most cases, community-based models rely on voluntarism, which is becoming increasingly unsustainable without any prospects of personal gain. In addition, emphasis on including women, *Dalits*, and other marginalized communities in collective enterprises without investing in their business capacity development does not contribute to enterprise development. The state and other supporting organizations could provide business services, technology, and capacity development to help communities and smaller businesses compete with larger ones.

18.6.3 Do we have an enabling policy environment for enterprise development?

Public discourse and broader policy framework in Nepal seem to promote forest-based enterprises, emphasizing the role of the private sector in supporting forest conservation and economic development (GoN, 2016; Subedi et al., 2014). Key policies, such as the Constitution of Nepal 2015, Forest Sector Strategy 2016, 16th Five Year Plan, Forest Regulation 2019, and Forest Act 2019, have prioritized forest-based growth and envisioned that forestry enterprises contribute to creating income and employment opportunities. These policies also acknowledged that the forestry sector has contributed little to the local and national economy and, therefore, encouraged the private sector to work with the communities in upscaling economic outcomes. However, these policy intents are not properly reflected in lower-level regulatory instruments and institutional practice, and therefore, the implementation of these policies fall short.

Our research finds that the CFEs are not fostering well despite a growing market, availability of technology, and some assurance of property rights. Policies encouraging private sector collaboration with communities face significant obstacles due to unsupportive and rather discouraging administrative procedure. Additionally, legal requirements for forest product harvesting, transportation, processing, and sales are too complex and burdensome. Complexities in enterprise policies and governing institutions create confusion and provide

space for corruption that essentially leads to an increase in the transaction costs of enterprises (Paudel & Paudel, 2010; Sharma et al., 2017).

Policy interpretation by officials is often ambiguous hence, misconstrued and inappropriately implemented (Rai et al. 2016; Subedi et al. 2014). Laws do not even recognize the community as an enterprising unit, discouraging community-based enterprises (Paudel & Paudel, 2010). Raw material supply is always uncertain and frequently subject to the personal discretion of the officials and whimsical decisions of the political leaders, discouraging long-term private sector investment in forestry enterprises. Banks and other financial institutions are also reluctant to invest in CFEs due to the frustrating policy environment.

In addition, the lack of a safe working environment, such as a widespread state of impunity and statelessness, hinders the transparent and competitive bidding. This increases the risks, decreases profit prospects, and discourages investment (and reinvestment). Furthermore, the legal requirements and other procedural compliances apply to all enterprises irrespective of their size, creating an unequal playing field for family-owned, small and medium enterprises. Forestry businesses in the CFUGs are mostly small scale, and policies do not allow resource pooling from across different community forests. Community and private businesses need to go through all the legal processes individually.

Despite a well-established network of CF institutions with significant potential, these enterprises have yet to generate the expected economic outputs. A considerable departure from the existing policies and institutional arrangements is necessary to promote CFEs. Past efforts centered around promoting collective enterprises based on joint investment and operation have not delivered the anticipated result due to an unsupportive policy environment. Therefore, it is time to foster private and community partnerships in forestry enterprises and experiment (and build capacity) with different partnership models. We need to think about CFEs and, in addition to supporting the subsistence livelihood, how these businesses generate economic opportunities and contribute to the local and national economy.

18.7 Conclusion

Nepal's CF has been unable to fully realize its economic potential, despite significant progress in increasing forest cover and improving the quality of forest products and services (Paudel et al., 2022). Despite the progressive forest policies and enormous economic potential, regulatory complexities, uncertain policies, and limited access to financial support have hindered the growth of forestry businesses, leaving them underutilized and economically unproductive. Frequent policy changes, such as unpredictable regulations and timber bans, have eroded trust in the market, while a lack of community business support and financial services has demotivated entrepreneurs in building business partnerships with the communities. The private sector is disengaging due to over-regulation and an unstable business environment. There have been a lot

of experimental efforts, but the forestry businesses in CF remain underutilized, either struggling to survive or operating with meager economic returns, falling short of generating income and employment opportunities.

The primary reason behind such underperformance is the complex, time-consuming, and inconsistent regulatory requirements, which pose formidable barriers to enterprise development.

However, factors like rising remittances, a growing middle class, increasing forest resources, and expanding markets present opportunities to develop and upscale community-based forest enterprises. Improved development infrastructure and financial networks (e.g., banking or insurance services) could support this growth. These factors are necessary but not sufficient for forest-based growth. A firm commitment from the government and supporting organizations, as well as a conducive policy environment are essential to create an enabling business environment. Policies should encourage partnerships between communities and the private sector, enabling businesses to compete with larger firms. A new approach that embraces entrepreneurship, marketing, and political support is needed to transform CF into a viable economic force.

We advocate for a well-considered approach that combines state and private sector collaboration to promote environmentally responsible and inclusive forestry activities. This ensures conservation gains can be sustained or enhanced while undertaking commercial activities. We support the idea of Igoe and Brockington (2007), who argue that the free-market approach does not automatically benefit local communities and the environment, nor does protectionist thinking contribute to enterprise development. We recommend that the state and non-state actors, including the private sector, re-organize and collaborate on business support services, research and development, technology transfer, and capacity development that create a business-friendly environment. Rather than divide and debate discussions between private or community-based enterprises, policies should provide space for forging private-community or public partnerships that open all possible models of entrepreneurial collaboration. Action research efforts to facilitate capacity building and discussions in the policy labs suggest that these changes are not easy due mainly to political and economic roots (Chapter 8 in this volume), an unsupportive policy environment, and demotivating local institutional practices deeply entrenched in government bureaucracy. A new way of thinking that embraces entrepreneurship and marketing competencies with more political attention is required.

Acknowledgment

This work draws from the action research of the Enhancing Livelihoods from Improved Forest Management in Nepal project funded by the Australian government through the Australian Centre for International Agricultural Research. However, the analysis and opinions expressed, as well as the claims made in this chapter, are those of the authors and do not necessarily reflect the positions of the Australian government.

References

Adhikary, A., Jhaveri, N., Karki, R., & Paudel, N. S. (2019). Analysing the investment effects of forest rights devolution in Nepal's community-managed forest enterprises. *Working Paper 254*. Bogor, Indonesia: CIFOR. https://doi.org/10.17528/cifor/007445

Agbeibor, W. (2006). Pro-poor economic growth: Role of small and medium-sized enterprises. *Journal of Asian Economics*, *17*, 35–40.

Anderson, R. B., Honig, B., & Perdo, A. M. (2006). Communities in the global economy: Where social and indigenous entrepreneurship meet. In C. Steyaertt & D. Hjorth (Eds.), *Entrepreneurship as social change*. Edward Elgar.

Antinori, C. & Bray, D. B. (2005). Community forestry enterprises as entrepreneurial firms: Economic and institutional perspectives from Mexico. *World Development*, *33*(9), 1529–1543.

Aryal, U., Neupane, P. R., Rijal, B., & Manthey, M. (2022). Timber losses during harvesting in managed Shorea robusta forests of Nepal. *Land 11*(1), 67.

Asia Network for Sustainable Agriculture and Bioresources (ANSAB). (2009). *Challenges and Opportunities for Nepal's Small and Medium Forest Enterprises (SMFEs)*. Food and Agriculture Organization of the United Nations.

ASFN. (2017). *Supporting community forestry enterprises (CFEs) with the ASEAN strategic action plan (SAP) for small and medium enterprises (SMEs)*. Accessed August 28, 2020. https://www.awg-sf.org/supporting-community-forestry-enterprises-cfes-withthe-asean-strategic

Badini, O. S., Hajjar, R., & Kozak, R. (2018). Critical success factors for small and medium forest enterprises: A review. *Forest Policy and Economics 94*, 35–45.

Bhatta, B. P., Chhetri, S. G., Silwal, T., & Poudel, M. (2021). Economic contribution of forestry sector to national economy in Nepal. *Journal of Resources and Ecology*, *12*(5): 620–627.

Bluffstone, R. A., Somanathan, E., Jha, P., Luintel, H., Bista, R., Paudel, N. S., & Adhikari, B. (2015). Does collective action sequester carbon? The case of the Nepal community forestry program. *World Bank Policy Research Working Paper 7327*. Accessed August 10, 2020. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2621881

Bowler, D. E., Buyung-Ali, L. M., Healey, J. R., Jones, J. P. G., Knight, T. M., & Pullin, A. S. (2012). Does community forest management provide global environmental benefits and improve local welfare? *Frontiers in Ecology and the Environment*, *10*(1), 29–36.

Brockington, D. (2003). Injustice and conservation: Is local support necessary for sustainable protected areas? *Policy Matters*, *12*, 22–30.

Chakravarty, S. & Xiang, M. (2011). Determinants of profit reinvestment by small businesses in emerging economies. *Financial Management*, *40*(3), 553–590.

Craig, D. & Porter, D. (2006). *Development Beyond Neoliberalism? Governance, Poverty Reduction and Political Economy*. Routledge.

Cull, R. & Xu, L. (2005). Institutions, ownership and finance: The determinants of profit reinvestment among Chinese firms. *Journal of Financial Economics*, *28*, 1–31.

De Carolis, D. M., & Saparito, P. (2006). Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, *30*(1), 41–56. https://doi.org/10.1111/j.1540-6520.2006.00109.x

Del Gatto, F., Mbairamadji, J., Richards, M., & Reeb, D. (2018). Small-scale forest enterprises in Latin America: Unlocking their potential for sustainable livelihoods. *Forestry Working Paper 10*. Rome: FAO.

Department of Forest Research and Survey (DFRS). (2015). *State of Nepal's forests*. DFRS, Kathmandu.

Food and Agriculture Organization (FAO). (2018). *Small-scale forest enterprise development in Nepal: overview, issues and challenges*. FAO, Rome.

Gnych, S., Lawry, S., McLain, R., Monterroso, I., & Adhikary, A. (2020). Investing in commonly-held resources for inclusive and sustainable development: Lessons from Guatemala, Mexico, Nepal and Namibia. *CIFOR Infobrief 268*. https://www.cifor-icraf.org/publications/pdf_files/infobrief/7499-infobrief.pdf

Government of Nepal (GoN). (2010). *Impact assessment of micro-enterprise development program*. Ministry of Industry & United Nations Development Programme. https://www.undp.org/sites/g/files/zskgke326/files/migration/np/UNDP_NP_Impact-Assesment-of-MEDEP.pdf

GoN. (2014). *Scientific forest management guidelines*. Ministry of Forest and Environment, Nepal.

GoN. (2015). *The Constitution of Nepal*. GoN, Constituent Assembly Secretariat, Kathmandu, Nepal.

GoN. (2016). *Forest Sector Strategy (2016–2025)*. Ministry of Forests and Soil Conservation, Nepal.

GoN. (2019). *The Forest Act 2019*. Federal Government of Nepal.

Greijmans, M., Triraganon, R., & Gritten, D. (2014). *Fundamentals of viable community forestry business models*. Working paper. XXIV IUFRO World Congress. https://www.recoftc.org/sites/default/files/publications/resources/recoftc-0000193-0001-en.pdf

Gritten, D., Greijmans, M., Lewis, S. R., Sokchea, T., Arkinson, J., Quang T. N., Poudyal, B., Chapagain, B., Sapkota, L. M., Mohns, B., & Paudel, N. S. (2015). An uneven playing field: regulatory barriers to communities making a living from the timber from their forests- examples from Cambodia, Nepal and Vietnam. *Forests*, *6*(10), 3433–3451.

Igoe, J., & Brockington, D. (2007). Neoliberal conservation: a brief introduction. *Conservation and Society*, *5*(4), 432–449.

Kanel, K. R. and Ojha (2005). 25 years of community forestry in Nepal: a review of forth national workshop proceedings. *Journal of Forests and Livelihood 4*(2): 56–60.

Le, D., Pretzsh, J., Lehmann, L., & Bao, H. (2013). Transformation of state forest enterprises in Vietnam: A financial analysis of different organizational scenarios regarding the management of natural forests. Tropentag 2013. Available at https://ssrn.com/abstract=2339140

Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences*. Pearson, India.

Macqueen, D. J. (2008). Forest connect: Reducing poverty and deforestation through support to community forest enterprises. *International Forestry Review*, *10*(4), 670–675.

Marshal, E., Newton A. C., & Schreckenberg, K. (2003). Commercialization of non-timber forest products: First steps in analyzing the factors influencing success. *International Forestry Review*, *5*(2), 128–137.

McCarthy, J. (2005). Devolution in the Woods: Community forestry as hybrid neoliberalism. *Environment and Planning*, *37*(6), 995–1014.

Moroz, P. W., & Hindle, K. (2012). Entrepreneurship as a process: Toward harmonizing multiple perspectives. *Entrepreneurship Theory and Practice*, *36*(4), 781–818. https://doi.org/10.1111/j.1540-6520.2011.00452.x

Multi Stakeholder Forestry Programme (MSFP). (2012). *Development assistance in action: lessons from Swiss and UK funded forestry programmes in Nepal*. MSFP, Nepal. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67350/dev-asst-action-lessons-swiss-uk-forestry-progs-np.pdf

MSFP (2014). *Potential of forestry sector in economic growth and development – Short Concept Notes on five themes*. MSFP, Kathmandu.

National Planning Commission (NPC). (2024). *The Sixteenth Plan*. NPC, Government of Nepal, Kathmandu.

Ojha, H. R., Regmi, U., Shrestha, K., Paudel, N. S., Amayua, S. M., Zwi, A., Nuberg, I, Cedamon, E. D., & Banjade, M. R. (2019). Improving science-policy interface: Lessons from the policy lab methodology isn Nepal's community forest governance. *Forest Policy and Economics*, *114*, 101997.

Olejniczak, K., Borkowska-Waszak, S., Domaradzka-Widła, A., & Park, Y. (2020). Policy labs: The next frontier of policy design and evaluation. *Policy Press*, *48*(1), 89–110.

Paudel, D. (2012). In search of alternatives: Pro-poor entrepreneurship in community forestry. *The Journal of Development Studies*, *48*(11).

Paudel, D., & Paudel, G. (2010). *Policy provisions, gaps, and practical constraints in promoting small-scale forest-based enterprises in Nepal*, Micro-enterprise Development Programme, Kathmandu, Nepal, 6–37.

Paudel, G., Carr, J., & Munro, P. (2022). Community forestry in Nepal: A critical review. *International Forestry Review*, *24*(1), 43–58.

Paudel, N., Paudel, G. Karki, R., & Khatri, D. (2014). Revenue and employment opportunities from timber management in Nepal's community forests. *ForestAction Policy Brief 29*.

Paudel, N. S., Adhikary, A., Mbairamadji, J., & Nguyen, T. (2018). *Small-scale forest enterprise development in Nepal: Overview, issues and challenges*. Rome, FAO.

Paudyal, K., Johns, C., Ojha, H. R., Cedamon, E., Karki, R., Paudel, N. S., & Nuberg, I. (2021). Establishment and operation of small-scale forest-based enterprise in Nepal: A critical analysis of issues and challenges. Research Paper Series on improved forest management in Nepal 2021(02).

Peredo, A. M., & Chrisman, J. J. (2006). Toward a theory of community-based enterprise. *The Academy of Management Review*, *31*(2), 309–328.

Petrova, S. (2014). Contesting forest neoliberalization: Recombinant geographies of illegal logging in the Balkans. *Geoforum*, *55*, 13–21.

Pokharel, B. K., & Nurse, M. (2004). Forests and people's livelihood: Benefiting the poor from community forestry. *Journal of Forest and Livelihood*, *4*(1), 19–29.

Pokharel, R. K. (2012). Factors influencing the management regime of Nepal's community forestry. *Forest Policy and Economics*, *17*, 13–17.

Rai, J., Paudel, R. P., & Pathak, R. (2016). *Promoting forest-based enterprises in Nepal: Lessons from piloting activities in Koshi Hill Districts*. ForestAction Nepal.

Scherr, S. J., White, A., & Kaimowitz, D. (2004). *A new agenda for forest conservation and poverty reduction*. Forest Trends, CIFOR and IUCN.

Sharma, B. P., Lawry, S., Paudel, N. S., Adhikari, A., & Banjade, M. R. (2017). Has devolution of forest rights in Nepal enabled investment in locally controlled forest enterprises?, In *2017 World Bank Conference on Land and Poverty*, p. 36.

Shrestha, K. K., Paudel, G., Ojha, H., Paudel, N. S., Nuberg, I., & Cedamon, E. (2022). Community entrepreneurship: Lessons from Nepal's Chaubas community sawmill. *Forest Policy and Economics*, *14*. https://doi.org/10.1016/j.forpol.2022.102779

Soviana, S. (2015). Cooperative, social enterprise, and community-based enterprise: competing, substituting, or complementing? *Management and Organizational Studies*, *2*(2). https://doi.org/10.5430/mos.v2n2p1

Subedi, B., & Khanal, S. (2014). NTFP-based enterprises: Lessons from Nepal for green and fair value-chain development. In P. P. Bhojvaid & N. Khandekar (Eds.), *Sustainable forest management for multiple values: A paradigm shift*. Forest Research Institute, India.

Subedi B. P., Ojha, H., Nicholson K., & Binayee, S. B. (2002). *An assessment of community based forest enterprises in Nepal: Case studies, lesson and implications*. ANSAB, Kathmandu.

Subedi, B. P., Ghimire, P. L., Koontz, A., Khanal, S. C., Katwal, P., Sthapit, K. R., & Khadka-Mishra, S. K. (2014). Private sector involvement and investment in Nepal's forestry: Status, prospects and ways forward. https://ansab.org.np/wp-content/uploads/2024/02/private-sector-involvement-and-investment-in-nepals-forestry.pdf

Tomaselli, M. F., & Hajjar, H. (2011). Promoting community forestry enterprises in national REDD+ strategies: A business approach. *Forests*, *2*, 283–300.

Tracy, S. J. (2020). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact* (2nd edition). Wiley Blackwell.

United Nations Development Programme (UNDP). (2016). *Final report: Mid-term evaluation of Micro-enterprise Development Programme*. UNDP.

Wellstead, A., & Nguyen, S. (2020). *The rise of policy innovation labs: A catalog of policy innovation in the United States*. The Michigan Technological University.

Wellstead, A. M., Gofen, A., & Carter, A. (2021). Policy innovation lab scholarship: Past, present, and the future- introduction to special issue on policy innovation labs. *Policy Design and Practice*, *4*(2), 193–211.

World Bank (1994). *Forest Sector Potentials and Constraints in Nepal*. Kathmandu, Nepal.

World Bank. (2010). *Nepal – Structural Adjustment Project (English)*. World Bank Group, Washington, DC. http://documents.worldbank.org/curated/en/511311468060281203/Nepal-Structural-Adjustment-Project

Wunder, S. (2001). Poverty alleviation in tropical forests: What scope for synergies? *World Development*, *29*(11), 1817–1833.

Zahra, S. A., Gedajlovic, E., Neubaum, D., & Shulman, J. M. (2009). A typology of social entrepreneurs: Motives, search processes and ethical challenges. *Journal of Business Venturing*, *24*(5), 512–532.

Conclusion


Taylor & Francis
Taylor & Francis Group
http://taylorandfrancis.com

19 Reimagining forest communities

Key insights from Nepal's community forestry

Hemant Ojha, Krishna K. Shrestha, Rahul Karki, Naya S. Paudel, and Sony Baral

19.1 Overview

Nepal's four decades of experience developing the community forestry system (CFS) present an intriguing history shaped by a dynamic and evolving context, offering valuable insights into the potential and limitations of community action in ecosystem restoration and enhancing socio-economic well-being. As such, it is a robust case to learn how and to what extent some of the most disadvantaged groups can benefit from the decentralized and community-led efforts of resource management. This chapter synthesizes the most critical insights from 17 chapters, covering four themes, showcasing how a complex CFS evolved from the initial and locally based system of community forestry (CF), through multi-sectoral and cross-scalar analyses of CFS. While the book has an empirical focus, it challenges some fundamental theoretical presuppositions that have guided policy and practice of community action in environmental management.

Some of the insights we present here reinforce existing wisdom and research, others challenge conventional assumptions about CF, revealing opportunities and pathways for strengthening community-based environmental management systems within and beyond Nepal. Drawing on four decades of experience with CF in Nepal, this book weaves together a wealth of research and lived experience to offer grounded and insightful reflections on how communities can sustain their livelihoods while restoring ecosystems in an era of rapid change.

Nepal's state-recognized CF started as a modest, small-scale, localized effort to support indigenous or traditional forest management systems in the hills of Nepal responding to the growing concerns over the so-called "Himalayan environmental crisis" of the 1970s (Gilmour et al., this volume). With support from bi- and multi-lateral agencies concerned with the Himalayan "crisis," CFS expanded nationwide, and today, it has grown into a sophisticated governance regime involving over 20,000 Community Forest User Groups (CFUGs) managing nearly two and a half million hectares of forest land (DoFSC, 2025).

DOI: 10.4324/9781032705613-26
This chapter has been made available under a CC BY-NC-ND license.

While often celebrated as a success story in participatory forest management (Baynes et al., 2015; Libios et al., 2022), the chapters in this volume reveal a more complex picture—one marked by significant achievements in forest restoration but persistent challenges in delivering substantial and equitable livelihood benefits, particularly to marginalized groups. By invoking the notion of CFS, we would also like to emphasize that CFS needs to be seen not just as a local system of resource use, but also as the complex interactions between changing community dynamics, regulatory frameworks, market forces, and power relations among an ever-expanding number of actors operating across multiple scales (see Banjade et al., this volume).

This chapter distills lessons of CFS both as local practice and as a cross-scalar system of governance, drawing on the previous chapters that encompass a broad range of empirical research, practice-based reflections, and policy engagement. The book eschews using a single grand theoretical approach, allowing contributors to use and mobilize a variety of conceptual lenses and approaches to analyze the policy and practice of CFS, including political ecology, institutional economics, and social-ecological systems thinking (as individual chapters have engaged).

In distilling conceptual lessons in this chapter, we have identified "insights" across nine issues that cut across and resonate with contemporary debates in theory, policy, and practice of community participation and decentralization in environmental management. These include: (1) the dynamic nature of community institutions, (2) resource tenure and regulatory practice, (3) market integration and incentives, (4) integration of scientific and local knowledge systems, (5) multi-scalar power dynamics, (6) equity and inclusion, (7) managing forest for restoration and livelihoods, (8) adaptive policy approaches, and (9) planning for revitalization. These insights are particularly relevant as countries worldwide grapple with ambitious forest restoration targets while seeking to improve the social and economic well-being of the communities dependent on forest ecosystems.

Ultimately, Nepal's experience demonstrates the potential and limitations of community-based approaches in achieving these dual objectives. As global initiatives like the Bonn Challenge and the United Nations Decade on Ecosystem Restoration remain high on the agenda, the lessons from Nepal's CF journey offer valuable perspectives for understanding the complexities of achieving restoration and livelihoods together (Figure 19.1).

19.2 CF, landscape restoration, and livelihoods: Critical insights

19.2.1 The dynamic nature of community institutions: Beyond static assumptions

A fundamental insight emerging from Nepal's CF experience is that the notion of "community" in community-based natural resource management is far more dynamic and complex than typically assumed in policy and scholarly discourse.

Figure 19.1 Four decades of Nepal's community forestry: Nine key insights.

The evidence presented in this volume shows that Nepal's CF is facing enormous internal tension and contradictions as the communities become "delocalized" (Ojha et al., 2016), with unprecedented migration and remittance economy leading to reduced dependency on forests for livelihoods. More prominently than any other chapters, Poudel et al. (this volume) demonstrate how three forces, viz. globalization, infrastructure development, and political mobilization, have transformed rural communities in Nepal over the past four decades.

The increasing labor migration, particularly to the Middle East, has dramatically altered local demographic compositions, economic dependencies, and livelihood sources. More importantly, it has changed the forest-people relationship. Today, over 50% of youths are away from their hometown in towns and cities or abroad for employment opportunities (D. Poudel et al., this volume). As Poudel et al. document, remittances have reduced direct dependence on forest resources while creating new land use and resource management patterns. This transformative approach challenges core assumptions about CF based on historical patterns of forest-people relationships around subsistence agriculture and direct forest resource extraction. Similarly, Aryal et al. (this

volume) argue for the need to transform community forests from subsistence-based to commercial-based to address the changing needs of rural communities.

The democratization and modernization of Nepali society have empowered local groups to move beyond traditional agricultural livelihoods, leading to more dynamic and potentially problematic community interests in forest management. As Dahal et al. show, the 1990s' political change was crucial to the genesis of the Forest Act 1993, which significantly devolved forest tenure to local communities, introducing new economic opportunities while exposing local institutions to external influences and pressures. Tiwari et al. (this volume) reveal how these changes have created new political-economic dynamics around forest management, including the emergence of timber markets and associated power relations that local institutions struggle to navigate effectively.

Despite such transformations in the structure and function of the local community, as Khatri et al. (this volume) demonstrate, many CF institutions remain structured around protection-oriented models of collective action that no longer align with contemporary community needs and aspirations. As a result, community institutions have become passive, and forests are not actively managed for livelihoods, leading to increased fire risk and tensions between wild animals and humans. Communities and the relationship between people and forests have changed, but policy response has been slow in responding to that change.

These findings show that the new dynamics of the community need new institutional arrangements beyond traditional common pool resources management systems dominated by subsistence livelihoods. While scholars like Ostrom (1990) emphasized the importance of collective action for managing common pool resources, Nepal's experience shows that the basis for such collective action cannot be found in the immediate benefits and costs that community members see in their involvement in resource management, but how the nature of the community and the relations between individual users and the broader socio-economic change, which reshapes how local households value costs and benefits. As communities become more heterogeneous and externally connected, the motivations and capacities for collective forest management evolve in complex ways that challenge conventional institutional designs.

19.2.2 Resource tenure and regulatory practice

A central insight emerging from Nepal's CF experience concerns the tenure security over forest resources and the extent to which regulatory processes translate formal rights into meaningful community control. While the CFS has often been lauded for its devolution of forest management rights to local groups (Dahal et al., this volume), the evidence in this volume challenges simplistic narratives of tenure security. As Paudel et al. (this volume) document, despite the legal provisions granting communities access and management rights, the actual regulatory and bureaucratic practices frequently undermine

these provisions during implementation. Their analysis also reveals how insecure or ambiguous tenure arrangements, especially around emerging ecosystem services and carbon rights, can undermine CF initiatives despite supportive policy language.

As Paudel et al. and Tiwari et al. argue, complex regulatory practices too often constrain legal rights—through complex administrative requirements, discretionary use of bureaucratic power, techno-bureaucratic manipulations and misinterpretations, and unpredictable administrative behaviors of the state forest agency, and so on. As these and other chapters show, multiple layers of regulation from three tiers of government—from forest management to environmental compliance to anti-corruption measures—create a formidable regulatory landscape for CFUGs to navigate and comply with. This regulatory complexity increases transaction costs and creates opportunities for rent-seeking behavior by various actors in the governance system, as shown by Tiwari et al.

The relationship between formal tenure rights and their practical implementation in CF represents a critical theoretical puzzle at the intersection of institutional theory, governance studies, and political ecology. While conventional property rights theory suggests that secure tenure leads to improved resource management outcomes (Ostrom, 1990), evidence from Nepal's CFS reveals a more complex dynamic where formal rights are mediated through layers of regulatory practices and bureaucratic power relations (Paudel et al., this volume; Tiwari et al., this volume). This suggests the need for a more nuanced theoretical understanding of how tenure security operates in practice. The gap between de jure (legal) and de facto (practiced) tenure rights highlighted in Nepal's experience resonates with the work examining the "rights-in-practice" approach to understanding resource tenure (Ribot & Peluso, 2003; Sikor & Lund, 2009) by demonstrating how regulatory complexity becomes a mechanism for attenuating formal tenure rights. Nepal's CFS also exposes how the resource conservation and sustainability narrative is mobilized against devolution and any market-oriented use of forest products produced in surplus through community investments. After four decades of investment by local communities, they now need more expanded forms of property rights secured through conducive institutional arrangements if community interests and motivation are to be sustained for forest conservation and management.

19.2.3 Market integration

The third insight concerns the complex challenge of linking and integrating markets with CFS. While CF in Nepal originated primarily as a subsistence-oriented institution, evidence demonstrates how changing socio-economic contexts necessitate new approaches to forest-based enterprise development and market engagement.

G. Paudel et al. (this volume) reveal a striking paradox: despite significant increases in forest cover, product availability, and quality, Nepal's community

forests remain economically underutilized. Their analysis shows how regulatory complexities, policy uncertainties, and limited business development support hinder viable forest-based enterprise development—particularly in the timber sector, where frequent trade restrictions and complex administrative procedures significantly increase transaction costs.

Khatri et al. (this volume) demonstrate that when CF expanded into resource-rich regions where commercialization was possible, new patterns of resource control emerged through powerful actor networks. These developments often undermined local autonomy in decision-making and raised concerns about equitable benefit sharing.

Market engagement appears increasingly necessary for sustaining community interest in forest management. Aryal et al. (this volume) argues that, given the decreasing dependence on subsistence forest products and the increasing need for cash income, CF must shift toward more entrepreneurial approaches. This transition requires fundamentally rethinking how community institutions can effectively engage with markets while maintaining their social and environmental objectives.

While traditional commons scholarship focused primarily on subsistence-level resource management (Ostrom, 1990), recent theoretical work on community forest enterprises highlights how changing socio-economic contexts necessitate new institutional arrangements that can balance commercial objectives with collective interests (Foundjem-Tita et al., 2019; Macqueen, 2013).

Nepal's experience demonstrates how regulatory complexity and bureaucratic controls can create what Antinori and Bray (2005) term "institutional barriers" to enterprise development, even when resource conditions are favorable. The concept of "institutional stickiness" (Macqueen et al., 2020) helps explain why traditional CF institutions, designed primarily for subsistence management, struggle to adapt to market opportunities despite growing commercial potential. This suggests the need for what Hajjar et al. (2021) describe as "hybrid institutional arrangements" that can maintain collective resource governance while enabling commercial activities. Such arrangements must address what Cronkleton et al. (2017) identify as the core challenge: developing governance systems that simultaneously manage forest resources sustainably, ensure equitable benefit distribution, and enable effective market engagement in rapidly changing socio-economic contexts.

19.2.4 Knowledge systems integration and learning

The fourth critical insight concerns the complex challenge of integrating diverse knowledge systems across multiple dimensions of forest governance. Evidence demonstrates how knowledge integration affects operational forest management and shapes institutional learning, monitoring systems, and the adaptive capacity of CF. At the domain of forest management at the local level, Karki et al. (this volume) document how silvicultural approaches have evolved from rigid scientific prescriptions toward more integrated systems that

combine technical silviculture with local ecological knowledge. This evolution reflects a deeper understanding of forests as complex social-ecological systems requiring diverse knowledge inputs.

Monitoring and evaluating CFS at the programming level presents another critical knowledge challenge. Luintel et al. (this volume) highlight how limited integration between scientific monitoring systems and community-based observations has constrained understanding of ecological and social outcomes. Their research shows that while communities often possess detailed knowledge about local forest dynamics, this information rarely feeds into formal monitoring frameworks.

At the institutional level, Banjade et al. (this volume) reveal how power relations between technical experts, government agencies, and local communities influence whose knowledge counts in decision-making processes. Their analysis suggests that effective institutional learning requires new platforms for knowledge exchange that can bridge different epistemological traditions while respecting their distinct contributions.

The evidence also highlights how knowledge integration affects system-level adaptation to emerging challenges. As community forests face new pressures from climate change and changing social conditions, the ability to combine scientific insights with local observations becomes increasingly important. Sapkota et al. (this volume) show how CF's adaptive capacity depends on effectively bridging different knowledge systems to understand and respond to evolving threats and opportunities.

Integrating diverse knowledge systems in CF represents a theoretical dilemma. While early scholarship is often privileged scientific knowledge in forest management, recent theoretical work emphasizes "knowledge co-production"—where scientific and local ecological knowledge systems interact to create a more robust understanding of forest ecosystems. However, Nepal's CF has always been unequal (Ahlborgh & Nightingale, 2012; Ojha, 2006). Nightingale's feminist political ecology perspective demonstrates how knowledge claims are inseparable from social relations of power, gender, and caste. This book extends how contestation over knowledge operates across multiple governance scales, from operational management to institutional learning in the CFS system (Baral et al., this volume; Karki et al., this volume; Banjade et al., this volume). It further explains how different epistemological traditions can complement each other if power asymmetries are addressed and more deliberative platforms are created.

19.2.5 Multi-scalar power dynamics

The fifth key insight from Nepal's CF experience concerns the operation of power across multiple scales of governance, from local communities to national policy arenas. While CF is often conceptualized as a regional institution, this volume's evidence demonstrates that its outcomes are shaped by complex power dynamics operating across different scales and involving diverse actors.

Banjade et al. (this volume) identify multiple "frontiers of compact and contention" where local communities, forest bureaucracies, civil society organizations, and market actors create complex networks of power that influence forest governance outcomes. These power relations manifest informal decision-making processes through informal arrangements and practices that shape resource access and control.

Nepal's federalization has introduced new dimensions to these power dynamics. Dahal et al. (this volume) demonstrate how creating provincial governments has led to competing claims over forest authority between different government levels, creating new arenas for power contestation and context-sensitive forest governance. However, Tiwari et al. (this volume) show how these changes have enabled new forms of elite capture and political interference in CF operations.

Power relations also significantly influence knowledge production and use in CF. Banjade et al. reveal how techno-bureaucratic knowledge often dominates decision-making processes despite policies emphasizing local participation. Their analysis shows how power asymmetries between technical experts and local communities affect whose knowledge counts in forest management decisions. This resonates with broader theoretical debates about power and knowledge in environmental governance (Forsyth, 2003; Agrawal, 2005; Dryzek, 2013).

Emerging forest values, mainly through carbon markets and ecosystem services, have created additional arenas for power contestation. Rana et al. (this volume) document how international climate change initiatives like REDD+ can empower and constrain local communities, depending on how power relations are structured across scales.

These dynamics reflect what Larson and Soto (2008) term the "recentralization despite decentralization" paradox in forest governance, where devolution of authority often coexists with new forms of central control. Under the new federal governing system, Nepal's CFS has become what Sandström et al. (2020) identify as an "institutional interplay" in forest governance, where multiple centers of authority compete. This reflects what Jessop (2016) terms "multi-scalar meta-governance"—where power relations must be negotiated across multiple, sometimes competing, centers of authority. These dynamics are further complicated by what Li (2007) identifies as "practices of assemblage," where new values and mechanisms like carbon markets create additional arenas for power contestation. This suggests the need for what Fischer (2017) describes as "deliberative governance" to manage power asymmetries better while fostering meaningful participation across scales.

19.2.6 Equity and inclusion

The sixth key insight concerns the persistent challenge of achieving equity and inclusion in forest governance. While CF policies emphasize participatory approaches and equitable benefit sharing, evidence reveals how social

hierarchies, gender relations, and economic inequalities continue to shape access to forest resources and decision-making processes.

Baral et al. (this volume) demonstrate how gender inequalities remain deeply embedded in CF institutions despite policy provisions for women's participation. Their research reveals that women's participation in CFUGs remain tokenistic, with leadership roles offering limited influence over crucial decisions. This reflects what Agarwal (2001, 2010) terms "participatory exclusions," where formal inclusion mechanisms fail to address deeper power asymmetries in resource governance.

The intersection of gender with other forms of social marginalization creates particularly complex challenges. As documented by Aryal et al. (this volume), disadvantaged groups, including Dalits, indigenous peoples, and economically poor households, often face multiple barriers to meaningful participation in CF. The intersectionality of exclusion resonates with what Colfer and Minarchek (2013) term "layered disadvantage," where gender, caste, ethnicity, and economic status combine to create complex patterns of marginalization in forest governance.

Economic transformations have introduced new dimensions to equity challenges. G. Paudel et al. (this volume) show how market-oriented reforms in CF can exacerbate existing inequalities if not carefully managed. Their analysis reveals how commercialization efforts often benefit local elites with the capital, connections, and capabilities to engage with markets effectively while sidelining marginalized groups. The emergence of market-oriented reforms introduces what Mehta et al. (2021) describe as "new axes of exclusion," where commercialization processes can amplify existing inequalities through differential access to capital, markets, and technical knowledge.

19.2.7 Restoration versus livelihoods

The seventh key insight concerns the complex challenge of reconciling ecological restoration with livelihood improvement objectives. While CF is often portrayed as a win-win solution for forest conservation and local development, emerging evidence reveals a more nuanced picture of synergies and trade-offs between these goals.

Luintel et al. (this volume) document significant achievements in forest restoration through CF, demonstrating improved forest cover, biodiversity conservation, and ecosystem service provision. However, these ecological gains have not consistently translated into corresponding improvements in local livelihoods, particularly for marginalized groups. This pattern aligns with broader forest landscape restoration literature findings, highlighting the need for governance mechanisms that balance ecological and social objectives (Maniraho et al., 2023).

Karki et al. (this volume) demonstrate how efforts to enhance forest productivity through intensive management have sometimes created tensions with traditional livelihood practices. Their research shows that while scientific

management approaches can increase timber yields, they may also reduce the availability of other forest products essential for local subsistence needs. This echoes Mansourian et al. (2017), who caution that FLR initiatives may sometimes prioritize expanding tree cover without necessarily improving local resilience or well-being. They argue that restoration efforts must explicitly integrate social dimensions to ensure local communities are not left worse off.

Climate change adds another dimension to this reconciliation challenge. Sapkota et al. (this volume) analyze how community forests increasingly need to balance climate mitigation potential with local adaptation needs. Their findings show that while carbon sequestration through forest restoration can generate new income opportunities, it may also constrain traditional forest uses. This aligns with Mansourian (2018), who highlights how different stakeholders perceive FLR differently—governments and conservation actors may prioritize carbon sequestration and biodiversity. In contrast, local communities often view restoration through the lens of resource access and economic opportunities.

Furthermore, Mansourian and Vallauri (2020) emphasize that while FLR has made significant strides in the past decade, challenges remain in ensuring its benefits are equitably distributed. Their review underscores the need for restoration initiatives explicitly focusing on ecological and social resilience, ensuring that FLR contributes to sustainable development rather than reinforcing inequalities. These findings suggest that restoration and livelihoods are profoundly interconnected but require careful governance and policy interventions to ensure equitable outcomes.

19.2.8 The need for an adaptive policy approach

The eighth key insight highlights the limitations of existing policy frameworks and the need for more adaptive approaches in environmental governance. Despite its celebrated status, Nepal's CFS faces significant challenges in addressing emerging social and ecological complexities due to rigid, compliance-driven structures, faces significant challenges that expose the inadequacy of conventional policy mechanisms in addressing emerging social and ecological complexities. As environmental and socio-political conditions evolve, governance frameworks must move beyond rigid, compliance-driven structures toward more flexible, learning-oriented approaches that respond to uncertainty and change.

Dahal et al. (this volume) document how Nepal's current policy frameworks have become increasingly bureaucratic and rigid, failing to adapt to shifting community needs and ecological conditions. Their analysis identifies several critical limitations, including overlapping and sometimes contradictory regulations, inflexible operational guidelines that constrain local innovation, and bureaucratic procedures that prioritize compliance over adaptation. These issues reflect broader challenges in environmental governance, where institutional inertia often impedes transformative change (Leach et al., 2020). Their

work underscores that governance transformations require new policies and shifts in institutional culture, power relations, and decision-making processes.

Tiwari et al. (this volume) further demonstrate how entrenched bureaucratic practices and power structures resist change even when formal policies support innovation. This aligns with insights from Messier et al. (2015), who argue that governance systems must be designed to function as complex adaptive systems—characterized by decentralized decision-making, feedback loops, and the capacity to adjust to new information.

However, Nepal's experience also offers hope. Khatri et al. (this volume) identify cases where local innovations have successfully addressed emerging challenges despite policy constraints. Such adaptive governance mechanisms are particularly crucial in contexts of environmental uncertainty and conflict, where deliberative and participatory processes can help resolve tensions and build collaborative solutions (Ojha et al., 2019). Their findings emphasize the importance of institutional spaces that encourage learning, negotiation, and co-production of knowledge rather than simply enforcing compliance-based regulations.

19.2.9 Reframing planning practice

The final key insight underscores the urgent need to revitalize CF planning processes and institutional arrangements to address contemporary socio-ecological challenges and opportunities. While conventional planning approaches and institutional structures have played a crucial role in shaping CF, growing evidence suggests that they are increasingly misaligned with emerging social, economic, and environmental realities. A more strategic, equitable, and adaptive planning framework is needed to ensure that CF continues delivering benefits for people and ecosystems.

K Shrestha et al. (this volume) highlight fundamental flaws in current planning frameworks, showing how Community Forest Operational Plans have become overly bureaucratic exercises that prioritize technical compliance over strategic thinking, creating high transaction costs while offering limited practical value for CFUGs. Instead of empowering communities, rigid compliance requirements often constrain local decision-making, preventing more innovative and context-sensitive management approaches. The authors identify key areas for reform in CF planning, advocating for a more responsive, participatory, and outcomes-oriented system.

D. Poudel et al. (this volume) document how traditional assumptions about CF institutions no longer align with contemporary rural realities shaped by migration, market integration, and shifting aspirations. Their findings emphasize the need to fundamentally rethink how CF institutions can remain relevant in an era where rural livelihoods are increasingly diversified, and local governance structures must integrate with broader economic and land-use planning frameworks.

This need for reform aligns with broader debates in planning literature, emphasizing the importance of strategic and participatory planning over rigid,

technocratic approaches. The wider participatory planning literature (e.g., Healey, 1997) stresses the role of inclusive, multi-stakeholder processes in shaping more just and effective governance systems. These perspectives reinforce the idea that CF planning should transition from compliance-driven frameworks to more dynamic, community-centered approaches to allow for more transformative actions required in the changing context.

To address these challenges, K. Shrestha et al. propose a set of principles and a new framework for CF planning that integrates three key elements:

- A differentiated planning approach: Planning should be categorized based on CFUG capacity, resource potential, and market engagement. Smaller CFUGs should face less bureaucratic oversight, focusing on community needs and livelihoods, while larger, commercially active CFUGs should adopt structured governance mechanisms to ensure sustainability and accountability.
- Enhanced collaboration with local governments and expert networks: Strengthening links with local governments, researchers, and technical experts will enhance knowledge-sharing, capacity building, and integration with broader land-use planning. This collaboration can also improve market access, financial resources, and policy support.
- Streamlined governance structures: CF planning should move away from rigid, technical prescriptions toward a flexible and outcome-driven system. We propose a dual-tiered governance framework: (i) a simplified contractual framework between CFUGs and state agencies to ensure compliance with broad forest management objectives, (ii) a strategic forest management plan that prioritizes long-term community goals, market linkages, and adaptive management rather than rigid operational guidelines.

Additionally, equity and inclusion must be central to the planning process. CF planning must explicitly consider community members' diverse economic and social status, ensuring that marginalized groups—such as landless households, women, and indigenous communities—have a voice in decision-making and equitable access to forest resources and benefits.

Ultimately, revitalizing CF planning means shifting from a compliance-driven, technocratic model to a more strategic, participatory, and adaptive approach. By embracing differentiated planning, multi-scalar collaboration, and streamlined governance, CF can evolve into a more resilient and inclusive system that responds effectively to contemporary socio-ecological challenges.

19.3 Conclusion: Rethinking theory and practice

The four-decade evolution of Nepal's CFS fundamentally challenges dominant theoretical assumptions about how local communities and ecosystems interact, as well as how the relationship can be influenced through policy. Moving beyond Ostrom's design principles for commons governance, our

analysis reveals CF as a complex, emergent, and dynamic socio-ecological system operating on multiple scales. CFS is akin to what Fligstein and McAdam (2011) refer to as "strategic action field," where actors constantly transact and contest for resources, institutional boundaries blur, power relations shift, and multiple knowledge systems interact to define and reshape the setting of the fields and the identities of the "field's" residents. Coupled with the emergence of political and identity-based associations and new coalitions of environmental actors connecting multiple localities, community action has literally turned into a multi-scalar field of contestation. This understanding is not yet fully captured into the contemporary theory of community and collective action in environmental management.

This book disrupts at least three fundamental assumptions in contemporary commons theory and policy discourse. First, the concept of "community" requires radical rethinking as rural transformation through urbanization, migration, and market integration have unsettled what was previously known as spatially bounded and relatively coherent associations of individuals and families as a "community" in the largely rural setting. Declining forest dependence, out-migration for off-farm livelihood opportunities, and rising absentee resource governance challenge foundational assumptions in common property theory (Ostrom, 1990).

Second, the assumed dichotomy between the state and the community and any forms of partnership or co-governance is fraught with unpredictable patterns of interactions, where formal rules, bureaucratic practices, and local institutions combine in complex and often contradictory ways to reinforce elite capture over material and symbolic resources in the field of CF. Despite legal or even constitutional assurance, the never-ending struggle for resource access and tenurial security, suggests a deeply entrenched political-economic dynamics within which CF operates.

Third, CFS becomes even more complex when it comes to interaction with the market. In the context of rising livelihood aspirations and increasing values of forest and ecosystem services, the traditional focus on subsistence-level management proves insufficient. However, the dominant framing of CF (as a local and purely a resource management institution) is failing to offer policy insights into how local community groups can better navigate multiple, sometimes competing values, from the market—from carbon sequestration to commercial timber production. More fundamentally, whether the conventional modality of the CFUG is fit for market-oriented management of forests (see Gilmour, this volume). Public policy and planning approaches remain too limited to acknowledge such complex dynamics around livelihoods, market, and resource management.

Taken together, these insights point to the need for a significant rethinking of CF in Nepal. This requires moving beyond rigid market-driven or idealized community-based models and instead embracing policy pathways that are adaptive, inclusive, and deeply grounded in local contexts. Effective resource governance, as experience has shown, is rarely the result of a perfect

institutional design or a sophisticated policy prescription. Rather, it grows out of conditions that encourage experimentation, reflection, and mutual learning among local forest user groups, researchers, policy practitioners, and facilitators working together over time. Such an enabling environment can help CF evolve—and, at times, transform—to remain relevant in a landscape marked by rapid environmental, political, and social change. Importantly, this evolution is not always gradual or planned. Moments of crisis—whether political, economic, or environmental—can create unexpected opportunities to reimagine and institutionalize new approaches to forest governance.

As we write in early 2025, Nepal's CF stands at a critical juncture. The model that once gained global popularity is now under strain. It urgently needs reflection and renewal. Policymakers and planners must reckon with the realities of four decades of implementation, shifting socio-economic dynamics, and the voices of rural youth—many of whom are leaving forested regions in search of better opportunities. What is needed now is a bold, forward-looking vision: one that connects the ecological foundations of forestry with the changing aspirations of communities, particularly young people, and that enables governance systems to be more responsive, accountable, and just. Without such a recalibration, CF risks losing its transformative edge at a time when it is needed most.

Bibliography

Adger, W. N., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change*, *15*(2), 77–86. https://doi.org/10.1016/j.gloenvcha.2004.12.005

Agrawal, A., & Ostrom, E. (2001). Collective action, property rights, and decentralization in resource use in India and Nepal. *Politics & Society*, *29*(4), 485–514. https://doi.org/10.1177/0032329201029004002

Agrawal, A. (2005). *Environmentality: Technologies of Government and the Making of Subjects*. Duke University Press.

Agarwal, B. (2001). Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development*, *29*(10), 1623–1648. https://doi.org/10.1016/S0305-750X(01)00066-3

Agarwal, B. (2010). *Gender and green governance: The political economy of women's presence within and beyond community forestry*. Oxford University Press.

Ahlborg, H., & Nightingale, A. J. (2012). Mismatch between scales of knowledge in Nepalese forestry: Epistemology, power, and policy implications. *Ecology and Society*, *17*(4). https://doi.org/10.5751/es-05171-170416

Antinori, C., & Bray, D. B. (2005). Community forest enterprises as entrepreneurial firms: Economic and institutional perspectives from Mexico. *World Development*, *33*(9), 1529–1543. https://doi.org/10.1016/j.worlddev.2004.10.011

Armitage, D., Berkes, F., Dale, A., Kocho-Schellenberg, E., & Patton, E. (2011). Co-management and the co-production of knowledge: Learning to adapt in Canada's Arctic. *Global Environmental Change*, *21*(3), 995–1004. https://doi.org/10.1016/j.gloenvcha.2011.04.006

Baynes, J., Herbohn, J. L., Smith, C., Fisher, R. J., & Bray, D. (2015). Key factors which influence the success of community forestry in developing countries. *Global Environmental Change*, *35*, 226–238. https://doi.org/10.1016/j.gloenvcha.2015.09.011

Brunner, R. D., Steelman, T. A., Coe-Juell, L., Cromley, C. M., Edwards, C. M., & Tucker, D. W. (2005). *Adaptive governance: Integrating science, policy, and decision making*. Columbia University Press.

Cash, D. W., Adger, W. N., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L., & Young, O. (2006). Scale and Cross-Scale dynamics: Governance and information in a multilevel world. *Ecology and Society*, *11*(2). https://doi.org/10.5751/es-01759-110208

Chazdon, R. L., Brancalion, P. H. S., Laestadius, L., Bennett-Curry, A., Buckingham, K., Kumar, C., Moll-Rocek, J., Vieira, I. C. G., & Wilson, S. J. (2016). When is a forest a forest? Forest concepts and definitions in the era of forest and landscape restoration. *AMBIO*, *45*(5), 538–550. https://doi.org/10.1007/s13280-016-0772-y

Cleaver, F. (2012). *Development through bricolage: Rethinking institutions for natural resource management*. Routledge.

Colfer, C. J. P., & Minarchek, R. D. (2013). Introducing 'the gender box': A framework for analysing gender roles in forest management. *International Forestry Review*, *15*(4), 411–426.

Cronkleton, P., Artati, Y., Baral, H., Paudyal, K., Banjane, M. R., Liu, J. L., … & Kassa, H. (2017). How do property rights reforms provide incentives for forest landscape restoration? Comparing evidence from Nepal, China and Ethiopia. *International Forestry Review*, *19*(4), 8–23.

Department of Forest and Soil Conservation (DoFSC). (2025). *Community Forestry Bulletin*. Community Forest Research Center, DoFSC, Government of Nepal, Kathmandu, Nepal.

Dryzek, J. S. (2013). *The Politics of the Earth: Environmental Discourses*. Oxford University Press.

Fischer, F. (2017). *Climate crisis and the democratic prospect: participatory governance in sustainable communities*. Oxford University Press.

Fligstein, N., & McAdam, D. (2011). Toward a general theory of strategic action fields. *Sociological Theory*, *29*(1), 1–26.

Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources*, *30*, 441–473. https://doi.org/10.1146/annurev.energy.30.050504.144511

Forsyth, T. (2003). *Critical Political Ecology: The Politics of Environmental Science*. Routledge.

Foundjem-Tita, D., Duguma, L. A., Speelman, S., & Piabuo, S. M. (2019). Viability of community forests as social enterprises: A Cameroon case study. *Ecology and Society*, *24*(1), 4.

Libois, F., Baland, J., Delbart, N., & Pattanayak, S. (2022). *Community Forest Management: The story behind a success story in Nepal*. WORKING PAPER N° 2022 – 09, Hal-03597659

Hajjar, R., Newton, P., Ihalainen, M., Agrawal, A., & Gabay, M. (2021). Scaling up sustainability in commodity agriculture: Transferability of governance mechanisms across sectors and commodities. *Journal of Cleaner Production*, *295*, 126397.

Healey, P. (1997). *Collaborative planning: Shaping places in fragmented societies*. Macmillan International Higher Education.

Jasanoff, S. (2004). *States of knowledge: The co-production of science and the social order*. Routledge.

Jessop, B. (2016). Territory, politics, governance and multispatial metagovernance. *Territory, Politics, Governance*, *4*(1), 8–32.

Larson, A. M., & Soto, F. (2008). Decentralization of natural resource governance regimes. *Annual Review of Environment and Resources*, *33*, 213–239.

Leach, M., Stirling, A., & Scoones, I. (2020). Transformations to sustainability: Combining structural, systemic, and enabling approaches. *Annual Review of Environment and Resources*, *45*, 1–28.

Li, T. M. (2007). Practices of assemblage and community forest management. *Economy and Society*, *36*(2), 263–293.
Lund, C. (2006). Twilight institutions: Public authority and local politics in Africa. *Development and Change*, *37*(4), 685–705. https://doi.org/10.1111/j.1467-7660.2006.00497.x
Macqueen, D. (2013). Enabling conditions for successful community forest enterprises. *Small-scale Forestry*, *12*(1), 145–163.
Macqueen, D., Bolin, A., Greijmans, M., Grouwels, S., & Humphries, S. (2020). Innovations towards prosperity emerging in locally controlled forest business models and prospects for scaling up. *World Development*, *125*, 104382.
Maniraho, L., Frietsch, M., Sieber, S., & Löhr, K. (2023). A framework for drivers fostering social-ecological restoration within forest landscape based on people's participation. A systematic literature review. *Discover Sustainability*, *4*(1), 26.
Mansourian, S., Stanturf, J. A., Derkyi, M. A. A., & Engel, V. L. (2017). Forest landscape restoration: increasing the positive impacts of forest restoration or simply the area under tree cover? *Restoration Ecology*, 25(2), 178–183.
Mansourian, S. (2018). In the eye of the beholder: Reconciling interpretations of forest landscape restoration. *Land Degradation & Development*, 29(9), 2888–2898.
Mansourian, S., & Vallauri, D. (2020). How to learn lessons from field experience in forest landscape restoration: A tentative framework. *Environmental Management*, *66*(6), 941–951.
Mehta, L., Harcourt, W., & Allouche, J. (2021). The new politics and geographies of scarcity. *Geoforum*, *101*, 222–230.
Messier, C., Puettmann, K., Chazdon, R., Andersson, K. P., Angers, V. A., Brotons, L., … Levin, S. A. (2015). From management to stewardship: Viewing forests as complex adaptive systems in an uncertain world. *Conservation Letters*, *8*(5), 368–377.
Nightingale, A. J. (2003). A feminist in the forest: Situated knowledges and mixing methods in natural resource management. *ACME: An International E-Journal for Critical Geographies*, *2*(1), 77–90.
Ojha, H. (2006). Techno-bureaucratic Doxa and the challenges of deliberative governance - The case of community forestry policy and practice in Nepal. *Policy and Society*, *25*(2), 131–175.
Ojha, H. R., Bhusal, P., Paudel, N. S., Thompson, P. M., & Sultana, P. (2019). Turning conflicts into cooperation? The role of adaptive learning and deliberation in managing natural resources conflicts in Nepal. *Climate Policy*, *19*(sup1), S107–S120.
Ojha, H. R., Ford, R., Keenan, R. J., Race, D., Vega, D. C., Baral, H., & Sapkota, P. (2016). Delocalizing communities: Changing forms of community engagement in Natural Resources Governance. *World Development*, *87*, 274–290.
Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective actions*. Cambridge University Press.
Ribot, J. C., & Peluso, N. L. (2003). A theory of access. *Rural Sociology*, *68*(2), 153–181. https://doi.org/10.1111/j.1549-0831.2003.tb00133.x
Sandström, C., Eckerberg, K., & Raitio, K. (2020). The politics of multi-level governance in forest policy. *Forest Policy and Economics*, *114*, 102142. https://doi.org/10.1016/j.forpol.2020.102142
Sikor, T., & Lund, C. (2009). Access and property: A question of power and authority. *Development and Change*, *40*(1), 1–22.

Index

Pages in *italics* refer to figures, pages in **bold** refer to tables, and pages followed by "n" refer to notes.