Human Dimensions of Forest Landscape Restoration

Lead author: Stephanie Mansourian

Contributing authors: Mercy Derkyi, Ida Djenontin, Marlène Elias, Johan Oldekop, Pablo Pacheco, Janice Burns, Anita Diederichsen, Michael Kleine, Daniel Vallauri, Bethanie Walder

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Stephanie Mansourian

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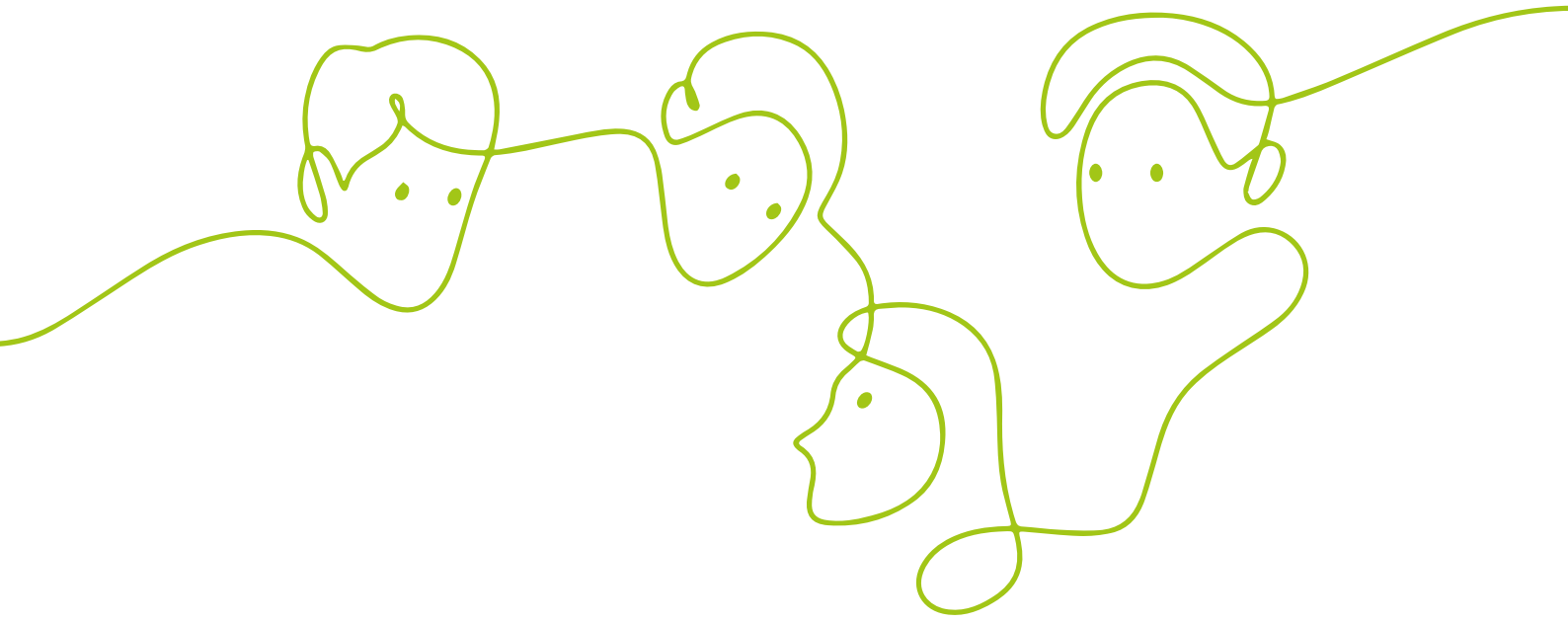

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List of Acronyms

ASEAN - Association of Southeast Asian Nations

ARKN-FCC - ASEAN Regional Knowledge Network on Forests and Climate Change

BMZ - Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (Federal Ministry for Economic Cooperation and Development, Germany)

CALI - Causality Assessment for Landscape Interventions

CANARI - Caribbean Natural Resources Institute

CBA - Cost-Benefit Analysis

CBD - Convention on Biological Diversity

CDA - Conflict and Development Analysis

CFM - Community Forest Management

CIAT - International Center for Tropical Agriculture

CIFOR - Center for International Forestry Research

CMP - Conservation Measures Partnership

DFID - Department for International Development (UK)

ELD - Economics of Land Degradation

ELMO - Evaluating Land Management Options

EPA - Environmental Protection Agency (US)

FAO - Food and Agriculture Organization of the United Nations

FLARE - Forests and Livelihoods: Assessment, Research, and Engagement

FLR - Forest Landscape Restoration

FMNR - Farmer Managed Natural Regeneration

FPIC - Free, Prior and Informed Consent

FSC - Forest Stewardship Council

GFGP - Grain-for-Green Programme

GIS - Geographical Information System

GLF - Global Landscapes Forum

GPFLR - Global Partnership on FLR

IAD - Institutional Analysis and Development

IADB - Inter-American Development Bank

ICAT - Initiative for Climate Action Transparency

ICRC - International Committee of the Red Cross

IFAD - International Fund for Agricultural Development

IFRC - International Federation of Red Cross and Red Crescent Societies

IIED - International Institute for Environment and Development

IP&LC - Indigenous Peoples and Local Communities

IPBES - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC - Intergovernmental Panel on Climate Change

ITTO - International Tropical Timber Organization

IUCN - International Union for Conservation of Nature

IUFRO - International Union of Forest Research Organizations

MAST - Mapping Approaches for Securing Tenure

MEA - Millennium Ecosystem Assessment

MEB - Multiple Evidence Base

MPI - Multidimensional Poverty Index

MSP - Multi-Stakeholder Partnership

NPV - Net Present Value

NEPA - National Environmental Policy Act (US)

NGO - Non-Governmental Organisation

OECD - Organisation for Economic Cooperation and Development

PLUP - Participatory Land-Use Planning

REDD+ - Reducing Emissions from Deforestation and forest Degradation, and enhancing forest carbon

RRI - Rights and Resources Initiative

SDC - Swiss Agency for Development and Cooperation

SER - Society for Ecological Restoration

SES - Social-Ecological System

SETA - Socio-Ecological Territorial Agreements

SIDA - The Swedish International Development Cooperation Agency

SL - Sustainable Landscape

SLM - Sustainable Land Management

TEER - The Economics of Ecosystem Restoration

UK - United Kingdom of Great Britain and Northern Ireland

US - United States of America

UN - United Nations

UNCCD - United Nations Convention to Combat Desertification

UNDP - United Nations Development Programme

UNEP - United Nations Environment Programme

UNICEF - United Nations International Children's Emergency Fund

USAID - United States Agency for International Development

VLUP - Village Land Use Planning

WHO - World Health Organization

WRI - World Resources Institute

WWF - Worldwide Fund for Nature

Executive Summary

Whereas forests once comprised half of Earth's landmass, today they are found on only about one third. And we continue to lose 10 million ha of forests each year. Approaches such as forest landscape restoration (FLR) are essential to reverse this trend. Over the last few decades, FLR initiatives have increased, but both practice and research have emphasised the natural sciences with limited consideration to the social sciences and the importance of human dimensions in restoration.

Yet, as illustrated by the definition of FLR and its six principles outlined by the Global Partnership on FLR, humans are central to the FLR process. Like all ecosystem restoration approaches, humans are part of the social-ecological system (SES) within which FLR takes place: what people do in the landscape directly affects the forest and vice versa. Human dimensions relate to the emotional, political, cultural, economic, institutional and behavioural aspects that determine how people relate to forests.

Globally, governments and other influential decision-makers have set a number of ambitious targets to restore forests. But restoration may also be initiated by communities, with diverse positive examples of community-led restoration efforts such as in Brazil, Ghana, Niger or the Philippines. A range of institutional, economic, political, and cultural factors influence how these restoration interventions are carried out. Ultimately, as people are central to the FLR process, it is essential for practitioners to better integrate human dimensions in the FLR process. But to date there is limited understanding and guidance focusing specifically on human dimensions in the context of FLR. In response, this contribution aims to explore the diverse points at which human dimensions intersect with the FLR process and outlines relevant guidance materials.

> The specific objectives of this work are to: 1. understand the diversity of ways in which human dimensions and FLR interrelate; 2. identify and understand important interventions or leverage points in the human system that can facilitate the FLR process; and 3. provide relevant guidance to assist practitioners to integrate these human dimensions in FLR.

The main audience for this guidance is practitioners engaged in FLR (and other forms of forest restoration), particularly – but not exclusively – ecologists and foresters that may have limited expertise in social science concepts or in integrating human dimensions in their work. It is also designed for academics, educators and researchers engaged in FLR. Many of the concepts are also transferrable to ecological and ecosystem restoration in general.

The research methods include a literature review, a review of existing frameworks and guidance materials, discussions held among the author group, experience from our involvement in local, regional and global FLR projects, and our combined expertise in diverse social sciences and FLR. While our experience and expertise cover most areas of the globe, we acknowledge that we do not hold Indigenous knowledge and as such did not benefit directly from, or include, this source of knowledge.

The document has three main sections: 1. a conceptual framework to help analyse the human dimensions associated with an FLR initiative; 2. an overview of linkages between humans and FLR; and 3. a selection of potential tools to help better integrate human dimensions into FLR practice.

The conceptual framework (Figure 1.1) helps to analyse and understand how and where human dimensions interrelate with the FLR process so as to better address them. It rests on five overlapping pillars: 1. Context: the broader social, institutional, economic and political status in the landscape (and influences on it) where FLR is taking place (e.g., land use, historical legacies, legal constraints). 2. Motivations: the reasons for which stakeholders may carry out and sustain restoration (e.g., for security purposes, recreation). 3. Activities: the human-related interventions

along the FLR process (e.g., engaging stakeholders, negotiating a vision, building capacity, changing behaviours). 4. Influencing factors: factors situated within the human system that have an impact on the FLR process (e.g., power dynamics, gender inequality, insecure tenure, values). 5. Outcomes: the impacts on human wellbeing as a result of the FLR process.

Linkages between people and forests occur at all scales, and across all aspects of the restoration process. Humans depend on forests and interconnect with them in multiple ways over time, both positively and negatively. In some cases the linkages are local and more tangible, as is the case for Indigenous Peoples and local communities. In other cases, forests may provide global benefits such as climate change mitigation. The loss, degradation, restoration, and maintenance of forests impact on humans, creating both negative and positive impacts on communities. Indigenous and local communities living close to forests are particularly vulnerable to the degradation of this resource. Managing the balance between local and global interests around forests is a challenge in FLR and forest management.

Many existing guidance materials (outlined in Section 4), particularly from the development sector, can be used (or adapted for use) in FLR to support better integration of human dimensions. This guidance includes tools for land use planning, engaging stakeholders, conflict resolution, participatory planning and monitoring, seeking free prior and informed consent, power analysis among others.

Next steps

As the restoration of ecosystems gains ground, there is an urgent need to ensure that practice reflects the highest standards. This signifies not only improving standards in ecological aspects, but also in human ones, thus reflecting the reality that FLR takes place within a complex social-ecological system.

We propose the following short-term and medium- to long-term next steps to advance work in the human dimensions of restoration.

In the short term:

Living web-based document – We envisage elements of this guidance being transposed to a website that could contain the links and summaries of guidance material and be regularly updated.

Capacity building and knowledge sharing – Capacity building workshops or webinars could bring practitioners from a diverse range of backgrounds and worldviews together and offer opportunities to discuss issues highlighted here, including applying them to projects and case studies.

Outreach – Disseminating the findings from this research and guidance to a wide group of practitioners, the donor community and other interested parties, will necessitate translation into other languages, and communications efforts targeting each stakeholder group.

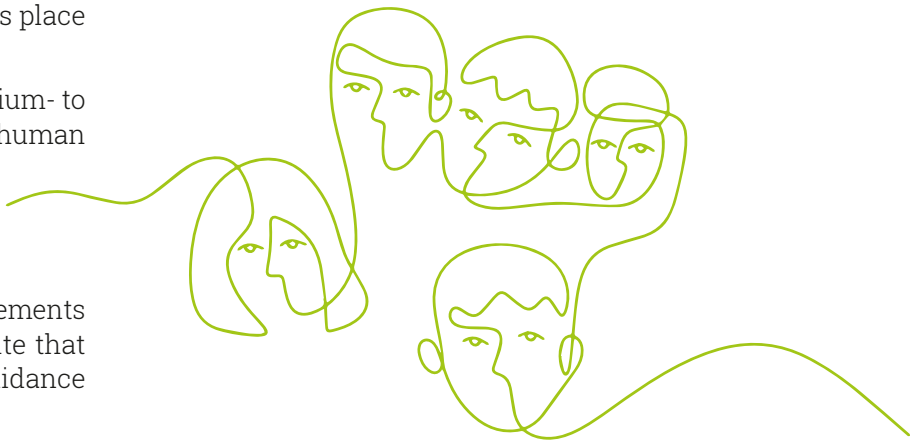
Expanding beyond forests – The guidance in this document is focused on forests, and more specifically on FLR. Nevertheless, this text could be readily adapted to other ecosystems within the context of the UN Decade on Ecosystem Restoration.

In the medium to long term:

Addressing knowledge gaps – There are still many gaps in knowledge (e.g., limited guidance on how to negotiate multiple objectives for restoration or implement participatory monitoring). The scientific community can contribute to identifying key research gaps and developing additional relevant guidance.

Interdisciplinary collaboration – Interdisciplinary collaboration has been identified as an important priority, across social and natural sciences but also across different social sciences. Further mechanisms and incentives need to be considered to ensure that such collaboration is effectively applied in FLR and restoration more broadly.

Additional guidance materials – This document could provide source material for a number of topics that could be further developed. Shorter publications based on this one, and eventually multimedia products could also contribute to making elements of this guidance more readily accessible to diverse audiences.



1 Introduction

1.1. Background

Forests once comprised half of our landmass. Today, they have been reduced to one-third of that area (Ball *et al.*, 2001) and we continue to lose 10 million hectares of forests annually (FAO, 2020). Yet forests are essential for life on earth. With the loss of forests, we lose the associated biodiversity and other multiple services that forests provide humanity, including climate and water regulation (IPBES, 2018), and we also lose the cultural and spiritual values that they provide, directly affecting the lives of millions of people and eroding local knowledge and cultures.

Today, as we face the interconnected and cumulative crises of biodiversity loss and climate change, forest restoration has come to the fore as a critical intervention to accelerate forest recovery and tackle the damage done. Efforts to curb forest loss and degradation have multiplied in recent decades, notably through forest landscape restoration (FLR). This approach to reversing forest loss and degradation was initially defined in 2000 (WWF and IUCN, 2000) as "a planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded landscapes". The specificities of FLR are its dual social and ecological dimensions, and its scale, the landscape (although 'landscapes' represent more than just spatial scales – Mansourian, 2021).

Forest landscape restoration is necessarily a human endeavour (Garcia *et al.*, 2020) and is fundamental for humans. People restore forests and manage them for the long term, but they also destroy and degrade forests. While people's actions may be the cause of the problem (i.e., leading to deforestation and forest degradation), they are also part of the solution. As such, FLR requires attention to the multiple human aspects that both impact on, and are impacted by, the restoration process. Similarly, all ecosystem restoration processes (e.g., restoration of peatlands or grasslands) and approaches (e.g., ecological restoration) require inclusion of human dimensions. Full consideration of human dimensions into broader land management is central to securing resilient forest landscapes that can absorb shocks and continue to perform their ecological and social roles (Folke *et al.*, 2002).

Human dimensions relate to the emotional, political, cultural, economic, institutional and behavioural aspects that determine how people relate to forests (both positive and negative). In the framework of the broader relationship between humans and nature, the concept of 'human dimensions' has been used to refer to "how and why humans value natural resources, how humans want resources managed, and how humans affect or are affected by natural resources management decisions" (https://www.hd-research.ca). It is also defined as *"diverse approaches for using social science to understand and improve environmental policy, practice and outcomes"* (https://doi.sciencebase.gov/hd). Human dimensions have been studied by a range of social science disciplines (e.g., sociology, anthropology, economics, human geography) and frame in a comprehensive manner the links between humans and nature, from the impacts that humans have on nature to their ability to manage it for mutual benefit.

The definition of FLR and its six principles outlined by the Global Partnership on FLR (Table 1.1.) clearly include human dimensions, such as the need to engage stakeholders and support participatory governance, restore multiple functions for multiple benefits and tailor interventions to the local context. In this respect, the FLR process clearly

Table 1.1. Forest Landscape Restoration Principles (Besseau *et al.*, 2018)

FLR Principles	
1	Focus on landscapes
2	Engage stakeholders and support participatory governance
3	Restore multiple functions for multiple benefits
4	Maintain and enhance natural ecosystems within landscapes
5	Tailor to the local context using a variety of approaches
6	Manage adaptively for the long-term

demonstrates the importance of involving diverse stakeholders to reach a balance between ecological functioning and social benefits and livelihoods (Stanturf *et al.*, 2020). However, in practice, there is still insufficient attention to the inclusion of human considerations in FLR (Erbaugh and Oldekop, 2018; Djenontin *et al.*, 2018; Stanturf and Mansourian, 2020; Mansourian, 2021b; Kariuki and Birner, 2021; Elias *et al.*, 2022). Inclusion of human dimensions remains a challenge for many reasons, notably because of a predominantly narrow approach to FLR implementation (Mansourian *et al.*, 2020) and because of frequently diverse and complex local contexts. To date, there is limited understanding and guidance focusing specifically on human dimensions in the context of FLR.

1.2. Objectives and Audience

In an attempt to fill this gap, this document explores the human dimensions of FLR and assesses the relationship between people and forests, deforestation, forest degradation and restoration. As restoration has gained ground, including because of the UN Decade on Ecosystem Restoration, there is a need to take a more integrated approach to forest restoration (Mansourian and Parrotta, 2018) that includes human and biophysical dimensions (Bennett *et al.*, 2017).

> The specific objectives of this work are to: 1. understand the diversity of ways in which human dimensions and FLR interrelate; 2. identify and understand important interventions or leverage points in the human system[1] that can facilitate the FLR process; and 3. provide relevant guidance to assist practitioners to integrate these human dimensions in FLR (and other forest ecosystem restoration) processes.

We do this through an overview of human dimensions as they relate to FLR; the development of a framework to conceptualise these links; and a review of issues and tools that provide concrete guidance along the key phases of an FLR process. The selection of tools and guidance documents does not claim to be exhaustive, and the tools have been selected for their apparent utility, practicality and application to FLR (although, to our knowledge, most have not yet been tested in the context of FLR programmes). While this work focuses on FLR, much of it also applies to other forms of restoration.

The main audience for this guidance is practitioners engaged in FLR (and other forms of forest restoration), particularly – but not exclusively – ecologists and foresters that may have limited expertise in social science concepts or in integrating human dimensions in their work. It is also addressed at academics, trainers/educators and researchers engaged in FLR that may be grappling with these issues.

This work is predicated on the fact that FLR operates within a complex social-ecological system (Berkes and Folke, 1998) [also described as a human-ecological system (Liu *et al.*, 2021)] and acknowledges that no single solution will fit all cases. Instead, multi-pronged

1. Human systems include social, economic and institutional structures and processes (IPCC online).

Participatory planning for the restoration of chimpanzee habitat in Guinea.

and context-specific approaches that evolve over time are often necessary responses to the challenges raised by these complex systems. These considerations, central to understanding the human dimensions of FLR, are explored further throughout this report. This work originates in the social sciences rather than the natural sciences where most of the attention in forest restoration has centred to date.

1.3. Filling a Gap in FLR Research, Design and Implementation

Limited attempts have been made to understand and guide the integration of human dimensions in FLR, or ecosystem restoration more broadly. Some recent publications have sought to address specific aspects of the social sciences. For example, Gobster and Hull (2000), focusing on examples from the US, explored the role of social sciences in ecological restoration, particularly in addressing conflict concerning the ultimate objective(s) of restoration. In 2011 Egan *et al.*, authored "Human dimensions of Ecological Restoration", an attempt at studying three specific roles of humans in ecological restoration, namely participation, power and perspective (or experience). They emphasise the constant tension between participation and power. Aronson *et al.* (2012) published "Restoring Natural Capital" that focused on the economics of restoration. In their book, Stanturf *et al.* (2012) began to explore opportunities to integrate natural and social sciences in FLR, with one chapter exploring decision-making and one on the economics of restoration. More recently and still within the US context, Barra (2023) proposes to rethink ecological restoration with integration of racial and environmental justice. Recent studies on broader ecosystem restoration acknowledge and stress the need to consider related interventions as socio-ecological processes (Budiharti *et al.*, 2016; Tedesco *et al.*, 2023), with more emphasis on the human dimensions (Elias *et al.*, 2022; Löfqvist *et al.*, 2023). Despite these few publications, overall, there has been limited emphasis on the ways in which humans interact with the restoration process, both positively and negatively, and how to use this understanding to

promote better restoration. This contribution adds value to existing work by exploring the diverse points at which human dimensions intersect with the FLR process and outlines some relevant guidance tools. Research and practice based in the natural sciences alone cannot effect the change needed to restore our degraded landscapes; human agency is needed, at the local, national and international levels. Motivating this change in approach requires a thorough understanding of the complex and multiple human dimensions that influence the entire FLR process. This signifies understanding the human dimensions that shape landscapes leading to the need for their restoration, as well as identifying the levers of change that contribute to FLR success.

1.4. Methods

There are three strands to the methodology for this report (Figure 1.1.).

Strand 1. Understanding and framing FLR-human dimensions linkages

The first strand of the methodology served to collect relevant data on human dimensions. To frame and better understand the FLR-human dimensions link, we carried out a literature review, a review of existing frameworks, held discussions among the author group and applied our combined expertise in diverse social sciences and FLR, and experience from our involvement in local, regional and global FLR projects. While our combined experience and expertise cover most areas of the globe, we acknowledge that we do not hold Indigenous knowledge and as such did not benefit from or include this source of knowledge. We do allude to it where relevant and highlight this as a gap and an area for further development. This strand informs Sections 2 and 3 of the report.

Strand 2. Synthesising main FLR phases and related guidance needs

This strand aims to synthesise the main phases and steps of an FLR process in order to provide step-specific guidance. Six related influential documents that consider the process dimension of restoration (or broader conservation as in the case of CMP (2016)) are used as a basis for determining the phases of an FLR process. These are: the "Open Standards for the Practice of Conservation" (CMP, 2020); the SER "International Principles and Standards for the Practice of Ecological Restoration" (Gann *et al.*, 2019); the "Standards for the Practice of Ecosystem Restoration" (Nelson *et al.*, 2024); Vallauri *et al.'s* (2005) "Framework for Restoration Planning"; ITTO's (2020) "Guidelines for Forest Landscape Restoration in the Tropics"; and Stanturf *et al.'s* (2017) "Implementing Forest Landscape Restoration, A Practitioner's Guide". For each of these we reviewed existing phases, sub-steps and actions. We then clustered the human-related sub-steps in a table (under each overarching phase) in order to identify major topics for which guidance was needed. These clusters formed the basis of the guidance and informed the search for relevant tools. This strand supports Sections 2 and 4 of the report.

Strand 3: Identifying relevant tools

This strand identified a number of relevant tools for practitioners. To review concrete guidance, we searched for tools from three categories of sources: 1) large development organisations (NGOs and other international organisations, such as IUCN, UNDP, the World Bank, etc.) and government aid agencies (such as USAID or SDC); 2) social science disciplines (e.g., anthropology, sociology, psychology); and 3) development fields of practice (e.g., rural development, agriculture). The selection of organisations, scientific disciplines and development fields was carried out through a discussion among the author group, and also evolved through a snowball effect during the research itself (with additional sources of guidance appearing during the search). Tools that came up through the search were then reviewed for their application and relevance to FLR practitioners. The list of key guidance and tools provided is by no means comprehensive but covers a useful selection for each sub-step. This strand contributes to Section 4.

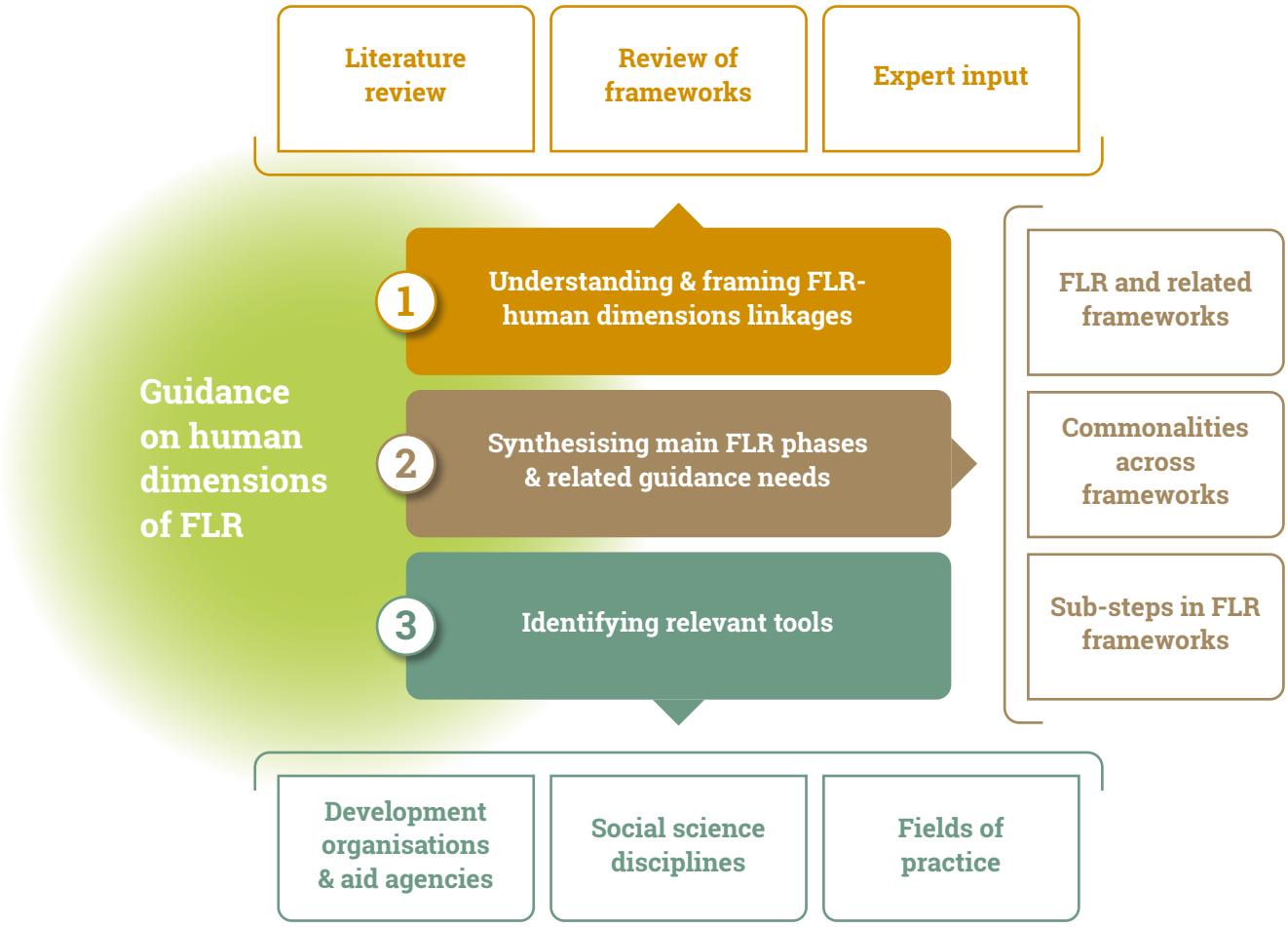


Figure 1.1. Overview of methodology: **1.** Understanding and framing the FLR-human dimensions linkages; **2.** Synthesising main FLR phases and related guidance needs; **3.** Identifying relevant tools.

2

A Conceptual Framework for Integrating Human Dimensions in Forest Landscape Restoration

OVERVIEW

This section outlines a conceptual framework for integrating human dimensions into FLR. It describes the FLR process and then discusses the relevance of major social science disciplines. The proposed conceptual framework is made up of five pillars: the context within which the FLR process takes place; the motivation for FLR; the FLR activities that are associated with the human dimension; influencing factors (such as values or tenure); and finally, the human outcomes of FLR.

2.1. The FLR Process

Forest landscape restoration as an approach was defined in 2000 to fill perceived gaps in the approaches taken to forest restoration (Mansourian *et al.*, 2021). In particular, it attempted to provide scope for reconciling human and ecological objectives and it acknowledged the long-term nature of restoration and its implementation at the landscape scale. To a large extent, the more recently used term of 'eco-cultural restoration' aligns squarely with FLR, as it places both the restoration of the ecosystem and that of cultural traditions, practices, and communities at the same level (Bliska *et al.*, 2024). Physical landscapes are characterised by diverse patches within a broader matrix (Wu, 2013). This ecological diversity is mirrored by a social diversity (Cumming *et al.*, 2013), as landscapes typically contain more, and more diverse, stakeholder groups than smaller sites (Sayer *et al.*, 2013; Reed *et al.*, 2020). Complexity results from such diversity. In a landscape, the entry point is dictated by the multiplicity of influencing factors, stakeholders and interests and, often, landowners. This signifies that rather than collaborating with one (generally, willing) stakeholder, instigating an FLR process requires initial deliberations and discussions to determine, in a collaborative fashion, what needs to be restored, for whom, why, where and with whom (Elias *et al.*, 2021). In practice, this may take a long time and may lead to significant compromises. An FLR process should thus begin with a collaborative assessment of what is feasible in a landscape given different stakeholder views and priorities rather than a set objective. This distinction is fundamental to FLR (or any other landscape level transformation) and serves to frame the guidance provided here.

The FLR process is dynamic and lengthy. It may be planned as a project or may evolve more organically over time through the inclusion of different stakeholders and institutions (Stanturf *et al.*, 2017). As such, guidance necessarily needs to be contextualised, flexible and adapted to different settings (Mansourian, 2017). Nevertheless, and in order to better structure guidance in this document, we present FLR as a phased process, recognising that reality may be more complex with possibly different entry points, many feedback loops and much iteration.

We reviewed six related documents as a basis for outlining the broad phases and steps in an FLR process (Table 2.1.). Based on existing frameworks for the FLR (or ecological restoration) process, we use five main phases for the FLR process as a basis for the guidance provided here: 1) assess; 2) plan; 3) implement; 4) analyse, adapt and sustain; 5) learn and disseminate.

As noted above and illustrated in Figure 2.1, the phases occur iteratively over time. They also occur within different spatial scales with interactions also taking place across these scales. For example, in Madagascar, a national level restoration strategy that is aligned with the international Bonn Challenge for restoration[2], frames FLR plans for implementation at more local and landscape scales (Mansourian *et al.*, 2018). Levels of influence may differ among actors situated at different scales, leading to different leverage points, requiring more or less effort and investment over time.

Table 2.1. A comparison of frameworks to guide an FLR process

	Common steps				
	1. Assess	**2. Plan**	**3. Implement**	**4. Analyse, Adapt & Sustain**	**5. Learn & Disseminate**
CMP (2020)	Assess	Plan	Implement	Analyse & adapt	Share
Vallauri *et al.* (2005)	Initiating a restoration programme and partnerships	Defining restoration: • needs & linking restoration to a large-scale conservation vision • strategy & tactics, including land-use scenarios	Implementing restoration	Piloting systems toward fully restored ecosystems	
Stanturf *et al.* (2017)	Analyse, connect with stakeholders	Visioning Conceptualising Designing	Implementing	Monitoring, feedback, learn and adapt	
ITTO (2020)		Visioning Conceptualising	Implementing	Sustaining	
Gann *et al.* (2019)		Planning and design	Implementation	Monitoring, documentation, evaluation, and reporting Post implementation maintenance	Monitoring, documentation, evaluation, and reporting
Nelson *et al.* (2024)	Assessment	Planning and design	Implementation	Ongoing management Monitoring and evaluation	Monitoring and evaluation

2. The Bonn Challenge is an international call to restore 350 million hectares of forested landscapes by 2030.

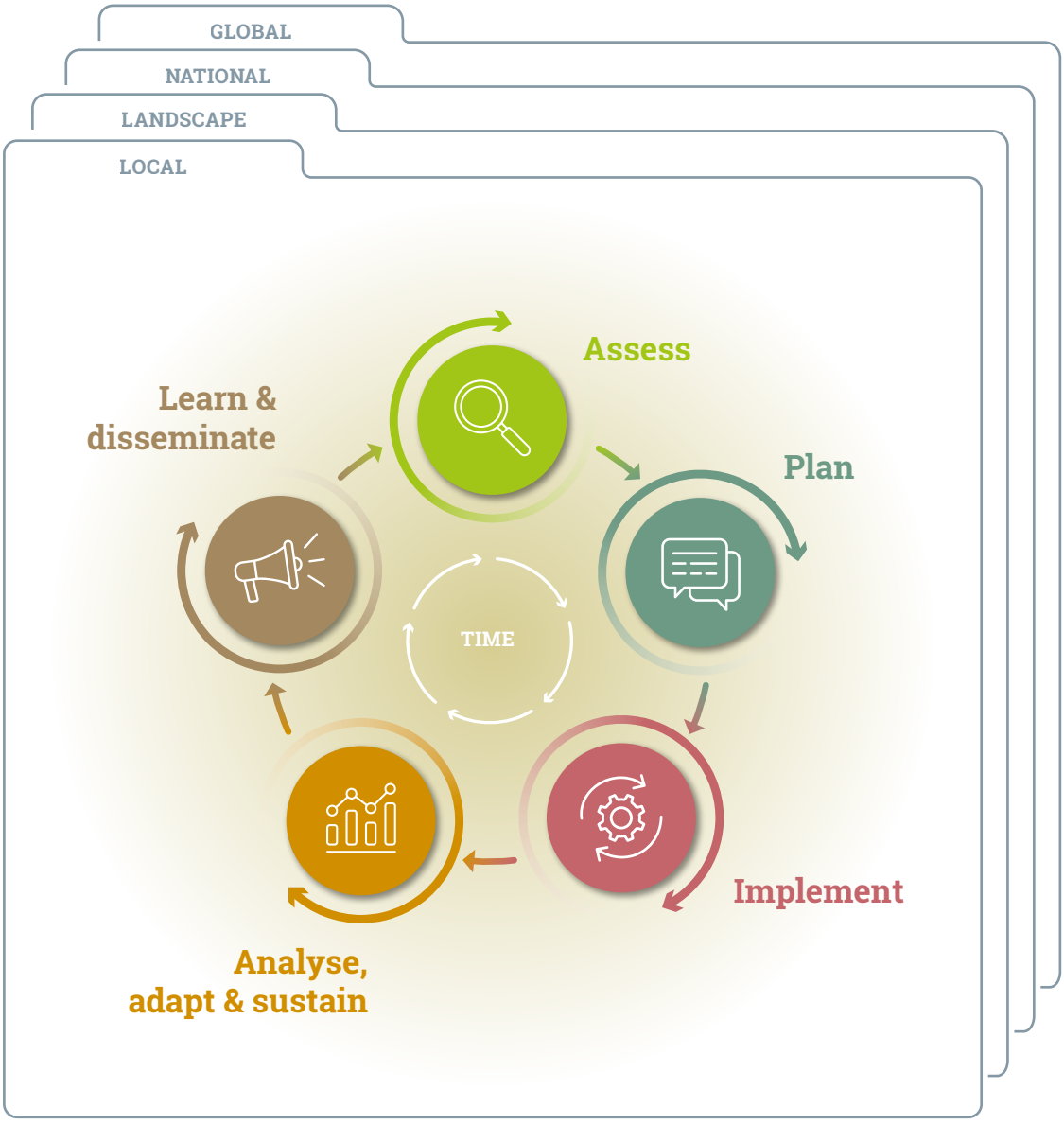


Figure 2.1. The broad phases of an FLR process, situated in space and time.

2.2. FLR through the Lens of Different Social Science Disciplines

The aim of this section is to provide a brief overview of some key aspects of major social science disciplines (Bennett *et al.*, 2017) and the ways in which they interrelate with the FLR process. Indeed, the diversity of social science disciplines presents a challenge to practitioners who may decide to engage one social scientist (from which discipline?) rather than obtaining input from different social sciences at distinct stages in the process (Niemiec *et al.*, 2021).

Recent attempts have been made to identify the role of social sciences in environmental conservation more broadly. For example, several disciplines and sub-disciplines in the social sciences have been identified as pertinent to environmental conservation. Bennett *et al.* (2017) identified 18 sub-disciplines in the social sciences of relevance to environmental conservation, including the 'classical social sciences' such as anthropology, sociology or economics, and applied social sciences such as communications and law, as well as arts and humanities such as philosophy. Stern *et al.* (1992) highlight more specialised sub-disciplines such as environmental perception studies or cultural ecology. Nevertheless, the effective integration of social sciences in conservation remains wanting (Bennett *et al.*, 2017b; Niemiec *et al.*, 2021).

The overview here is necessarily schematic and the emphasis in each discipline is on its unique features of relevance to FLR (Figure 2.2.), whereas we recognise that in reality there is much complexity and significant overlap between disciplines and sub-disciplines.

This section draws heavily on Miller *et al.* (2023) and Bennett *et al.* (2017; 2017b). As such, we highlight the six main social sciences reviewed in Miller *et al.* (2023), acknowledging that there are many more.

Sociology

Sociology is the field of social sciences that focuses on society (rather than individuals which are the focus of psychologists). There are several sub-disciplines within sociology, including environmental sociology, historical sociology, political sociology (Miller *et al.*, 2023). Sociology has been defined by the American Sociological Association as "the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations, and societies and how people interact within these contexts" (American Sociological Association website). In the context of forests, environmental sociologists study the interrelationships between forests and people, including people's attitudes towards forests and their conservation, management or restoration. They may also examine how concepts around forests may be shaped by societies. The role of social interactions in shaping behaviours is also an aspect of interest to sociologists. Understanding how societies function, including cultural specificities, history and political contexts, is essential to engaging with stakeholders in a given landscape on FLR. Negotiating a vision and objectives for FLR can in turn be supported by a better understanding of the fundaments of the society(ies) where FLR is proposed. The application of safeguards may be necessary when carrying out FLR in areas with vulnerable groups, and sociologists can contribute useful insights and locally-relevant knowledge to define appropriate safeguards.

Anthropology

Anthropologists are interested in communities as distinct groups of stakeholders bound together by specific features. Anthropology is a broad discipline, composed of many sub-disciplines - some of which overlap with other social sciences such as sociology or geography - studying the human species (Miller *et al.*, 2023). Environmental anthropology for example, studies the relationship between humans and the environment and ecological anthropology perceives the human-environment link as bi-directional, with humans influencing nature in a variety of ways, based on their own circumstances, and nature influencing humans. In the context of FLR, anthropology provides an understanding of the role of cultures in both deforestation and forest restoration. Anthropologists can assist practitioners to understand and consider Indigenous and local practices and knowledge when implementing FLR. This discipline emphasises the consideration of historical contexts to understand and anticipate future trends. Anthropologists are also interested in the legacies of colonialism and how those have shaped (and continue to shape) the relationship between different cultural groups and the environment, or forests more specifically.

Psychology

Psychology focuses on studying individual behaviour and the mind. It seeks to understand behaviour, motivation, emotion, thought and experience (Miller *et al.*, 2023). It also has a number of sub-disciplines, including environmental psychology (interested in the two-way human-environment link) and cognitive psychology (interested in learning). The relevance to FLR lies in psychology's explanations for individual behaviour. While it is generally unrealistic to focus on individuals when it comes to large areas such as landscapes, the identification of a leader or champion may prove useful to lead a locally-grounded FLR movement. Also, psychology can help to define a key locally-valued message (e.g., the spiritual value of a particular tree which could motivate the restoration of the area around it) thus informing communications campaigns. It may yield insights into what motivates (values, beliefs, norms) individuals to behave in certain ways which can be useful both to understand destructive actions and harness more positive ones, and in carrying out negotiations around a common vision.

Economics

The discipline of economics studies the allocation of scarce resources to meet differing goals (Miller *et al.*, 2023). A key distinction can be made around microeconomics that focuses on pricing and the links between supply and demand in markets, and macroeconomics that analyses national and international aspects related to development, economic growth, unemployment and inflation. An economist can provide insights into land use scenarios based on opportunity costs and market trends (e.g., for timber or paper) thereby, informing an FLR plan. Economics provides a way of understanding the financial and economic value of forests (lost or restored) to a given community. This can serve to carry out cost-benefit analyses that can also be used for determining financial compensation, for example, to rightsholders for opportunities lost. An understanding of the financial and economic value of forests and all the animals and plants that they contain, including trees (lost and/or gained) and their associated ecosystem services can help to shape FLR-related decisions and policies.

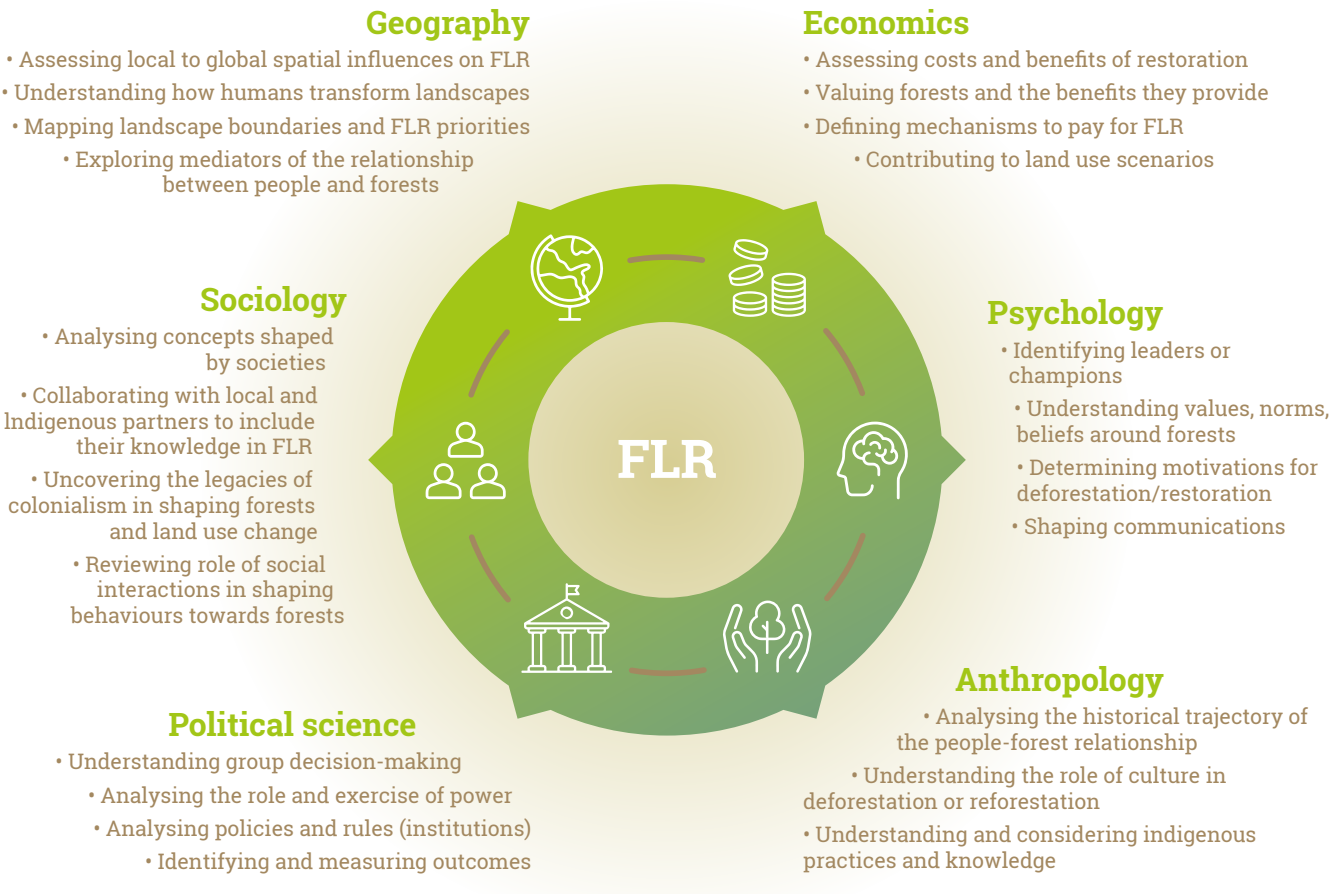


Figure 2.2. Overview of some potential contributions of different social sciences to FLR (NB: these are not exhaustive and there is substantial overlap among the social sciences).

Political science

Political science is concerned with political processes, systems and behaviour (Miller and Agrawal, 2023). Questions of discourses, power, governance, justice and equity are central to political science and inter-relate with the environment. Political science explores decision-making which is of relevance to environmental concerns, including FLR. It also helps to understand aspects surrounding narratives on forest restoration, the power differentials in decision-making around land use and forests, including conflict and negotiation and therefore, FLR. In FLR, governance challenges and solutions are considered critical to success (Mansourian, 2016; 2017). Decisions around what to restore, where and with whom fall under the purview of politics. Environmental change, notably through the restoration of forest landscapes, is led by and impacts on, people in different ways. The use of political instruments such as policies to achieve this change may result in power shifts and impact on aspects such as equity, justice and the fair distribution of environmental costs and benefits.

Geography

Geography is interested in the ways humans understand and relate to different spatial aspects of their environment (notably, the landscape) including how they shape it. Human-environment geography, perhaps the most relevant sub-field for FLR, examines how people interact with the environment across space. Within human-environment geography, cultural and political ecology consider uses of nature and the impacts of institutions on human adaptations across scales, including raising questions of power and justice. Geographers are also interested in the diverse political and economic factors that mediate the relationship between people and their environment. In this respect, the influence of governance aspects on FLR, such as tenure and other institutional arrangements that constitute necessary governance functions or equity issues, are of relevance to geography (e.g., Djenontin and Zulu, 2021). Influences from different spatial scales (from the local to the international) affect many if not all landscapes within which FLR takes place. In turn, stakeholders situated at different spatial scales may

Villagers in Manombo (Madagascar) discussing mangrove restoration.

not only exhibit different interests in the landscape, but also wield different levels of power to shape the landscape and to influence other stakeholders (Wiegant and Guariguata, 2023).

In summary, each social science can shed a different yet complementary light on aspects of FLR and contribute in a unique way to the FLR process. At the same time, there is substantial overlap in the objects of analysis and the tools used by the different social sciences, with, for example, geographers, sociologists and political scientists all interested in socio-institutional aspects as they relate to FLR. While we only briefly explored six social sciences here, many more (e.g., history, law) can also provide valuable insights into the FLR process, as can Indigenous knowledge systems.

2.3. Framing FLR in Complex Social-Ecological Systems

Before developing our conceptual framework, we reviewed a number of existing frameworks – selected for their relevance to our topic – from which we draw inspiration. These frameworks include approaches to understand complex systems, landscape approaches, frameworks to understand drivers of land use change, several human wellbeing frameworks, and the IPBES framework, among others. We describe below the social-ecological system and complex systems which, we posit, are at the core of the realm within which human dimensions and FLR intersect.

Leverage points in complex systems

Systems thinking provides a way of viewing a complex process or situation through its interconnections rather than through a single discipline (Abson *et al.*, 2017). Identifying feedback loops between elements of the system helps to understand these interconnections. Donella Meadows (1999) identified 12 leverage points in complex systems (Figure 2.3) that represent places in a system where interventions can make a significant difference. In the context of FLR these leverage points might be political pressure (such as the various global and regional targets on restoration) associated with international finance. They could also be the interplay between customary and statutory rules around trees, their use and restoration (e.g., Box 3.2). Such leverage points can be situated at different spatial scales or across scales (Figure 2.1).

There has been a tendency in sustainability science to focus on the 'low hanging fruit', i.e., those leverage points that are easy to access but unlikely to yield transformative change (Abson *et al.*, 2017). Yet, leverage points are critical to transformative change – as expected of FLR. Re-grouping Meadows' 12 leverage points, Abson *et al.* (2017) suggested three overarching categories of levers: parameters; feedbacks; and, design and intent, with parameters being the most straightforward category of levers (i.e., taxes, subsidies etc.) and intent being more complex (i.e., dealing with more fundamental changes in worldviews, values etc.). Identifying the relevant leverage points for FLR in a given context may facilitate its implementation. Furthermore, historical leverage points, for example past policies that incentivised forest conversion, may leave a legacy that requires attention, but the leverage point may no longer be the policy itself.

Social-ecological systems

In 1998, Berkes and Folke defined an analytical framework that was to become the cornerstone of studies surrounding the linkages between ecosystems and institutions – social-ecological systems (SESs). Social-ecological systems, also referred to as coupled human-natural systems (Liu *et al.*, 2021), serve to depict the intricate nature of the relationship between people and the environment, and their interdependence reflected in the multiple feedback loops typical of complex systems (Scholz and Binder, 2003; Hull *et al.*, 2015). In our context, for example, human actions leading to the loss of forests, with a direct impact on the delivery of ecosystem services to people.

A few years later Elinor Ostrom (2009) further adapted the SES model. Adding to the complexity of SESs is the fact that they exist at multiple scales, nested within each other (Ostrom, 2009). Recognising the interactions that occur at different spatial and temporal scales within and between these SESs is critical to understanding them (Ibid.). Based on her work with the Institutional Analysis and Development (IAD) framework, Ostrom describes SESs as being made up of four sub-systems: 1. the resource system (e.g., a forest); 2. resource units (e.g., trees); 3. governance systems (e.g., rules); 4. users. Each core sub-system is made up of multiple second-level variables. Recent applications to FLR and broader ecosystem restoration can be exemplified with studies arguing for the conceptualisation of FLR and ecosystem restoration as socio-ecological transformations (Fischer *et al.*, 2021; Tedesco

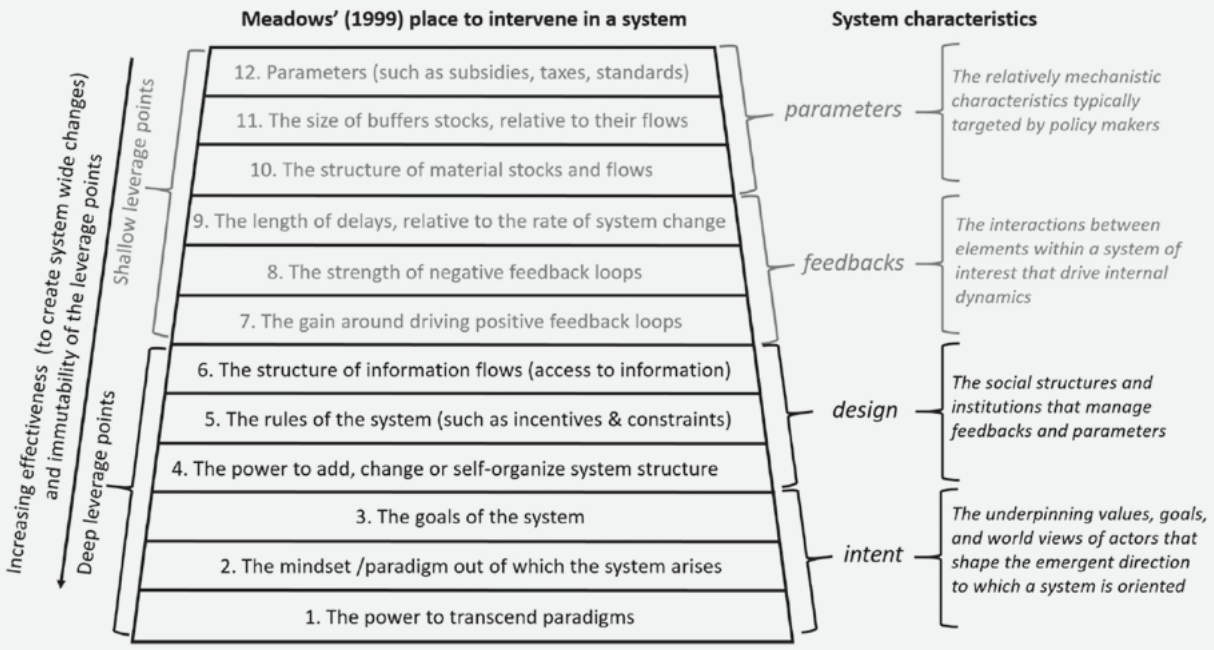


Figure 2.3. Places to intervene in a system. Sources: Meadows (1999) and Abson *et al.* (2017)

et al., 2023; Ahammad *et al.*, 2023). For example in Bangladesh's Chittagong Province Ahammad *et al.* (2023) found that both the category of land ownership (private, private-community, open access rights) and household size, directly affected local communities' restoration decisions.

2.4. Outlining a Conceptual Framework to Understand the Human Dimensions of FLR

We draw on the above complex systems thinking and a number of other relevant frameworks, and the social science disciplines (Section 2.1.) to articulate our proposed conceptual framework to analyse and understand the human dimensions of FLR and their interconnections with the FLR process.

Context – From the coupled human-environment system or social-ecological system, we understand the importance of the context within which the restoration process takes place and the multiple feedback loops that exist at different spatial and temporal scales, between ecological elements, between the natural (forest) and the human system, as well as between humans operating at different spatial and temporal scales. The context is decisive for identifying the ultimate goal(s) of FLR and maximising benefits for nature and people (Box 3.9.). In terms of the human dimensions this consists of the social, political, institutional and economic contexts. In turn, the social context includes such dimensions as cultural considerations or gender considerations. For example, Sijapati Basnett *et al.* (2017) highlight that increasing participation of women in FLR may not guarantee that they are then entitled to the benefits stemming from FLR (see Box 3.2.). The political context refers to the various historical and current political aspects that influence the ways stakeholders (at all levels) – governments, the private sector and civil society – interact with the restoration process. In Ecuador for example, while national policies support restoration, local authorities do not have the power or resources to translate this national policy into practice (Wiegant *et al.*, 2020) creating a cross-scale (national to local) governance challenge for restoration implementation. The economic context reflects broader trends associated with markets, globalisation and supply and demand for land or forest-based products. For

example, the drop in the price of beef in the early 1970s led the government of Costa Rica to shift its emphasis from beef to restoration of land and forests, and ecotourism (Mansourian *et al.*, 2022). The six social sciences outlined in the previous section help to analyse the context through a social, historical, political, economic and behavioural lens. Importantly, the perpetual tension between context-specificity and generalisations through standards and guidance, such as this one, must be given due consideration (Carmenta *et al.*, 2023). Thus, a first pillar for our framework is the context within which FLR takes place.

Motivations – It is important to understand the motivations and direct drivers that lead humans to degrade and destroy forests, but also to restore them (Sections 3.3 and 3.4). Humans take decisions that affect forests, both positively and negatively. These decisions may in turn be shaped by basic needs (food, energy, materials…), culture, history, values, preferences, beliefs, but also economics, power and policies, and are taken at all levels from the household to the inter-governmental level. Hanson *et al.* (2015) identified motivations (e.g., a crisis event) as one of the critical themes that determine success in FLR. In Cameroon for example, Ewane (2023) found that communities planted trees to mitigate climate change and protect watersheds, but also for financial reasons, to obtain planting materials and to leave trees for their children. Behavioural sciences (Section 2.2.) provide insights into why people take the decisions that they take, and provide managers with tools to influence those decisions and the subsequent behaviour (see e.g., Petit, 2019; Rare, 2019). Thus, a second pillar of our framework is motivations.

Activities – Activities situated within the human system (such as negotiating, resolving conflict, engaging stakeholders, promoting equity, empowering, listening to different voices or paying for the service of restoring forest landscapes) also need to be considered within the FLR process. Agrawal *et al.*, (2014) identify 12 categories of interventions in agriculture-forest landscapes (typical mosaics within which FLR takes place) including for example, applying voluntary standards, payments for ecosystem services and titling/land tenure. 'Engaging stakeholders' is a recurring 'principle' in guidance on restoration (e.g., Besseau *et al.*, 2018; Gann *et al.*, 2019; FAO *et al.*, 2021). As an activity, this is one of the many that are necessary within the human system to ensure positive restoration outcomes. The importance of rights-based interventions and incentives within forest management and conservation has also been highlighted (Agrawal *et al.*, 2014). Such concrete activities that take place in the human system and can be carried out within the FLR process, represent the third pillar in our framework.

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Ecotourism in India's Kanha National Park.

Influencing factors – The fourth pillar of our framework is 'influencing factors'. A number of influencing factors shape the relationship between people and nature and thus also the restoration process. These factors are intrinsic to the system and include, among others, power relations, values, beliefs, knowledge, institutions or worldviews. They influence the way elements of the SES interconnect and can be associated with some of the leverage points that Meadows (1999) identified (Figure 2.3.). For example, beliefs will mediate the relationship a person might have to a forest: if people believe that forests are dangerous places, their relationship to forests will likely be negative. In the health sector, the term 'social determinants' describes those factors that have "*a strong influence on population health and on inequalities in health outcomes across social groups*" (Preda and Voigt, 2015). They may include such things as income or education. These 'determinants' may also be relevant influencing factors.

All of these factors can intervene during the course of an FLR process and may vary across context and evolve over time. This pillar of our framework is the most complex to define and to address as it relates to longstanding and deep-rooted issues, as is the case for example in power imbalances (Box 2.1) between different groups, that affect how people relate to each other and to the FLR process. Identifying these factors that determine how, why and what decisions are taken – positive or negative – in any given landscape in the context of FLR, is essential to plotting an effective and long-term FLR course of action. Indeed, "*the key to designing effective social and behaviour change programmes lies in an in-depth understanding of the elements that influence a person's decisions and actions away from pre-conceived ideas and assumptions.*" (Petit, 2019).

Outcomes – If both forest loss and gain lead to impacts on humans, then a necessary element in our framework is outcomes. To understand human outcomes, the Millennium Ecosystem Assessment (MEA, 2005) provides a common framework that has been used widely. It understands the constituents of human wellbeing as: health; security; basic material for a good life; good social relations; and the freedom of choice and action (Ibid.; Box 2.3.). Frameworks of human wellbeing have been defined by several organisations, such as OECD, WHO or UNDP. These frameworks seek to capture the diversity of what constitutes 'wellbeing' (and its opposite, 'poverty'). For example, including gender responsive strategies is central to the FLR process if it is to achieve improved human well-being. The multiple

Box 2.1. Power Imbalances

Power is understood in different ways – both positive and negative. It can be about influencing the decision-making outcomes and may be wielded directly through 'carrots and sticks' or more subtly through persuasion (The Spindle, 2020). Power relations, which are typically unequal among different FLR stakeholders, influence how benefits from forests are distributed. Powerful economic and political actors – situated at all spatial scales – may influence the ways forests are managed (or mis-managed) and capture benefits ('elite capture' – see Box 3.1). At the same time, the consequences of diverse interests, coupled with differing levels of power, may be conflict and inequitable outcomes for stakeholders and rightsholders.

Huff and Brock (2017) illustrate the extreme case of the 'restoration economy' justifying land grabs by powerful political actors that exacerbate inequalities and dispossess poor rural households of their livelihoods in the name of the greater good to restore forests (although the restoration economy may also lead to new forms of employment, new skills and opportunities – Brancalion *et al.*, 2022). Understanding power relations adds a valuable layer of information to stakeholder analyses (Shackleton *et al.*, 2023).

Box 2.2. Farmers' Views on Barriers and Enablers of FLR in the Bono Region of Ghana

Farmers that live closest to the forest perceive barriers and enablers for forest restoration differently to more distant stakeholders. For example, a study among 41 farmers (71% male and 29% female) from four communities in the Bono Region of Ghana, found that they considered barriers to restoration as: 1) inadequate capacity on FLR; 2) poor maintenance of trees by farmers; 3) limited access to land; 4) lack of or limited funding for FLR; 5) climate change effects; and 6) inadequate tree seedlings for planting. The enablers that the farmers considered facilitated FLR included: 1) collaboration among stakeholders; 2) proximity of restoration land to community members; 3) availability of tree seedlings for planting; 4) provision of irrigation facilities; 5) capacity building; 6) financial support; 7) awareness of FLR through education and sensitisation programmes; 8) long-term monitoring and maintenance of restored areas; and 9) implementing and enforcing FLR policies.

Box 2.3. Setting Human Wellbeing Objectives for FLR

Measuring human wellbeing pre-supposes that the elements that constitute human wellbeing are the same for everyone. Yet in practice, while many key features such as health and safety may be shared by all, there is a subjective element to wellbeing, with different people considering and/or prioritising different aspects of wellbeing (Sen, 1999; Loveridge *et al.*, 2020). Individuals' worldviews will also determine which aspects of wellbeing receive greater weight.

Setting objectives associated with the human dimensions of FLR will necessarily be location specific and may be specific to certain groups of people within those locations. Yet, for monitoring purposes, some generalisation and aggregation will be necessary. The use of a common framework (that reflects, inasmuch as possible, the multiple dimensions of wellbeing) is helpful (Mansourian and Stephenson, 2023).

Several organisations have defined frameworks for human wellbeing: DFID's Sustainable Livelihoods Framework, the Millennium Ecosystem Assessment, OECD's framework of human capabilities (2001) and the Multidimensional Poverty Index or MPI (based on Amartya Sen's work). These frameworks seek to capture the diversity of what constitutes 'wellbeing' (and its opposite, 'poverty'). Such theoretical framings provide an overview of the elements of human wellbeing – beyond pure monetary descriptors and ideally in a manner that recognises human dependence on healthy and functioning natural systems. The frameworks serve to demonstrate the complexity and diversity of wellbeing dimensions.

In the context of FLR and this guidance, we apply a broad concept of wellbeing that encompasses the key aspects identified in the MEA, the Sustainable Livelihoods Framework and the OECD's capabilities framework. Using the latter (Figure 2.4.) we illustrate how human wellbeing objectives for FLR could be defined.

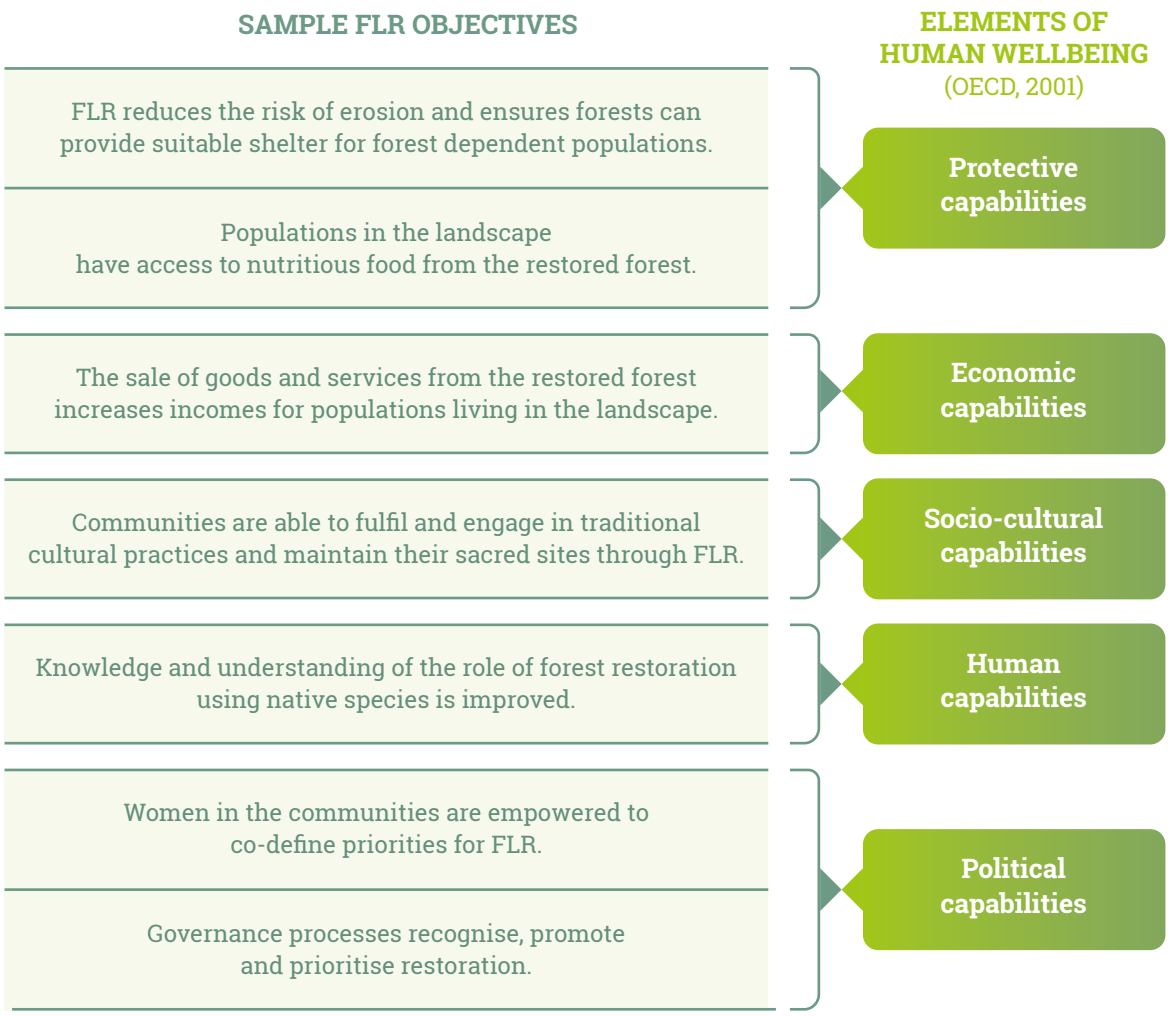

Figure 2.4. Components of human wellbeing in FLR and sample FLR-related objectives

dimensions of human wellbeing serve to frame the ultimate human-related objectives of FLR. Human outcomes can be positive (improved wellbeing) or negative (reduced wellbeing). They represent the fifth and final pillar in our framework.

Thus, the main pillars of our framework are: 1) context; 2) motivations; 3) activities; 4) influencing factors; and 5) outcomes (Figure 2.5).

The five pillars are not devoid of overlaps. For example, improved tenure security may be a motivation for engaging in restoration, and also an influencing factor. However, responding to a risk of landslides will clearly be a motivator for restoration but not an influencing factor, while the mitigated risk from landslides may be a restoration outcome (security). Similarly, gender-related aspects may be situated within context, activities, influencing factors, and outcomes, depending on the project. Gender equality may be an objective if FLR explicitly aims to create more equal power relations in the target landscape (and/or beyond, among actors involved in FLR processes). Towards achieving this objective, an FLR initiative may intentionally seek to strengthen women's land rights, which has been shown to support their access to multiple other resources and their empowerment (Meinzen-Dick *et al.*, 2017), thereby affecting power relations. As another example, an FLR project to restore Morocco's valuable argan forests will have to consider that while the trees belong to the state, the fruit from the trees belong to the women that harvest them (Biermayr-Jenzano *et al.*, 2014). To do this will require understanding the context (women's roles and tree tenure arrangements) and including activities in the FLR process to support their incomes from restored argan forests.

Taking the main steps in the FLR process, as illustrated in Figure 2.1., and overlaying the five pillars of our frameworks (Figure 2.5) leads us to our conceptual framework in Figure 2.6.

Figure 2.5. Five pillars of human dimensions of FLR

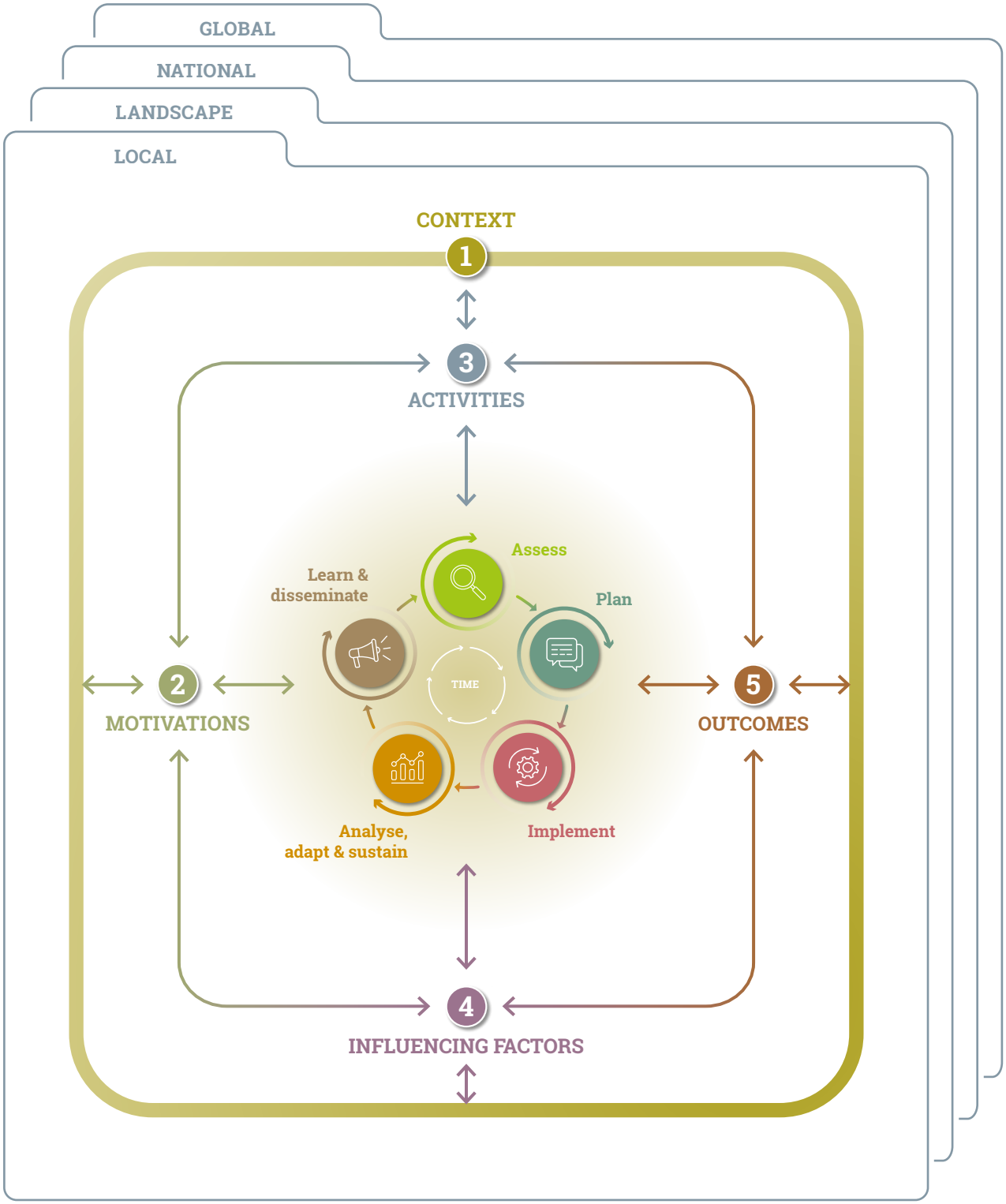

Figure 2.6. A conceptual framework to analyse and understand the human dimensions of FLR: The FLR process at the centre: 1. situated within a social-ecological context (that exists at different spatial scales); 2. initiated by different motivations; 3. human activities carried out within the FLR process; 4. influencing factors intersecting with and having a determining impact on the FLR process, and 5. human wellbeing outcomes expected from the process. Arrows demonstrate the interconnections between these different pillars of the framework.

KEY POINTS of the conceptual framework for integrating human dimensions in forest landscape restoration

- ✓ The specificities of the FLR process are its spatial and temporal scales, and its dual social and ecological objectives.
- ✓ Six main social sciences can provide insights and tools in support of the FLR process.
- ✓ Several frameworks including, the social-ecological system, inform the development of a conceptual framework for human dimensions of FLR.
- ✓ A proposed framework to understand the human dimensions of FLR rests on five pillars: context; motivations; activities; influencing factors; and outcomes.
- ✓ In the framework, context is the broader social, institutional, economic and political status in the landscape (and influences on it) where FLR is taking place (e.g., land use, historical legacies, legal constraints). Motivations represent the reasons different stakeholders will have for carrying out restoration (e.g., for security purposes, recreation). Activities represent human-related interventions along the FLR process (e.g., engaging stakeholders, negotiating a vision, building capacity, changing behaviours). Influencing factors represent factors situated within the human system that have an impact on the FLR process (e.g., power dynamics or tenure). Outcomes represent the impacts on human wellbeing as a result of the FLR process; they may be positive or negative (e.g., improved knowledge, land dispossession).

Ecotourism outfit in British Colombia, Canada.

3

Linkages between Humans and FLR: Why do we Need to Consider Human Dimensions in Forest Landscape Restoration?

OVERVIEW

This section explores the reasons for which it is essential to consider human dimensions as central to the FLR process. It provides an overview of the 'human' element and then describes the ways in which humans rely on forests, and impact on forests in both positive and negative ways.

3.1. Disaggregating the 'Human' Element

Understanding stakeholders is important as it forms the basis of an assessment of both pressures on and opportunities for FLR (Mansourian, 2021b), and of any engagement strategy (Stringer *et al.*, 2006; Reed, 2008). Different stakeholders also interpret and view the restoration process differently (Mansourian, 2018; 2021b) which has an influence when negotiating landscape priorities and forest functions to restore.

Several different terms are used to refer to the people that have a stake or interest in the restoration process (Box 3.1.). We use the term 'stakeholder' as a generic term, although we acknowledge that in certain contexts it has been associated with negative connotations. Disaggregating groups based on gender, age, ethnicity and power helps to understand relationships that each group has with forests (and trees, forest goods and services) and with each other, and their needs from the restoration process (Box 3.2.). For example, in Burkina Faso an analysis of the multiple tenure rights around the néré tree reveals complex social differentiation based on gender, but also ethnicity, residence status, marital status and seniority within a lineage (Pehou *et al.*, 2020). Stakeholder groups are not monolithic, and social disaggregation provides a more refined insight into different needs from forests and impacts of deforestation and forest restoration. Indigenous Peoples and local communities in particular often possess an intimate knowledge of the forest, and their insights, involvement and engagement are essential to effective FLR implementation (Reyes-Garcia *et al.*, 2019; Hernandez and Vogt, 2020). A better understanding of different stakeholders thus provides the basis for addressing the drivers of deforestation and forest degradation and engaging in FLR (Höhl *et al.*, 2020).

Stakeholder engagement is a pre-condition to (as well as an element of) any FLR initiative as

stakeholders are an inherent component of the social-ecological system within which FLR takes place. Stakeholders and rightsholders in FLR are situated at multiple spatial and temporal scales (Mansourian, 2021b). Human influences on FLR may stem from local groups and sources, such as local villagers, farmers, Indigenous groups, local authorities or local private businesses. They may also originate from national sources, including companies, or governmental groups. For example, in Kenya, the national constitution calls for 10% forest cover, which is a strong driver to restore forests (which currently represent closer to 6% of the country's territory – Mansourian *et al.*, 2022). Civil society groups, notably national level NGOs may also be important players in promoting FLR. Additionally, stakeholders situated in other countries may play an essential role in shaping the landscape, for better or worse. For example, international corporations have been accused of converting forests in tropical countries for agro-industrial use such as in Panama (Sloan, 2016) or Indonesia (Obidzinski *et al.*, 2012). The term 'telecoupling' has been used to refer to these distant socio-economic and environmental interconnections (Busck-Lumholt *et al.*, 2022). Evolution over time also requires effective feedback loops and adaptive management as stakeholders, or their relative interests, may change over the long-term process that is FLR.

Box 3.1. Some Key Definitions

Actors – *"entities with agency, i.e., the capacity to produce a phenomenon or modify a state of affairs"* (Jepson *et al.*, 2011).

Stakeholders – *"any group or individual who can affect or is affected by the achievement of the organization's objectives"* (Freeman, 1984). This term although frequently used, can be problematic because of its origins in colonialism (British Columbia website).

Rightsholders – In the context of international human rights, every individual is a rightsholder. In specific land use settings, the term 'rightsholders' may be used to refer to those that have specific tenure (e.g., ownership) or property rights (e.g., rights of use, rights of access) over the land or forest. A rightsholder may be an *"Individual or group that is socially endowed with legal or customary rights with respect to land, water and natural resources"* (Borrini-Feyerabend *et al.*, 2013).

Forest-dependent communities – *"A community that depends on a forest region for at least 50 percent of its total economy"* (Government of Canada online).

Indigenous Peoples and local communities (IP&LCs) – *"individuals and communities who are, on the one hand, self-identified as Indigenous and, on the other hand, are members of local communities that maintain intergenerational connection to place and nature through livelihood, cultural identity and worldviews, institutions and ecological knowledge"* (IPBES, 2019).

Local elites – *"locally based individuals with disproportionate access to social, political or economic power"* (Dasgupta and Beard, 2007).

Elite capture – *"the process by which local elites dominate and corrupt community-level planning and governance"* (Dasgupta and Beard, 2007).

Box 3.2. Gender and Forest Restoration

Restoration initiatives embed critical gender considerations, whether or not they are explicitly addressed, and have the potential to accentuate or reduce gender inequalities.

Due to social norms that ascribe different roles and responsibilities to women and men in natural resource management, agriculture, household maintenance, and other spheres of life, women and men acquire gender-specific sets of ecological knowledge, skills and priorities. Yet, rural women's priorities, for example with respect to which areas to restore, which tree species to plant, and what kinds of benefits to seek from restoration, are often overlooked in restoration initiatives (Elias *et al.*, 2021). Gender inequalities in decision-making, and in access to, and control over, resources, costs, and benefits related to restoration, are visible across regional contexts (Sijapati Basnett *et al.*, 2017). For example, given that rural women's rights to land are often tenuous, restoration and conservation models with benefit schemes tied to land ownership or relative contributions of land to restoration can cause gender-based exclusions (e.g., UN-REDD, 2011; Pham *et al.*, 2016; Kariuki and Birner, 2021).

Women's and men's experiences are also differentiated based on other social relations, such as those based on ethnicity, age and generation, socio-economic status, and more (Colfer *et al.*, 2018); such that some women and some men are particularly disadvantaged when it comes to having voice and influence over restoration initiatives, and being able to benefit from these. For example, in Burkina Faso, gender and other factors of social differentiation affected capacities to adopt a range of land restoration practices. As Tiendrébéogo *et al.* (2020) explain, only male household heads with sufficiently large landholdings were able to

establish exclosures on which to practise farmer managed natural regeneration (FMNR); and women's limited access to land – but also to training, labour and other resources – hindered them from digging zai planting pits or creating stone bunds and grass strips to prevent erosion and restore the fertility of their farming plots. Whether or not women were married or widowed, whether their husband had migrated, and whether they lived with an adult son, all contributed to shaping their capacities to access land, training, farmer organisations, compost and more – and thus their capacity to adopt restorative practices. Coming together as a self-help group helped women to access land collectively and share labour and resources, thereby overcoming some of the constraints that they faced.

KEY POINTS on understanding the 'human' element

- ✓ Stakeholders are situated at local, national, regional and international scales; they may be from civil society, traditional authorities, NGOs, the private sector or government.
- ✓ People who engage in the restoration process may be stakeholders or more specifically rightsholders. They may represent local communities, governments, the private sector, Indigenous groups.
- ✓ Identifying all stakeholders is important to determining their real and potential roles in the landscape.
- ✓ Disaggregating stakeholders, including by gender, age, ethnicity etc. helps to understand their relationship to forests and their needs from restoration.
- ✓ Stakeholder engagement is necessary before contemplating a restoration initiative as stakeholders are an inherent component of the social-ecological system within which FLR takes place.
- ✓ Different stakeholders may need to be engaged and/or consulted at different stages in the process.
- ✓ Stakeholders may perceive the restoration process positively or negatively, depending on their context and prior experience.
- ✓ Determining which stakeholders to engage will depend on the analysis of stakeholders, including their interests (or disinterest) in the landscape and their influence.

3.2. Humans Depend on and Use Forests

Forests in a landscape are important for the Indigenous and local communities that live nearby and may depend on them directly for their income, food, medicinal and spiritual needs and the various local services that they provide (Vira *et al.*, 2015; IPBES, 2018; Diaz *et al.*, 2018). Forests are also important for more distant stakeholders that may rely on them for construction materials, wood fibre for a diverse array of products, and the global services that they provide, such as water and climate regulation. The dependence of people on forests and trees, and inter-dependence between people and forests, have a profound impact on both livelihoods and forests. Over a billion people worldwide are estimated to derive direct and indirect benefits from forests (FAO, 2014), and Newton *et al.* (2020) identified that in 2012, 1.6 billion rural people lived within 5 km of a forest. Our global economy relies on forests with their contribution (to global gross domestic product) estimated at more than USD 539 billion (Miller *et al.*, 2020). In some cases, income from forests may be the only source of cash income (McElwee, 2008). Human health relies on healthy forests, with an estimated 70% of the world's population dependent on medicinal plants from forests (Konijnendijk *et al.*, 2023). Forests also filter particulate matter from the air, and exposure to forests has been found to improve mental health and reduce cardiovascular disease (Ibid.). These diverse ecosystem services or contributions of forests to people (Diaz *et al.*, 2018) are fundamental, yet the notion of 'service' brings an instrumental value to nature which does not capture the intrinsic value of forests and all of the other non-material benefits that people derive from forests (e.g., cultural and spiritual values).

Most often, the needs of local communities from forests differ from those of more distant stakeholders (Sayer and Collins, 2012). This tension between the needs and dependence of local and distant stakeholder groups has an impact on how forests are managed and governed (Ibid.). The current drive to achieve global benefits of increasing carbon sequestration to mitigate climate change, versus the local benefits of using trees for fuelwood, exemplifies this tension.

KEY POINTS on the importance of forests to people

- ✓ Forests are important for both proximate and more distant communities, including society at large.
- ✓ The interests generated by the dependence of local rightsholders and stakeholders on forests and those of more distant ones, may clash.
- ✓ Forests provide a vast array of goods and services, including non-material benefits such as cultural or spiritual rewards.
- ✓ The relationship between people and forests can be mutually beneficial.

3.3. Humans Degrade Forests

Globally, the main direct causes of deforestation and forest degradation are the production of commodities (soy, cattle, palm oil), unsustainable forestry, shifting cultivation and fire (Curtis *et al.*, 2018). Mining is also a key, and rapidly growing, cause of deforestation (Gijum *et al.*, 2022). A recent analysis of 24 'deforestation fronts' (Pacheco *et al.*, 2021) reveals the shifting pattern of these drivers over time and their contribution to forest degradation (measured using fragmentation as a proxy). While global trends and drivers are important, tracing the causes of forest loss and degradation in a given context is essential to identify leverage or intervention points. Agreement among key actors and stakeholders about the drivers that led the landscape to its current state, and their relevance is also a fundamental step to addressing them.

Forest loss and degradation affect people in different ways. What may appear to be degraded in the eyes of one person may not qualify as such for another stakeholder (Hobbs, 2016). For example, a fragmented landscape may appear as degraded to an ecologist, but as valuable land to a farmer. Similarly, a forest where fire has been excluded may appear as healthy and abundant to some stakeholders, but as out of balance by Indigenous Peoples who have traditionally used fire to manage the forest (Langston, 1995; Lake *et al.*, 2018; Reyes-Garcia *et al.*, 2019).

While proximate drivers of deforestation and forest degradation are often similar across regions, the specific underlying causes are generally far more complex and multidimensional. Indeed, although forest loss in tropical countries as diverse as Bolivia (Muller *et al.*, 2014) and Ghana (Brobbey *et al.*, 2020) has been associated primarily with agricultural expansion, behind this expansion lie more complex and locally-specific factors that shape human impacts on forests. For example, in the Amazon, cattle ranching is the primary driver of deforestation involving large- to small-size properties (Godar *et al.*, 2014). Soy

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Unsustainable forestry is one of the drivers of deforestation.

production takes over pasture lands, which places indirect pressure to convert forests to pasture. Yet, land speculation and encroachment of public lands, driven by the expectation of growing land markets, is becoming a significant deforestation driver (Azevedo-Ramos *et al.*, 2020). In Indonesia, tree plantations took over degraded forests by logging, and forestland allocation, and public incentives contributed to the expansion of large-scale oil palm plantations. The logistic and processing capacity built around a plantation economy contributed to increasing the financial profitability of oil palm, which has stimulated its adoption by smallholders who have converted, in many cases, diversified farming systems, including jungle rubber, to oil palm (Clough *et al.*, 2016). In the Congo Basin, the main driver of deforestation is subsistence agriculture, and both logging and charcoal production contribute to forest degradation (Molinario *et al.*, 2020). In western Africa, low-yield cocoa production systems, pushing into new lands for sustaining supply, have also triggered deforestation (Kalischek *et al.*, 2023).

Interventions to reach FLR objectives may be required at diverse levels, including among consumers in far off lands, as well as among local policymakers and farmers. For example, growing demand in foreign markets for timber or cocoa may lead to forest loss thousands of miles away; globalisation and structural adjustment programmes imposed by international financing agencies may also lead to policies that encourage forest conversion in forest-rich countries. At the local scale, in different regions, pressures differ. In tropical Africa, farmers' need to produce food to feed their families is often the primary driver of forest degradation (Seymour and Harris, 2019). Other more unexpected drivers of deforestation may be identified. For example, the conversion of many Nigerians to Christianity in the early 1900s led people to reject what used to be significant spiritual forests, leading to their degradation (Gontul *et al.*, 2013).

Institutions, such as tenure, are developed by humans to mediate their relationship to each other and to the environment. Tenure insecurity is a significant driver of deforestation, just as its converse is a driver of restoration. For example, in Burkina Faso, studies find that tenure insecurity was part of the compounding factors that led to increased deforestation (Etongo *et al.*, 2015). Where tenure is more secure, research has shown a reduction in deforestation and an increase in forest cover, for example in the Amazon (Duchelle *et al.*, 2014) or in Nepal (Nagendra, 2007). Recently, Djenontin *et al.*, (2022) found that land tenure, especially ownership security, was associated with higher farmer-led restoration efforts in Malawi.

Box 3.3. Drivers of Deforestation and Forest Degradation

Abundant literature focuses on understanding the drivers of deforestation and forest degradation (Busch and Ferretti-Gallon, 2023). We know that these drivers are multiple, they interact in diverse ways, and their specific influence may change over time. These drivers are often classified into direct and indirect drivers (Geist and Lambin, 2001). The direct drivers are land use activities that pressure forests through forest use or their conversion to other land uses. The indirect drivers are all those economic, cultural, institutional, demographic, technological and environmental factors that influence the direct drivers of deforestation or forest degradation by increasing or diminishing their effect (Geist and Lambin, 2002; Pacheco *et al.*, 2021). The direct drivers of deforestation include agriculture, cattle ranching, mining, timber plantations, and urban expansion. Direct drivers of forest degradation are unsustainable logging, fuelwood extraction, and fires. These two are interconnected since forest degradation generally precedes deforestation.

Deforestation and forest degradation tend to reflect broader political, social and economic transitions facing societies associated with growing global consumption of agricultural commodities linked to globalisation and increasing purchasing power, resulting in the growing expansion of agriculture to the detriment of tropical forests. In addition, demographic factors such as population growth and migration also result in the expansion of small-scale agriculture in forestlands, often by smallholders practicing a mix of subsistence and cash-crop production. Migrants have often unjustly been blamed for forest loss and degradation in contexts as diverse as Madagascar or Peru.

Economic pressures may lead to conflict as has been witnessed through so-called 'land grabs', with for example, agribusinesses acquiring land in Burkina Faso leading to tensions with local Indigenous groups (Pehou *et al.*, 2020). Technological factors driving deforestation relate to land use intensification and agricultural 'innovation'. In many tropical countries, forest loss and degradation are attributed to underlying tensions over ownership and rights stemming from top-down colonial and post-colonial nationalisation of forests versus long-held traditional local customary rights transmitted over generations that viewed forests in a significantly different way.

It is often the case that logging and logging roads open intact forest lands to agriculture, which in some cases is followed by permanent road development that connects converted lands to expanding intermediate cities and end markets. Expanding infrastructure and market logis-

tics contribute to attracting investments in storage and processing facilities (e.g., sawmills, palm oil mills, slaughterhouses) that, in turn, stimulate growing agricultural production. In some cases, depletion of land nutrients by unsustainable agriculture leads to declining yields, thereby incentivising the conversion of new lands. In others, growing yields make it more attractive to expand high-yield crops into new lands. Land regulations, market conditions, and other institutional factors mediate these dynamics.

KEY POINTS on drivers of deforestation and forest degradation

- ✓ Underlying drivers of deforestation and forest degradation can be categorised as technological, cultural, demographic, institutional and economic.
- ✓ These drivers often work together to lead to deforestation and/or forest degradation.
- ✓ While there are common global causes of deforestation and forest degradation, regional and local specificities driving them are associated with human dimensions such as institutions, markets, power dynamics etc.

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Forests and individual trees may carry spiritual messages such as the nativity scene depicted in this Linden tree in Switzerland.

3.4. Humans Restore Forests

Anthropogenic forces are far from systematically negative, and humans are also responsible for restoring forests. Even naturally regenerating forests will generally not be sustainable without human interventions (Chazdon *et al.*, 2020). For example, in cases such as Costa Rica or Puerto Rico where forest recovery and revegetation resulted from retreating agriculture and livestock farming because of industrialisation, policies and incentives have protected regenerating forests. Although forest ecosystems have the capacity to regenerate, human interventions, shaped by different factors, including for example tenure conflict or perverse incentives driving deforestation, will affect the long-term survival of regenerating forests. For this reason, it is important to understand and promote the positive roles that people play in restoring forests.

The forest transition theory first proposed by Mather in 1992 is based on the observation that many temperate countries transitioned from severe deforestation to a reversal of the curve with forest restoration and regeneration taking place. Simplistic explanations for this transition related it to economic development; however, these have been criticised with more complex and multifactorial reasons being proposed (Box 3.4.). Ultimately, social processes are the key drivers of forest transitions (Garcia *et al.*, 2020). Reflecting on the concept of the transition, Kull (2017) proposes a more subtle forest transition that reflects not only the quantitative dimension of the transition, but also the qualitative one, including both social and ecological dimensions. The key point is that humans restore forests – both in their quality and quantity – for a number of reasons, including economics, culture, and more.

Large scale reforestation schemes have been described in countries that have suffered severe deforestation, such as Switzerland at the turn of the twentieth century (Mather and Fairbairn, 2000), or China more recently (Chen *et al.*, 2015). In cases where governments have initiated restoration, the incentives have generally been associated with public security (protection from floods or avalanches) or securing a domestic supply of timber. Government-led initiatives are generally framed by a national (or global) policy or strategy. Commitments under the different environmental conventions may also provide the framework or incentives for government forest restoration interventions. Bhutan for example, has a national policy enshrined in its constitution to maintain 60% of the country under forest cover (Mansourian *et al.*, 2022). An analysis of motivations for governments

Box 3.4. Forest Transitions

Forest Transition theory emerged from historical research on land use change in countries of the Global North. This research argued that forest cover changes in foreseeable ways, reverting from deforestation to reforestation as countries' agricultural production systems modernise and industrial economies develop (Mather *et al.* 1992; 1993; 1998). There has been much theoretical and empirical work on Forest Transitions over the past few decades trying to elucidate social and economic drivers of increases in forest cover (Rudel *et al.*, 2005; Meyfroidt and Lambin, 2011; Kull, 2017). This research has tended to classify forest transition drivers into two separate pathways.

The first pathway, often called the 'economic development pathway' (Rudel *et al.*, 2005), includes economic and technological improvements that spatially reorganise and optimise a country's agricultural sector. These changes lead to agricultural intensification and a consequent reduction in the amount of land dedicated to agricultural production with the natural recovery of forests occurring in agriculturally marginal areas. Forest transition drivers falling under the economic development pathway include pull factors leading to rural outmigration and reductions in the availability of agricultural labour, as well as technological advances in agricultural production systems that support agricultural intensification. A classic example of the economic development pathway can be seen in the reforestation of mid-century Puerto Rico, which was driven by US investments to develop the island's manufacturing industry. These changes led to rural depopulation and reforestation driven by the restructuring of the island's labour market.

The second pathway, often called the 'forest scarcity pathway' (Rudel *et al.*, 2005), is driven by responses to forest loss and degradation and declines in related ecosystem services. The forest scarcity pathway is at the core of forest landscape restoration efforts. Responses to address the loss of ecosystem services often include assisted reforestation, forest restoration and afforestation initiatives on public, collective and private lands. There is some evidence that different pathways have driven forest transitions at different times, with initial transitions being largely driven by the economic development pathway, and more recent ones being driven by responses to environmental degradation. China's forest transition is a classic example of forest transitions driven through the forest scarcity pathway. China's Grain-for-Green Programme (GFGP) is the world's largest reforestation programme. The GFGP was started in 1999 to combat soil erosion by providing rural households with grain and cash subsidies to reforest and restore agricultural and degraded areas on sloped lands (Liu *et al.* 2008). However, GFGP reforestation efforts have predominantly led to monoculture or simple mixed forests that have led to limited or negative ecological outcomes (Hua *et al.*, 2016).

to restore forests identified no less than 15 reasons (Mansourian, 2020; Box 3.5.).

Maps have been used to prioritise restoration areas (e.g., Laestadius *et al.*, 2011; Bastin *et al.*, 2019; Brancalion *et al.*, 2019; Strassburg *et al.*, 2020) but have drawn significant criticism because of their implications for both local people and local biodiversity (e.g., Lewis *et al.*, 2019; Elias *et al.*, 2021, Schultz *et al.*, 2022). At the same time, more detailed, local maps may be powerful tools for identifying objectives, priority areas and monitoring progress.

Once national targets are set, the selection of priority restoration sites in-country have often had questionable motivations, with some countries being accused of prioritising land used by ethnic minorities (McElwee, 2009), or areas that are less likely to be of economic interest. At the same time, restored forest areas may also become the target of external interests as degraded land regains value, once restored (Barr and Sayer, 2012).

Restoration may also be initiated by communities (see Boxes 3.6 and 3.8.), with examples of farmer-managed natural regeneration (FMNR) being lauded in Niger (Reij and Garrity, 2016) or the role of Indigenous communities in the Amazon in facilitating restoration through the provision of seeds (the Xingu seed network for example – Sanches *et al.*, 2021). Hybrid (e.g., government-community) partnerships may also be another governance model for restoration, such as the modified taungya system in Ghana (Ros Tonen *et al.*, 2014). Community forest management (Box 3.8) represents another mechanism to recognise and support the role of communities in managing and taking decisions around forests. Faiths also approach the relationship with the natural world in vastly divergent ways and may be strong allies in restoration, as is the case for example with the Coptic Orthodox church in Ethiopia or other Christian monastic communities (Mallarach *et al.*, 2014). Many community-led restoration initiatives exist around the globe, most of which are not captured in the mainstream western literature, with limited empirical evidence (Djenontin *et al.*, 2022; YaleEnvironment360).

Switzerland restored its forests in the early 20th century to protect Alpine villages from landslides and avalanches.

Box 3.5. Fifteen Reasons for which Governments Restore Forests

1. Provision of ecosystem services (pollination, water regulation, nutrient cycling, spiritual benefits etc.)
2. Biodiversity conservation and ecotourism
3. Land stabilisation and erosion control
4. Increasing soil fertility and agricultural yields
5. Watershed protection/protection of water supply
6. Carbon sequestration (and associated financing)
7. Mitigating floods
8. Mitigating droughts
9. Securing biomass energy
10. Safeguarding hydroelectricity
11. Reducing vulnerability to climate change
12. International environmental interests and funding
13. International markets
14. Timber security
15. International political commitments (conventions)

Source: Mansourian, 2020

Traditional worldviews and knowledge reflect millennia of interaction with nature, and many communities and Indigenous groups possess a profound understanding of the importance of the forest to their communities (Hernandez and Vogt, 2020; Santini and Miquelajauregui, 2022), ways to use, manage and relate to it. Their relationship with and perception of forests is greatly divergent to that taken by Western science (see Box 3.7.). Among the thousands of Indigenous communities are a diversity of worldviews which cannot be generalised into an 'Indigenous perspective'. However, there are some commonalities that make them distinct from Western worldviews. Some common themes among Indigenous perspectives that may assist in restoring forests are a deep-time understanding of, and connection to, the ecosystem, locally-suited management techniques (e.g., to manage fire), and measures that reconcile local lifestyles with forest conservation, restoration and use (Reyes-Garcia *et al.*, 2019).

Top-down government– (or donor–) led initiatives can thus be contrasted with bottom-up local initiatives. The scale of these interventions is bound to differ, with government-led restoration initiatives more likely to be, at least on paper, large scale. In contrast, locally-led initiatives are more likely to be small in scale, but could add up to large areas. For example, in southern Niger the total area restored through FMNR has been estimated at 5 million ha (UNCCD, 2020), while in Tanzania, in the Shinyanga region, by 2004, more than 300,000 ha of woodland had been restored across 833 villages using traditional methods (Barrow, 2014).

Box 3.6. Rationales, Motives, Benefits, and Incentives Underscoring Locally-Driven Restoration Efforts

Farmers in Malawi engage in restoration for many reasons.

Studying farmer-led, bottom-up restoration efforts in Malawi, southern Africa, Djenontin *et al.*, (2020) identified various reasons why farmers engage in restoration activities from both individual and collective efforts. They found compelling examples of contextual rationales, motives, perceived and expected benefits, and incentives as major factors underlying farmers' restoration decisions, which reflect some context-dependent considerations. The evidence suggests grounding understanding of restoration behaviours within local contexts while accounting for gender differences.

Rationales – Farmers' rationales indicate internal logical reasoning that trigger actions to address/solve perceived or experienced issues and to protect the environment. They featured concerns for:

- environmental degradation and its negative impacts (acute soil and land erosion and gully formation);
- changing climate;
- declining soil fertility that affects crop yields;
- fewer trees from deforestation and scarce wood and non-wood forest products; and
- rain scarcity and biodiversity loss.

Motives – Farmers' motives demonstrate external influences implicitly guided by emotions, worldviews, and beliefs. They consisted of:

- influences from peers and other networks;
- forged awareness and persuasions from restoration actors;
- leadership, encouragement, and support from traditional authorities; and
- altruistic behaviours.

Benefits and Incentives – In-kind rewards emerged as relatively important core incentives and benefits, departing from the widespread over-reliance on monetary/cash incentives in externally driven restoration interventions.

Benefits indicated perceived rewards from restoration and were mainly:

- economic (honey from beehives put in trees, timber, and sale of crop yield surplus and of charcoal);
- environmental (moisture and nutrient added to the soil, fresh air and temperature regulation, abundant and reliable rainfall);
- altruistic (care for future generations and natural trees);
- food-related (fruits from trees and other non-timber forest products (NTFPs), high/improved crop yields);
- non-economic utility-oriented (poles for constructions, coffins, firewood for cooking and medicinal plants); and
- socio-cultural (sharing of tree seedlings, access to free firewood during funerals).

Incentives were expressed as rewards obtained from government or non-government restoration programmes, including both in-kind and money-based incentives.

- Knowledge and information support through training on restoration matters;
- Free or subsidised inputs such as tree seedlings and agricultural fertilisers;
- Cash and food for work were cited and praised, but judged fleeting.

Source: Djenontin *et al.*, (2020)

Box 3.7. Co-creating FLR Strategies using both Western and Indigenous Worldviews

"Land is our school, our university, our library and our archives. We believe that in healing country, we can heal people" (an Indigenous Larrakia woman speaking at the 10th World Conference of the Society for Ecological Restoration).

The UN estimates that there are close to half a billion Indigenous Peoples around the globe in 90 different countries (UN website). While they share some specificities including injustices stemming from colonialism, context remains fundamental to understanding the diversity of cultures and knowledges, and interpret their connections to forests.

When it comes to ecosystems and their restoration Western and Indigenous worldviews are of fundamental epistemological differences. Whereas there is a deep-rooted connection between people and nature in Indigenous traditions, Western and capitalist perceptions tend to see humans as separate (and above) nature (Bignall *et al.*, 2016). For Indigenous Peoples, land and natural resources are living elements of life (Dei *et al.*, 2022). Understanding this connection and respecting it is fundamental to any collaboration between Indigenous and non-Indigenous groups for FLR, as is acknowledgement of ancestral rights and historical contexts (Lake *et al.*, 2018).

There remains a profound divide between Western views of what should be restored, what counts as degraded and what the objectives of restoration should be and those of Indigenous communities (Fox and Cundill, 2018; Lake *et al.*, 2018; Dickson Hoyle *et al.*, 2022); each is based on a different set of knowledge systems. Equally, technical solutions promoted by Western science, from protected areas to exclosures, have typically been counter to the basic rights of Indigenous populations, and have often also resulted in poor environmental outcomes (Dawson *et al.*, 2021).

There is increased recognition of this divide and the need to better collaborate with Indigenous Peoples and their knowledge systems. 'Two-eyed seeing' is a term employed to signify *"learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of mainstream knowledges and ways of knowing, and to use both these eyes together, for the benefit of all"* (Reid *et al.*, 2021). The term was shared by Mi'kmaq elder Dr. Albert Marshall, and has influenced approaches to conservation, education and health in Canada. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) also attempts to incorporate different worldviews in its framework (Diaz *et al.*, 2015). Recognising this plurality of worldviews and integrating it into FLR implementation is fundamental (Carmenta *et al.*, 2023).

Going forward, Fletcher *et al.* (2021) have proposed the need to: *"1) legally enable relatively autonomous Indigenous and locally led and managed territories; 2) truly engage with, embed and prioritize Indigenous and local knowledges; and 3) support Indigenous rights to land, resources, diverse livelihoods, and lifeways"*. All of these could contribute to better engaging with Indigenous communities in FLR. Ultimately, FLR strategies that acknowledge historical wrongs and respect Indigenous knowledges can provide enduring solutions to forest loss and degradation.

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Leaders of the Indigenous Peoples association FENAMAD (Federación Nativa del Río Madre de Dios y fluentes) discussing the protection of the rights and territories of the Indigenous Peoples living in the Amazonian rainforests of north-east Peru.

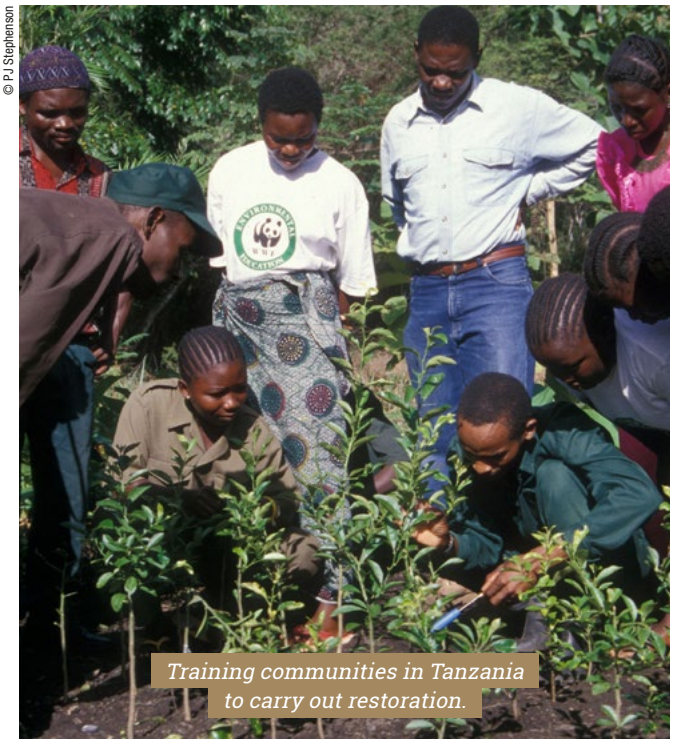
Box 3.8. Community Forest Management

Community forest management (CFM) has been promoted since the mid-1980s as a way to combine environmental conservation efforts, including restoration, with rural development and resource rights agendas. It can be defined as forest management arrangements in which communities have at least some degree of rights and responsibility for how forest resources should be managed. The underlying premise supporting the implementation of CFM is that local communities have vested interests in conserving and securing environmental services from forests and are best placed to use time- and place-based information to make more sustainable natural resource management decisions that also help support livelihoods (Lund *et al.*, 2018). While most of the world's forests are still under government control, 12.2% of forests globally are currently managed by IP&LCs with an additional 2.2% being designated for community management (RRI, 2018).

Community forest management takes many shapes and forms and largely depends on local institutional and cultural contexts as well as national policy contexts that support community natural resource rights (Hajjar *et al.*, 2021). A community's rights to resources under CFM vary along a continuum, with some communities having full use and management rights and other communities having limited rights to forests and resources. Nepal lies at one end of this continuum with substantial devolution first initiated in the 1970s, supported by legislative reforms and international aid from the late 1980s to the present. Over the past five decades, Nepal's government has devolved a substantial amount of the country's forests to local communities, with current estimates suggesting that more than 22,000 registered CFM groups are managing approximately 50% of Nepal's forests (Joshi, 2023). CFM groups are entitled to use and management rights as well as the full share of revenues and benefits from CFM activities. A recent evaluation of the CFM programme in Nepal found that it contributed significantly to reductions in deforestation and poverty in the country (Oldekop *et al.*, 2019).

In Uganda, community participation in the management of forests appears to lie towards the other end of the rights spectrum. Collaborative forest management is legally supported through the 1995 Constitution and subsequent acts and policies (FAO, 2019). Arrangements under this scheme are secured through 10-year agreements that set out community rights in government managed reserves. In general, collaborative forest management only allows communities to collect non-timber forest products and fuelwood from reserves for subsistence purposes through permits that provide access to forests on certain days of the week. Bar areas where communities have been allowed to plant trees, communities have every right when it comes to decision-making. Evidence suggests that communities have gained only marginal benefits from collaborative forest management arrangements in Uganda (Mawa *et al.*, 2021).

Community forest management arrangements provide a framework for forest restoration in many other contexts such as Madagascar where restoration has been included in contracts between communities and authorities (Mansourian *et al.*, 2018).



Training communities in Tanzania to carry out restoration.

KEY POINTS on the reasons for which people restore forests

- ✓ There are multiple motivations for restoration, and often a complex mix of motivations may lead to restoring (or not) a landscape.
- ✓ Motivations may differ substantially at the local, national or international level; and they differ between actors situated at different administrative scales and representing different sectors.
- ✓ Decisions taken around forests may have positive or negative impacts on forest and tree cover.
- ✓ These decisions are shaped by culture, economics, beliefs, history, values, among multiple factors.
- ✓ Understanding motivations helps to support and expand restoration initiatives.

3.5. The Loss, Degradation and Restoration of Forests Impact on Humans

Numerous studies, including the global IPBES assessment (2018), have highlighted the catastrophic impacts of forest degradation on humanity. While short-term interests (of some stakeholders) may benefit from forest transformation, long-term forest loss or degradation is likely to negatively affect a large group of stakeholders. Indigenous and local communities living close to forests are particularly vulnerable to the degradation of this resource. For example, when studying the impact of fires in the Amazonian State of Acre in Brazil, Costa *et al.* (2023) found a decreasing density of trees of economic interest and traditional use, thus directly impacting on the livelihoods of Indigenous and local communities.

In turn, restoration affects people in different ways. Where FLR has taken or is taking place, impacts on humans vary in intensity and in direction. For some people, the impact may be positive, for example, where restored forests may enhance the provision of ecosystem services such as pollination and water quality or through job creation such as managing tree nurseries, carrying out restoration activities or sustainably managing timber. The creation of value through improved land, soil and ecosystem services generates positive and long-term impacts, although tools for measuring the additive value of ecosystem services as a result of FLR are still limited and in development. As the condition of forests improve, their increased value may however, also generate new interests and lead to negative impacts (Barr and Sayer, 2012). In some cases, forest restoration may have negative impacts on some people, for example, where people have been evicted or displaced from lands in order to restore forests (Rai *et al.*, 2018). Top-down processes for restoration that fail to acknowledge and fully engage with local rightsholders also lead to a range of negative human outcomes including

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Maintaining and restoring watershed forest is important for farmers, as is the case for this coffee farm in Costa Rica.

potentially undermining livelihoods and food security, displacing people from their lands and generating human-rights abuses (Fleischman *et al.*, 2020).

Costs and benefits of FLR vary in intensity and direction for different groups (and individuals): what is a cost to one group (e.g., the loss of ancestral land) may be a benefit to another. Understanding these differences is essential to shape FLR implementation in such a way to minimise costs to rightsholders and, where they are inevitable, to ensure adequate compensation. Nevertheless, in many circumstances it is fundamental to acknowledge that for many rightsholders financial compensation is simply not an option given the intrinsic value that nature possesses (Carmenta *et al.*, 2023).

KEY POINTS on the impacts that forest loss, degradation and restoration have on people

- ✓ Forest loss, degradation and restoration affect people in different ways
- ✓ Impacts vary in intensity and direction (positive or negative), over time and for different groups of stakeholders
- ✓ It is important to understand these different impacts to shape FLR implementation

Box 3.9. The Economic Costs and Benefits of Forest Restoration

Estimating the costs and benefits of forest restoration depends on several factors, including the conditions under which restoration occurs, how it is carried out, and the range of environmental services it delivers. A cost-benefit analysis assesses whether the benefits outweigh the costs of forest restoration and whether it makes economic sense, either from a societal or private perspective, to invest in restoration efforts.

The Economics of Ecosystem Restoration (TEER) is an initiative attempting to systematically collect data on the costs and benefit of restoration (Bodin *et al.*, 2022). While economic cost-benefit analysis looks at the returns of forest restoration to society at large, financial cost-benefit analysis focuses on the costs incurred and benefits accrued by private actors or enterprises (Campbell and Brown, 2012). These costs and benefits will vary depending on the actors on which the analysis focuses. For example, a review of forest restoration services and disservices in Ethiopia highlighted that while the overall number of perceived services outweighed disservices, the impact of the disservice (wildlife predation) was ravaging and far outweighed the multiple positive impacts (Byg *et al.*, 2017).

Evidence on the costs and benefits of forest restoration is fragmented due to data limitations. Available estimates rely on different assumptions, and environmental benefits that do not have a market value are difficult to estimate. Several reviews on the economic costs and benefits of forest restoration agree that the benefits outweigh the costs when taking a broader societal perspective. These analyses consider many environmental services, including climate regulation, clean air, freshwater and soil fertility. For example, a review of ecosystem restoration projects across nine different biomes, found that most of these projects provided net benefits (de Groot *et al.*, 2013). Based on 31 articles across Latin America, Southeast Asia, and sub-Saharan Africa, Wainaina *et. al.* (2020) find that most of the cases analysed report positive net present values (NPVs) for the different restoration options considered. The cost-benefit analyses tend to apply contingent valuation methods for assessing the economic value of ecosystem and environmental services that do not have a market value (Wainaina *et al.*, 2020).

The financial cost-benefit analyses of forest restoration focus on specific options, modalities, or practices used to bring the forest back. These options include natural regeneration, agroforestry with annual and/or perennial crops, agrosilvopastoral systems and tree plantations (IUCN and WRI, 2014). The comparisons of cost-benefit analysis estimates show that while financial costs and benefits vary widely across and within forest restoration options, almost all are financially attractive (Pacheco *et al.*, in press). Natural regeneration is the least costly option, followed by tree plantations in monocultures, while agroforestry systems are the costliest to implement, although may yield higher benefits when looking at both economic and ecological benefits. In addition, natural regeneration options may have the largest ecological benefits when looking at longer time horizons, and tree plantations may deliver larger benefit-cost ratios, yet with lower environmental services (Ibid).

In addition, financial costs within similar forest restoration options show some variability. This variation suggests that differences in contextual factors, including ecological, social, economic and institutional factors and the states of degradation when reforestation occurs, may influence related costs and benefits. Furthermore, there are several trade-offs associated with forest restoration, mainly regarding the financial, socio-economic, and environmental benefits of restoration, which also have a temporal dimension since benefits accrue over different timeframes, and most benefits may only accrue in the long run.

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Speaking at the SER 2023 World Conference, Wiremu Puke says: "The land is our mother and the trees clothe her and give life to what we breathe; the life force of all things. The trees and plants are the ancestors who were once children; now we plant and help restore for the unborn generation."

4
Integrating Human Dimensions in FLR Practice

OVERVIEW

In this section we aim to provide guidance to practitioners for integrating human dimensions in the FLR process. We take the main phases in an FLR process and break them up into sub-steps that are necessary from a 'human dimensions' viewpoint. Within these sub-steps, we identify some relevant guidance that exists and that could assist practitioners to consider or to carry out these important sub-steps. The emphasis is on tools rather than scientific articles, although in some cases we include relevant articles that provide practical guidance.

Our starting point is that a landscape for FLR has been (pre-)identified. Yet in practice this phase may be one of the most contentious ones. There are many vested interests in identifying and selecting a landscape for FLR. Initiation of FLR may be triggered by donor funding, government priorities, international agendas, local community groups or a mix of stakeholders (e.g., a coalition or alliance), among others.

As per strand 2 of our methodology, we take each of the five key phases in the FLR process (assess, plan, implement, analyse, adapt and sustain, and learn and disseminate) and break them up into sub-steps of human-related issues that need to be considered (Figure 4.1). These sub-steps centre on areas where guidance may be needed and/or exists. We emphasise that given the dynamic nature of landscapes and of processes such as FLR, these steps and sub-steps are not set in stone and some sub-steps may straddle several phases, may be initiated in one phase and continue in another or, depending on the context, may be delayed or postponed to a later phase. For each step we then provide an overview of the issues and some relevant tools that provide tangible guidance. All tools proposed here have been examined carefully for their potential relevance to FLR and their usefulness. The intention is to go beyond principles and provide practitioners with tools that they can apply in their FLR work. This guidance is not exhaustive, but aims to highlight some major issues that require attention in all FLR cases and for which tools that exist in related practice could be useful. Some of the tools will apply to more than one sub-step. In some steps, there are few tools but instead more scientific research. In those cases, we identify a few articles that appear to have more practical application.

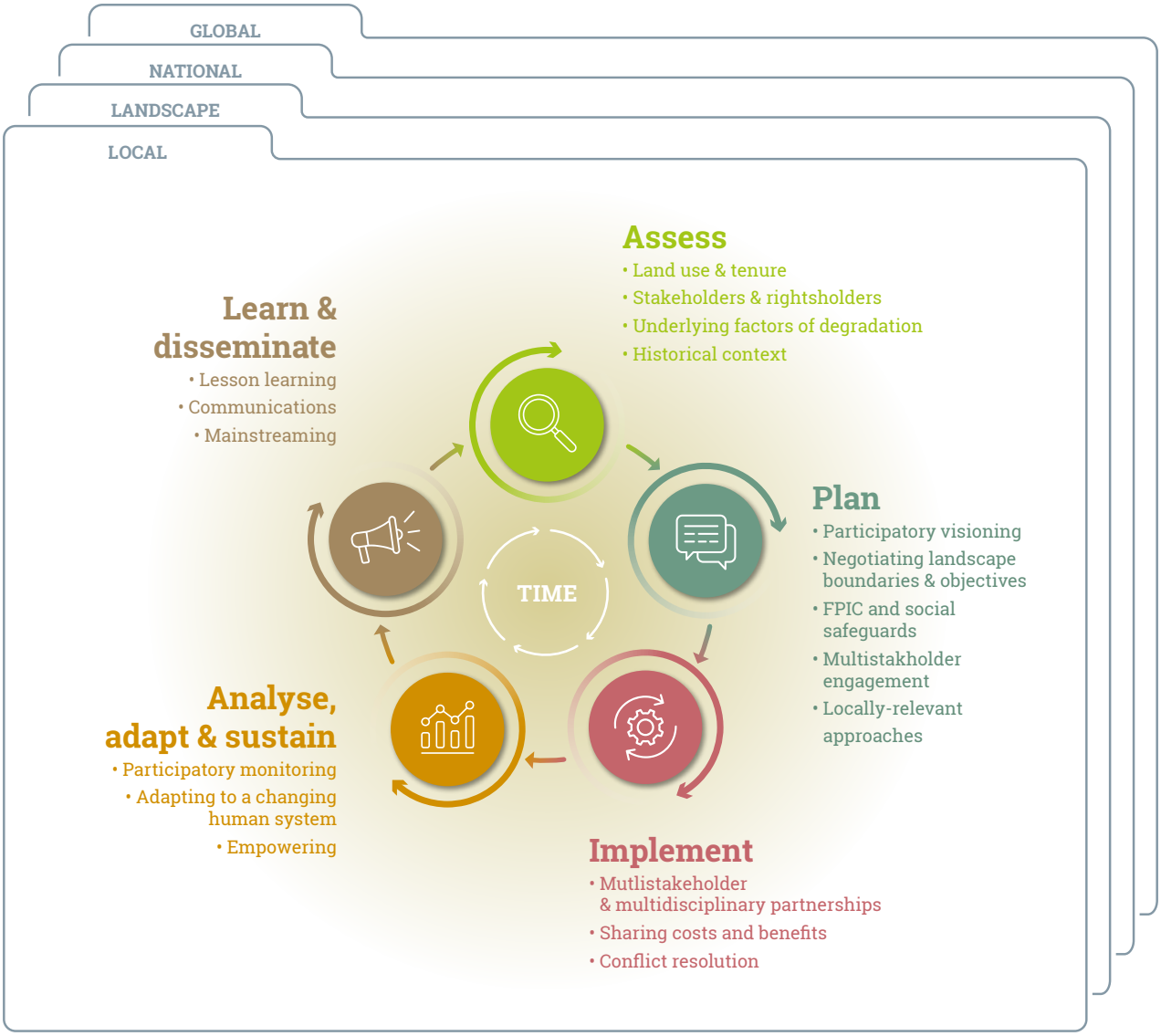

Figure 4.1. Sub-steps along the FLR process for which guidance may be needed.

4.1. Step 1 in the FLR Process: Assess

KEY ISSUES TO CONSIDER IN THIS PHASE:

- ✓ Who needs to be involved, why and how?
- ✓ What is current land use in the landscape?
- ✓ Is there broad agreement that this landscape needs to be restored?
- ✓ What do people expect from their landscape?
- ✓ Are there Indigenous communities or other rightsholders whose special circumstances and strategic interests need to be prioritised?
- ✓ What brought the landscape to this state?
- ✓ What are the underlying drivers of deforestation/forest degradation?

Overview of the issues

In this first phase, if it is not already the case, the FLR proponent(s) will need to acquire a thorough understanding of the socio-political and economic context of the landscape. While deforestation and forest degradation might seem to be a problem to the external FLR proponent, it may not be perceived as a problem (or its severity may not be assessed in the same way) by all local stakeholders and rightsholders. This is a significant point when seeking to initiate FLR: unless key stakeholders can come to some agreement on the problems, their causes, extent and impact, FLR cannot be promoted as a solution.

In practice, this may be one of the longest phases. Key issues to consider in this phase are land use and tenure, identifying rightsholders and stakeholders, and understanding their perspectives and strategic interests, identifying drivers of degradation and understanding the socio-political historical context.

4.1.1. Land use and tenure

Land use assessments aim to understand, catalogue and map the different uses of the landscape. A major challenge with land use assessments is recognising tenure conflicts. These conflicts often occur between customary and statutory systems. Because of potential overlaps between both systems, understanding the issues around land use requires a 'tenure lens' that takes into account this fundamental challenge.

UN-Habitat (2016) has provided guidance on 'tenure responsible' land use planning, and BMZ also emphasises this issue in its 2012 guidance on land use planning (with the first steps being land use assessments, and eventually some form of titling).

Questions to consider:

- What are the land uses and land use changes in the landscape?
- What are the primary goals linked to land use and land use change?
- What pressures influence land use? Where are they situated?
- What is the tenure situation in the landscape?

Tools in this category support land use planning, in some cases at the local level, and in others at the national level. They also include approaches to mapping tenure which contributes to better land use planning.

→ **Guidelines for land use planning FAO, (1993)**
These guidelines outline the key steps in a land use planning process, including understanding the present situation, determining whether change is desirable (and what needs to be changed), how changes are to be made, assessing the best options to solve problems and assessing progress on the plan. Importantly it highlights the trade offs inherent to different people's conflicting objectives for land use.

→ **Land use planning. Concept, tools and applications. BMZ, 2012.**
This guidance describes key issues around land use planning, notably related to tenure insecurity, top-down versus bottom-up (participatory) land use planning, among others. The report addresses principles for land use planning and includes many examples/case studies from different countries. It also describes multiple objectives and priorities that can be incorporated in land use (e.g., climate mitigation, food security).

→ **Community and household land rights documentation and administration toolkit. USAID (2017).**
This toolkit was designed to be applicable in diverse countries but is described in the context of Zambia. It outlines the phases and steps taken in over 500 villages in Zambia's Eastern Province to provide over 15,000 customary land certificates across five chiefdoms between 2014 and 2017. The process consists of three phases: community land documentation and resource governance; household land certification; and land administration and planning. For each phase, the guidance outlines

the objectives, the people involved, the resources needed and planning considerations.

→ **Participatory mapping. Some guidelines for communities and organisations that support them. Forest People's Programme (2017).**
The purpose of the tool is to provide some guidance for participatory mapping – with the understanding that mapping is a tool and not an end in itself. The authors outline a 'mapping cycle' with different stages including for example, initial consultation and consent, map validation and use.

→ **Tools and spatial technologies for village land use planning. A practitioner's manual for active community engagement. United Republic of Tanzania (2018). Ministry of Land, Housing and Human Settlement Development and National Land use planning commission.**
This is a manual written for facilitators of the village land use planning (VLUP) process in Tanzania. It suggests and provides detailed instructions for practices and tools to facilitate VLUP activities. It includes key steps such as reconnaissance visits, participatory stakeholder analysis, tools for envisioning past and future village development, among others.

→ **Evaluating land management options. CIAT (2015).**
The aim of the Evaluating Land Management Options (ELMO) tool is to assist in identifying the main factors driving land management decisions and to better understand farmers' preferences for different sustainable land management (SLM) practices. It employs participatory techniques to identify costs, benefits, motivations and enabling conditions for SLM. The tool goes through 10 key steps and is useful to better understand stakeholders' land management choices and decisions and how they are guided.

→ **Mapping approaches for securing tenure (MAST). USAID**
MAST is a collection of participatory mapping approaches to support communities in managing, documenting, and securing their land and resource rights.

→ **Tenure responsive land use planning. A guide for country level implementation. UN-HABITAT (2016).**
This guide presents a starting point for countries to develop practical knowledge on how to improve tenure security through land use planning, with a particular focus on applications in developing countries.

→ **Rapid tenure assessment guidelines for post-disaster response planning. IFRC (2015).**
Although framed in the context of post disaster, these guidelines provide a useful means to improve beneficiary selection, and take account of the variety of tenure arrangements that exist. Ideally the guidelines should be carried out by a legal adviser or a housing, land or property expert. The guidelines outline key considerations (such as whether there has been a recent change in land and property laws, and whether traditional authorities play a role in managing land and property) and outline a series of questions for each consideration.

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Kyrgyz foresters carrying out a forest survey.

4.1.2. Stakeholders and rightsholders

The assessment phase will provide information to determine with whom to collaborate. Operating from the assumption that the FLR proponent is one stakeholder, the first step is to identify and engage other stakeholders, recognising that many – notably Indigenous Peoples and local communities – may have an existential stake in the landscape. Most stakeholder analyses will thus typically assess the influence and interest of different groups (e.g., ELD, 2015; Buckingham *et al.*, 2018).

Engaging stakeholders is a complex step which is frequently carried out superficially. True stakeholder engagement begins by jointly assessing the problem (Niemiec *et al.*, 2021). In this phase the definition of the problem to be addressed, i.e., deforestation and forest degradation, needs to be explored with all key stakeholders, who may have different perceptions of the extent, gravity and causes of the problem. For example, in the Xingu Indigenous Reserve and its surrounding forests, there are very different perceptions of, and relationships to, the forest between the Xingu people who wish to conserve their forest and the extractivists around the reserve that seek to convert the forest for commodity production. Actor-linkage and social network analyses help to understand how different stakeholders relate to each other (ELD, 2015).

Importantly, engagement is not a punctual activity in and of itself, but rather a cornerstone of any restoration initiative which permeates all aspects of the FLR process, from identifying the challenges to negotiating the vision, agreeing on the process, carrying it out, monitoring, learning etc. It requires time and is iterative, with new stakeholders possibly appearing along the way (e.g., new corporate interests) and needing to be integrated and considered. Thus, stakeholder analyses should be carried out at different stages in the process, to ensure an up to date understanding and engagement of all relevant stakeholders (DFID, 2002).

Questions to consider:

- Who are the rightsholders in the landscape? What are the institutions governing their rights?
- Whose livelihoods are affected by forest loss? (who loses/who gains?)
- Who are other stakeholders and what are their stakes in the landscape?
- Who holds authority in shaping land use decisions and allocation of resources in the landscape?
- Who wants to restore? Why?
- Who may not want to restore? Why?

Tools in this category support the identification and analysis of stakeholders in a given landscape.

→ **Stakeholder analysis. WWF (2005).**
The short guidance describes the purpose of stakeholder analyses, and when to carry them out. It uses an influence/impact matrix to classify stakeholders based on the extent of their influence and the extent to which they are impacted by a project/programme.

→ **Mapping social landscapes. A guide to identifying the networks, priorities, and values of restoration actors. Buckingham *et al.* (2018).**
This guide offers two different approaches to understanding social landscapes: 1. mapping actors' resource flows; and 2. mapping actors' priorities and values to reveal the attitudes and cultural systems behind social networks.

→ **Guidelines for stakeholder identification and analysis: A manual for Caribbean natural resource managers and planners. CANARI (2004).**
These guidelines aim to assist planners, development workers and natural resource managers to provide them with practical tools and examples that are directly relevant to their work (in the Caribbean region). They describe both stakeholder identification and analysis, and illustrate the guidance with concrete examples.

→ **Pathways and options for action and stakeholder engagement. ELD Initiative (2015).**
This guide aims to facilitate engagement between stakeholders to identify options and pathways to action that can help tackle, or adapt to, land degradation. It describes techniques to involve different stakeholders in the identification of sustainable land management options that can reverse land degradation trends. It is divided into three sections on planning, acting and reflecting. Note that the 'acting' section can contribute to the planning process, and seeks to co-develop plans for reversing degradation.

→ **Best practices for stakeholder engagement in biodiversity programming. USAID (2018).**
This guide provides a framework outlining key steps and practices for effectively engaging stakeholders in biodiversity conservation programmes. It breaks the process of stakeholder engagement into four steps: 1. consider the objectives of stakeholder engagement and assess the context; 2. get to know and understand key stakeholders, their priorities, and their motivations; 3. ensure that stakeholders are included in decision-making and involved in all relevant aspects of the programme; 4. work to develop a true partnership with external stakeholders. The document also provides case studies.

→ **Developing gender-equitable ecological restoration initiatives: A synthesis of guidance to improve restoration practice. CIAT (2021).**
The purpose of this guide is to enhance the equity and sustainability of restoration initiatives by supporting practitioners seeking to improve gender equity in restoration. As a 'guide to guides' this is a useful resource covering many others dealing with gender equity in restoration.

→ **Effective engagement with Indigenous Peoples in sustainable landscapes (SL). USAID (2020).**
This guidance provides best practices, including: develop improved assessment; engagement, and consultation approaches; do no harm as a principle; promote approaches that empower Indigenous Peoples in programming; invest in strengthening indigenous tenure of forests; promote inclusive approaches for improving environmental governance; support sustainable livelihoods and land use practices for Indigenous Peoples; promote win-win sustainable landscape (SL) partnerships between committed private sector champions and Indigenous Peoples based on responsible, equitable, and sustainable land use practices; and encourage a differentiated approach to monitoring, evaluation, and learning for SL activities that are designed to benefit Indigenous Peoples and their lands.

4.1.3. Underlying factors or drivers of degradation

Assessment signifies understanding first and foremost what has brought the landscape to its current state, requiring restoration. Focusing on the human dimensions in this phase signifies exploring underlying factors of degradation and deforestation. Geist and Lambin's (2002) seminal paper explored the overarching proximate and underlying factors of deforestation and forest degradation (see tools). Broad analyses exist identifying regional drivers of deforestation and forest degradation (e.g., Pacheco *et al.*, 2021). However, in any given landscape these broad drivers need to be ground-truthed with local stakeholders and expert interviews. They need to be ranked based on an assessment of their current and future importance and likelihood of being reversed. At a more refined scale, such as the landscape, specific factors such as an incentive for the production of a given commodity, could be the main cause of deforestation, or a long-standing conflict over tenure could be leading to forest degradation. Other factors may be associated with a lack of capacity (of different key stakeholders, from local authorities to communities or even NGOs seeking to support landscape stakeholders). An FLR initiative will not necessarily be able to intervene and address all of the drivers of deforestation and forest degradation, but assessing the extent of the problem, helps to define and prioritise interventions (including possibly the decision to scale back interventions until a key driver can be addressed).

Questions to consider:

- What are the direct and underlying drivers of forest loss and degradation in the landscape?
- What brought the landscape to its current condition? Are the underlying drivers clear? Are they agreed upon by all stakeholders?
- What are socio-economic, political, cultural, institutional and governance factors shaping landscape dynamics and trajectories?

Tools in this category support the analysis of drivers of deforestation and forest degradation.

→ **Identifying and addressing drivers of deforestation and forest degradation. ARKN-FCC (2014).**
This guidance was developed in the context of REDD+ to identify and tackle drivers of deforestation and forest degradation. The decision support tool is made up of five main steps (which are not necessarily to be completed in order): Step 1 - information gathering including an assessment of drivers; Step 2 - identifying which drivers are most feasible to address; Step 3 - designing interventions strategies to address the selected drivers; Step 4 - implementation; Step 5 - monitoring.

Proximate causes and underlying driving forces of tropical deforestation. Geist and Lambin (2002).
In this seminal article the authors propose a framework to explore proximate and underlying causes of forest loss and degradation. Based on the analysis of 152 studies, they determined that infrastructure, agriculture expansion, wood extraction and other factors (such as biophysical factors that include fire and drought) were the most common proximate causes of deforestation, while demographic, economic, technological, policy and institutional, and cultural factors were the most common underlying drivers of these changes. They also determined that different combinations of both proximate causes and underlying drivers, affect deforestation in different contexts.

Addressing the underlying causes of deforestation and forest degradation case studies, analysis and policy recommendations. Verolme *et al.* (1999).
Although relatively old, this report provides useful case

studies that illustrate the multiple underlying drivers of deforestation and forest degradation in practice and in different contexts.

A research framework to identify the root causes of land use change leading to land degradation and changing biodiversity. Olson *et al.* (2004).
This report offers general guidance and a framework to identify the root causes of land use change. It uses a political ecology lens to analyse the root causes of land degradation. The authors emphasise that the causes of land use and land management changes need to be examined in "*a multi-scale, multi-disciplinary context using a variety of spatial and non-spatial approaches.*" In section V, the authors propose a research framework with guiding questions to understand the patterns, root causes and impacts of land use change that can be adapted to specific circumstances.

4.1.4. Historical context

Knowledge of the landscape is fundamental to inform an understanding of deforestation and forest degradation and to imagine a realistic future landscape. An assessment of the socio-political history of the landscape can yield important information on both drivers of deforestation and potential leverage points for FLR (Wild and Walters, 2022; Carmenta *et al.*, 2023). For example, to promote settlement in remote areas in Madagascar in the 1970s and 1980s, the government issued permits to farmers to convert forests to agriculture, an environmental tragedy that was then reversed in the 1990s by restrictive environmental policies that punished forest clearance leaving many communities confused and distrustful (Mansourian *et al.*, 2018). Information on the human history of the landscape may be obtained through a combination of various methods (triangulation) including discussions with local informants and literature searches. A combination of information in the biophysical system (for example, through maps of forest cover) and the human system (for example, through a historical review) provides more accurate insights into changes in the landscape, as illustrated in cases in Viet Nam (Cochard *et al.*, 2023) or West Africa (Fairhead and Leach, 1995). In this respect local and Indigenous knowledge will also yield valuable information about ecosystem processes, use and valuation of the forest, traditions associated with

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Painting by Dunghutti artist Milton Budge exhibited at Darwin's museum and art gallery.

the forest, species of value, etc. Discussions with different generations may also be insightful, and provide continuity between the past and future of the landscape. Elders may hold valuable knowledge about the landscape which can be helpful to guide future interventions in the landscape. For example, land tenure formalisation has often been associated with 'land grabbing' whereby wealthy international and local elites acquire land and benefit from its production or from speculation (Peluso *et al.*, 2013). Understanding the socio-economic history can also help to avoid simplistic readings of causality in the landscape. Erroneous historical readings of the landscape and its transformation may lead to the setting of unrealistic and flawed future restoration targets (Elias *et al.*, 2021).

Questions to consider:

- What cultural, social, political and economic factors brought the landscape to its current state?
- What can landscape history teach us for the future?
- What valuable information exists within the landscape and among its inhabitants that should be integrated in restoration?

Tools in this category seek to facilitate an understanding of the socio-political history of a landscape.

→ **Context in land matters (CIFOR). Peluso *et al.* (2013).** This report reviews the importance of context on the outcomes of land formalisation. The authors seek answers to the following questions: " 'How have institutions governing access to land been formalised over the last century and a half?; How have conflicts over land control, access, and use been affected by formalisation?; Who were the beneficiaries or losers when land management and ownership institutions were changed?; and How did early practices and ideologies of governance, including colonialism, nation-state formation, and non-capitalist political systems, influence expectations and practices toward land and livelihoods of diversely positioned subjects?' "

→ **The forest is clothing for the ancestors: A rapid cultural assessment tool for forest landscape restoration policy processes. Wild and Walters (2022).** This article describes a methodology for restoration practitioners to collect cultural data that can support decision-making in FLR. It proposes 10 cultural questions that relate to cultural institutions, cultural sites and cultural links to species.

4.2. Step 2 in the FLR Process: Plan

KEY ISSUES TO CONSIDER IN THIS PHASE:

- ✓ How can different aspirations for the landscape be reconciled?
- ✓ How are the landscape 'boundaries' negotiated?
- ✓ What mechanisms can promote multistakeholder engagement?
- ✓ How are objectives negotiated?
- ✓ How can free, prior and informed consent (FPIC) be ensured and safeguards applied?
- ✓ What locally relevant approaches can be used?
- ✓ How can collaborative monitoring be carried out?

Overview of the issues

In the planning phase, stakeholders will need to come together, certainly over several meetings held in different contexts (i.e., different locations, languages, applying culturally-sensitive approaches, ensuring appropriate facilitation etc.). The aim during these sessions is to define the scope of the FLR intervention. This will include setting objectives for both ecological dimensions and human well-being. More often than not, trade-offs may need to be negotiated. This phase will also identify potential risks, costs and benefits and their distribution, and how to compensate for eventual losses. Key human-related aspects considered in planning include visioning, negotiating landscape boundaries and objectives, FPIC and social safeguards, multistakeholder engagement and terms of engagement, and applying locally relevant approaches.

4.2.1. Participatory visioning

This step may be seen as a bridge between the previous phase and the planning phase. Key stakeholders should be aligned in their vision for the future landscape. Without this alignment, or a negotiated compromise, FLR interventions can be severely compromised. Achieving a common overarching vision of the desired future landscape is critical to ensuring that positions and views of key stakeholders are sufficiently similar to ensure that they can effectively collaborate and reach positive and mutually beneficial outcomes. At the same time,

it is necessary to acknowledge that 'success' may look different to different stakeholders (Tedesco *et al.*, 2023). Considering the diversity of worldviews present in landscapes and among landscape decision-makers (Carmenta *et al.*, 2023) facilitated discussions will often be necessary to secure this negotiated vision. Visual tools and images may be useful to generate this common perspective among a disparate group of stakeholders that may also include illiterate participants (DFID, 2002). For example, participatory mapping exercises enable all stakeholders to co-create an image of their landscape and scenarios around it. Maps may be very basic, or more sophisticated. In Viet Nam for example, a 3D papier maché map of the landscape was used to bring stakeholders around a common vision of their landscape (Hardcastle *et al.*, 2004). Participatory maps should be planned around a common goal and strategy. Both the visioning process and the final outcome are equally important.

It may be useful to create opportunities (through multistakeholder platforms) to bring key stakeholders together to discuss the issues and the vision. While there may be some interests (particularly by external FLR proponents) to seek to restore what was there at a given point in history, this may not be shared by all stakeholders, particularly those living in the landscape. A common vision may require looking at a mosaic landscape that may contribute multiple benefits to different stakeholders. Negotiation tools and techniques will be particularly important to reach this common vision.

Questions to consider:

- What might restoration mean for the future of the landscape?
- What do different stakeholders want from the landscape?
- What are points of convergence? (and points of disagreement)?

Tools in this category facilitate the process of developing a negotiated vision for the landscape to be restored.

→ **Participatory land use planning. IFAD (2014).**
This short guidance outlines the development of participatory land-use planning (PLUP) and eight key steps to carry out, including constituting a PLUP committee or group, collecting and analysing data, and identifying and analysing problems and solutions. PLUP brings stakeholders together to develop a common vision. The PLUP process results in one or several land-use plans.

→ **Community visioning. WeConserve (2023).**
This short guidance explains how to bring community members together through a series of meetings, workshops, surveys, and growth-scenario comparisons facilitated by local leaders to create a community vision. It uses some case studies from the US.

→ **Participatory mapping for empowerment. International Land Coalition (2008).**
This report provides guidance, using three case studies, on technology-based community mapping approaches. In doing so it demonstrates how these tools can help empower communities to improve their control over their land and natural resources.

→ **Good practices in participatory mapping. IFAD (2009).**
This guidance reviews the main categories of community participatory mapping that exist, ranging from simple drawings, to 3D models and GIS-based maps.

→ **Foresight platform**
Strategic foresight is a structured and systematic way to explore alternative scenarios for the future. The platform provides guidance and tools to carry out foresight analyses.

→ **Visualising sustainable landscapes. Boedhihartono (2012).**
This manual aims to provide practitioners with an innovative range of visual techniques in dealing with conservation and development situations. Visualisation techniques include images, drawings, or animations to communicate a message or idea, to present information, scenarios or perceptions. The guide provides a stepwise approach to visualisation.

→ **Social benefits wheel (SER Standards for Ecological Restoration). SER (2019).**
The first principle of the SER standards is to engage stakeholders. Within this principle (Gann *et al.*, 2019; p. 20) the Standards have developed a 'social benefits wheel' that helps to guide the selection of human-related objectives, such as community wellbeing or knowledge enrichment. The 'wheel' has been tested notably in Viet Nam (McElwee and Nghi, 2021).

→ **Strategy games to improve environmental policy-making. Garcia *et al.* (2017).**
In this article the authors provide three examples where strategy games were applied to the field of natural resources management. They use the games to help represent what stakeholders understand about the issue they are trying to change, formulate strategies, resolve conflict and construct new agreements.

Participatory planning in India.

4.2.2. Negotiating landscape boundaries and objectives

While the first phase may have determined the rough area within which FLR should be carried out, in the planning phase, more precise boundaries for the landscape in question may be clarified. Setting these boundaries is highly political as it frames who is in and who is out (and therefore, potentially, who receives funds and who does not, who is affected). Thus, a large and representative set of stakeholders and rightsholders should be involved in negotiating the boundaries of the landscape. While the boundaries do not need to be set in stone, their definition is important for both planning and monitoring purposes. Nevertheless, in many instances, boundaries evolve over time as new stakeholders (or villages, or districts) may decide to join. For example, in the case of the Commonland approach in South Africa, the initial landscape in which they worked was framed at 41,000ha but over time the scope has evolved to 500,000 ha as more actors and areas have become integrated into the programme (Commonland website). Another option may be for key stakeholder groups to define a broadly acceptable strategy that provides for the engagement of other stakeholders over time. This is the case for example in some regional park initiatives in France and Switzerland where different municipalities may decide to engage later in the process, thus contributing to the expansion of the landscape in question. To a certain extent, this has also happened in the Xingu Indigenous Reserve (Brazil), where additional communities decided to join forces over time with the core group that set up the reserve (Brondizio *et al.*, 2009).

Broad objectives for restoring the landscape also need to be negotiated during this phase. *"What constitutes restoration success must be agreed upon by all parties – and the goals should be simple"* (Evans and Guariguata, 2016). Aligned with the definition of FLR, these objectives are typically framed both in terms of biodiversity (ecological integrity or functionality) and human wellbeing. Nonetheless in landscapes with diverse interests, objectives for restoration may not be shared by all and negotiation will likely be necessary. In some cases where there is disagreement, ranking objectives might help in the negotiation (Stanturf *et al.*, 2017). It is essential to recognise that not all stakeholders may share the same view of degradation, forest restoration

or its potential. This may lead to actual conflict. Understanding the values and beliefs of different stakeholders, and their motivations may help to engage with them to negotiate common and positive outcomes, and eliminate conflict. Without careful and explicit attention, power inequalities are likely to skew negotiations. For example, distant (or 'absentee') landowners may have a strong say in setting a restoration agenda, at the expense of locally dependent land users. Like many other landscape interventions, avoiding such pitfalls requires careful and professionally facilitated negotiation. Using some form of contract may help to formalise commitments and secure trust among multiple stakeholders. This is used for example in Australia's Landcare programme. Nonetheless, the negotiation process should be understood as precisely that, a process which requires patience, may need to be re-visited and serves to build trust over time (FAO, 2016). In this way, it should not be constrained by an ultimate desire to reach acceptable objectives, but rather, should take the time to gradually consolidate a co-designed programme. In practice, this may require a phased approach with smaller milestones along the way (or pilot projects to demonstrate results). Successful negotiations require finding common ground.

Questions to consider:

- Who defines the boundaries of the landscape? What are the implications?
- Who holds power over defining the landscape?
- What are the motivations of rightsholders and stakeholders to restore landscapes?
- How is the FLR plan being developed? Through what mechanism? With whom?
- What are governance constraints?

Tools in this category are intended to facilitate negotiations to reach agreement on both the landscape boundaries and the objectives.

→ Negotiation, environment and territorial development. Green negotiated territorial development (GreeNTD). FAO (2016).
This approach to territorial development is based on a multi-stakeholder engagement to foster consensus (through Socio-Ecological Territorial Agreements- SETA). The process helps to understand and emphasise different roles, responsibilities and relations, and how these relate to access and management of land and other natural resources.

→ Indigenous negotiations resource guide. McElhinny *et al.* (2021).
The guide focuses on communities' rights to negotiate fair and binding agreements, The objective of the guidance is to share strategic insights on negotiation from multiple sectors and regions. It includes notably, steps to ensure that community decision-making can be effective and representative, and a discussion of potential negotiation outcomes.

4.2.3. Free prior and informed consent and social safeguards

FPIC and social safeguards are designed to avoid conflict and to anticipate issues that may arise around Indigenous Peoples and local communities' rights. Social safeguards have often been combined with environmental safeguards as they have been initiated in the investment sphere (e.g., World Bank projects) where the potential impacts of projects could have environmental as well as social repercussions. It should be noted that all major agencies have environmental and social safeguards, and we only highlight a handful of tools here.

In the context of FLR it may be necessary to ensure that rightsholders such as Indigenous groups are full partners in the process depending on the location of the initiative, land rights and the impact it might have on these groups. FPIC is essential when restoration takes place on land that falls under customary ownership. As with many other processes designed by international bodies, however, it is important to recognise that applying FPIC and other safeguards may not be sufficient and should not be seen simply as a mechanical process or checklist. For example, in Viet Nam, Pham *et al.*, (2015) found that FPIC was applied in divergent ways in different projects, often seen as a mere procedure, and its success depended on the facilitator used. FPIC may be one useful tool but depending on the context, other locally-relevant approaches and mechanisms to fully and effectively engage with rightsholders may also be necessary.

Questions to consider:

- Are there customary claims on the territory?
- Who are the IPLCs in the landscape and how are they part of the FLR process?
- How are decisions being framed in the landscape and what is the role of IP&LCs?

Tools in this category aim to support the process of obtaining FPIC and designing appropriate social safeguards to protect local rightsholders.

→ **Seeking free, prior and informed consent. IFAD (2021).**
This note provides guidance on when and how to obtain free, prior and informed consent. It recommends seeking FPIC during project design or during project implementation. The note provides a set of guiding principles and concrete activities to obtain FPIC.

→ **Guidelines for implementing free, prior and informed consent. FSC (2021).**
This FSC guide provides details of the fundamental concepts around FPIC, situating it in the broader human rights space. It breaks up and explains the four elements of FPIC (free, prior, informed and consent). It then outlines fundamental concepts to implement FPIC, including for example, customary rights and good faith negotiations.

→ **Free prior and informed consent an Indigenous Peoples' right and a good practice for local communities. Manual for project practitioners. FAO (2016).**
This manual for practitioners explains FPIC and provides a 6-step approach to its implementation. These steps are: 1) identify the Indigenous Peoples' concerns and their representatives; 2) document geographic and demographic information through participatory mapping; 3) design a participatory communication plan and carry out iterative discussions to disclose project information in a transparent way; 4) reach consent, document Indigenous Peoples' needs that are to be included into the project, and agree on a feedback and complaints mechanism; 5) conduct participatory monitoring and evaluation of the agreement; and 6) document lessons learned and disclose information about project achievements.

→ **Framework for environmental and social safeguards. FAO (2022).**
This manual provides guidance on applying a human rights-based approach to prevent, minimise, reduce and mitigate any potential negative impacts from programmes and projects. It includes two operational pillars (one for the environment and one for the social standards, the latter being *"stakeholder engagement, information disclosure, and grievance, conflict resolution and accountability mechanisms"*) and nine standards. The social standards relate to decent work; community health, safety and security; gender equality and prevention of gender-based violence; land tenure, displacement, and resettlement; Indigenous Peoples; and cultural heritage. For each standard the guidance describes its objectives, scope of application and requirements.

→ **WWF environmental and social safeguards framework. WWF (2019).**
This framework provides 10 standards to identify and manage environmental and social risks in cases where field-based projects could have adverse impacts. The standards include, among others, stakeholder engagement, grievance mechanisms and Indigenous Peoples. The WWF guidance on safeguards is linked to the project cycle and clearly highlights which aspects should be considered at which stage of the cycle.

→ **Social and environmental standards. UNDP (2023).**
This document distinguishes between higher level 'programming principles' (such as leaving no one behind, gender equality, applying a human rights based approach and accountability) and project level standards. At the project level, it contains eight environmental and social standards that cover relevant social issues such as health, safety, cultural heritage, displacement and the rights of Indigenous Peoples.

4.2.4. Multi-stakeholder engagement

During the planning phase, it is essential to maintain the active engagement and inputs of diverse stakeholders to define the FLR plan based on the shared vision. As is the case for all stakeholder engagement, the format of engagement will need to be context-specific. For example, in some rural villages, meetings may take place in the local village square, on the ground, while in some cases, separate meetings may be necessary to bring in women's groups and obtain their input. As noted earlier, stakeholders, in the vast sense of the term, may be situated at different levels, from the local to the international (Wiegant and Guariguata, 2023). While their actual 'stake' in the landscape differs substantially, so does their power. Thus, a large mining corporation investing in the landscape may be a powerful actor whose views and plans need to be considered in the planning phase. However, their 'rights' are outweighed by those living in the landscape, including Indigenous Peoples and local communities. Villagers living in the landscape may be economically much less powerful but represent the rightsholders whose legitimate interests need to be integrated in any long term plan for the landscape. Drawing up plans that reflect the diversity of stakeholder views and interests may take much longer than many FLR projects currently allow. Two key challenges associated with multistakeholder engagement are the identification of the different stakeholders situated at different scales, and secondly the methods employed to engage them (e.g., through formal meetings, facilitated sessions, using

maps, using games etc.) and ensure their active and meaningful participation, particularly when it comes to less powerful actors.

Questions to consider:

- In what manner (through what mechanisms?) can stakeholders and rightsholders engage meaningfully and equitably to plan restoration?
- How are stakeholders and rightsholders engaging with the development of the plan?

Tools in this category provide guidance on engaging and collaborating across diverse stakeholder groups. They also explore power and how it affects stakeholder relations.

→ Meaningful stakeholder engagement - A joint publication of the multilateral financial institutions group on environmental and social standards. IADB (2019).
The aim of the guidance is to provide a more consistent approach to stakeholder engagement, based on good practice, whilst acknowledging that there is no 'one size fits all'. It is produced by various multilateral finance institutions that require stakeholder engagement in their practices. The document highlights 10 iterative aspects and elements that should be present in a stakeholder engagement process (e.g.; identifying priority issues, prior information, transparency in decision-making).

→ ICAT stakeholder participation guidance. ICAT (2017).
This guidance outlines general principles, concepts, methods and approaches for stakeholder participation, in the context of policies (mainly climate, but not only) and throughout the policy design and implementation cycle. The guide helps to define objectives of effective stakeholder participation, plan effective stakeholder participation, identify and understand stakeholders, establish multi-stakeholder bodies, provide information to stakeholders, design and conduct consultations, establish grievance redress mechanisms and report on stakeholder participation.

→ Participatory techniques flipbook. Different ways to have different conversations with different people. ICRC (2019).
This flipbook provides a series of participatory techniques to help engage with groups, understand power dynamics and address complex issues. Categories of techniques are split into those that: 1. build trust; 2. map out or identify issues; and 3. analyse or dig into issues.

Community nursery operations in Haryana, India.

→ **A guide to effective collaborative action. UNDP (2022).**
This guide aims to improve collaborative action in the field of food and agricultural production and consumption. The emphasis is on viewing the food system in an integrated manner rather than through a narrow lens. The guide identifies four building blocks to the approach: 1. understand the system (which also includes developing a shared vision for how it could be different). This step includes mapping the overall system which enables stakeholders to jointly identify the main levers of change and using systems mapping and scenario planning to agree on a common vision; 2. co-create the approach (which includes co-creating the structure to achieve the vision, communications, and the strategy to achieve the shared vision); 3. take collaborative action; and 4. learn and adapt.

→ **Power tools of International Institute For Environment and Development for understanding policy influence; stakeholder influence mapping, stakeholder power analysis and the four Rs tool. IIED (2004).**
This website provides several tools of interest, including for example the 'four Rs' which is a tool to operationalise the concept of 'roles' by unpacking these into "Rights, Responsibilities, Revenues (benefits) of stakeholders, and the Relationships between stakeholder groups."

→ **Power: A practical guide for facilitating social change. Carnegie UK Trust (2011).**
This guidance is for a diverse audience and seeks to understand power. It guides the reader through the different expressions of power and the spaces in which power may be claimed. The toolkit also provides specific guidance for facilitating workshops to analyse power and power relations.

→ **Power analysis: A practical guide. SIDA (2013).**
The guide includes a review of aspects to consider when carrying out a power analysis, a step-by-step guide to key stages in a power analysis (e.g., clarifying the purpose; defining core issues and questions; and identifying concepts and methods), and additional concepts and frameworks of power as well as providing further resources.

4.2.6. Apply locally-relevant approaches

Locally relevant approaches reflect the local culture(s), knowledge, worldviews and technologies. It is directly related to Indigenous and traditional knowledge. Applying imported technologies for restoration may not be viable given local conditions, capacities and expectations. Indeed, local knowledge for example, of medicinal trees or adaptable species, may prove invaluable in promoting restoration of useful and resilient species in a specific context. For example, Kmoch *et al.* (2018) identified the importance of socio-economic and cultural factors in shaping farmers' decisions in northern Morocco related to the selection of local adaptation measures to improve resilience. Integrating different knowledge systems has been a central issue for the IPBES (Tengö *et al.*, 2014). They have developed a 'multiple evidence base' (MEB) approach that emphasises the need for new collaborations between different knowledge systems occurring at different scales and involving multiple approaches. This may lead to the development of new co-developed tools and approaches but also co-production of questions and issues upfront (Ibid.).

Questions to consider:

- What knowledge exists in the landscape?
- Who holds this knowledge?
- How can different forms of knowledge and practices be best harnessed for FLR planning and implementation?
- How are local practices and knowledge included in planning (and implementation)?

Tools in this category promote connections across knowledge systems.

→ **Connecting diverse knowledge systems for enhanced ecosystem governance: the multiple evidence base approach. Tengö *et al.* (2014).**
The multiple evidence base (MEB) approach is grounded in the complementarity between Indigenous and local, and scientific sources of knowledge. Through MEBs new insights and innovations can be promoted. The article includes some case studies illustrating complementarity of knowledge systems.

→ **Locally based, regionally manifested, and globally relevant: Indigenous and local knowledge, values, and practices for nature. Brondizio *et al.* (2021).**
This review identifies six pathways through which Indigenous Peoples and local communities engage with nature: 1. undertaking territorial management practices and customary governance; 2. contributing to nature conservation and restoration efforts; 3. co-constructing knowledge for assessments and monitoring; 4. countering the drivers of unsustainable resource use and resisting environmental injustices; 5. playing key roles in environmental governance across scales, and 6. offering alternative conceptualisations of the connections between people and nature.

→ **Integration of Traditional and Western knowledge in forest landscape restoration. In: Forest landscape restoration: Integrated approaches to support effective implementation. Lake *et al.*, (2018).**
Using examples, this chapter highlights how Indigenous and Western knowledge can be combined for FLR. The authors emphasise the importance of recognising historical legacies, using collaborative approaches, understanding interests and values and defining common strategies. It also includes a few case studies.

→ **Embracing eco-cultural restoration. Bliska *et al.* (2023).**
This article reviewed a number of case studies to identify principles for eco-cultural restoration. Their research leads to suggest the following five principles that frame projects seeking to marry ecological and community priorities: 1. centering and valuing ancestral understandings; 2. building reciprocity and trust between partners; 3. sparking learning across generations; 4. reinvigorating traditions and culture; and 5. engaging communities holistically. The article provides examples from a number of case studies.

Chief Skedans Mortuary Totem Pole exhibited at Vancouver's Stanley Park (Canada).

4.3. Step 3 in the FLR Process: Implement

KEY ISSUES TO CONSIDER IN THIS PHASE:

- ✓ How can multiple stakeholders and disciplines be effectively represented and engaged in FLR implementation?
- ✓ How are FLR costs and benefits shared?
- ✓ What conditions are in place that support or on the contrary hamper FLR?
- ✓ How can conflict be addressed?

Overview of the issues

In this phase, implementation begins. In practice, implementation may start small scale for a number of reasons, including the need to mobilise sufficient stakeholders, the need to test the approach in a given context and funding limitations. Implementation will naturally be a step-wise and iterative process. Since FLR is a long-term process, this phase will be carried out over many years, and may often consist in different stages, based on a number of elements, not least project funding cycles. Key issues associated with this phase relate to multi-stakeholder partnerships to promote collaboration across different groups and different disciplines, cost and benefit sharing and conflict resolution.

4.3.1. Multistakeholder and multidisciplinary partnerships

FLR implementation requires the convergence of multiple actors situated at different spatial scales (e.g., national and local), playing different roles (e.g., legislating, enforcing, monitoring, planting, growing, facilitating etc.) Partnerships may be framed around a problem, an opportunity or a conflict (Wageningen, 2019). For example, the Global Partnership on FLR (GPFLR) brings together a large number of actors and stakeholders from around the globe under a common FLR goal. At this level, the partnership has served to communicate and raise the profile of FLR (including raising funding for it). At a national level, the Atlantic Forest Restoration Pact represents a large partnership of over 300 diverse stakeholders engaged in restoring Brazil's Atlantic Forest. In Australia, the Landcare programme (which has grown to become an international movement), is built around

multistakeholder partnerships that mobilise local actions to reverse land degradation.

Multistakeholder partnerships can bring together stakeholders from different backgrounds, histories, worldviews and disciplines in a safe space (Carmenta *et al.*, 2023) and are essential to promote joint FLR implementation. In addition, multidisciplinarity reflects the reality in forest landscapes where different disciplines, including for example psychology, anthropology, forestry and ecology, can contribute to improved implementation of FLR and better outcomes. In practice, the use of multidisciplinary teams to implement FLR can provide different skillsets and address, in an efficient manner, a range of issues. For example, Cerveny *et al.* (2011) report on the US Forest Service's interdisciplinary teams that were established by legal statute in line with the National Environmental Policy Act (NEPA). Typically, these teams are composed of both natural and social scientists. Engagement with multiple disciplines strengthens FLR implementation by providing different skillsets (e.g., to engage communities) and complementary views of the same issue. Some basic principles of working with interdisciplinary or multidisciplinary teams include forging a common mission and nurturing dialogue (Brown *et al.*, 2015).

Questions to consider:

- How are different stakeholders effectively engaged in the implementation process?
- What mechanisms can bring different stakeholders together?
- How can the breadth of disciplines be effectively harnessed to support FLR?
- How are inputs from multiple disciplines secured and integrated?
- What mechanisms can harness multidisciplinary implementation?

Tools in this category promote the development of multistakeholder and multidisciplinary partnerships for effective implementation.

→ **The multi-stakeholder partnership guide. Wageningen University (2019).**
This guide to multistakeholder partnerships (MSPs) will help the reader determine how to: identify main stakeholders; deal with power differences; define a common goal; establish a governance structure; deal with conflicts; tackle capacity shortfalls; determine whether MSPs are the most efficient option, and also what tools are available for helping the MSP achieve its goals and who should facilitate an MSP. The website for this guide provides a range of additional short guidance of relevance (e.g., on conducting a visioning exercise).

→ **The behavioural drivers model: A conceptual framework for social and behaviour change programming. UNICEF (2019).**
The Behaviourial Drivers Model is based on the idea that an in-depth understanding of the elements that influence a person's decisions and actions is critical to designing effective change programmes. The framework provides a systematic review of all key behavioural drivers in the literature. While many programmes rely on awareness raising to change behaviour, this framework recognises the complexity of factors that influence human behaviour. (Note that UNICEF also has an online course on this topic).

→ **Interdisciplinary teamwork on sustainable development – The top ten strategies based on experience of student initiated projects. Brassler and Block (2017).**
In this article, the authors review ten strategies they identified to promote interdisciplinarity. These include for example, finding common ground and developing a common language for the interdisciplinary teamwork.

→ **How to catalyse collaboration. Brown *et al.* (2015).**
In this article the authors identify five basic principles to promote collaboration across disciplines. They include for example, forging a shared mission and nurturing constructive dialogue.

→ **A practical guide for managing interdisciplinary teams: lessons learned from coupled natural and human systems research. Henson *et al.* (2020).**
This article is based on a case study and provides lessons on ensuring effective multidisciplinary teams. The authors emphasise the importance of data management planning and co-authorship practices.

4.3.2. Cost and benefit sharing

According to De Groot *et al.* (2013) the benefits of ecosystem restoration far outweigh the costs. Nevertheless, implementing FLR will lead to both costs and benefits across different groups and over time. Whether outcomes represent costs or benefits depends on the viewpoints of different stakeholders, as the same outcome may be perceived as a cost for one and a benefit for another. Restoration costs include both the direct costs involved in a project, and the long-term and often indirect costs. The latter include for example, the opportunity cost for some farmers or other land users who may no longer be able to access land/forest that is being restored. It

may also include the costs associated with changes in tenure and property rights. For example, REDD+ projects are framed around social and environmental safeguards (the Cancun Safeguards) precisely to avoid the risk of leaving local rightsholders worse off due to REDD+ interventions (that may include restoration). Benefits may be cash-based or not (e.g., ecosystem services, employment). Mechanisms to minimise and share costs and distribute benefits equitably need to be put in place. Their design may be initiated in the planning phase, and their implementation carried out in this phase (and beyond).

Questions to consider:

- Who pays for restoration activities? How are those costs distributed in equitable ways?
- Who benefits from the restoration activities? What mechanisms ensure their equitable distribution?
- What are the main socio-ecological trade-offs from the different restoration approaches in place?
- How can benefits from restoration be optimised?
- What mechanisms ensure an equitable distribution of benefits, including those flowing to more marginalised groups?
- How is compensation for livelihoods lost or displacement ensured?

Tools in this category provide mechanisms to improve the sharing of benefits and costs stemming from restoration across landscapes.

→ **ELD initiative user guide: A 6+1 step approach to assess the economics of land management. ELD Initiative (2015).**
The Economics of Land Degradation (ELD) Initiative promotes transdisciplinary approaches to understand how to assess costs and benefits and use them in decision-making and implementation of soil and land degradation projects. The guidance is split into six phases, from inception through to cost-benefit analysis and decision making. It also suggests links to other relevant tools.

→ **Designing REDD+ benefit-sharing mechanisms: From policy to practice. CIFOR (Wong *et al.*, 2022).**
In the context of REDD+, this report outlines key principles for ensuring just cost-benefit sharing mechanisms, emphasising their importance to avoid small and unrepresentative interest groups exerting disproportionately strong influence. These principles include that benefits should go to: actors with legal rights; actors achieving emission reductions; low-emitting forest stewards; effective facilitators of REDD+ implementation; the poorest. It also notes that actors incurring costs should be compensated.

→ **A cost-benefit framework for analyzing forest landscape restoration decisions. IUCN (Verdone, 2015).**
The author starts from the premise that a cost-benefit analysis in FLR focuses on restoration's ability to change the value of the landscape. He describes a framework that includes 9 steps and uses case studies to illustrate these. A valuable contribution in this report is that it provides a list of tools (Table 2; p. 16-20) that could be used in a cost-benefit analysis for restoration decision making.

→ **Thinking about REDD+ benefit sharing mechanism. Lessons from community forestry in Nepal and Indonesia. CIFOR (2015).**
The authors use lessons from community forestry on benefit sharing to apply them to REDD+. Of particular interest is the fact that they separate benefits as rights allocation-based, input-based (payment and/or other inputs are provided in advance) and performance-based (benefits are shared after meeting an agreed performance level – as in REDD+).

→ **Benefit sharing and REDD +: Considerations and options for effective design and operation. USAID (2015).**
The authors review models for benefit sharing, splitting them as contract-based payments for services, managed funds, and collaborative resource management. They also outline key principles for benefit sharing, including transparency, participation and capacity building, tenure and carbon rights, and improving outcomes.

→ **A fair share? Sharing the benefits and costs of collaborative forest management. Mahanty *et al.* (2009).**
This article reviews community forest management in Asia to determine costs and benefits from these arrangements and their distribution. It also assesses why the flow of benefits to local actors is lower than its potential and outlines institutional and policy constraints that should be addressed for this to change, emphasising the role of community-level governance.

4.3.3. Conflict resolution

Conflicts are likely to arise in long-term land use change processes such as FLR. They may be minor or more substantial and may appear at any stage in the process. Tracking and addressing conflicts before they escalate is essential. Conflicts may occur between different stakeholders situated at the same spatial scale (e.g., villagers) or at different spatial scales (e.g., a multinational company and local villagers). Power dynamics will be significant mediators (influencing

factors) of conflict (and its resolution). Typically, the voice of a stronger international corporation seeking to invest in a landscape may outweigh those of many local villagers. Professional mediation and negotiation may prove essential to resolve conflict.

The field of environmental conflict resolution has grown and reflects the need for specific approaches that are not confrontational, but instead seek to find negotiated outcomes. Tools used in conflict resolution include facilitated negotiation, joint fact finding, conflict assessment, policy dialogues, early neutral evaluation and collaborative planning (Fisher, 2014).

Questions to consider:

- How can conflicts be anticipated?
- How are conflicts minimised?
- How can conflicts best be addressed?

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Testing an interactive game devised at ETH Zurich to bring stakeholders together to understand and plan sustainable forest management.

Tools in this category focus on analysing, understanding and resolving conflicts that stem from different views and priorities in the landscape.

→ **Conducting conflict assessments: Guidance note. DFID (2002b).**
This guidance note presents a flexible process that can be adapted to different situations. It aims to understand the historical and structural precursors to conflict and what converts latent conflict into open conflict or intensifies existing open conflict. It outlines how to analyse conflict structures, actors and dynamics.

→ **Conflict analysis tool. SDC (2009).**
This information note presents three approaches to conflict analysis: the Harvard approach which emphasises that conflicts can be resolved by focusing on interests rather than positions; the Human Needs Theory that argues that conflicts are generated when basic human needs are not met; the Conflict Transformation approach which sees conflicts as an interaction of energies whereby resolution seeks to empower actors. It also summarises seven conflict analysis tools such as the 'conflict wheel' or the 'needs-fears mapping'.

→ **Negotiation and mediation techniques for natural resource management. FAO (2005).**
This comprehensive guide outlines how to establish and manage negotiations involving multiple stakeholders in collaborative natural resource management. It focuses on conflict situations where a mediator facilitates the negotiation process. The guide has eight sections, including for example: managing conflict; negotiations and building agreements; and exit (the importance of monitoring an agreement). The document also includes three annexes on collaborative natural resource management, a field guide to conflict analysis and case studies.

→ **Resource guide: Resolving environmental conflicts in communities. US EPA (2000).**
This brief overview highlights techniques for environmental conflict resolution that include facilitation, convening, mediation, consensus-building, and ombudsmen. It also highlights other resources and provides a few case studies.

→ **Conducting a conflict and development analysis. UNDP (2016).**
The Conflict and Development Analysis (CDA) guidance is an extensive document that is intended to assist with analysing *"a specific context and developing strategies for reducing or eliminating the impact and consequences of violent conflict."*
The CDA helps to understand drivers of conflict, stakeholders, the key dynamics of the conflict, as well as engines of peace. It helps for example to: better understand the context; develop consensus among stakeholders around the challenges or issues in question; review and ensure that suggested reforms and programmes are conflict-sensitive and doing 'no harm'; engage national decision-makers and others in discussions of key issues identified in the analysis. Some elements that may prove useful in the context of FLR include, for example, guidance on how to collect data around the conflict (section 2.5) and how to develop a programme in light of a conflict (module 6).

4.4. Step 4 in the FLR Process: Analyse, Adapt and Sustain

KEY ISSUES TO CONSIDER IN THIS PHASE:

- ✓ Is the process on track to achieve desired objectives?
- ✓ Is action against drivers of forest loss and degradation making a difference?
- ✓ Have there been any key changes in the human system that may affect the project outcomes?
- ✓ Are modifications needed to the process to achieve desired outcomes?

Overview of the issues

In this phase valuable feedback from implementation should be processed so that it can inform future actions. It is useful to have some form of collaborative arrangement or mechanism, formal or informal, to ensure that all those involved in FLR can come together to review progress against the plan, assess and learn (next phases) and determine and carry out remedial actions. In the context of human dimensions and FLR, this may involve feedback on the process (e.g., who is engaged, who is not, issues of equity and justice etc.), on the activities (e.g., addressing underlying drivers of deforestation) as well as on the human-related outcomes (or milestones towards these). Key issues associated with this phase relate to participatory monitoring, adapting to a changing human system, and empowerment.

4.4.1. Participatory monitoring

Involving a diverse set of stakeholders in monitoring provides numerous benefits. Firstly, it engages and establishes a locally-based group rather than an external, project-dependent system. Secondly, it enables local stakeholders to measure and understand the impact of FLR actions (if necessary, that also signifies providing them with the information to directly carry out remedial actions). Thirdly, and as a result of the first two points, it empowers local stakeholders, providing them with the arguments to continue FLR, to adapt, or indeed, if necessary, to stop implementation. In line with this, it enables local stakeholders to better value restoration (Evans and Guariguata, 2016) and importantly, to include indicators of relevance to them (e.g., indicators associated with culturally valuable species). Fourthly, participatory monitoring is more likely to be set up for the long term (which is essential for FLR which is a long term process) as it is locally-grounded. Last but not least, participatory monitoring may prove more cost-efficient than external systems as it relies on local technologies, systems and capacities.

Questions to consider:

- How will local stakeholders be involved in monitoring? Through which mechanisms?
- How are monitoring results feeding back into the programme?

Tools in this category seek to facilitate participatory monitoring.

→ **Success from the ground up. Participatory monitoring and forest restoration. Evans and Guariguata (2016).**
The authors propose (in chapter 4) some key issues to consider when setting up participatory monitoring: 1. including a mechanism to oversee the monitoring system; 2. dedicating funds to participatory monitoring; 3. preparing to monitor (including training and capacity building); 4. making the monitoring plans at the start; 5. setting clear goals, objectives and targets collaboratively; 6. deciding what to monitor: determining questions and indicators; 7. picking appropriate monitoring methodologies and technologies; 8. involving women and marginalised groups; 9. encouraging social learning and learning networks.

→ **Participatory impact assessment: A design guide. Catley *et al.* (2013).**
This guide was developed to measure the impact of livelihoods projects. It describes participatory methods (in stage 4) to monitor impact that could be useful in the context of FLR. For example, simple ranking, matrix scoring or impact calendars (to rank the duration of the impact).

4.4.2. Adapting to a changing human system

The human landscape within which FLR takes place is constantly evolving, with new stakeholders appearing (e.g., new business interests), changes in political systems and governance (e.g., recognition of Indigenous rights), new pressures etc. Regular assessments of this system and how it interacts with the (long term) restoration process

is important. Tracking such key influences may be an integral part of the monitoring system and/or a specific activity within the programme. Feedback from these changes may influence further steps in the FLR process. For example, in the Fandriana-Marolambo landscape in Madagascar it became clear after a year or so that the local communities were distrustful of an externally-driven FLR project in their landscape so that a greater number of local facilitators had to be hired to improve the dialogue with, and better engage, local communities (Mansourian *et al.*, 2018). Monitoring will also contribute to understanding changes in the drivers of forest loss and degradation. Most drivers are situated in the human system and many may stem from well beyond the landscape (e.g., international demand for commodities). For example, pressures from growing international demands for a particular commodity (e.g., cocoa) may have both positive (e.g., job creation) and negative (e.g., loss of forests and associated goods and services) local impacts. Drivers such as the demand for palm oil, represent significant and diverse interests situated at multiple scales, from the generation of revenue for powerful businesses, to the production of vital goods for people, to the creation of local jobs. But they also represent major negative human impacts, from the loss of livelihoods, to power struggles over land rights, to injustices in wealth creation, among others. FLR initiatives cannot track or influence all of these aspects but need to identify the critical ones of relevance for the initiative in question and identify suitable intervention points that can be realistically influenced and tracked over time. Tracking progress in the success (or not) of FLR strategies is also necessary to ensure remedial actions can be carried out (if necessary).

Local women selling souvenirs made from forest products in Mamiraúá's Sustainable Development Reserve in the Brazilian Amazon.

Questions to consider:

- Are drivers of deforestation and forest degradation still present?
- What changes have occurred in the landscape (since the start of the intervention)?
- Have new stakeholders appeared in the landscape? How are they affecting (or potentially affecting) FLR?
- How is restoration reversing the drivers of forest loss?
- How are local livelihoods affected?
- What social, economic, political changes are impacting on the FLR intervention?

Tools in this category aim to capture changes in the social system.

→ **Behaviour change website**
This website has some examples of tools to capture behaviour change related to, for example, the food system, as well as a 'designing for behaviour change' framework.

→ **Causality assessment for landscape interventions. Bina and Bovarnick (2022).**
This guidebook on the Causality Assessment for Landscape Interventions (CALI) methodology provides an integrated, systems-based approach for project staff to continuously reflect on the validity of their theory of change. It also focuses on unpacking causality between results at different levels. The CALI promotes continuous, participatory reflection on the effectiveness of project interventions in the context of deforestation at landscape or jurisdictional level.

4.4.3. Empowerment

To sustain the outcomes of restoration, farmers, women, youth, Indigenous Peoples and other rightsholders living in the landscape need to be empowered and enabled to carry restoration forward and maintain it. Empowerment is about providing opportunities for people to realise their potential (Sen, 1999). This can be achieved by increasing people's access to assets, knowledge, resources,

Community group discussing restoration in India.

services, decision-making power and capabilities (FAO, 2020b). In the context of FLR, empowered communities can be in a better position to manage, develop and sustain into the long term the restored landscape.

Tools in this category present issues around empowerment and provide guidance on improving the ways in which rightsholders and other key stakeholders can be empowered.

→ **Empowering farmers and their organizations through the creation of social capital - Bond learning guide for trainers. FAO (2020b).**
This guide provides concepts and tools to support individual and collective empowerment of farmers, land managers and their organisations. It is designed for trainers and contains 16 modules that cover for example, leadership, cooperative principles, and networking and partnerships. The guide is predicated on three types of relationships that farmers need to develop: bonding, bridging and linking relations, that reflect relationships among the group, between the group and other similar groups and between the group and external groups, respectively.

→ **UNDP gender and recovery toolkit. UNDP (2020).**
This document contains seven guidance notes, that include for example, promoting the participation and leadership of women and women's organisations in crisis and recovery or ensuring women's access to justice, security and human rights. Each guidance note outlines what the issues are and what options work to address them. For example, under guidance note 2 on promoting transformative livelihoods and economic recovery to advance gender equality the authors outline the issue and propose as solutions the need to combine efforts to support women's economic empowerment; providing resources to mitigate women's disproportionate care-giving responsibilities; encouraging legal reforms to enhance women's access to land, credit and other resources; advocating for, and wherever possible, supporting strong social institutions and an economy for peace that guarantees women's economic, social and cultural rights. They also include additional tools at the end of each guidance note.

4.5. Step 5 in the FLR Process: Learn and Disseminate

KEY ISSUES TO CONSIDER IN THIS PHASE:

- ✓ What lessons can be learnt?
- ✓ Who is learning? Through which processes?
- ✓ How are lessons shared? Communicated?
- ✓ What mechanisms can facilitate FLR mainstreaming?

Overview of the issues

This phase centres on lesson learning and dissemination to ensure that feedback from implementation can inform future actions so that restoration efforts can be sustained as they contribute to establishing a resilient landscape. In the context of human dimensions and FLR, this may involve the lesson gathering and learning process (e.g., who is engaged, who is not, issues of equity and justice etc.), communications and mainstreaming.

4.5.1. Lesson learning

Lessons from FLR and other restoration projects and programmes are needed to inform future interventions. In the context of human dimensions, lessons could relate to the processes used to engage people and work with different stakeholders, or the application of different approaches such as participatory processes, methods for consultation and negotiation, conflict resolution etc. The lesson learning process is itself an important one to consider and to set up early on in the FLR programme. Indeed, lesson learning, like monitoring, starts at the initiation stage when it becomes important to document the process. Lesson learning can help to inform, shape, report, test a hypothesis, correct and influence (Grantham *et al.*, 2010) the restoration process. Different learning products may target different audiences (Catalino *et al.*, 2019).

Questions to consider:

- What works? What doesn't? why?
- Who is learning?
- How is learning shared? Carried out?
- How can different stakeholders learn from the FLR process and integrate the learnings into future practice?

Tools in this category aim to support lesson learning.

→ **How to learn lessons from field experience in forest landscape restoration: A tentative framework Mansourian and Vallauri (2020).**
This article reflects on the importance of lesson learning in FLR, and proposes a framework to guide lesson learning in FLR. It reviews existing guidance for capturing lessons learned in FLR.

→ **Learning alliances. Smits *et al.* (2007).**
The 'Learning Alliance' approach in this document aims to facilitate the scaling up of innovation by connecting multi-stakeholder platforms at different institutional levels. Although it focuses on the water and sanitation sector, some parts of this book may be of relevance. In particular, chapter 7 highlights initial findings from learning alliances (and outlines 7 main steps for starting a learning process, i.e., the initiation of the learning process, a stakeholder analysis, problem or opportunity identification, stakeholder mobilisation and a number of planning activities) and part II provides useful case studies.

→ **ITTO-IUFRO Learning modules on forest landscape restoration. ITTO-IUFRO (2021).**
The new learning modules developed by ITTO and IUFRO have been crafted to raise awareness among the next generation of professionals, policy- and decision-makers of the vital role that FLR will play in restoring degraded landscapes and contain the latest knowledge on FLR. The FLR Learning Modules comprise four PowerPoint presentations, and handouts for teachers and students, covering a number of topics, with case-study videos, group questions and assignments.

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Study tour in Puerto Rico's forest.

4.5.2. Communications

Communicating about FLR is a means of ensuring that lessons, outcomes and results can be widely distributed. Guidance on communications exists in different fields and generally covers issues such as developing a plan that identifies audiences, key messages and channels.

Questions to consider:

- How can key messages related to FLR be best shared?
- What mechanisms are appropriate for sharing and disseminating lessons with different audiences?

Tools in this category aim to facilitate communications of FLR issues.

→ **Module 7 of IUFRO FLR implementation guide. Stanturf *et al.* (2017; pp. 94-108).**
This module of the IUFRO guide provides simple guidance on how to communicate FLR results. It includes for example, the need to know your audience and determining how much detail to include. The guide also uses a series of examples to demonstrate how to tailor the message to the target audience.

→ **Communicating for conservation. CANARI (2012).**
This toolkit provides some basic guidance for communicating issues associated with environmental conservation that can be of relevance to FLR. It targets advocacy, decision-makers and seeks to influence policy. It includes notably guidance on developing a communications plan, understanding the audience, developing the message and determining the priority channels of communications.

→ **GLFx: Global Landscapes Forum.**
GLFx is designed to enable and assist community members with the connections, knowledge and technology to connect, share, learn and act online and in person.

4.5.3. Mainstreaming

For FLR initiatives to survive beyond the donor funding cycle, they will need to be mainstreamed, signifying that the long-term approaches and objectives for the landscape will have to correspond to those of other priorities in the landscape. In this respect, it is important to align FLR objectives and priorities with those of the country and/or community. For example, the government of Bhutan has a 60% forest cover inscribed in its constitution. FLR can contribute directly to this high-level goal and is aligned with associated policies. Because FLR aims to fulfil multiple goals related to people and biodiversity, it is particularly amenable to mainstreaming.

Questions to consider:

- How can FLR contribute to broader development priorities?
- What mechanisms can contribute to inserting FLR practices into other development processes?
- What governance mechanisms exist to promote FLR in the long term?

Tools in this category provide guidance to mainstream FLR.

→ **The challenges of environmental mainstreaming: Experience of integrating environment into development institutions and decisions. Dalal-Clayton and Bass (2009).**
This guidance document is on environmental mainstreaming more generally, however, the proposed steps can also be useful in the context of FLR. Chapter 3 outlines a series of steps that characterise mainstreaming, including for example identifying links between development and environment (in our case, restoration) and identifying entry points in key decision-making processes. Chapter 4 provides guidance on the selection of tools or approaches for mainstreaming.

→ **Mainstreaming climate change adaptation into development planning: A guide for practitioners. UNDP-UNEP (2011).**
Although this guidance is about climate change adaptation, the processes described for mainstreaming could be useful for restoration. For example, the guide refers to the need to assess the governmental, political and institutional context, then identify national priority issues, and initiate a dialogue on the issue at stake.

Tree nursery in Rwanda.

5
Next Steps

The previous sections have sought to answer our three central questions: *1. How do human dimensions and FLR interrelate?; 2. What are intervention points in the human system that can facilitate the FLR process?; and 3. What guidance exists that can assist practitioners to integrate these human dimensions in FLR (and other forest ecosystem restoration) processes?*

As the restoration of ecosystems gains ground, there is an urgent need to ensure that practice reflects the highest standards. This signifies improving standards in human dimensions of FLR, thus reflecting the reality that FLR takes place within a complex social-ecological system. This technical report begins to address this gap and provides guidance so that practitioners can better integrate these essential aspects into the FLR process.

We propose the following short-term and medium-to long-term concrete next steps to take this forward and ensure that this guide can be used, applied, and eventually updated and improved.

In the short term:

Living web-based document – We envisage elements of this guidance being transposed to a website where it could form the basis for shorter modules and fact sheets that can be readily downloaded and consulted. This website could contain the links and summaries of guidance material and could be updated once a year for example, to ensure links work and include any new guidance. An example site can be found here: https://restorationmonitoringtools.org.

Capacity building and knowledge sharing – Regional capacity building workshops or webinars can provide practitioners with common interests the opportunity to get together to discuss the issues highlighted here and how they relate to their contexts. These sessions could also offer an opportunity to connect these issues to projects and case studies.

Outreach – Disseminating the findings from this research and guidance to a wide group of practitioners will necessitate translation into other languages and communications efforts. Outreach to the donor community about the importance, relevance and need to better consider human dimensions in restoration is also a priority and may require both targeted communications and possibly side events at relevant fora (e.g., a CBD meeting or a Global Landscape Forum).

Expanding beyond forests – The guidance in this document is focused on forests, and more specifically on forest restoration within the broader context of landscapes (FLR). Nevertheless, much of the guidance can be applicable to other ecosystems. Adapting this text to these other ecosystems would bring a useful complement to broader efforts to restore ecosystems under the UN Decade on Ecosystem Restoration (and link up with other relevant guidance such as the Standards of Practice to Guide Ecosystem Restoration (Nelson *et al.*, 2024) or the International Principles and Standards for the Practice of Ecological Restoration (Gann *et al.*, 2019)).

In the medium to long term:

Addressing knowledge gaps – There are still many gaps in knowledge, with for example, limited guidance on how to negotiate multiple objectives for restoration or implement participatory monitoring. Improving collaboration across Western and

Indigenous knowledge systems is also a priority. As such, the scientific community can contribute to identifying key research gaps and to develop relevant guidance.

Interdisciplinary collaboration – Interdisciplinary collaboration has been identified as an important priority, across social and natural sciences but also across different social sciences. This document has begun to highlight the important contributions of these different social sciences to FLR, and should provide guidance for practitioners to ensure that they can assemble the right teams based on their local circumstances. Further mechanisms and incentives need to be considered to ensure that such collaboration is effectively applied. This may also necessitate higher budgets and prolonged project timeframes for which donors need to be sensitised.

Additional guidance materials – This document could provide source material for a number of topics that could be further developed. For example, additional materials could be designed on strengthening and applying negotiation skills in FLR and other forms of restoration. Shorter publications based on this one, and eventually multimedia products could also contribute to making elements of this guidance more readily accessible to diverse audiences.

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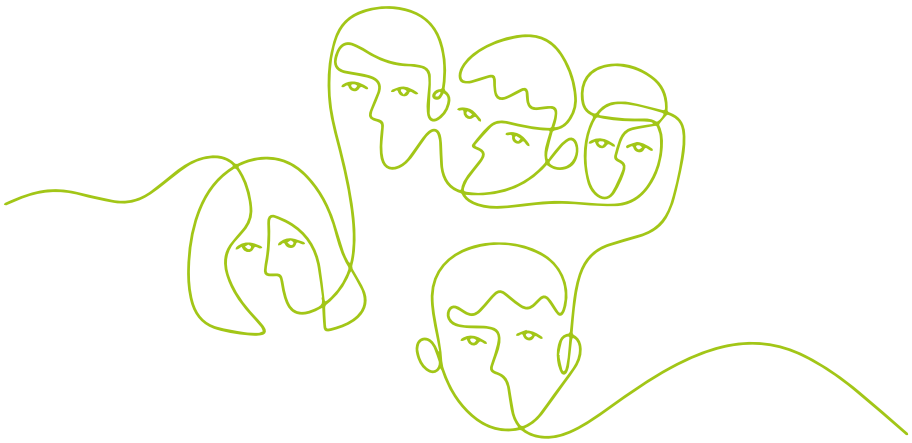

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