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Balancing interests and approaches for equitable, just and sustained forest restoration

Introduction

Forests provide crucial ecosystem services for human wellbeing, sustainable development, and ultimately, sustain life on Earth. The provision of these services is seriously threatened by continuing deforestation and land degradation. In response to these detrimental processes, there has been an unprecedented recognition over the past few decades of the urgent need to restore forest ecosystems. This is reflected in various global commitments, inter alia in the post-2020 global biodiversity framework of the Convention for Biological Diversity, in the Paris Agreement of the United Nations Framework Convention on Climate Change and in the Sustainable Development Goals. In alignment with these global agreements, global voluntary restoration initiatives—the Bonn Challenge, the New York Declaration on Forests and the United Nations Decade of Ecosystem Restoration (2021-2030)—have set targets to restore millions of hectares of degraded ecosystems and deforested landscapes. Furthermore, countries, organisations and private entities have made voluntary commitments to restore millions of hectares. And yet, concretising and implementing these commitments in a just, sustainable and sustained fashion remains a challenging endeavour.

This brief presents some of the main messages and conclusions from the book **Restoring Forests and Trees for Sustainable Development: Policies, Practices, Impacts, and the Ways Forward** developed by the International Union of Forest Research Organizations' Special Project World Forests, Society and Environment (IUFRO WFSE). It gives an overview of the current global situation regarding forest restoration and related challenges and suggests ways for moving forward towards sustainable and just restoration with durable outcomes.

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Different approaches to forest restoration

Forest restoration embraces a diversity of understandings, approaches and activities. They differ in relation to the state and status of the land where forest is restored, the goals of restoration, the biodiversity and ecosystem service outcomes, and who undertakes restoration and how. Forest restoration efforts differ in the intensity of measures taken and labour, technology, finance and other resources applied. They also differ with respect to who is involved, how associated costs and benefits are shared and the respective equity and justice outcomes. In this brief, 'forest restoration' is used broadly, referring to different approaches to bring back forests and trees to where they have existed before, including natural regeneration, reforestation, tree planting, plantation establishment, agroforestry systems and forest landscape restoration.

The national commitments and restoration approaches utilised or planned vary among regions and countries. Table 1 gives an overview of restoration commitments in selected regions. Systematic, reliable worldwide information about past restoration efforts and the implementation of the current restoration plans and the amount of land restored are not available.

Table 1. Restoration commitments and main approaches in selected regions

CENTRAL AMERICA & MEXICO	TROP. SOUTH AMERICA	WEST AFRICA	EAST AFRICA
Commitments			
• 16.5 Mha (7 countries) to the Bonn Challenge and Initiative 20x20 • Largest commitment: Mexico, 8.5 Mha	• Nearly 20 Mha (5 countries) to the Bonn Challenge and Initiative 20x20 • Largest commitment: Brazil, 12 Mha	• 37 Mha (12 countries) to African Forest Landscape Restoration Initiative • Largest commitment: Mali, 10 Mha	• 39.3 Mha (9 countries) to African Forest Landscape Restoration Initiative • Largest commitment: Ethiopia, 15 Mha
Main land management and technical interventions			
• Reforestation (tree plantations with native or exotic species) • Assisted natural regeneration • Silvopastures (intensive and trees in line) • Agroforestry systems (permanent crops and trees, e.g., tree shade coffee; and annual crops and trees) • Grassland restoration • Sustainable forest management (both in degraded and secondary forests)	• Reforestation (tree plantations using exotics and native species) • Assisted natural regeneration • Agroforestry and silvopastoral systems • Ecological restoration • Activities to prevent deforestation (avoided deforestation)	• Agroforestry practices (native and exotic species for timber, fuelwood or fruit production) • Tree crop plantations (cocoa, coffee, rubber, oil palm, cashew) • Farmer managed natural regeneration	• Tree plantations (mainly using exotic species) • Natural regeneration • Area exclosures (practiced without additional measures of planting to allow natural regeneration)
SOUTHEAST ASIA	**SOUTH ASIA**	**CENTRAL ASIA**	**EASTERN & SOUTHEAST EUROPE**
Commitments			
• No regional targets, only national ones • Largest commitment: Indonesia, 29.3 Mha	• 22.65 Mha (5 countries) to the Bonn Challenge • Largest commitment: India, 21 Mha	• 2.39 Mha (4 countries) to the Bonn Challenge • Largest commitment: Kazakhstan, 1.5 Mha	• More than 4 Mha by 2030 (14 countries) to the Bonn Challenge* • Largest commitment: Ukraine, 1.5 Mha
Main land management and technical interventions			
• Assisted natural regeneration • Tree plantations (monocultures with exotics, multi-species plantations, including enrichment planting) • Agroforestry (tree home gardens, farm forests) • Ecological restoration (e.g., framework method)	• Tree plantations (native and non-native tree seedlings) • Assisted natural regeneration • Agroforestry systems • Bioengineering (such as in stabilising areas affected by landslides)	• Tree plantations • Shelterbelts of fast-growing species • Windbreaks in agricultural areas • Assisted natural regeneration, especially for degraded saxaul forests and for mountain forests) • Improved grazing management	• Forest management (improved silvicultural practices) • Afforestation • Reforestation • Assisted natural regeneration

* The new EU Nature Restoration Law will include commitments to EU member countries in this region (https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5662).

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Restoration goals, synergies and tradeoffs

Forest restoration relates to sustaining and improving biodiversity and/or the provision of forest ecosystem services, including, for example, carbon sequestration, water regulation and provision of timber. Societal goals include improving livelihoods, preserving cultural integrity and supporting economic activities that depend on forests. The three key overarching goals that drive international forest and forest landscape restoration efforts focus on addressing 1) global environmental challenges, especially climate change and biodiversity loss, 2) plantation establishment to fulfil the increasing demand for wood and 3) restoration for creating economic opportunities and improving livelihoods. These overarching goals reflect the different priorities that originate from the international level and are translated to national, and often also sub-national goals. Forest restoration has often been promoted as a win-win solution towards reaching both biodiversity and climate goals or a win-win-win solution that would also improve the livelihoods of local communities in addition to environmental benefits. However, the potential of different restoration approaches towards reaching specific goals vary and involve important trade-offs.

The goals of restoration guide the selection of the restoration approach and activities. The selection of the restoration approach also depends on the degree of degradation of the land to be restored, biophysical and climatic conditions, past land use, the social and cultural context, and the interests and capacities of different stakeholders and the power relations among them. There is a great need to understand much better the opportunities and constraints, and associated risks, posed by economic, social, cultural and political circumstances and technologies in different contexts. Table 2 provides an overview of some main forest restoration approaches and how they can contribute to four key goals: biodiversity enhancement, carbon sequestration, livelihood improvement and timber production. The actual realisation of these contributions, however, depends greatly on the socio-ecological and biophysical context and time horizon.

Table 2. Examples of restoration approaches and their potential contributions towards different goals

RESTORATION APPROACH	MAIN GOAL			
	Biodiversity enhancement	Carbon sequestration	Livelihood improvement	Timber production
Natural regeneration	🌳🌳	🌳🌳	🌳	🌳
Assisted natural regeneration / enrichment planting / secondary forest management	🌳🌳	🌳🌳	🌳	🌳
Large scale plantations with native species	🌳	🌳🌳	🟠🟠	🌳🌳
Large scale plantations with exotic species	🟠🟠	🌳🌳	🟠🟠	🌳🌳
Agroforestry / silvopastoral systems	🌳	🌳	🌳🌳	🟠
Woodlots, trees on farm, small scale plantations	🌳	🌳	🌳🌳	🌳

🌳 Potential towards the goal
🌳🌳 Strong potential towards the goal
🟠 Possible adverse effects towards the goal
🟠🟠 Possible strong adverse effects towards the goal

Table 2 reveals important potential synergies among the different restoration approaches and related goals, especially among the biodiversity and carbon sequestration goals. Natural regeneration and assisted natural regeneration hold potential towards reaching both environmental and livelihood goals. The use of native species in large scale plantations can also support biodiversity goals, while in general the development of plantations using exotic species bears important risks of adverse impacts on biodiversity and local livelihoods. Agroforestry, woodlots and small-scale plantations hold strongest potential for livelihood improvements and can also contribute towards environmental goals.

Restoration costs and benefits

The impacts of restoration efforts and the related distribution of costs and benefits depend on the socioeconomic, ecological and cultural circumstances in the areas and locations where restoration is implemented, and the type of restoration approach and activities undertaken. There are also important differences in how the impacts are distributed among different actors and over time.

The impacts on local people and their livelihoods are — in addition to the biophysical and climatic conditions, and the restoration approach employed — shaped by the restoration objectives, time perspective, management, finance, institutional issues such as market access and demand, governance including tenure and property rights, and public administration.

Tree plantations, either with native or exotic species, tend to be a preferred restoration approach in most regions often involving large land areas and corporate and/or government actors. Such restoration efforts may offer significant potential for a future bioeconomy development and financial profits but risk undermining the livelihoods of local and indigenous peoples who depend on these lands. The need to incorporate community actors more meaningfully in the planning and decision making regarding when, where and how to pursue and implement forest restoration is one of the crucial challenges for sustainable and just forest restoration.

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Timeframe

Forest restoration is a long-term undertaking; after the initial investment it requires long-term management and monitoring. Benefits from restoration can take years or decades to fully emerge, emphasising the need for economic incentives targeting short- to long-term benefits to local actors and communities. This long-term perspective also emphasises the necessity for flexibility and adaptation in the face of changing socioeconomic circumstances such as outmigration or changing demands of ecosystem services. Over time, forest restoration efforts will change local actors' relationship with and dependency on land and forests. Climate change and related ecological and biophysical changes will further emphasise the need for adaptive management of restored forests. Human systems are as well likely to change over time, requiring additional flexibility and adaptation.

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Ways forward

In the light of the above discussion, three crucial interlinked issues are highlighted below for advancing socially just, sustainable forest restoration. The fourth point emphasises the lack of systematic, reliable information and data to advance sustainable forest restoration.

Need for inclusive forest restoration governance and equitable sharing of costs and benefits

The participation of local actors is crucial for just restoration outcomes. Local actors across different social groups with varying interests and priorities need to be included in the planning and decision making regarding when, where and how restoration is pursed. The large-scale plans for expanding tree plantations in many regions highlight the importance of working directly with smallholders and communities in areas where restoration is being planned and ensuring their ongoing and substantive participation and just distribution of restoration costs and benefits among stakeholders. It also requires improved institutional arrangements, transparency, empowerment of local actors and recognition and respect of their statutory and customary rights, knowledge, culture and worldviews, as well as coordination across government agencies and private/corporate sector stakeholders.

Need for balancing forest restoration goals and approaches

Different restoration approaches deliver different sets of benefits (Table 2) and should be considered complementary in providing various ecosystem services for local actors as well as the wider society. It is thus important to clarify restoration goals transparently and balance the goals and restoration approaches within jurisdictions in view of different and possibly competing demands. However, significant funding challenges remain for

undertaking forest restoration on the scale planned. The current funding trends favour large-scale tree planting and plantations. Restoration funding has largely originated from multilateral agencies but is currently increasingly coming from private financial institutions and the corporate sector interested in meeting their climate targets or investing in large scale plantations for carbon sequestration and/or timber production. It remains important that the Free, Prior and Informed Consent principles and similar safeguards are duly employed. The further development and wider application of equitable smallholder/community-company partnership models with appropriate funding arrangements and the empowerment of local actors are also needed.

While multiple small-scale initiatives and restoration efforts also exist, they are often limited with scarce resources, tap into limited local market opportunities and struggle to reach scale and connect with more lucrative markets for forest products and ecosystem services or to access finance and services. To be sustainable, support to local restoration initiatives must recognise and respect the uniqueness of ecological and human communities, the necessity of long-term involvement and target both short- and long-term benefits for local actors. This often involves diversification of economic activities, involving agricultural production and incomes from off-farm activities or employment, and promoting the production of high added value products. For this to happen an enabling policy and supportive institutional and administrative environment are critical.

Production-oriented forest restoration, either large or small scale, will often have mixed environmental impacts and can limit biodiversity recovery or conservation. Agro- and silvopastoral approaches are reported to provide both livelihood benefits and support biodiversity, but combinations of approaches are needed if biodiversity is the main objective. A mix of different restoration approaches is needed to meet the national, subnational or local restoration needs and priorities in a balanced fashion.

Need for enabling environment and policy coherence

Enabling, supportive and coherent sectoral policies and legal frameworks are important for promoting forest restoration and attracting public and private investments. Alignment of agricultural, forest, land and environmental policies is key in ensuring complementarity and avoiding perverse incentives. Secure tenure and property rights, elimination of corruption, mechanisms for conflict resolution and functional platforms for stakeholder participation at different scales are important elements of an enabling environment. Economic incentives, capacity building, practice-oriented knowledge products and extension services, systems for monitoring restoration outcomes and adaptive approaches to restoration and management of restored areas are vital for ecologically and socially sustainable restoration.

Need for monitoring progress and learning

There is limited information about the outcomes of restoration efforts in terms of areas and the ecosystem services restored. This is especially the case regarding smallholder and community restoration. Yet, such information is crucial to ensure that the ecological, livelihood and wider societal impacts of restoration are positive. There is a need to better understand the economic, social, cultural, political and technical opportunities and constraints of forest restoration in different contexts, as well as the impacts of existing projects and policies. Learning from past and ongoing forest restoration efforts should be prioritised.

Analyses of the experiences from different institutional arrangements for stakeholder participation, and partnership or benefit sharing arrangements between public, corporate and local actors are needed for devising more equal and just arrangements. This also includes better understanding of the varying needs, goals and interests of the involved local actors and communities.

Forest restoration can lead to negative impacts, e.g., on water availability, biodiversity, and social and cultural life. Information on and assessment of these negative impacts and development of options for their mitigation are equally required.

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