

## Executive Summary

In 2015, 193 countries adopted Agenda 2030 for Sustainable Development and its 17 Sustainable Development Goals (SDGs). The SDGs build on the Millennium Development Goals (MDGs), but there are significant differences between them and the processes leading up to their adoption. The process leading up to the adoption of the SDGs involved considerably broader participation. The SDGs expanded the focus by integrating a wider development policy agenda addressing many aspects of economic, social and environmental sustainability. In addition, while the MDGs were mainly relevant for developing countries, the SDGs apply to all countries.

The 17 SDGs and 169 related targets form an overarching development framework meant to guide government and non-state actor efforts at different scales, from global to local, until 2030. The SDGs and their targets form a complex, integrated system with clear sectoral emphases, but also strong interlinkages among goals and targets. The agenda does not explicitly address these interlinkages, or the synergies and trade-offs among targets.

Forests provide ecosystem services that are crucial for human well-being and, as such, are critical for reaching the SDGs. Yet, forests are only explicitly mentioned in two SDGs. SDG 15 (Life on Land) focuses on the protection, restoration and sustainable use of terrestrial ecosystems and halting the loss of biodiversity. The other, SDG 6 (Clean Water and Sanitation), calls for the protection and restoration of forests in one of its targets: Target 6.6 aims at protecting and restoring water-related ecosystems, including forests. Due to the interrelated nature of the SDGs and targets, the implementation of the SDG agenda will inevitably influence forests and forest-related livelihoods and the possibilities to achieve the forest-specific targets. Understanding the potential impacts of SDGs on forests, forest-related livelihoods and forest-based options to generate progress towards achieving the SDGs, as well as related trade-offs and synergies, is crucial for efforts undertaken to reach these goals. It is especially important for reducing potential negative impacts and to leverage opportunities to create synergies, which will ultimately determine whether comprehensive progress towards the SDGs is accomplished.

### No Poverty – SDG 1

SDG 1 seeks to ‘end poverty in all its forms everywhere’, specifically by ensuring that the poor are covered by social protection systems; by securing their rights to economic resources, access to basic services and property ownership; and by building their resilience to economic, social and environmental

shocks. The relationship between poverty reduction and forests varies across regions, decades, forest transition stage and degree of market access. The empirical literature shows that more secure property rights – especially for community land – and social protection in the form of cash transfers can support forest conservation, given the right contexts and conditionalities. As demonstrated by programmes that reforest hillsides and re-establish mangroves to prevent natural disasters, policies designed to reduce vulnerability can promote ecosystem-based adaptation, including expansion of forest cover. This is consistent with the evidence that forests are both a mainstay of rural livelihoods and a buffer and source of natural insurance. However, if poverty alleviation and national development strategies continue to be based on infrastructure and agricultural development, they are likely to remain in conflict with the conservation and sustainable management of forests.

## Zero Hunger – SDG 2

Pressure to increase food production augments with population growth. Agriculture dominates landscapes around the world, and more food is being produced than ever before. Yet a large part of the population is undernourished. Concomitantly, much of the agricultural expansion related to achieving global food security is at the expense of forest ecosystems, which are critical for biodiversity and the provision of ecosystem services. SDG 2 seeks to ‘end hunger, achieve food security and nutrition and promote sustainable agriculture’. A ‘business-as-usual’ approach to food production will continue to cause mass deforestation. This would be detrimental for biodiversity, impacting forest-dwelling communities who depend on forests for the direct provision of food. With the loss of forests comes the loss of far-reaching ecosystem services, vital for many facets of food production relied on by the wider population. SDG 2 and five of its targets (2.1–2.5) are closely related to forests. Targets 2.1 and 2.2 strive to end malnutrition and make nutritious food accessible to all. Investing in small-scale farmers and encouraging operations that grow a diversity of crops (Targets 2.3 and 2.5) are necessary for making Targets 2.1 and 2.2 a reality. Target 2.4 calls for sustainable and resilient agricultural practices. These five targets underscore the reciprocity between forests and SDG 2. Forest biodiversity is integral for nutrition and the ability to grow and harvest diverse crops. In turn, investing in small-scale farming systems and sustainable farming techniques can help conserve forests and enhance the integration of trees into landscapes. If we are to achieve SDG 2 sustainably, we need a reimagined food system that does not polarise agricultural production and the conservation of forest resources. This calls for land management that promotes the maintenance of biodiversity and

integrated land-use planning. This is especially evident when examining the relationship between SDG 2 and the other SDGs, the majority of which are concomitantly contingent on each other.

## Health and Well-Being – SDG 3

The achievement of SDG 3 depends on many other SDGs, yet there are also potential conflicts and trade-offs. Forests are of crucial importance to global health and well-being. In contrast, short-term economic and human health gains from further forest conversion (e.g. deforestation for food production) will create direct and indirect health risks for humans, as well as for other biota. Controlling indiscriminate burning and clearing of forests can reduce significant harm to health and well-being via improved quality of water, soil and air (a transnational issue), by reducing exposure to some infectious diseases, through the preservation of traditional (and future) medicines and by supporting other forest resources and services, including climate regulation. Many infectious diseases are associated with forest disturbance and intrusions, and some may be prevented or modified through forest management. Universal access to sexual and reproductive healthcare services, including for family planning, is a critical SDG 3 target to decrease demographic pressures on forests at local, regional and global scales and to enhance human well-being. Greater exposure to green space, including urban forests, has been linked to many benefits for mental, social and physical health for the increasingly urban global population. More broadly, forests play important roles in enriching cultural and religious well-being.

## Quality Education – SDG 4

Education has been characterised as ‘the golden thread’ that runs through all 17 SDGs. SDG 4 broadens the depth and breadth of education to people of all ages and expands its scope to a lifelong process spanning formal, non-formal and informal settings. It emphasises quality of educational access, particularly for girls and women and marginalised groups. Literature exploring pro-environment behaviour informs our consideration of how progress towards SDG 4 might impact forests, forest ecosystem services and forest-related livelihoods. The concept of pro-forest behaviour describes those elements of pro-environmental behaviour related to forests; encouraging and enabling pro-forest behaviour is the basis of building a positive relationship between SDG 4 and forests. Inclusive education that builds and reinforces positive attitudes towards forests, as well as relevant knowledge and competencies, and that helps individuals and communities feel or stay connected to forests, will

foster and sustain pro-forest behaviours. This requires that education systems respect, nurture and enable Indigenous and traditional knowledge; promote forest-related environment and sustainability education; strengthen forest-related professional, technical and vocational education and capacity development; and capitalise on the power of both established and new media that will continue to evolve and emerge over time.

## Gender Equality – SDG 5

Taking SDG 5 seriously in relation to forests brings to the forefront what is usually taken for granted in forest debates: people and their relationships, to one another and to forests. These relationships determine forest outcomes. Forest governance and everyday management are upheld by a superstructure of gendered forest relations (invisible to mainstream forestry) that often disadvantages women as a social group. Systemic and contextual factors such as health, gender-based violence and unpaid care work are crucial to the welfare of forest-dependent peoples and forests. So far, little progress has been made in implementing SDG 5 targets within forestry. Political will is needed to transform unequal relationships and to support demands for forest justice. There is a need to challenge privilege based on sex, class, ethnicity or caste and to destabilise inequitable micro- and macroeconomic structures such as commodification and to support democratic forest governance to work towards greater sustainability. It is also important to keep in mind that well-intentioned efforts, such as gender programmes, can have adverse effects if not cognisant of contextual power relations. The welfare and dignity that achieving SDG 5 would bring to forest peoples and livelihoods is essential to ensuring better managed and sustainable forests; however, the gender-neutral framing of some SDG goals undermines efforts towards achieving the outcomes called for in SDG 5.

## Clean Water and Sanitation – SDG 6

Predicting the impact of SDG 6 on forests and people requires a balanced understanding of the relationship between forests and water. Notable aspects are that forest cover reduces annual runoff but correlates well with water quality, and that evapotranspiration from forests is important for downwind precipitation. Within this context a target-by-target review of SDG 6, informed by South American examples, suggests that SDG 6 is unlikely to exert a major influence on forest cover. Targets 6.1 and 6.2, concerning water and sanitation provision (likely to be the major focus of SDG 6), will have relatively little impact on forests except through a demand for hydrological

ecosystem services and the use of wastewater in forestry. Within the four water resources targets (6.3–6.6) significant impacts may be limited to water efficiency considerations (Target 6.4) restricting plantations in water-stressed areas and Integrated Water Resources Management (Target 6.5) driving a more integrated view of catchments and their management. SDG 6 impacts will depend on the context of water–forest relationships (illustrated using the Hindu Kush Himalayas as an example), the extent to which SDG 6 is implemented and its alignment with forest policies. This alignment must be guided by a shared understanding of the complex relationships between water and forests and their impacts on both forest-dependent peoples and the communities downstream, and possibly downwind.

## Affordable and Clean Energy – SDG 7

SDG 7 aims to ensure access to affordable, reliable, sustainable and modern energy for all. Forests contribute to SDG 7 through four pathways: sustainable use of traditional woodfuels, processed woodfuels, liquid biofuels and biopower. We hypothesise that the role of traditional woodfuels (e.g. firewood and charcoal) in household energy portfolios will decline in most low- and middle-income countries, but will not be completely replaced with modern fuels. In the transition to affordable clean fuels, processed woodfuels (e.g. pellets), liquid biofuels produced from forest feedstock and biopower will play an increasing role in energy service provision. How forest-based transitions to clean energy will fare relative to other renewable energy technologies including solar, wind and micro-hydro will depend on how renewable energy policy evolves, and on relative costs and storage capacity. Reaching SDG 7 through the promotion of large-scale hydro and agricultural commodity derived biofuels can threaten forests and forest-based livelihoods. In general, promoting transitions to sustainable forest-based clean energy supports the realisation of other SDGs, highlighting the potential for forests to play a significant role in discourse and action on the SDGs.

## Decent Work and Economic Growth – SDG 8

Diverse combinations of predominant development paradigms (modernisation, economic growth, basic needs, sustainable development) that shape the agendas of governments, private sector, civil society and investors lead to differentiated prioritisation of SDG 8 targets, with mixed impacts on forests and forest-dependent livelihoods. At the country level, significant trade-offs are expected where growth policies and strategies focus on sectors competing with forestry for space and resources, such as agriculture, energy and mining.

Combined, such policies and strategies lead to global trade-offs by exacerbating climate change. In these cases, decoupling economic growth from environmental degradation will be a major challenge. Synergies between SDG 8 and forests exist where sustainable development is explicitly sought in the forest sector, focusing on tree plantations, timber and non-timber forest products from natural forests, eco-tourism and environmental services. Enhanced enabling environments help minimise trade-offs and maximise synergies by reconciling government policies and private sustainability standards, formalising community stewardship of tropical forests, addressing informality in forest-product value-chains and providing incentives for youth to become involved in forest-based economic activities.

## Industry, Innovation and Infrastructure – SDG 9

SDG 9 and its 8 targets and 12 indicators will have multiple impacts on forests, forest-based livelihoods and forest-based economies. Major trade-offs are anticipated between SDG 9 and SDG 15 (Life on Land), especially if economic expansion and increasing planetary impacts remain coupled. More specifically, the implementation of Target 9.1 and its corresponding indicators (road, infrastructure and transportation expansion) may lead to irreversible and widespread forest degradation and deforestation. As such, the short- and long-term environmental and social costs of this goal need to be better assessed, especially in light of the fact that other SDG 9 targets, e.g. small-scale industry expansion (Target 9.3) and access to information and communications technology (Target 9.C), may have diverse consequences for forests and livelihoods, depending on how they are applied. We call for reforms of SDG 9 to promote and support alternative socio-economic models that are not based on indefinite economic growth nor reliant on the ongoing expansion of infrastructure, but, rather, necessitate forests and terrestrial ecosystem services to be essential building blocks of a green and sustainable economy.

## Reduced Inequalities – SDG 10

SDG 10 calls for reducing inequalities within and among countries. Considerable synergies and complementarities can be found between the SDG 10 targets and the goals of environmental justice, which comprise three interrelated dimensions: representational, recognition and distributive justice. However, the disjuncture between SDG 10 and environmental goals within the SDGs may undermine efforts to promote environmental justice. Trade is not included in SDG 10; this is an important gap as markets for forest products can drive forest resource extraction, exacerbating inequalities

among actors within global production networks. If SDG 10 addresses structural inequalities, it is also likely to support distributive, representational and recognition justice for forest-dependent populations. However, the myopic translation of its aspirational targets into easily measurable indicators may dampen the potential effects of addressing SDG 10 in advancing environmental justice. Addressing migration-related targets and indicators is likely to elevate the importance of these issues in forestry policy and research, while also prompting a rethinking of some of the underlying assumptions informing existing research in forestry. Managing migration requires incorporating a better understanding of the net effects of migration on environmental justice and the multiple drivers that contribute to positive outcomes for forest-dependent populations.

## Sustainable Cities and Communities – SDG 11

Cities have become critical drivers of global socio-economic, behavioural and environmental changes far beyond urbanised borders. Their transformative force has been recognised with the endorsement of SDG 11 to ‘make cities and human settlements inclusive, safe, resilient and sustainable’. The capacity to address global urban challenges through the implementation of SDG 11 depends on how cities prioritise resources and urban planning strategies over the next decade. This prioritisation is context specific and depends on socio-economic development trajectories, spatio-temporal urbanisation patterns and strategic urban visions. The implementation of SDG 11 will have effects on forests and forest livelihoods near and far from urban centres. The strategic inclusion of urban and peri-urban forests in city agendas and planning may help manage potentially adverse effects, emphasising the role forests play in delivering ecosystem services to urban and rural people, and fostering productive rural–urban relationships. If SDG 11 implementation aims at fostering people–nature connections in cities, it can help to avoid the negative consequences the ‘urbanisation of minds and attitudes’ may have on forests and forest-based livelihoods. Currently, many cities prioritise SDG 11 targets focused on basic services such as housing, transport, waste management and sanitation. Less attention is given to SDG 11 targets encouraging inclusive access to urban forests, protecting cultural and natural heritage or improving urban–rural linkages. SDG 11 shows synergies with all the other SDGs, creating opportunities for human health and well-being, green justice, resilience and adaptive capacity in and around cities. These synergies, delivered through sound urban forestry approaches for example, could benefit not only urban dwellers, but also forest communities by reducing pressure on forest resources. The potential role of urban forests in achieving SDG 11 implementation may

be enhanced through the New Urban Agenda and global networks that help create multi-scale bridges for collective stewardship involving a large range of government and other actors. The benefits that greener and more resilient cities may have on forests and forest-dependent livelihoods will largely depend on integrated governance and territorial planning.

## Responsible Consumption and Production – SDG 12

The focus of SDG 12 – sustainable consumption and production (SCP) – has been part of the international policy discourse for more than four decades, but the uptake of SCP has not been smooth and has tended to be biased towards relatively weak measures. The inclusion of SCP in the SDG framework gives hope that it will receive stronger attention in international efforts for sustainable development. Although SDG 12 targets and indicators make no direct reference to forests or forest communities, achieving the targets will result in positive contributions towards forest conservation and will support forest-dependent livelihoods. SDG 12 targets can contribute to reducing trade-offs among other SDGs: in particular, Target 12.3 – aimed at reducing food waste and food losses – can limit trade-offs between SDG 2 (Zero hunger) and SDG 15 (Life on Land). SDG 12 can contribute to creating enabling conditions for advancing a more responsible and sustainable supply of timber and other forest commodities, also linked to more responsible demand. SDG 12 has its limitations, including the lack of absolute limits to consumption of forest products or products that place pressures on forests leading to deforestation and forest degradation. The main players for achieving SDG 12 targets with positive outcomes for forests will comprise national governments, large companies and consumers involved in global value chains. A thorough integrative SCP approach that addresses systemic issues is required to achieve sustainable forest management and land use associated with responsible consumption.

## Climate Action – SDG 13

Climate change causes changes in forests, their ecological functions and ecosystem services. Many of these changes will negatively impact people, plants, animals and microorganisms that depend on forests. SDG 13 aims to reduce greenhouse gas emissions that cause climate change and to drive adaptation actions. Current commitments are insufficient to reach the Paris Agreement goals of restricting global warming to less than 2°C and increasing the resilience of vulnerable communities. Better forest and land management can contribute up to 20 per cent of the Paris goals while increasing community and ecosystem resilience, and can therefore help progress towards reaching the

Paris Agreement goals. Strong synergies between SDG 13 and forests can drive investment in sustainable forest management, forest restoration and forest conservation. However, achieving these synergies is challenged by unsustainable forest exploitation and pressures to develop land for agriculture, urban areas and infrastructure. Maximising potential synergies between forests and SDG 13 requires long-term finance and local collaboration; currently, only 3 per cent of climate finance is dedicated to forest actions, and much less is used for local implementation. Improved forest management and conservation can be achieved through a more efficient use of finances, increased investment from public and private sectors and stronger commitment to local actions.

## Life below Water – SDG 14

The targets of SDG 14 address the world's oceans, covering more than 70 per cent of the planet; they also address the coastal zones, where a range of coastal forests are located. In this chapter we investigate the potential negative consequences of SDG 14 on forest resources, using the example of coastal mangrove forests. SDG 14 is likely to have negative impacts on forest resources because it focuses primarily on fisheries, potentially excluding other coastal natural resources. Many SDG 14 targets are more appropriate for oceanic areas rather than the complex governance arrangements found in the coastal zone. This means that coastal forests such as mangroves may be neglected, inadvertently impacted or fall through the 'policy gap' between terrestrial and marine legislation or between different levels of governance. This has impacts on the human populations that rely on the ecosystem services provided by mangrove forests, and has implications for environmental justice. To minimise the impacts of SDG 14 on mangrove forests and associated coastal communities, we recommend that SDG 14 indicators should be broadened to encompass other coastal and oceanic natural resources, that decentralisation of coastal zone governance should continue to be encouraged and that management regimes should include coastal communities and enshrine principles of environmental justice.

## Life on Land – SDG 15

SDG 15 requires the maintenance of life on land and endorses priorities already established through international conventions and agreements. The scale and complexity of tropical forest loss and biodiversity decline versus the limited resources for conservation and forestry poses many challenges. The main innovation of SDG 15 is that decision-makers will see this goal as one to integrate with other SDGs. The risk, however, is that short-term

priorities and a ‘business-as-usual’ approach will undermine this. There will be trade-offs between SDG 15 and other SDGs resulting from competition for land, but there are also opportunities for synergies and opportunities that require recognition. Greater cross-sectoral integration, not just sectoral policy reform, is essential to advancing SDG 15. We encourage conservation and development professionals to engage with those responsible for all the Agenda 2030 targets to ensure that SDG 15 is a priority in all SDG-related processes.

## Peace, Justice and Strong Institutions – SDG 16

SDG 16 addresses three broad thematic areas: (1) peace and the reduction of armed conflict; (2) the rule of law, accountability, transparency and access to justice; and (3) inclusiveness and participation. Research on peace and armed conflict reveals highly variable effects on forests and people. Conflict may prevent the conversion of forests to agriculture, or drive illicit crop production; it may foster migration into or out of forested areas. Peace may be accompanied by state-supported mining and expansion of commercial agriculture, and/or may improve enforcement of environmental laws. In general, laws in many countries favour the political elite, large-scale industry actors and international trade, and thus the focus of SDG 16 on the ‘rule of law’ risks reinforcing existing inequalities. The goals of SDG 16 may best be served by legal reforms that strengthen local rights to land and resources, and by greater involvement of non-state actors and institutions at multiple scales – from traditional governance systems to global-scale initiatives. While there has been much recent progress in promoting participatory forest management, this is often tightly controlled by the state, contributing to local administrative burdens without redistributing power and benefits. In sum, the impacts of SDG 16 on forests and people depend on how its interpretation and implementation shape power and resource distribution.

## Partnerships for the Goals – SDG 17

Successful attainment of SDG 17 is essential for implementing the other 16 SDGs, all of which depend upon secure means of implementation and durable partnerships. Funding for forests from official development assistance and other sources has trended upwards since 2000, providing reason for cautious optimism. However, REDD+ finance is declining. Private sector investment remains important. The idea of impact investment, which aims to solve pressing environmental and social problems while providing a return for investors, could make a significant contribution to the SDGs. However, not all

sustainable development finance promotes forest conservation. Increasing funding for agricultural production often incentivises the conversion of forests to agricultural land while resulting in deforestation. The policy of zero net deforestation is leading to the creation of partnerships to promote deforestation-free commodity supply chains for four forest-risk commodities (palm oil, soy, beef and timber). Some innovative partnerships have been created to promote sustainable development involving intergovernmental organisations, the private sector, research institutes, non-governmental organisations and grassroots organisations. However, such partnerships exist within a neo-liberal global economic order in which there are net financial flows from the Global South to the Global North that negate financial flows for sustainable development.

## Synergies, Trade-offs and Contextual Conditions

Findings across the SDGs indicate that the ones that can be linked to deforestation or forest degradation are primarily SDG 9 (Industry, Infrastructure and Innovation), SDGs 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 7 (Affordable and Clean Energy). The largest threat to forests linked to SDG 9 is undoubtedly infrastructure expansion, which often encourages mega agro-industrial projects. The impact of SDGs 1 and 2 on forests is projected to occur through an expansion of agricultural production, which leads to deforestation and forest degradation. Land-use change driven by agricultural expansion is mostly linked to SDG 2. While SDG 1 is not directly focused on food production, it is likely to lead to similar impacts on forests because a high proportion of the global poor live in rural areas, and supporting their emergence from poverty can most readily be achieved by boosting income from agriculture or other natural resource-based activities. SDG 7 implementation may have negative and positive impacts on forest cover and forest condition. Its successful implementation will reduce consumption of woodfuels, offset by increases in the use of hydrocarbon-based fuels or other cleaner energy sources. Future energy trends include turning to improved woodfuels, such as wood pellets, and the use of liquid biomass fuels, such as palm oil-based biodiesel, whose production may happen at the expense of forests.

The undesirable impacts described above resulting from trade-offs implicit in the pursuit of different SDGs are counteracted by SDG 13 (Climate Action) and SDG 15 (Life on Land). The implementation of these two SDGs is primarily expected to have positive impacts on forests, while the impact on forest peoples is less clear.

The impacts of the SDGs on forests and people, as well as the positive and negative interactions among SDGs and how those will affect forests and

people, are influenced by contextual conditions. These include a country's national development status and trajectory and the overall condition of forests. Many of these conditions are actually targeted by the SDG agenda. Like the SDGs, these conditions do not operate in isolation, but, rather, interact in complex ways. This results in a web of interactions of SDGs and contextual conditions leading to observed and projected impacts on forests and people.

In the analysis of the findings across the SDG chapters, two broad groups of SDGs emerge. One includes SDGs that primarily focus on institutional, governance and social conditions (1 No Poverty; 3 Good Health and Well-being; 4 Quality Education; 5 Gender Equality; 10 Reduced Inequalities; 12 Responsible Consumption and Production; 13 Climate Action; 16 Peace, Justice and Strong Institutions). These contribute to an enabling environment for inclusive forest management and conservation with associated livelihood benefits. A second group of SDGs concern land use directly and thus are expected to impact forests directly (2 Zero Hunger; 6 Clean Water and Sanitation; 7 Affordable and Clean Energy; 8 Decent Work and Economic Growth; 9 Industry, Innovation and Infrastructure; 14 Life below Water; 15 Life on Earth). Progress in the first group of SDGs results in synergistic interactions and positive outcomes for forests and peoples. Among the second group of SDGs, the potential for trade-offs is high, with important repercussions for forests and people. Understanding the potential for these trade-offs is essential in order to avoid implementation pathways that favour a small subset of these SDGs at the expense of the others.

## Key Lessons

The key lessons that emerge from this volume, drawing on a reflection process among the editors and on deliberations among lead authors during a collaborative workshop, can be articulated as follows: (1) forests are often a foundation for sustainable development, and thus need to be fully considered in decision-making processes related to the SDGs; (2) the implementation of the SDGs will impact forests and people dependent on them in many ways, with the exact impact being contingent on the specific ecological, socio-economic and political context; (3) within the SDGs, partially conflicting visions for forests and people are implicit that correspond to distinct values and interests, making it necessary to consider trade-offs and set priorities when implementing them; (4) there are fundamental values and principles that should guide sustainable development related to forests and peoples regardless of context, such as respect for basic human rights, the importance of intergenerational equity, the recognition of temporal dimensions of forest ecosystem conservation, the need to detect and address trade-offs, and applying acknowledged

tenets of good governance; (5) implementation of the SDGs and associated goals and targets will require continuous learning and adaptation of implementation strategies and approaches, but possibly also targets, taking into consideration observed outcomes. Creative and forward-looking human engagement at the forest-people interface is urgently needed to ensure that sustainable development benefits both forests and peoples.