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STRATEGIC ISSUES RELATED TO THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020

CONSERVATION AND SUSTAINABLE USE OF FOREST BIODIVERSITY

I. INTRODUCTION

1. The Conference of the Parties, in decision XII/1 requested the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to review the main implications and findings of the fourth edition of the *Global Biodiversity Outlook* (GBO-4), and its underlying technical reports, as well as additional information from fifth national reports and other submissions. SBSTTA was requested to identify, for consideration by the Conference of Parties at its thirteenth meeting (COP13), further opportunities and additional key actions for the achievement of the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, and other actions for the targets where there has been the least progress at the global level. In its multi-year programme of work (decision XII/31), the Conference of the Parties decided, inter alia, to consider at its thirteenth meeting the implications of the findings of GBO-4 and strategic actions to enhance national implementation, in particular through mainstreaming and the integration of biodiversity across relevant sectors, including agriculture, forests and fisheries.¹

2. Pursuant to these decisions, this document presents in section II implications and opportunities for forest biodiversity drawn from the findings of GBO-4 and related assessments², including the inter-linkages between sustainable forest management (SFM) and other land uses, in particular agriculture, as well as the inter-relationship among key forest-related Aichi Targets³, and other relevant targets. Section III provides additional information from Parties' submission of their fifth national reports and lessons learned through country case studies, extracting information from national reports, government websites, and peer-reviewed scientific journals. This section also identifies tools to promote the integration of biodiversity in forest policies, plans and strategies. Section IV synthesizes the benefits of mainstreaming biodiversity into the forestry sector, as well as the enabling conditions for SFM. Section V presents priority areas for further work and possible ways to scale up efforts to achieve progress by 2020.

* UNEP/CBD/SBSTTA/19/1

¹ Item 10 of provisional COP 13 Agenda

² In particular these are: (1) PBL Netherlands Environmental Assessment Agency. 2014. How Sectors can Contribute to Sustainable Use and Conservation of Biodiversity. Secretariat of the Convention on Biological Diversity, Montreal, Canada. Technical Series No. 79; and (2) Leadley, P.W., Krug, C.B., Alkemade, R., Pereira, H.M., Sumaila U.R., Walpole, M., Marques, A., Newbold, T., Teh, L.S.L, van Kolck, J., Bellard, C., Januchowski-Hartley, S.R. and Mumby, P.J. (2014). Progress towards the Aichi Biodiversity Targets: An Assessment of Biodiversity Trends, Policy Scenarios and Key Actions. Secretariat of the Convention on Biological Diversity, Montreal, Canada. Technical Series No. 78. (3) Some findings mention data from the Global Forest Resources Assessment, FAO 2015.

³ See UNEP/CBD/SBSTTA/19INF/3 for the list of key forest related Aichi Biodiversity Targets.

3. While the majority of this document focuses on the inter-relationship between forest management and biodiversity at the national level, cross-sectoral policy coherence and coordination at the global and regional levels, among various stakeholders, also requires attention. In this context, this document takes into account the request to the Executive Secretariat in paragraph 21 of decision XII/6, and the information on the ways and means in which international organizations and secretariats with substantial programmes on forests are assisting in implementing the Strategic Plan for Biodiversity 2011-2020, as presented in UNEP/CBD/SBSTTA/19/8⁴ and UNEP/CBD/SBSTTA/19/INF/3.⁵

II. IMPLICATIONS AND OPPORTUNITIES FOR MAINSTREAMING BIODIVERSITY INTO FORESTRY: FINDINGS FROM GBO-4 AND RELATED ASSESSMENTS

A. Context and challenge

4. **Forests are essential for human survival and well-being.** They harbour two thirds of all terrestrial animal and plant species. Ecologically intact forests store and purify drinking water, they can mitigate natural disasters such as droughts and floods, they help store carbon and regulate the climate, they provide food, produce rainfall, and they provide a vast array of goods for medicinal, cultural and spiritual purposes.⁶ They are also the source for over 5,000 commercially-traded products, ranging from pharmaceuticals to timber and clothing.⁷ The health of forests and the provision of these and other forest ecosystem services depend on the diversity between species, the genetic diversity within species, and the diversity of forest types.

5. **Forests provide an opportunity to address many of the most pressing sustainable development challenges.** Nearly one-third of the Earth's land area—almost four billion hectares—is covered by forests.⁸ The variety of forest species plays a vital role in the daily life of rural communities in many areas. In past, timber production was considered as the main function of forests. This perception has shifted, in recent years, to a more multi-functional and balanced view.

6. **Despite the range of contributions that forests provide, they face a number of threats resulting in deforestation, forest degradation and fragmentation.** According to the Global Forest Resources Assessment (FRA) 2015 the annual net forest loss for the period 2010-2015 was 7.6 million ha.⁹ The mechanisms that cause deforestation, fragmentation and degradation are varied and can be direct or indirect. However, **the most important factors associated with the decline of forest biological diversity are of human origin:** conversion of forests to agricultural land; lack of adequate land tenure systems and recognition of rights of indigenous peoples and local communities; weak governance systems; insufficient economic returns to indigenous peoples and local communities; unsustainable forest management systems; lack of added value to forest products in the countries of origin and capacity to identify origin of forest products; infrastructure development (e.g. road building, hydro-electrical development, urban sprawl); mining and oil exploitation; and little monitoring of forest conservation and restoration efforts. This degradation lowers the resilience of forest ecosystems and makes it more difficult for them to cope with changing environmental conditions and to continue providing the services many people rely on.

7. **The Convention on Biological Diversity (CBD) focuses on the conservation and sustainable use of forest biodiversity through a comprehensive programme of work, adopted in 2002 and revised in 2008.**¹⁰ Parties to the CBD are committed to implement 129 actions under the programme of work on forest biodiversity,

⁴ “Enhancing the role of CPF member organizations in the achievement of the forest-related Aichi Biodiversity Targets and the implementation of the expanded programme of work on forest biodiversity”.

⁵ “Background document on the contributions of CPF member organizations to the achievement of the forest-related Aichi Biodiversity Targets and the implementation of the expanded programme of work on forest biodiversity”.

⁶ Secretariat of the Convention on Biological Diversity. 2009. Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide. Montreal, 47 + iii pages

⁷ Ibid

⁸ FRA, FAO 2015.

⁹ In 2010, the Food and Agriculture Organization of the United Nations (FAO) estimated that about 13 million hectares of the world's forests are lost due to deforestation each year.

¹⁰ Decision IV/22 and IX/5. For an overview of the expanded programme of work on forest biodiversity see www.cbd.int/forest

framed under 3 thematic elements and 12 goals. Many of the actions of the programme of work directly contribute to the forest-related Aichi Biodiversity Targets, aimed at reducing deforestation and forest degradation, creating an enabling environment, maintaining sustainable livelihoods, and promoting knowledge, assessments and monitoring. The objectives of the work programme can, and should be, integrated into national and regional forest policies and strategies, and broadly supported at the global level, for the benefit of present and future generations.¹¹

8. With pressures on land to meet increased food and fuel production expected to surge, as well as climate change rising, forests will have an important role in approaching 21st century challenges. **Promoting ways and means to use forest biodiversity in a sustainable way, with clear social and economic benefits for the poor, and effective safeguards for biodiversity, will require continued political commitment from all levels of government.**

9. **The focus on forest biodiversity within the UN Sustainable Development Goals (SDGs), as well as under other intergovernmental processes, reveal the inter-relationship between nature and development.** Yet, in order to realise aspects of the SDGs, in particular Target 15, in a balanced and cross-sectoral manner, forest land use planning and management at the national and subnational levels will need to better integrate biodiversity and livelihood considerations into its sectoral policies and strategies, and vice versa. As such, the development dimension of forests will need to be factored into NBSAPs.

10. While there is a growing potential for more areas of forest to be designated for biodiversity conservation, **concrete outcomes in reducing biodiversity loss could be achieved only through integration of conservation policies into broader national and local development programmes, within a landscape approach.** A prerequisite is understanding the trade-offs between forest biodiversity conservation and other societal needs. In this regard, COP-13 provides an opportunity to identify the key priorities and interventions to advance progress towards the achievement of the forest-related Aichi Biodiversity Targets by 2020. Such efforts should focus on a step wise approach that includes actions at the global, regional and national levels. Section 5 provides actions for considerations.

B. Status of forestry and implications to biodiversity

11. **Forest biodiversity is being lost at an alarming rate.** Reports such as GBO4, the 2005 Millennium Ecosystem Assessment and the IUCN 2004 Red List of Threatened Species indicate that a large and increasing number of forest ecosystems, populations and species are threatened globally or being lost due to the loss and degradation of forest habitats. This reduction of forest biodiversity will be further aggravated by the effects of climate change. Other land use implications are covered in section III.

12. While the FRA 2015 suggests a positive trend for forest biodiversity due to the increase in forest protected areas or forest area conserved for biodiversity, other sources of information (i.e scientific journals, literature, and case studies) reveal that such increase is minimal as compared to the loss of forest area. Due to the use of **different forest definitions and methodologies to collect forest and tree cover data, among other discrepancies, there is significant divergence in the findings provided by FRA and other sources. This requires discussion to propose a way forward for global data in order for such to be of relevance for broader use.**

13. **Over the next 30 years the consumption of the top timber products (roundwood, sawnwood, pulp, paper) is expected to increase.** The use of solid biofuels for electricity production could be three times larger by 2030 than current levels.¹² Globally, by 2050, the demand for industrial roundwood is expected to increase by 50 to 75%.¹³

¹¹ 99% of the world's forests are covered by policies and legislation supporting SFM at the national and subnational level. (FRA 2015)

¹² FAO 2007

¹³ Sedjo 2001

14. As a result of the growing demand, tropical forest plantation area more than doubled between 1995 and 2005, to 67 million hectares, mostly in Asia. Other plantations, in boreal and temperate regions, have also increased in area, with this trend expected to continue.¹⁴ **The use of limited tree species in plantations and modified natural forests is an issue of concern for a number of forest dependent species and for ecosystem resilience.**¹⁵

15. **Efforts to improve sustainable forest management in many countries are challenged by illegal and/or unsustainable logging, harvesting of forest products and other illegal activities.** The loss to governments, mainly in developing countries, from uncollected taxes and royalties could reach US\$15 billion a year. Estimates have also indicated that close to 15% of internationally traded roundwood might originate from illegal sources.¹⁶ Rare tree species and those with high value for timber or non-timber forest products are often in danger of becoming locally extinct.¹⁷ For example, in Belize the Government has put in place improved species management practices to better manage timber and non-timber species. A moratorium has been declared on the harvesting of Honduran rosewood in response to concerns of illegal and unsustainable harvesting in national lands at unsustainable levels.

16. **Illegal settlements following construction of new forest access roads to previously inaccessible regions are also a significant threat to forest biodiversity.** This, together with land grabs, has been linked to elevated rates of tropical deforestation in Southeast Asia.¹⁸ The impact of such settlements and land grabs to land clearings and the conversion to oil palm plantations, and other agricultural commodities, for example, requires further attention. Myanmar for example, has reported that the major drivers of deforestation are increased population, high demand for timber and wood fuel, agricultural expansion, urbanization, and development of infrastructure such as dams, reservoirs, and roads. In Viet Nam, the construction of new roads as part of the national development process has also provided easier access for the transportation of timber, which has led to an increase in wildlife hunting and exploitation of non-timber forest products. This has resulted in additional pressure on the wild fauna and flora, which are already severely affected by habitat degradation and fragmentation.

15. Forestry can also have **negative impacts on indigenous peoples and local communities, and on the livelihoods of other forest dwellers, in particular, by competing with these communities for access to a limited resource base, and by disregarding cultural or spiritual sites and practices.** Private forest area owned by indigenous communities, for example, has decreased from 19 percent in 1990 to 15 percent in 2010.¹⁹ In addition, in some countries the benefits from forest utilization do not effectively reach local communities.

16. **Nevertheless, forest management has evolved in the past decades, providing more attention to biodiversity conservation, and to the social and economic benefits that forests provide to local communities.** Reduced Impact Logging (RIL), for example, can reduce carbon emissions by up to 40 tons per hectare of forest compared to conventional logging.²⁰ Coupled with the aim to protect higher levels of biodiversity in selectively logged forests, RIL provides a case for sustainable forest management over standard timber harvesting techniques. RIL has also been shown to reduce the percentage of 'lost' logs, hence lowering timber waste.

17. **The area under forest management certification has increased in recent years,** from 18 million ha under internationally verified certification in 2000 to some 438 million ha in 2014.²¹ Although important, the trend applies primarily to developed countries, and only locally in developing countries.²² As of yet, certification

¹⁴ ITTO 2006

¹⁵ EEA 2005, Hagar 2007

¹⁶ Brack et al. 2002, Contreras-Hermosilla et al. 2007

¹⁷ FAO 2006b, IUCN 2004

¹⁸ Hall, R. et al. *J. Peasant Stud.* **42**, 466–87 (2015). . Miettinen, J., Shi, C. & Liew, S. *Glob. Change Biol.* **17**, 2261–2270 (2011).

¹⁹ FAO FRA 2015.

²⁰ Putz, F. E., P. Sist, T. Fredericksen, and D. Dykstra. "Reduced-impact logging: challenges and opportunities." *Forest ecology and management* 256, no. 7 (2008): 1427-1433.

²¹ FAO FRA 2015.

²² About 90 percent of the total area certified in 2014 is in the temperate and boreal climatic domains although there has also been growth, albeit at a slower pace, in the tropics and subtropics. (FAO FRA 2015)

does not seem to be affecting timber production or trade at a significant scale.²³ **Certification can be a useful tool for transformative change, improving the sustainability of forest management both in developed and developing countries.** But, this would be the case only where markets are interested in sustainably produced timber. Efforts taken by the German government provide a positive example: since 2007 it has only procured timber products from stands that are certified under PEFC, FSC or comparable certification systems, or which furnish individual evidence of compliance with comparable standards. This rule has been adopted by several states, numerous cities and municipalities, and individual companies.

18. **Trends have also shown shifts towards privatization and the decentralization of control over forests, forest management services, and enterprise.** These shifts, along with other forms of liberalization and structural adjustment, have helped to remove perverse incentives that worked counter to sustainable wood supply. Although these trends have helped to create and empower new forest stewards, there are still limits for local communities to exercise stewardship in forest governance systems.

19. **Development projects are increasingly focusing on the production and trade of non-timber forest products (NTFP), with extensions to more remote areas.** Nevertheless, NTFPs do not have large and reliable markets, and the few that do are likely to be supplied by specialized producers using more intensive production systems. **While many NTFPs are indispensable to poor communities, their potential for commercialization is limited.**²⁴ This tends to be the case for many developing countries, such as Nigeria where almost all other forest exploitation processes affect non-timber forest products. Products such as nuts, fruits, seeds, ropes, dye, lianes, gum, wax, honey, wild animals, among other, constitute a large resource of food, medicine and commerce but unplanned and uncontrolled harvesting, due to human pressure, has degraded the resource to a less productive level. Moreover, most of the expanding local trade in traditional medicine, fibers and domestic material needs are not domesticating the raw materials, but rather continuously being sourced from the wild, thereby reducing population density of the species and causing near extinction of many species.

20. **Increased engagement of civil society and private sector stakeholders in the management of forest products shows a growing willingness and value attached to safeguarding forest ecosystem services.** Many examples, from consumer forums and roundtables supporting restoration activities and REDD+ planning, show the value of multi-stakeholder processes, at all levels, in developing, discussing, and reviewing interventions. Determining the access to, and distribution of, benefits from the use of forests is an extremely important issue.

C. Implications to forests, forestry and other productive sectors from business as usual models

21. Based on business as usual scenarios, consumption and production of wood resources are expected to further increase to meet the rise in global population and wealth. **Specifically, wood consumption is expected to increase 1.3 times, with total forested areas decreasing 1.5 million square kilometers from 2010 to 2050.**²⁵ In 1990 annual wood removals amounted to 2.8 billion m³, of which 41 percent was for woodfuel, while in 2011 annual wood removals amounted to 3.0 billion m³, of which 49 percent was for woodfuel.²⁶ Trends in wood consumption and production (Target 4) combine to negatively affect progress towards forest habitat protection (Target 5) and sustainable livelihoods (Target 18). The impact from the loss of habitat (target 5) and degraded services (Target 14) will also impact forestry (Target 7) in ways, such as incurring costs (Target 20) and requiring future changes to their operations (Target 4).

22. **Maintaining current consumption patterns will continue to push ecosystems, such as forests, beyond safe ecological limits.** This will threaten the livelihoods of more than 1.6 billion people that depend on forests, to varying degrees, including for fuelwood, medicinal plants and forest foods.²⁷ In addition, many

²³ ITTO. 2006. Status of Tropical Forest Management 2005. Accessed at: <http://www.itto.int/en/sfm>

²⁴ (MEA) Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well-Being: Policy Responses. Volume 3, Ch. 8. Island Press, Washington, DC.

²⁵ PBL (2012). *Roads from RIO+20 Pathways to achieve global sustainability goals by 2050*. The Hague: PBL Netherlands Environmental Assessment Agency.

²⁶ FAO, FRA 2015.

²⁷ World Bank. 2004. 16. *Sustaining forests : a development strategy*. Agriculture and rural development. Washington, DC: World Bank. Available at: <http://documents.worldbank.org/curated/en/2004/01/4978559/sustaining-forests-development-strategy-vol-1-2>

households in developing countries, especially in Asia, derive as much as 50 to 80 percent of their annual household income from non-timber forest products.²⁸

23. **Forested wetlands, particularly peat lands, represent a particularly vulnerable forest type. These are one of the most globally important terrestrial carbon sinks (target 10), but if destroyed, they will become the largest single carbon source of global significance.** As highly biodiversity-rich ecosystems, they provide significant ecosystem services, and furnish an important food source to many communities, underpinning productive sectors, like fisheries (Target 6). They also serve as natural buffers against storms and sea surges. A considerable proportion of Ramsar Sites include forested areas, although a lack of data constrains estimates of the extent of coverage of this forest type under existing protected area systems. Not only are forested wetlands vulnerable to excessive direct use, but also to the added threat of unsustainable water use, in particular from agricultural activities. With indications that the threat levels to ecosystems are likely to increase for target 10, the forestry sector could play an important role to mitigate such threats. Stabilizing soils by keeping riparian watersheds forested and maintaining estuarine habitats, including mangroves and marshlands, as well as using less fertilizer, are some ways forests can be a part of the solution.²⁹

24. **Expanding areas under agriculture and pasture are occurring, often at the expense of forests.** Agricultural expansion (target 7) is the main land use driver of deforestation (Target 5). The impact of agricultural expansion has been particularly severe in tropical forest regions, where pasture and crop land is expected to continue to increase over the next 30 to 50 years.³⁰ In Rwanda, remnant forests such as the Karama savannah forest and many others across the country have been under high human pressure and degraded due to agriculture expansion, trees cutting for firewood collection, charcoal production, poles and timbers production.

D. Interlinkages among the Aichi Biodiversity Targets

25. **GBO4 indicates that there has been some progress towards certain components of the forest-related Aichi Targets,** including: increasing public awareness (target 1); integrating biodiversity values into national and local strategies (target 2); developing positive incentives (target 3); developing sustainable use plans (target 4); decreasing deforestation rates (target 5); increasing areas under sustainable forest management (target 7); identifying invasive alien species and their pathways for infection (target 9); increasing terrestrial protected areas and their effective and equitable management (target 11); restoration of degraded terrestrial ecosystems (target 15); increasing effective participation of indigenous and local communities (target 18); sharing science based knowledge and technologies on biodiversity (target 19); and mobilizing financial resources (target 20). However, projections indicate that this progress is not sufficient to achieve the vision³¹ and mission³² of the Strategic Plan for Biodiversity 2011-2020.

26. **Associated reports of GBO-4³³ reveal the important role that forest biodiversity plays in sustainable development, and vice versa.** A number of countries acknowledge the role of forest biodiversity in poverty

²⁸ (SCBD) Secretariat of the Convention on Biological Diversity. 2014. Global Biodiversity Outlook 4. Available at: <https://www.cbd.int/gbo4>

²⁹ Kennedy E. V., C. T. Perry, P. R. Halloran, R. Iglesias-Prieto, C. H. Schonberg, M. Wisshak, A. U. Form, J. P. Carricart-Ganivet, M. Fine, C. M. Eakin, and Mumby, P. J. (2013). Avoiding coral reef functional collapse requires local and global action. *Current Biology* 23:912-918.

³⁰ (MEA) Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well-Being: Policy Responses. Volume 3, Ch. 8. Island Press, Washington, DC.

³¹ "By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people." (decision X/2)

³² "Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach." (decision X/2)

³³ Leadley, P.W., Krug, C.B., Alkemade, R., Pereira, H.M., Sumaila U.R., Walpole, M., Marques, A., Newbold, T., Teh, L.S.L., van Kolck, J., Bellard, C., Januchowski-Hartley, S.R. and Mumby, P.J. (2014a) Progress towards the Aichi

alleviation (target 2), with varying perspectives. In general, approximately 300 million people depend on forests directly for their survival, including about 60 million people of indigenous and tribal groups, who are almost wholly dependent on forests.³⁴ Populations are often dependent on forested areas for both water supply and for the multiple environmental services they provide (Target 14).³⁵ Specifically, the Democratic Republic of Congo reports that some 40 million Congolese depend upon forests for food, energy, medicine and other materials.³⁶ There are significant connections between the forest aspects of Targets 2, 5, 14 and 18 and sustainable development.

27. Market-based responses, like payments for ecosystem services, are redistributing rights to stakeholders, making them more effective in securing wood supplies and other ecosystem services. Market approaches to allocate use rights to public lands, and voluntary certification, are helping to change the structure of wood industries. But, the existence of policies, legislation and regulation is not always coupled with effective incentives or enforcement. Step-wise incentives (Target 3) are needed to encourage wood producers to enhance existing capacity, to cover transaction costs, and improve forest management practice. Other responses, including legal action and enforcement (Target 17), are needed to turn away from negative forestry practice. In light of growing international commitment to reduce greenhouse gas emissions from deforestation, under the United Nations Framework Convention on Climate Change (UNFCCC), policy incentives are being used to reduce emissions from deforestation and forest degradation (REDD). The REDD mechanism uses payments for the environmental services provided by forests as an economic incentive to prevent deforestation. Political and economic conditions crucial for the success of REDD vary from country to country, and these are only starting to become operational. The model of using payments for ecosystem services will only make progress when there are effective policies for land ownership and sufficiently high prices for environmental services to deter land clearing. Trends indicate that the scope of REDD programmes are transcending deforestation and forest degradation, through safeguard measures to emphasize the “plus”, in REDD+ activities, which include the conservation of forests, sustainable forest management and forest carbon stock enhancement.³⁷ REDD+ activities extend to several Aichi Targets, including Targets 3, 5, 7, 11, 14, 15, and 18.

28. The gross loss of forest cover is high in all forest biomes, but there is significant regional variation. For example, losses in Latin American account for about half of the global loss in tropical forests over the last decade, but for Brazil, gross forest loss and reported deforestation have declined significantly.³⁸ Therefore, the protection of forests shows positive results at specific locations, but global forest loss is still increasing due to direct and indirect land displacement processes. Indirect displacement, also referred to as ‘leakage’, may occur through the migration of agents of deforestation to neighbouring locations or through trade in timber or agricultural products.³⁹ Unsustainable production and management practices in timber extraction and logging, and other pressures on forest resources, such as gathering of fuelwood, can lead to forest degradation and permanent losses in biodiversity. Globally, over half of the temperate broadleaf and mixed forest biome and nearly one quarter of the tropical rain forest biome have been fragmented or removed by humans.⁴⁰ This shows the strong correlations between Targets 4, 5, 7, 14 and 15.

29. The number of invasive alien species (Target 9) continues to increase globally at an unprecedented rate, as do their impacts on biodiversity. For example, forests in North America have been negatively impacted by invasive alien species. Cases of chestnut blight, Dutch elm disease, gypsy moth, emerald ash borer, and others, have impacted forests to such an extent that major elements of the forest biome have now disappeared, or have

Biodiversity Targets: An Assessment of Biodiversity Trends, Policy Scenarios and Key Actions. Secretariat of the Convention on Biological Diversity, Montreal, Canada. Technical Series 78.

³⁴ (SCBD) Secretariat of the Convention on Biological Diversity. 2014. Global Biodiversity Outlook 4. Available at: <https://www.cbd.int/gbo4>

³⁵ Food and Agriculture Organization of the United Nations. (2014). State of the world’s forests: 2014.

³⁶ Leadley, *Progress towards the Aichi Biodiversity Targets*, 16.

³⁷ Leadley, *Progress towards the Aichi Biodiversity Targets*, 34.

³⁸ *Ibid*, 93.

³⁹ *Ibid*.

⁴⁰ SCBD. 2008. Subsidiary Body on Scientific, Technical and Technological Advice (13/3). In-depth review of the expanded programme of work for forest biological diversity. Accessed at: <http://www.cbd.int/doc/meetings/sbstta/sbstta-13/official/sbstta-13-03-en.pdf>.

been drastically reduced from historical levels of ecosystem presence and function.⁴¹ Though success is severely limited, it is encouraging that more than half of the Parties to the CBD have national policies (Target 17) relevant to tackling invasive species (Target 9) and local communities (Target 18) have also undertaken efforts to integrate eradication of invasive alien species with stewardship of forests.⁴²

30. **Protected area networks and their effective management have long been an important form of forest conservation, with direct impacts on forest biodiversity.** Comparisons of several development trajectories suggest that, while increasing coverage of protected areas to 20 percent has modest but important effects on reducing biodiversity loss (similar in magnitude to reducing deforestation to low levels or strongly limiting use of biofuels), they remain smaller than the effects of changing dietary consumption patterns or reducing agricultural waste.⁴³ Hence, there is a clear imperative to manage forest biodiversity on multiple fronts beyond protected area networks indicating strong linkages between the area base Targets 5, 7, 11 and 15. Further monitoring (Target 19) is also needed as it is often unclear how effective the protection of these areas networks are, and different forest types are represented very unequally in the total area of protected forests.

31. Though projected changes vary, substantially, depending on the trajectory taken, under a business-as-usual scenario, there are particularly **strong declines predicted for several taxonomic groups in Africa and Central Asia due to habitat loss from expanding agriculture, livestock production and forestry.**⁴⁴ **Tropical moist forests are home to the largest number of threatened species of any biome.** Assessments indicate that numerous, but not yet scientifically described, species are being lost together with their tropical forest habitats. In many countries increased hunting continues to be a major threat to forest biodiversity. The depletion of wildlife is closely linked to the food security and livelihood of numerous tropical forest-region dwellers, as many forest-dependent people have few alternative sources of protein and income. Unsustainable hunting pressures are also often linked to logging activities.⁴⁵ Many of the underlying causes of unsustainable use of wildlife are the same as those underlying poverty. Greater attention must therefore be given to governance issues (e.g. policy and legislation, links to development assistance) and treating the high-value wildlife trade as an aspect of the national economy. Achievement of target 12 is therefore highly dependent on most of the other Aichi Biodiversity Targets. As such, forest management (Target 7), among other solutions, has an important role to play. For example, under the Rio+20 scenarios, designed to mitigate biodiversity losses, the local extinction of vertebrate species in the Brazilian Amazon is predicted to decrease by one- to two-thirds, under scenarios that assume a reduced rate of deforestation.⁴⁶

32. **Forest genetic resources⁴⁷ (Target 13) have important implications for ecosystem function (Target 15), numerous ecosystem services (Target 14) and directly impact on higher levels of biodiversity.** Genetic diversity within forest species is vulnerable to fragmentation (Target 5), disruption of plant pollinator interactions (Target 7), overexploitations of resources (Target 4), increasing invasion of alien plant species (Target 9), climate change (Target 10) and more. With tropical and boreal deforestation continuing at alarming rates⁴⁸, forest genetic resources are negatively impacted. Furthermore, despite existing efforts, monitoring of forest genetic resource

⁴¹ Poland T. M., and McCullough, D. G. (2005). Emerald Ash Borer: Invasion of the Urban Forest and the Threat to North America's Ash Resource 1990.

⁴² Kothari A., C. Corrigan, H. Jonas, A. Neumann, Shrumm, and Holly. 2012. Recognising and supporting territories and areas conserved by indigenous peoples and local communities: Global Overview and National Case Studies. Page 160. Montreal, Canada.

⁴³ Leadley, *Progress towards the Aichi Biodiversity Targets*, 268.

⁴⁴ Leadley, et al. (2014). Interacting regional-scale regime shifts for biodiversity and ecosystem services, *BioScience*, 64 (8):665-679.

⁴⁵ Nasi, R., D. Brown, D. Wilkie, E. Bennett, C. Tutin, G. van Tol, and T. Christophersen. 2008. Conservation and use of wildlife-based resources: the bushmeat crisis. Secretariat of the Convention on Biological Diversity, Montreal, and Center for International Forestry Research (CIFOR), Bogor. Technical Series no.33, 50 pages.

⁴⁶ Wearn O. R., D. C. Reuman, and Ewers, R. M. (2012). Extinction debt and windows of conservation opportunity in the Brazilian Amazon. *Science* 337: 228-232.

⁴⁷ Forest genetic resources include the variation within forest tree species and woody perennial shrubs (Leadley, *Progress towards the Aichi Biodiversity Targets*)

⁴⁸ Hansen MC, Stehman SV and Potapov PV (2010). Quantification of global gross forest cover loss. *Proceedings of the National Academy of Sciences*, 107, 8650-8655.

remains insufficient to facilitate dynamic conservation. The consideration of forest genetic factors or resources also remains poorly implemented, with a lack of clear operational guidelines in forest management.⁴⁹ **Forest genetic resources are therefore highlighted as a priority group for advancing the monitoring of genetic resources.** Progress in this target will benefit from an increase in scientific knowledge development (target 19) and the mainstreaming of such knowledge into actions under the other Aichi Biodiversity Targets. Efforts under target 15 also offer huge potential for contributing to the conservation of forest genetic resources through effectively designed and implemented restoration of forest biomes.

33. The ecosystem services that forests provide are of particular importance for the poor and vulnerable as a source of non-timber forest products (NTFPs) such as food, freshwater provision, fibre and medicine (Target 14).⁵⁰ The World Bank estimates that **forest products provide roughly 20 percent of poor rural families' 'income' of which half is direct income and the other half is in the form of subsistence goods.**⁵¹ **Reducing deforestation rates have been estimated to result in an annual benefit of US\$183 billion in the form of ecosystem services.**⁵² Achievement of Target 14 is highly dependent on other targets and actions in other policy areas, and vice versa. As such, underlying drivers of deforestation are beyond the control of the wood production sector and national forest policies, legislation and programmes, individually. Underlying poverty drives unsustainable or weak forest management, illegal harvesting and lack of investment in forest management. Lack of secured tenure patterns also promotes short-term and unplanned maximisation of production rather than long-term sustainable management. **Maximizing the synergies between forest biodiversity conservation and sustainable use with goals related to sustainable development could aid in the maintenance of ecosystem services and provide a route out of poverty for many.**

34. **Although reforestation (Target 15) and conservation (Target 11) efforts are underway for some depleted forest biomes, there remains a net loss of forests (Target 5).**⁵³ The majority of targets listed in National Biodiversity and Strategies and Action Plans (NBSAPs) examined, plan to undertake forest restoration activities, in particular, close to a third of the NBSAPs contain national targets specifically aiming to restore 15 percent of degraded national lands. Given this, many restoration projects addressing carbon services are driven by the rise of incentive mechanisms (Target 3) such as REDD+⁵⁴, as well as national and regional government policies.⁵⁵ Considering the current loss of tropical forests and the benefits that progress in Target 15 can have on other forest related Aichi Targets, such as Target 5, 7, 11 and 14, tropical forest ecosystem restoration is considered a high priority.⁵⁶

35. Studies reveal that traditional territories (Target 18) remain insufficiently protected (Target 11) and are vulnerable to high commercial demand for land (Target 7). The loss of access to land is especially detrimental to the subsistence of pastoralists and people dependent on forest resources. Yet, these groups also offer important contributions to the conservation and sustainable use of forest biodiversity, including through community-based monitoring (Target 19), ecosystem management (Target 7), raising the attention of severe threats (Target 12), and more. As such, **target 18 can be regarded as an enabling target for the achievement of the other targets,**

⁴⁹ Leadley, *Interacting regional-scale regime shifts for biodiversity and ecosystem services*.

⁵⁰ Schaafsma M., S, et al. (2014). The importance of local forest benefits: Economic valuation of Non-Timber Forest Products in the Eastern Arc Mountains in Tanzania. *Global Environmental Change*, 24(1), 295-305.

⁵¹ Vedeld, P., A. Angelsen, E. Sjaastad, and Kobugabe Berg, G. (2004). *Counting on the Environment: Forest Incomes and the Rural Poor*. Environmental Economics Series No. 98. World Bank, Washington, DC.

⁵² HLP2 (2014). High-Level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020 (phase 2).

⁵³ (SCBD) Secretariat of the Convention on Biological Diversity. 2014. Global Biodiversity Outlook 4. Available at: <https://www.cbd.int/gbo4>

⁵⁴ Pascual U., R. Muradian, L. C. Rodriguez, and Duraipappah, A. 2009. Revisiting the relationship between equity and efficiency in payments for environmental services. *Ecosyst. Serv. Econ. ESE Work. Pap. Ser.*

⁵⁵ Rodrigues R. R., R. A. Lima, S. Gandolfi, and Nave, A. G. (2009). On the restoration of high diversity forests: 30 years of experience in the Brazilian Atlantic Forest. *Biol. Conserv.* 142, 1242–1251.

⁵⁶ Leadley, *Interacting regional-scale regime shifts for biodiversity and ecosystem services*, 364.

with indigenous and local communities recognised as key partners for the conservation and sustainable use of forest biodiversity.

36. **Knowledge of forest biodiversity has advanced tremendously in the past 20 years, and Parties are on track to meet the knowledge provision element of target 19.** International organizations have also taken on a role to generate new sources of knowledge, including monitoring of forest biodiversity status and trends, the consequences of its loss and more⁵⁷. This has greatly benefited the achievement of other targets. For example, the Instituto Nacional de Pesquisas Espaciais (INPE) in Brazil reports that the free availability of near real-time imagery of the Amazon forest has led to increased awareness of and participation by stakeholders in the conservation and sustainable management of forests as well as enhanced compliance with forest legislation. However, to meet all components of the target, **further efforts are needed on investment (Target 20) in data mobilization and coordination of models and technologies (Target 19) that can be readily applied to decision making (Target 17).**

37. An important conclusion from assessments on the implementation of the Strategic Plan for Biodiversity 2011-2020 indicate that most of the investments required to attain the Aichi Targets will deliver multiple benefits and, therefore, should not be financed from biodiversity budgets alone, but rather, through joint funding. As such, there is a **clear imperative for cross-sectoral integration to mobilize expanded financial resources for forest biodiversity (Target 20)**. Bilateral agreements for the implementation of REDD+ programmes could serve to demonstrate the multiple benefits of forests not only to mitigate greenhouse gas emissions, but also to secure forest resilience and community adaptation to a changing climate. In the first two years of the National REDD+ Action Framework Programme, UN-REDD estimated a budget of more than US \$50 million.

III. COMPREHENSIVE FOREST POLICY FRAMEWORKS

A. ADDITIONAL INFORMATION FROM FIFTH NATIONAL REPORTS

38. The findings from GBO-4 and associated assessments demonstrate the **trends towards integrated policy approaches, underlining the need to scale-up actions to mainstream biodiversity into forestry and other policy areas to ensure the sustainable use and conservation of forest biodiversity.** National examples of mainstreaming biodiversity into forestry, given the submission of national reports to the CBD from numerous Parties,⁵⁸ are presented below. The approaches and actions outlined address imperatives and issues concluded by the assessments of GBO-4 described in section I.

1. Status of forestry impacts on biodiversity and anthropogenic pressures

39. A number of Parties have reported on the illegal logging of forests due to increased population growth and the consequent demand for agricultural land, as well as increased mining and the need for energy in rural and local communities. These issues will continue to be the main drivers of biodiversity loss in the major terrestrial biomes.

40. India reported that direct and indirect drivers of loss of biodiversity, particularly in developing economies, may include the high rate of human population growth and population density, increased consumption patterns, technological change-induced effects, economic activity and associated market failures, as well as inadequate awareness of biodiversity values at the public and decision-making levels, in addition to a range of policy and institutional weaknesses.

41. In Ethiopia, overgrazing/browsing by livestock in many ecosystems has contributed to the degradation of rangelands and forest ecosystems. The consequences of these impacts include ecological disturbance, loss of species and ecosystem services, subsequently affecting livelihoods of local communities.

42. In Viet Nam illegal logging activities are occurring in all types of forests, with a particular challenge in the special use forests of the protected areas system. In response to the increase in trafficking and consumption of timber and non-timber forest products, forest rangers have been making concerted efforts to prevent, contain, and handle violations.

⁵⁷ See UNEP/CBD/SBSTTA/19/INF/3.

⁵⁸ <https://www.cbd.int/reports>

43. Mozambique has reported that the illegal logging of commercial timber species is responsible for the overexploitation of a variety of tree species, contributing to their extinction in the long term. In 2012, the country lost approximately 29 million U.S. dollars to the illegal exportation of timber.

44. In Belize, illegal logging within the country has significantly increased, impacting an area of over 35,000 hectares, with losses of timber estimated at over \$30 million. Logging roads provide entry points and increased accessibility to intact forests, increasing illegal hunting and harvesting activities. Cases of illegal poaching and species transport for illegal pet trade were also reported. Contractual agreements for Short Term Forest Licenses which offer few incentives for concession holders and limited human and financial resources to monitor concession areas could also be influencing unsustainable logging practices. As a result, Long-Term Forest Licenses for Forest Reserves are being designed to promote sustainable forest management and improve sustainable harvesting practices. The current revision of the National Forest Policy, National Forest Programme and the Forest Act is expected to strengthen Belize's management of its forest resources, including its biodiversity.

45. Enhanced logging regulations and an expansion of the illegal wildlife market in neighbouring countries have increased pressure on Myanmar's natural forests and biodiversity. Most documented seizures of illegal timber and wildlife trade have taken place close to, or in route to, international borders. Accordingly, Myanmar has started to develop an action plan for sustainable forest management and timber production.

46. Mining in Guyana has been recognized as the single largest driver of deforestation with up to 0.06% of annual forest loss. The most degraded forest areas in Guyana are found in the North-West region of the country, which is known to have the highest concentration of mining concessions.⁵⁹ This area coincides with timber concessions, meaning that forestry could be providing infrastructure for mining.

2. **Integrated forest policy frameworks that incorporate a land-use perspective**

47. Ethiopia is striving to achieve a middle income status by 2025. To achieve this, the "business as usual" scenario would result in a sharp increase in greenhouse gas emissions and unsustainable use of natural resources. Therefore, the Government has devised a Climate Resilient Green Economy (CRGE) Strategy to build a climate resilient green economy. The development of a green economy will be based on four pillars, namely: agriculture, forestry, power and transport. Adoption of agricultural and land use efficiency measures and protecting and rehabilitating forests for economic objectives and ecosystem services, including as carbon stocks, are among the actions that have direct relation with biodiversity conservation and sustainable use. As part of the CRGE Strategy, REDD+ is used as a policy incentive to promote forest and biodiversity conservation and enhance carbon stocks.

48. In 2007, the German Government developed an agro-biodiversity strategy "Conservation of Agricultural Biodiversity, Development and Sustainable Use of its Potentials in Agriculture, Forestry and Fisheries". As a sectoral strategy, it supports and supplements the National Strategy on Biological Diversity. Its principal objectives are long-term conservation, broader use of genetic resources for the food sector and in agriculture, forestry and fisheries, and better reconciliation of the use and protection interests of biodiversity to halt the loss of biological diversity in Germany.

49. China noted the integration of biodiversity into land use planning at various levels. The National Master Plan for Land Use (2006-2020) issued by the State Council stressed the guiding principle of coordinating land use for production, livelihoods and ecology conservation. The Plan requires the protection of land essential for ecology and greater efforts towards the enhancement of the land ecology based on local conditions.

50. The Belize National Land Use Policy identifies fifteen strategies specifically included for effective land use planning for natural resources and conservation. These include: (i) maintenance of key environmental services, (ii) maintaining the integrity of key watersheds, and (iii) sustainable supply of timber and non-timber resources, and of mangroves, in mitigating storm impacts and acting as nurseries for many economically important marine species.

⁵⁹ WWF-Guianas Living Guianas Report, 2012 (from 5NR)

51. In the eastern part of Rwanda, intense clearing of forest has led to changes in climate conditions, causing other constraining factors to agro-biodiversity such as drought and pathogens to crops. Inversely, in the last decade, an intense reforestation initiative, and other agriculture practices, aimed to restore vegetation has brought better climatic conditions (regular rain, increased soil humidity, etc.), which favoured agriculture and livestock development, while reducing hunger and poverty in both regions. Socio-economically, these efforts have helped to ensure more diverse nutrition, enhance food production, raise incomes, cope with environmental constraints and sustainably manage ecosystems.

52. The Canadian Council of Forest Ministers Climate Change Task Force has developed a comprehensive, scalable, nationally applicable framework to assess forest and forest sector vulnerability and adaptation options. The techniques and information enables forest managers to evaluate climate change-related risks, vulnerabilities and opportunities to make informed decisions on the most beneficial adaptation measures. To assist in the uptake and application of these products, the Task Force has established a pan-Canadian Forestry Adaptation Community of Practice to allow forest managers, policymakers, consultants, and researchers to share best practices and lessons learned.

53. Cameroon has developed the Forestry Policy Document to ensure the conservation and management of the forest ecosystem and its resources, taking into account the needs of the population and the various sectoral interests including agriculture, livestock, mining and energy. Its objective is to sustain and develop the economic, ecological and social functions of the forest through integrated management.

3. Policy measures for sustainable forest management

54. Malaysia's Central Forest Spine Master Plan initiative ensures that key forest components harbouring much of Peninsular Malaysia's biodiversity and ecosystem functioning is intact. In addition, the Heart of Borneo Initiative covering approximately 200,000 km² of ecologically connected forests in Malaysia and Indonesia contributes to several Aichi Biodiversity Targets. The identification of High Conservation Value Forest (HCVF)⁶⁰ also has profound implications on forest management options and is of critical importance in the formulation of forest management plans for the country.

55. In Belize the Forest Sector is in the process of revising its Forest Policy. With a focus on Long Term Forest Licenses, it is shifting to 20-40 year timber concession agreements for the Forest Reserves, based on long term sustainability, encouraging investment in replanting and effective management of timber stocks. These new agreements include conservation of biodiversity and the strengthening of biodiversity conservation within the extractive Forest Reserves of the National Protected Areas System.

56. The objective of Finland's National Forest Programme (2015) is to develop the forest sector into a bio-cluster that also produces materials and services on an extensive basis for various sectors. The aim is to generate increased welfare by strengthening forest-based businesses and increasing the value of production, improving the profitability of forestry and strengthening forest biodiversity, environmental benefits, and welfare implications. In terms of biodiversity, the aim is to halt the decline of forest habitat types and species, and to establish a favourable trend in the state of biodiversity. Finland's Forest Biodiversity Programme METSO 2008-2020 which aims to halt the ongoing decline in the biodiversity of forest habitats and species, and establish stable favourable trends in Southern Finland's forest ecosystems was also noted.

57. In Viet Nam the Agriculture and Forestry sectors have integrated conservation and sustainable use into national laws, policies, and programs and its national strategy. The "5 million Hectares Reforestation" Program, for example, had a budget of nearly US\$2.5 billion over 12 years, to increase forest coverage to 43% by 2010, and, in addition, to conserving biodiversity, eradicating hunger, eliminating poverty and developing the national economy.

⁶⁰ High Conservation Value Forest (HCVF), as defined by the Forest Stewardship Council (FSC), is forest of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values. The HCVF concept has received growing attention as a tool for promoting biodiversity conservation and complements the implementation of Sustainable Forest Management (SFM) practices.

58. In order to control deforestation and increase forest cover, Myanmar is strengthening its forest management practices, expanding the permanent forest estate, establishing forest plantations, developing community forestry, and strictly implementing the Myanmar Selection System. Achievements include an increase in the area of reserved forests and protected public forests from 22.75 % of the total land area in 2005, to 25.01 % in 2013. Myanmar's Forest Policy targets further expansion to 30% by 2030/31.

59. In Sweden, a vast majority of forest owners have a Forest Management Plan (FMP). Today all commercially established FMPs include a detailed forest inventory including economic and environmental aspects. The plans describes forest conditions, demonstrate environmental values in the forest, and lists planned management activities.

60. Actions taken in Rwanda to improve the conservation and sustainable use of forest biodiversity, while increasing forest cover and addressing climate change adaptation together with efforts to combat land degradation were also reported. In particular, the Landscape Approach to Forest Restoration and Conservation (LAFREC) Project was developed with Multi-Focal Area/Sustainable Forest Management objectives at its core, using a landscape approach to better manage forest ecosystems and leverage their multiple benefits to meet the needs of local communities. The project also aims to support activities to transform degraded areas into healthier, more fertile and productive working landscapes.

4. Supply chains and certification schemes

61. Certification of forest management can be an effective instrument for strengthening the conservation of biological diversity in forests and ensuring environmentally, socially and economically sustainable forest management through appropriate management measures. In Germany there are currently three certification systems that play a part in forest management: Programme for the Endorsement of Forest Certification Schemes (PEFC), Forest Stewardship Council (FSC) and "Naturland". At the end of 2011 close to 70% of Germany's forest area was certified under PEFC and about 5% under FSC (incl. approx. 0.5% Naturland). The total figure is close to its target figure of 80%. Germany also noted that the proportion of forest areas certified to high ecological standards (PEFC, FSC) has steadily grown.

62. The certification of forests and product chains in Brazil is carried out by several certifying agents, through two systems: (i) the Brazilian Forest Certification Programme (CERFLOR), connected to the PEFC, and (ii) FSC. CERFLOR grants certification according to the standards established by the Brazilian Association of Technical Standards. These Standards are integrated to the Brazilian Compliance Assessment System, which the National Metrology Institute manages. FSC, on the other hand, seeks to disseminate global standards on good practices in forest management that follow ecological and social sustainability safeguards, as well as economic viability criteria.

63. In Sweden forestry certification takes place within the FSC system and/or PEFC. More than 60% of forest areas are certified which allows the forestry sector to show that sustainable forest management to meet market demands is carried out sustainably. The major forestry companies are all certified and certain enterprises are double certified.

64. In Finland, FSC promotes responsible forestry with the first national standard coming into force in 2011. To date, approximately 500,000 hectares of forests have been certified, predominantly by forest-based industry companies, as well as private forest owners under group certification of the companies.

5. Sustainable production and trade

65. Indonesia reported on the development of a Legal Wood Verification System (SVLK) to ensure that wood products and its material originate from legally managed sources. Wood is legal if the source of wood, logging permits, system and logging procedure, transportation, processing, and trade or transfer fulfill all legal requirements.

66. China is adopting compulsory conservation measures in "ecologically significant areas" to manage conservation and development objectives. In recent years 10% of the total area of protected areas has been set aside as "production areas", where local communities harvest bamboo, tea, among other, to develop ecologically friendly industries consuming less natural resources. Meanwhile measures have been taken to ensure that forests

and biodiversity in 90% of the area will be effectively protected. This model has been recognized by UNESCO as a successful example of addressing conflicts between development and conservation in protected areas. China has also made improvements to avoid negative impacts on biodiversity and the environment by eliminating export subsidies on a number of highly energy-consuming, polluting and resource-consuming products, including products from endangered species, leather products, wood products and some disposal wood-made products.

67. Belize has granted 17 long-term concessions covering 224,600 ha. Concessions have been a subject of controversy in recent years between the Government and conservation groups. The increase in the number of concessions granted is a result of pressure for economic growth and globalization. Concerns stem on the granting of forest concessions over large areas as these may result in forest degradation or deforestation with serious impacts on indigenous peoples and local communities.

68. Guyana reported that forest concessionaires are required to obtain Environmental Authorisation from the EPA and prepare Forest Management and Annual Operational Plans for their operations. Larger concessionaires are required to conduct Environmental and Social Impact Assessments and prepare Environmental Management Plans. Guyana has embraced the principles of RIL and has developed a Code of Practice for Timber Harvesting that outlines measures to be complied with by operators within the sector. All large concessions must allocate 4.5% of the total area to biodiversity conservation during the life of the concession. This area must represent the various vegetation types found in that concession and all flora and fauna. No harvesting may take place within this area once approved for biodiversity conservation.

69. Other factors such as corruption and weak monitoring and compliance measures affect forest production and trade. In Nigeria, the collapse of logging controls is traced to corruption of forestry officials, affecting forests, their resources and other natural resource based products. Corrupt officials have aided in the deregulation of many biodiversity rich areas, for different reasons, thereby jeopardizing past efforts at conserving and sustainably using biodiversity.

6. Forest energy and alternative energy

70. The demand for new energy sources in Mozambique is growing. 80% of household energy consumed annually comes from biomass (firewood and charcoal). The country, however, is committed to promote the use and exploitation of renewable energy resources to reduce energy demand following the approval of the Development Policy of New and Renewable Energy.

71. In Nigeria approximately 70% of households mainly in rural and semi-urban areas depend largely on fuel wood consumption for their domestic and, to a large extent, commercial energy needs. The demand for fuelwood is higher in the less vegetated part of the country, as well as in urban cities where most poor unable to afford other costs of energy supply, use fuelwood for food production.

72. The majority of Ethiopia's energy needs are derived from fuelwood, crop residues and animal waste. Recognising that reliance on fuelwood and charcoal leads to widespread land degradation, soil erosion, gully formation and siltation, Ethiopia is currently investing on renewable energy sources, mainly hydroelectric plants to make electricity the main source of energy to alleviate the pressure on natural resources. A national improved cook stoves programme is being implemented by the Ministry of Water, Irrigation and Energy to support the dissemination of nine million improved energy saving cook stoves. This programme expects to save approximately 2.1 tons of woody biomass per year per household.

73. In Kenya, most rural and many urban dwellers depend on primary biomass energy sources for lighting and cooking. While fuelwood contributes to over 68% source of such energy, charcoal is the predominant energy source used by 13.3% of the population.

74. Fuelwood and charcoal cover about 80% of both Cameroon and the DR Congo's energy needs. Due to DRC's rapid demographic growth, the country is looking to provide affordable alternatives to wood-energy. A cross-cutting energy policy integrating the wood-energy sector and its actors, along with a short, middle and long-term strategy is being developed.

75. In 2008 the European Union decided to substantially increase the proportion of biofuels in the automotive sector by 2020. The German Government however passed the Biofuels Sustainability Ordinance (Biokraft-

NachV) in 2009, thereby transposing into national law the sustainability requirements of the Renewable Energy Directive 2009/28/EC for the production and energy use of liquid and gaseous biofuels. From January 2011 onwards, biofuels can only be credited against the biofuels quota and enjoy tax concessions if they comply with certain sustainability requirements: greenhouse gas saving of at least 35 per cent compared with fossil fuels, including the entire production and supply chain; no destruction of land with high carbon content or of high nature conservation value; and cross-compliance requirements if grown within the European Union.

7. Financing/subsidies/incentives as they relate to forestry

76. Brazil highlighted the Forest Stipend, a pioneering and innovative initiative involving the payment for ecosystem services which has been rewarding and improving the quality of life of many traditional communities that live in and off the forest of the Amazonas state and are committed to reducing deforestation. The Forest Stipend was the first internationally certified programme of its kind in Brazil and is one of the largest payments for environmental services (PES) programs in the world, reaching over 35,000 people in 15 state protected areas, a total area encompassing 10 million hectares of Amazonian forest. The Amazonas State Government, through its Environment and Sustainable Development Secretariat, established the program.

77. The Kenyan Government is in the process of creating conditions and incentives for effective conservation of biodiversity by local communities, by among other things, recognizing and affirming the value of local knowledge and local communities' rights to genetic resources and benefits from tourism in their areas. This is engraved in the recently enacted intellectual property rights Act. This position will be enhanced when the country embraces and establishes mechanisms for determining sustainable levels of production for economic benefits from biological resources including fish, timber, wildlife, medicinal plants and other goods and services, and placing limits on harvests.

78. The Finnish Forest Research Institute has studied the possibilities of launching payments for forest ecosystem services in Kuusamo, northeastern Finland where a large share of forestland is privately owned and has been intensively managed for timber production. This area is an important and fast developing centres for nature-based tourism. The revenue collected from tourists could be used to compensate landowners' reduced income from forestry, for example.

8. Plantations/ palm oil

79. Over the last ten to fifteen years, large-scale land acquisitions, so called *land grabs* have been linked to elevated rates of tropical deforestation in Southeast Asia.⁶¹ For example, the conversion of naturally forested land and wetlands for agriculture, industrial plantations and aquaculture, coupled with urbanization and infrastructure development has led to the loss and fragmentation of ecosystems and natural habitats, and contributed to its degradation. In Viet Nam the conversion of degraded forest to rubber plantation has significantly reduced the area of semi-deciduous forests and other natural forests throughout the country.

80. In Ethiopia, the expansion of small scale and commercial agriculture such as sugar cane, cotton and biofuel plantations are the major development activities that are putting pressures on the size and species diversity of surrounding forest ecosystems.

81. In Indonesia, the Government launched the Indonesian Sustainable Palm Oil (ISPO) standard. Based on existing Indonesian legislation, it is designed to ensure that all Indonesian oil palm growers, not just those exporting to foreign markets, conform to higher agricultural standards.

82. Myanmar noted the unplanned expansion of commercial plantations, such as oil palm and cassava, is leading to large-scale conversion of forest areas. To reduce timber extraction from natural forests and to restore degraded forest areas, the Government has promoted private investment in plantations since 2006. Although past timber harvests exceeded the annual allowable cut, logging has been reduced since 2013 to within the allowable limits.

⁶¹ Hall, R. *et al. J. Peasant Stud.* 42, 466–87 (2015). . Miettinen, J., Shi, C. & Liew. S. *Glob. Change Biol.* 17, 2261–2270 (2011).

83. Rwanda has identified increased logging in the Nyungwe buffer forest zone and the loss of biodiversity in the Nyabarongo wetland due to the development of sugarcane plantations and rice fields.

9. Evaluation of the impact of policies

84. Although a majority of countries have shown that they are devoting resources to sustainable forestry practices, no country has reported (in 5th national reports) any form of structured programme to evaluate the impacts of such policies (with the notable exception of Brazil).⁶²

B. CASE STUDIES: APPROACHES USED FOR MAINSTREAMING

85. The analysis of three country cases are grouped under the elements of the CBD expanded programme of work on forest biodiversity⁶³ to demonstrate the importance and interdependency of these elements for mainstreaming.

Brazil: Forest biodiversity and development

86. Between the end of the 20th century and 2004, Brazilian forests had very high and rapidly rising deforestation rates driven by land use change from expanding agriculture, among other pressures.⁶⁴ Yet, with the application of a broad range of actions and measures, deforestation rates have been greatly reduced.⁶⁵

Institutional and socioeconomic enabling environment

87. Several policies impact the conservation and sustainable use of forest biodiversity, including: the National System of Protected Areas 2000, which regulates creation and maintenance of protected areas; the Action Plans for Prevention and Control of Deforestation in the Legal Amazon 2004 and other biomes; and the Law on Protection of Native Vegetation 2012 that controls deforestation and reforestation, and prescribes that landowners conserve certain percentages of native vegetation on their property as Legal Reserves and/or Areas of Permanent Protection. In addition, the Forest Concession System (2006) was instituted to promote the sustainable management of timber and non-timber products by the private sector in national forests. These frameworks are implemented by the Ministry of the Environment, in particular its Secretariat of Biodiversity and Forests, in partnership with other public agencies. Since 2006, the Brazil Forestry Service and the National Fund for Forestry Development were created to promote and enforce the management of federal public forests, ensuring efficient and rational use of biodiversity and other ecosystem benefits.

Conservation, sustainable use and benefit sharing

88. The rapid decline in deforestation in the Brazilian Amazon is credited to an effective mix of policy initiatives, coordinated through the Action Plan for the Prevention and Control of Deforestation 2004. These include monitoring of land cover to crack down on illegal deforestation; enforcement campaigns; incentive measures; expansion of the protected area network; building awareness of biodiversity; and credit embargos to landowners in municipalities with top rates of deforestation.

89. In terms of reforestation, the Law on Protection of Native Vegetation 2012 is complemented by an online Rural Registry Monitoring system, remote sensing and tougher sanctions to enforce compliance. The Law on Protection of Native Vegetation 2012 also introduced the Environmental Reserve Quota as an incentive mechanism, whereby a tradable legal title is given to areas with intact or regenerating native vegetation exceeding the law's requirements.⁶⁶ Following the Law on Protection of Native Vegetation 2012 (and the old Forest Code), the state of Sao Paulo established a state decree for forest restoration practices (2011), including explicit

⁶² See UNEP/CBD/SBSTTA/19/4 on "Tools to Evaluate the Effectiveness of Policy Instruments for the Implementation of the Strategic Plan for Biodiversity 2011-2020".

⁶³ The three elements are: institutional and socioeconomic enabling environment; conservation, sustainable use and benefit sharing; and knowledge assessment and monitoring.

⁶⁴ Brazil. (2015). Brazil's Fifth National Report to the CBD. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>

⁶⁵ Secretariat of the Convention on Biological Diversity (2014). *Global Biodiversity Outlook 4*. Montréal

⁶⁶ Soares-Filho B, Rajao R, Macedo M, Carneiro A, Costa W, Coe M, Rodrigues H and Alencar A (2014). Cracking Brazil's Forest Code. *Science* 344, 363-364.

obligations for biodiversity. For example, restoration projects need to contain a minimum number of native species.⁶⁷ The Forest Concession System (2006) was instituted to promote the sustainable management of timber and non-timber products by the private sector in national forests. The Forest Concession System contracts allow the use of forest resources through low-impact sustainable forest management techniques.

90. Cross-agency initiatives have also been introduced to jointly address forest biodiversity and development. For example, the Bolsa Verde Programme (2011) helps extremely poor families develop forest conservation activities, as part of the Brazil without Extreme Poverty Plan.⁶⁸ In another example, under the National System of Protected Areas 2000, local communities are granted priority access to public forests and benefits resulting from their use and conservation. The Federal Programme on Community-based and Family-based Forest Management was instituted to provide effective implementation of incentive instruments, technical assistance, capacity building and more to aid communities to sustainably use timber and non-timber forest products.⁶⁹

Knowledge assessment and monitoring

91. Several programme evaluations have been conducted. A report from 2013 notes a reduction in Amazon deforestation by 70% below the historical 1996/2005 baseline.⁷⁰ Monitoring data shows that 25 % of all forests converted to pastures and crop areas in the Brazilian Amazon in the past 30 years are now under regeneration with low secondary forests.⁷¹ After the re-enactment of a Sao Paulo state decree, the quantity and diversity of Atlantic Forest native species produced in Sao Paulo state nurseries have greatly improved.⁷² Strengthened community based forest management in the Caatinga biome has contributed to the conservation of over 15,000 hectares of native Caatinga.⁷³

92. Since 2002, Brazil's National Institute for Space Research, tied to the Ministry of Science and Technology, has used different systems of satellite imagery to assess the extent and rate of gross deforestation in the Brazilian Amazon, including DETER (near-real time deforestation detection). There are also efforts to generate more precise observations of biodiversity through in situ biodiversity monitoring, such as: ICMBio, a monitoring programme involving local people in the monitoring of biodiversity; and SiBBr, an Information System that aims to integrate scattered sources of information enabling easier access by decision makers.⁷⁴

Conclusion

93. Deforestation is at the forefront of environmental concerns for Brazil. Given its importance, in Brazil's mix policies there are explicit pursuances of biodiversity and forestry conservation objectives, a number of which are integrated into wider policy concerns, such as development. Along with Brazil's continued investment in developing monitoring and enforcement capabilities, Brazil has made clear steps towards mainstreaming the conservation and sustainable use of forest biodiversity into numerous policies, strategies and practices of key public and private actors.

⁶⁷ Aronson, James, et al. (2011) What Role Should Government Regulation Play in Ecological Restoration? Ongoing Debate in São Paulo State, Brazil. *Restoration Ecology* Vol. 19, No. 6, pp. 690–695. Brancalion, P.H. S., et al. (2011) Improving Planting Stocks for the Brazilian Atlantic Forest Restoration through Community-Based Seed Harvesting Strategies. *Restoration Ecology* Vol. 20, No. 6, pp. 704–711

⁶⁸ Brazil. (2015). Brazil's Fifth National Report to the CBD. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>

⁶⁹ Brazil. (2015). Brazil's Fifth National Report to the CBD. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>

⁷⁰ Soares-Filho B, Rajao R, Macedo M, Carneiro A, Costa W, Coe M, Rodrigues H and Alencar A (2014). Cracking Brazil's Forest Code. *Science* 344, 363-364.

⁷¹ Brazil Ministry of the Environment, PROBIO Project. (2007). Mapping of Vegetation Cover of the Brazilian Biomes at the scale of 1:250,000 baseline year 2002. Available at:

http://www.mma.gov.br/images/publicacoes/biodiversidade/probioIeII/mapas_cobertura_vegetal_ingles.pdf

⁷² Brancalion, P.H. S., et al. (2011) Improving Planting Stocks for the Brazilian Atlantic Forest Restoration through Community-Based Seed Harvesting Strategies. *Restoration Ecology* Vol. 20, No. 6, pp. 704–711

⁷³ Brazil. (2015). Brazil's Fifth National Report to the CBD. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>

⁷⁴ Brazil. (2015). Brazil's Fifth National Report to the CBD. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>

South Africa: Natural Resources Management Programme and the Grassland Programme

94. Over 40 percent of South Africa's terrestrial ecosystems are threatened; with forests being one of the worst biomes affected, although forests are among the most protected ecosystems. Pressure on terrestrial ecosystems include degradation of natural habitats, invasive alien species, pollution and waste, climate change and loss of habitats, due to increasing conversion for cultivation, mining, forest plantations and urban expansion.

Institutional and socioeconomic enabling environment

95. Several policies affect the conservation and sustainable use of forest biodiversity, these include: the Protected Areas Act (2003); the Biodiversity Act (2004) which provides an overarching framework for the coordinated management, conservation and sustainable use of biodiversity; and the National Forest Act (Act 84 of 1998) promoting the sustainable management and development of forests.

96. These legislative frameworks are implemented by three national public sector institutions: the Department of Environmental Affairs (DEA), which ensures the protection of the environment and natural resources, balances sustainable development with the equitable distribution of benefits arising from natural resources; the South African National Biodiversity Institute (SANBI), which conducts biodiversity research as well as monitors and reports on the state of biodiversity, with the aim of providing planning and policy advice; and the South African National Parks (SANParks), which conserves, protects, controls and manages a system of national parks and other defined protected areas.

97. These institutions are supported by provincial departments and conservation authorities, including the Department of Agriculture, Forestry and Fisheries (DAFF), which manages the National Forest Act and the South African National Forestry Stewardship Council (FSC), which reviews and ratifies forest standards. Indigenous forest biome (as opposed to forestry plantations) represents less than one percent of the country's surface area.⁷⁵

Conservation, sustainable use and benefit-sharing

98. The main forestry institutions of the Government of South Africa list a number of key national actions and outcomes in South Africa's fifth national report to the CBD for Targets 4, 5, 7 and other relevant targets. For example, efforts by SANBI include the established National Botanical Gardens, including the 160 ha of pristine coastal dune forest in the north east of the Limpopo Province, bringing this area under sustainable management. In addition, the Natural Resources Management Programme (formerly the Working for Water Programme) of the DEA, has a few sub-programme related to forests that directly link sustainable development and management, such as: the Working for Forests, which converts invading alien plants into usable resources for basic community needs; and the Working for Energy and Eco-Furniture Factories, which respectively use biomass cleared by the Working for Water to generate energy and manufacture low cost furniture.

99. In another example, the Grassland Programme, funded through a Global Environment Facility investment of \$8.3 million, aims to mainstream biodiversity into key production sectors, including forestry, and to reduce the footprint of these sectors and prevent further biodiversity loss in priority areas in the grassland biome. The grassland biome covers about 30 percent of South Africa's land surface and stretch across nine provinces. About 90 percent of forestry plantations occur in the grassland biome, with about 80 percent of them being management by large companies and the rest managed by small communities.⁷⁶ To enable improved decision making a significant number of biodiversity mainstreaming tools have been developed with the forestry sector, including the Guidelines for Grasslands Management in the Forestry Sector, Environmental Guidelines for Commercial Forestry in South Africa, as well as Biodiversity Screening and Conservation Planning Tools. Standards of the South African National FSC are being developed for indigenous forests, large plantations and small and medium scale plantations. These sets of standards intend to ensure improved policy foundations for forestry management and create an enabling environment for integrating biodiversity-friendly practices into production processes.

⁷⁵ Mucina, L. and Rutherford, M.C. (eds.). 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria, South Africa. (808 pp with CD GIS-database)

⁷⁶ Godsmark, M. 2014. The South African Forestry Industry's Perspective on Forestry and Forest Products Statistics. Presentation to FAO Workshop on Forest Products Statistics, 27th November 2014.

Knowledge assessment and monitoring

100. Few evaluations of the programmes and projects carried out by the main forestry institutions and their supporting organizations have been conducted. Mainstreaming efforts under the Grassland Programme, for example, has resulted in forestry practices that explicitly incorporate biodiversity objectives through proper management. A study on the establishment and progress of the Working for Water Programme reported that evaluations of the Programme, directly linking to sustainable development and management, have led to improvements, including in the delivery of economic and environmental benefits, legislations and inter-agency coordination.⁷⁷

Conclusion

101. The proportion of land area covered by forests in South Africa is small, but forests make a disproportionately high contribution to the conservation of South Africa's biodiversity. Despite the fact that forest ecosystems in South Africa are relatively well protected, they still face a number of threats. The national and sub-national forest institutions in South Africa are addressing these threats through programmes that link sustainable development and management as well as a host of enabling factors, such as programmatic reviews, legislative reforms and inter-agency coordination.

Malaysia: the protected area approach

102. In Malaysia, tropical rainforests constitute the core of biodiversity. The Government is committed to maintaining at least 50% of land area under forests and tree cover in perpetuity.⁷⁸ The main threats to forest areas are land use change for agricultural use and other developmental activities.

Institutional and socioeconomic enabling environment

104. Malaysia has numerous laws that affect the conservation and sustainable use of forest biodiversity at the Federal and State levels, some of these are: the National Forestry Act 1984, National Policy on the Environment 2002, the Wildlife Conservation Act 2010, National Policy on Biological Diversity 1998, the Land Conservation Act 1960, the National Land Code 1965, the State of Sabah Parks Enactment 1984, the State of Sabah Forest Enactment 1968, and the State of Sarawak Forest Rules 1962. In particular, the National Forest Policy 1978, currently under revision, aims to conserve and manage the country's forests based on the principles of sustainable management; to conserve biological diversity, and genetic resources; and to enhance research and education. It also provides for the development of comprehensive programmes in community forestry and support for intensive research programmes in forest products.⁷⁹

105. These legislative frameworks are implemented by a number of Federal and State level institutions, such as: Department of Environment, Forest Research Institute Malaysia, Forest Stewardship Council, National Forestry Council of Malaysia, Forestry Department Peninsular Malaysia, Sarawak Forestry Corporation, and the Sabah Forestry Department. For example, National Forest Policy 1978 provides the Forestry Department Peninsular Malaysia with guidance for the implementation of sustainable forest management initiatives.⁸⁰

106. Supporting these laws are national-level planning policies that integrate development, such as the Five-Year Malaysia Plan, National Physical Plan and other sectoral national policies passed by the Cabinet. These planning policies provide guidance for the development of state and regional development plans and sectoral policies. The overall goal of the National Physical Plan is to establish an efficient, equitable and sustainable national spatial framework to guide the overall development of the country. Its framework has eight themes, including: setting a national spatial framework; enhancing economic competitiveness; conserving agricultural resources and rural development; sustainable tourism development; and conserving natural resources, biodiversity

⁷⁷ Sykes, Gillian, and Meagan Jooste, with Dr Christo Marais. (2014) Leveraging public programmes with socio-economic and development objectives to support conservation and restoration of ecosystems: Lessons learned from South Africa. Secretariat of the Convention on Biological Diversity. Available at <https://www.cbd.int/ecorestoration/doc/South-Africa-Final-Version-20150114.pdf>

⁷⁸ Government of Malaysia, Ministry of Natural Resources and Environment. (2014). Fifth National Report to the Convention on Biological Diversity. Available at <https://www.cbd.int/doc/world/my/my-nr-05-en.pdf>

⁷⁹ Ibid

⁸⁰ Ibid

and the environment. The National Physical Plan is implemented by federal departments and ministries, state governments and local authorities.

Conservation, sustainable use and benefit sharing

107. Malaysia's approach to the conservation and sustainable use of forest biodiversity is rooted in the protected area approach, whereby areas identified as significant for biodiversity and its ecosystem values are protected by virtue of legal gazette and accorded with varying levels and status of protection. These areas are known as: as permanent reserved forests/permanent forest estates, state land forests, national parks as well as wildlife and bird sanctuaries.

108. In 2012, approximately 21.01 million hectares or 63% of Malaysia remains forested. Of this area, approximately 14.5 million hectares have been designated as permanent reserved forests and/or permanent forest estates.⁸¹ A number of initiatives carried out by Federal and State level institutions are presented in the Fifth National Report to expand and manage the protected area system of Malaysia.

Knowledge assessment and monitoring

109. Monitoring of the National Physical Plan entails the establishment of the Land use Planning Intelligence System, data sharing measures, and the development of the National Physical Plan Monitoring System. These stipulate reviews every five years and that data be made available for the review. Difficulties of the Plan include weak monitoring and updating capacities, long gestation periods to implement spatial policies, lack of databases for strategic planning and poor sectoral integration.

110. Malaysia's Fifth National Report does not provide any evaluation or assessment of the projects or programmes mentioned. Rather, it states that the lack of a cohesive and comprehensive monitoring mechanisms/indicators towards the National Policy on Biodiversity have posed challenges towards measuring actual progress in certain conservation areas.

Conclusion

111. Although forest biodiversity is highly valued in Malaysia, forests continue to face threats, which the Government is addressing through a number of initiatives following the protected area approach. As a result, the structure of the protected area system is highly complex, involving a number of categories and sub-categories, and implemented through a host of Federal and State level institutions that work both independently and inter-dependently. Whether this approach is successful in maintaining at least 50 % of land area in Malaysia under forests will be determined over time.

IV. SYNTHESIS OF THE BENEFITS FROM MAINSTREAMING

112. **Forests play a key role in the economy of many countries.**⁸² With biodiversity directly responsible for approximately 40% of the world's economy, particularly in sectors such as agriculture and forestry, it is imperative for society to conserve, restore and wisely use this natural capital. Biodiversity provides crucial ecosystem services for the forest sector to operate on, such as clean water and soil fertility.

113. **Forests can be a resource for poverty reduction. About 70% of the world's poor live in rural areas and depend directly on biodiversity for their survival and well-being.**⁸³ Approximately 60 million indigenous people are almost wholly dependent on forests, 350 million people depend on forests for subsistence and income, and about 1.2 billion people rely on agroforestry farming systems.⁸⁴ These people obtain basic necessities, such as nutritious food, adequate shelter, access to health services, energy sources, and safe drinking-water from the

⁸¹ Ibid

⁸² MEA 2005, World Bank 2003.

⁸³ Secretariat of the Convention on Biological Diversity. 2009. Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide. Montreal, 47 + iii pages

⁸⁴ World Bank. (2004). *Sustaining forests : a development strategy*. Agriculture and rural development. Washington, DC: World Bank. Available at: <http://documents.worldbank.org/curated/en/2004/01/4978559/sustaining-forests-development-strategy-vol-1-2>

forest. Urban centers also depend on forested areas, for water supply, and benefit from the multiple environmental services of urban forests and trees.⁸⁵

114. Mainstreaming biodiversity into forestry is a process involving all levels of government, as well as the public and private sectors. Policy interventions are needed not just in the forest sector, but in other sectors, to reduce pressures on forests caused, for example, by agricultural expansion and from extensive use of fuelwood associated with subsistence farming. **Conserving forests will require greater country and regional specific understanding of external factors, such as the role of agriculture and energy sectors, in the domestic economy, as well as the role of global factors that influence changes in forest and tree cover.**

115. Understanding forest dynamics, the extent and quality of forest area, as well as data on tree cover is essential for the forestry and biodiversity community. The use of different tools, such as ground-based measurements and assessments and remote sensing-based approaches, should complement existing data and be used to help inform decision making at the national level. Efforts should be taken to help countries better identify forests and the trends, scaling up the use of advanced technologies to assess changes not only in the forest but also as it relates to tree cover. Using FRA data as well as other sources of information could help provide a better understanding of the extent of forests to help track progress in meeting the forest-related Aichi Targets by 2020.

116. Numerous strategies and action plans have been developed by countries to address forests. While NBSAPs are important national tools for the conservation and sustainable use of forest biodiversity, there are often various challenges in harmonizing activities to realize forest commitments under different multilateral agreements. In this respect, national efforts to achieve the SDGs, PRSPs, NBSAPs, NAMAs, National Forestry Programmes, REDD+ strategies, Intended Nationally Determined Contributions (INDCs), and other strategies and plans, should focus towards convergence at the landscape level. National and regional capacity-building activities to mainstream and assess biodiversity objectives in relevant policies, strategies and plans may prove useful in this context.

117. Integrating biodiversity considerations into forestry, at the national or state/provincial agenda, requires strong political will, clear policy objectives, a regulatory framework and strategic planning, among a mix of other enabling conditions. A coherent national policy framework for forests needs to include elements, such as legislation, development policy, finance and taxation, economic incentives, participation, governance, as well as reliable data sources, internal capacity building, education, research, and technology.

118. Successful mainstreaming requires an informed public. Countries should make concerted efforts to educate the public on forest benefits and their value to humanity. Raising public awareness of the importance of certified forest stands, for example, could help to build trust in certificates that encourage responsible buying of timber and timber products; thereby increase demand for certified timber.

119. Public awareness and education are closely linked. Educational programmes on forest biodiversity could facilitate a broad understanding of the sectoral issues and problems, addressing the connections across social aspirations, economic imperatives, and biodiversity considerations.

120. Partnerships are key for mainstreaming biodiversity conservation across forestry and others sectors of the economy. As forest managers in most countries do not govern all the components of the forest, close cooperation is required with other sector entities and broader stakeholders to achieve forest biodiversity conservation and sustainable use. Community participation should also be recognized. A sustainable future in which forests play a central role could empower some of the most disadvantaged people in society and strengthen their contribution to sustainable development. Thus, along with partnership arrangements, multi-sector management requires a coordinated mechanism that is transparent, accountable and inclusive, and provides clear rules and decision-making processes.

121. Policy and planning coordination will be needed at all levels. Ongoing activities of the CPF, through the development of tools⁸⁶ to promote sustainable forest management and to reduce the impacts of forestry on

⁸⁵ FAO 2007

biodiversity, as well as new priorities to be defined under the 2017-2030 Strategy of the International Arrangement of Forests, will be important to effectively align global efforts in support of forest conservation, use and management.

V. PRIORITY AREAS FOR FURTHER WORK

122. **Forests are one of the main strategic themes** that will be addressed at the thirteenth meeting of the Conference of the Parties (COP13). Given the important role forests play in realizing the Strategic Plan on Biodiversity 2011-2020, and in achieving broader development goals, COP13 offers an opportunity to garner attention on the critical links between forest biodiversity and development.

123. Building on past decisions adopted by the Conference of the Parties, COP13 could identify urgent policy interventions to be championed by the forestry and biodiversity community together. In this regard, **Parties, together with the CBD Secretariat, could promote the use of improved data sets on land use change, including forest and tree cover change, in real time, by sharing their experience and capacity to extend this know-how to other Parties. COP could also consider how to request such measures to be used globally through partnership arrangements**, for example in preparation of future FRAs and with the contribution of data from the Global Forest Watch. The development of the 2017-2030 Strategy of the International Arrangement on Forests and CPF work plan provide further opportunities to improve global forest data, aligning such to contribute to the monitoring requirements of the forest-related Aichi Targets.

124. **Forests range in function, nature and ownership, and, thus, are best assessed within a national context.** A variety of initiatives are being carried out by Parties, other Governments, regional and international organizations, private sector, indigenous peoples and local communities, and civil society groups to foster the multiple values of forests and to mainstream these into national development plans and strategies. For example, as part of national commitments to reach broader development goals and to benefit from incentives measures like REDD+, several countries are reviewing their forest governance frameworks to better integrate biodiversity and sustainable development concerns.

125. **Political will and leadership is needed to foster biodiversity mainstreaming and integration into forestry and other development sectors.** The establishment of inter-ministerial taskforces, cross-agency joint programming, planning and funding, integrated land use planning, accountable governance, multi-purpose incentives, and shared information and monitoring systems are examples of measures that allow for cooperation between stakeholders. While such measures need to be country specific to meet specific needs and circumstances, the **CBD Secretariat could facilitate assessments of national forest governance frameworks, and examine how these are evolving or changing to integrate and/or support national forest biodiversity and sustainable development priorities.** Such assessments could bring value to on-going efforts and provide insights to better inform future decision-making.

126. **Options and opportunities to reform existing forest frameworks can generate risks as competing stakeholder views and key issues could be overlooked and/or not reconciled.** Building the knowledge base of stakeholders by compiling information on mechanisms that allow for cooperation and integration, could be one way to mitigate risks. Strategies to improve forest governance should be informed by the experience and practices of local communities in forest management activities, as well as other initiatives at the national scale. In this regard, **the CBD Secretariat, through the CPF, could help to promote collaboration between civil society groups, research organizations and forest industry to assess the application of guidelines that integrate biodiversity considerations into silvicultural knowledge and practices.**

127. **Economic development policies need to consider the value that forests provide locally, nationally, regionally and internationally, as well as the trade-offs involved in deforestation.** The use of government-imposed economic penalties on landholders who violate laws restricting deforestation has shown promise. Monitoring and reducing the impacts from the banking sector, both domestic and international, in promoting land

⁸⁶ For example, ITTO/IUCN Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Production Forests. Second Edition. ITTO Policy Development Series 17. Accessed at: http://www.itto.int/en/policypapers_guidelines/

clearing and sowing is also crucial. The example of Brazil of denying credit to landholders who convert forest to pasture in Amazonian landscapes could be a useful model for other regions to use to help reduce deforestation rates. In this regard, remote sensing analyses of forest cover change have been increasingly used to evaluate legal compliance. **The CBD Secretariat could help facilitate an exchange of experiences among Parties to examine the use of incentives measures as well as technological advancements to mitigate forest and tree cover losses, while promoting standards for banking entities to apply when providing credit to investors. Other approaches to improve transparency of funding sources should also be considered.**

128. The experience garnered, and initiatives being carried out, by Parties have helped to improve the availability of information on forest biodiversity mainstreaming and to transfer such knowledge to other Parties and in other fora. In this context, there is **an opportunity to expand this know-how through a network of “Forest+ countries” that recognize the multiple benefits of forest and are willing to share and scale up efforts** to address urgent challenges affecting the nature and functioning of forests for human wellbeing. **The CBD Secretariat, together with CPF partners, could provide support to countries, helping to identify ways to transform the pressures that degrade forest ecosystems, into incentives for restoring these critical ecosystems.** Areas which can merit global support include the application of tools, databases and methods for inter-sectoral spatial planning; using safeguards and indicators for forest biodiversity; making real-time forest data and imagery freely available for sustainable forest management; linking secure tenure patterns with long-term sustainable management; valuing forest biodiversity and ecosystem functions and services, and fostering the certification of timber and non-timber forest products.
