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**BACKGROUND DOCUMENT FOR THE REVIEW OF IMPLEMENTATION OF THE
EXPANDED PROGRAMME OF WORK ON FOREST BIOLOGICAL DIVERSITY**

Background document to UNEP/CBD/SBSTTA/13/3

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I. INTRODUCTION

1. The present note provides detailed information on the review of the expanded programme of work on forest biological diversity. It supplements the In-Depth Review of Implementation of the Programme of Work on Forest Biological Diversity (UNEP/CBD/SBSTTA/13/3). This section describes the background, mandate and process of the review.

2. The programme of work consists of three programme elements. Each programme element is composed of three to five goals, and there are up to six objectives under each goal. Due to the large number of objectives (27 in total), the synthesis of the third national reports is structured according to the programme of work's 12 goals. This structure also corresponds to most of the national reports submitted by the Parties.

Background

3. In decision VII/31, adopted at the seventh meeting of the Conference of the Parties, a multi-year programme of work for the Conference of the Parties (COP) lasting until 2010 was formulated. As part of this programme of work an in-depth review of the implementation of the expanded programme of work on forest biological diversity has been scheduled for the ninth meeting of the Conference of the Parties.

4. The Ad Hoc Technical Expert Group (AHTEG) on Review of the Implementation of the Programme of Work on Forest Biological Diversity was established by the Conference of the Parties through decision VI/22. At the first AHTEG meeting, the AHTEG called upon the members of the Collaborative Partnership on Forests (CPF) and other international and regional organizations and processes to provide information related to the implementation of the expanded programme of work on forest biological diversity. This request was in accordance with decision VI/22 (paragraphs 15, 18 and 19 (b)) and is also outlined in annex II of the report. Further, following paragraph 26 (a) of decision VI/22, the second and third meetings of the AHTEG provided advice on the way in which the review of the implementation of the programme of work would be undertaken. This advice was presented at the eighth meeting of the Conference of the Parties in decision VIII/19 and relates to the annex of decision VIII/15. More precisely, this in-depth review follows the annex, entitled "Proposal on the review of implementation of the expanded programme of work on forest biological diversity", of this decision. All documents and sources of information listed in section A of the annex to decision VIII/19 were reviewed and the resultant text has been grouped into five sections: (I) Introduction, (II) Global status and trends of forest biological diversity, (III) Synthesis of the review of implementation of the expanded programme of work on forest biological diversity, (IV) Synthesis of national forest programmes and national biodiversity strategies and action plans, and (V) Conclusions for improved implementation of the programme of work. Pursuant to the guidance provided in section B of the annex to decision VIII/19, the available information was analysed in a regional context, and a number of maps were developed. Further section (III) is divided into three sub-sections, namely: information from national reports, activities of the Executive Secretary, and the synthesis of activities of international and non-governmental organizations. The report ends with section (V), the Conclusion. Annex I provides maps relevant to the review, annex II provides other useful information, annex III lists the acronyms used in this document, annex IV is the text of the expanded programme of work on forest biological diversity. References are in APA citation style. Citations are indicated by the reference number in brackets.

5. In paragraph 1 (a) of decision VIII/19 it is stated that the primary source of information for the review of implementation of the expanded programme of work on forest biological diversity is to be extracted from the third national reports submitted by Parties to the Convention. Given this request the information contained in the sections dealing with information from national reports is primarily derived from the third national report questionnaires. Further in paragraph 1(b) of decision VIII/19 the Conference of the Parties requested the Secretariat to also consider information contained in previously submitted reports as part of the review of implementation of the programme of work. Given this decision, information from the first, second and thematic reports received by the Secretariat has also been

incorporated into this section. However as the questionnaire used in these reports varied from that used in the third national report and as in some instances responses were limited, information for each programme element was not always available.

II. GLOBAL STATUS AND TRENDS OF FOREST BIODIVERSITY

6. In annex II to decision VII/30 the Conference of the Parties established a set of provisional goals and targets for assessing the progress towards the 2010 biodiversity targets at the global level. In total 11 goals and 29 sub-targets were developed in order to facilitate the assessment of the Convention on Biological Diversity's programmes of work. With these targets as a guide the following information relates to the status and trends of forest biological diversity. ^{1/}

Goal 1: Promote the Conservation of the Biological Diversity of Ecosystems, Habitats and Biomes

7. In relation to target 1.1 (to have at least 10% of each of the world's forest types effectively conserved in protected areas) the Food and Agriculture Organization of the United Nations (FAO) estimated that globally 422 million hectares of forests, representing approximately 11.2% of total forested area, were classified for the primary function of conserving biological diversity, however information is missing from several countries (54). Globally this represents a 32% increase in conservation area since 1990 (54). This positive trend was observed in all regions with the exception of Northern, Eastern and Southern Africa (54). Similar information was reported in the 2005 Millennium Ecosystem Assessment (MA) which estimated, that globally, the amount of forest under some form of protection was 10.4% (189). However the amount of protected forest varies by forest type. It is reported that 5% of boreal forests, 11.3% of sub-tropical forests, 15.2% of tropical forests and 16.3% of temperate forests were protected, with the largest percentage of protected forest being found on the American continent and the smallest percentage being in Europe (189, 206). The largest area of forest, in absolute terms, designated for conservation is found in South America, followed by North America. The Global Forest Resources Assessment (FRA) 2000 reports that 11.7% of forests in Africa, 9.1% of those in Asia, 11.7% of those in Oceania, 5.0% of those in Europe, 20.2% of those in North and Central America and 19% in South America are in protected areas (206). Global Environment Outlook 3 provides similar estimates to those found in the MA and FRA and concludes that 12% of forests globally have a protected status, as described by the World Conservation Union (IUCN) categories one through four (193). Specifically with regards to tropical forests, the International Tropical Timber Organization (ITTO) reports that 156 million hectares of tropical forest, or more than 33% of the total protected permanent forest estate of its 33 member countries, are in reserves corresponding to IUCN categories 1 through 4 (90). Specifically for Central Africa, the Réseau des Aires Protégées D'Afrique Centrale (RAPAC) reports that 116 protected areas, covering approximately 9.8% of the region's total land area, exist (231). For the period between 1992 and 2003 the FRA reported that the amount of land in protected areas grew by 53% and the amount of total forest area specifically designated for conservation increased by 24% between 1990 and 2005 (54). Globally, the trend is one that suggests an increasing amount of forest area is being protected for the purpose of conservation. However some estimates suggest that there is a funding gap of up to 25 billion dollars per year for the development of a global network of protected areas for terrestrial systems (237). Further, while the coverage of protected areas has increased, no comprehensive data is available regarding the effectiveness of these protected areas in conserving biodiversity (281).

Goal 2: Promote the Conservation of Species Diversity

8. Most terrestrial species occur in forests (189). Information relating to target 2.1 (populations of forest species of selected taxonomic groups restored, maintained or their decline substantially reduced)

^{1/} The information was compiled using information from the Third National Reports as well as over 290 publications, reports and websites, including the 2005 Global Forest Resources Assessment 2005 (FRA 2005) and its predecessor (206), the State of the World's Forests 2007 (SOFO), the Millennium Ecosystem Assessment (MA), and Global Environment Outlook 3 (GEO 3).

and target 2.2 (conservation status of threatened and endangered forest species substantially improved), is available for trees and vertebrate animals, and to a lesser extent for other vascular plants and for other animals. Approximately 8 000 tree species, or 9% of the total number of tree species worldwide, are currently under threat of extinction (189). Further to the 192 countries providing information on threatened tree species to the 2005 Global Forest Resources Assessment, 45 reported that they had no threatened tree species (54). On average 5% of tree species in a country are either threatened, endangered or critically endangered (54).

9. Recent data indicates that the species diversity in many habitats, including forests, is declining (254). Based on known species extinctions, it has been estimated that recent extinction rates are between 50 and 500 times higher than the background rate observed from the fossil record (254). This value jumps to between 100 and 1000 times larger when possibly extinct species are included in the calculations (254). Globally the IUCN lists 12% of birds, 23% of mammals, 32% of amphibians, 25% of conifers and 52% of cycads as being threatened (254). While determining the exact impact of deforestation on biodiversity is a challenging task, given our incomplete knowledge of forest biodiversity, forest loss has been identified as the major factor contributing to extinction for about 40% of species that are endangered or extinct (189). According to the 2004 IUCN Red List most threatened species are located on mountains or islands in the tropical continents (254). It is estimated that 50-90% of all terrestrial species are located in the tropical biome (189). These areas are rich in the tropical and subtropical forests which are believed to shelter the majority of the earth's terrestrial and freshwater species. One estimate suggests that 87% of reptiles, 75% of mammals, 57% of amphibians, 44% of birds and 12.5% of plants worldwide are threatened as a result of forest decline (189). Species may take considerable time to become extinct, even though their populations are small and little habitat remains; this results in what has been called 'the latent extinction debt or risk' (288). This extinction risk has been suggested in recent research to be high for mammals in tropical and temperate forests of Austral-Asia (especially on islands) and in boreal North America (289). From a European perspective, between 1980 and 2003, it was found that the population of common forest birds declined by 13% while common forest specialists declined by 18%, though regional variations did exist (264).

Goal 3: *Promote the Conservation of Genetic Diversity*

10. Assessing the status and trends of the genetic diversity of major socio-economically valuable forest species and associated indigenous and local knowledge (target 3.1) is challenging given the limited available information. Currently there is no internationally accepted methodology for extrapolating information on forest genetic resources from data related to changes in forest ecosystems (194). Further the FAO Forest Department reports that the current reliability and applicability of information related to forest genetic resources is limited (194). Given the variables examined in the 2005 FRA it is not possible to provide a clear assessment of the status and trends of forest genetic resources (194). However it can be assumed that the loss of forest cover and the threat status of many tree species are having a negative impact on forest genetic resources (189, 194). At its 14th session, held from 31 January to 2 February 2007, the Panel of Experts on Forest Genetic Resources recommended FAO to increase its knowledge base regarding the current status of forest genetic resources. Priority should be given to the preparation of a State of the World's Forest Genetic Resources, linking these activities with the Global Forest Resources Assessment (FRA).

Goal 4: *Promote Sustainable Use and Consumption*

11. In relation to target 4.1 (forest goods and services derived from sources managed according to the principles of sustainable forest management, including conservation of biological diversity), the Millennium Ecosystem Assessment reported that 83 non-tropical countries had 89% of their forests under some form of management regime (206). A recent ITTO study suggests that the area of natural production forests under sustainable forest management in tropical countries is just over 7% in ITTO producer countries (161). The data from developing countries suggests that at least 6% of forests are included under some form of nationally approved management plan spanning a period of at least 5 years (206). The first ITTO report on the Status of Tropical Forest Management, 2005, which covered 33 tropical country

members of the ITTO, concluded that 27% of the total natural production permanent forest estate and 2.8% of total natural protection permanent forest estate are covered by management plans (90)

12. Regional variation in relation to forest management is high. It is estimated that 85% of the forest area in Oceania, 55% in North and Central America, 25% in Asia, 3% in South America and 1% in Africa are under some type of management plan (189). According to the 2007 State of the World's Forests (SOFO) over 100 countries are attempting to manage their forest resources more holistically through the use national forest programmes (191). However given that the laws and regulations vary substantially between countries it is difficult to compare progress or to determine any global trends (191). In relation to international management projects, FRA 2000 reported that as of 2000, there were 149 countries involved in nine different international programmes or processes aimed at developing and implementing criteria and indicators related to sustainable forest management (206).

13. During the third meeting of the Ad-Hoc Technical Expert Group on the Review of the Forest Programme of Work, per capita paper consumption was identified as an indicator to measure the progress related to target 4.1. Paper consumption has increased dramatically over the last century and has, according to information in FAOSTAT (205), almost tripled in the last the last 30 years (197). Western Europe and North America are the regions with the highest rates of per capita paper consumption, estimated at 190 kg and 300 kg per year respectively (197). For developing countries the World Resources Institute (WRI) estimated average paper consumption at 17.5 kg/year per capita (197). While the per capita rate of paper consumption in developing countries is much lower than those of Western Europe and North America, it is increasing rapidly. In Asia for example the gross consumption of paper and paperboard is currently greater than that of Europe and consumption is expected to continue to grow by 3-4% per annum until 2010. Paper consumption worldwide is projected to increase significantly by 2010 (197).

14. Currently the majority of wood fiber used in the production of paper originates from natural forests in North America, Europe and Asia and from plantations located throughout the world (197). While tropical rainforests and natural temperate hardwood forests only supply 2% of this fiber, plantations have replaced large areas in both biomes, with plantation forests now accounting for more than 3% of the global forest area (FRA 2005). The WRI predicts that as demand for paper products grows there will be increasing pressure on forest resources (197).

15. Within the EU, several activities with regard to the Green Public Procurement (GPP) of wood and wood related products have been developed or are under development. The European Commission published a Handbook on Green Public Procurement on how environmental considerations can be integrated into public procurement procedures (245). In addition, a report analysing national GPP policies and guidelines has been published on the EU 25. By the end of 2006, 10 European Union member States had adopted draft national action plans and 10 more were working towards it (246).

Goal 5: Pressure from Habitat Loss, Land Use Change and Degradation, and Unsustainable Water Use Reduced

16. Information for target 5.1 (current forest loss, degradation and conversion to other land uses reduced), is generally available. FRA 2005 estimates that total global forest area is slightly less than 4 billion hectares. This value represents 30% of the world's total land surface (54). Of this forest area 36.4%, or more than 13 million km², are primary forests, defined as "forests of native species in which there are no clearly visible indications of human activity and ecological processes are not significantly disturbed", 52.7 % are modified natural forests, defined as "forest or other wooded land of naturally regenerated native species where there are clearly visible indications of human activities", 7.1% are semi-natural, defined as "forest or other wooded land of native species, established through planting, seeding or assisted natural regeneration", 3.0% are productive forest plantations, defined as "forest or other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods" and 0.8% are protective plantations defined as "forest or other wooded land of native or introduced species, established through planting or seeding mainly for

provision of services” (54). While plantations represent a relatively small proportion of global forest cover they are increasing both in terms of size and importance.

17. Between 1995 and 2005 tropical forest plantation area more than doubled to 67 million hectares, with the majority being located in Asia. Plantations in boreal and temperate regions have also increased in size (221). This trend is expected to continue, with potentially positive and negative impacts on biodiversity. Expansion of plantations and gains in productivity can contribute to reducing pressures on natural forests. If plantations are established on degraded lands, and in line with the ecosystem approach, they can generate considerable biodiversity benefits. The forest policies of several countries have focused on this aspect. On the other hand, the conversion of natural or semi-natural forests to plantations is linked to biodiversity loss. Only a relatively few species constitute the majority of plantation area and as a result plantations and other heavily modified forests tend to be less resilient to disturbances than natural forests (287). The increase in the supply from plantation timber (and a possible over-supply) might decrease the level of private investments in natural forests management. Other financing sources will need to be identified in the future for sustainable natural forest management. Payments for ecosystem services (PES), including carbon sequestration, and Clean Development Mechanism (CDM) funding will play an increasing role. (221). Further there is increasing interest in using genetically modified trees in plantation forestry in order to provide higher yield. However information on the potential socio-economic, environmental and cultural impacts of this form of technology is limited as the study of genetically modified trees remains in its infancy (268).

18. Three quarters of the world’s forests are found in two biomes. The boreal biome has 29% of the world’s forests and the tropical biome contains 46%, with an average of 100 tree species per hectare in the latter (189). Further of the 1,494 million hectares of fragmented or open forest, 53% of it is located in the tropical ecoregion (189). While average forest cover on all continents, with the exception of Antarctica, exceeds 18%, some countries have only minimal forest cover (54). Of the 229 countries and territories providing information for the 2005 FRA, 64 reported a forest area of less than 10% of their total land area, while 45 countries reported a forest cover in excess of 50% (54). Brazil, Canada, China, the Russian Federation and the United States constitute those countries with the largest forest area, accounting for approximately 53% of the world’s forest area (54). Between 1990 and 2005, 83 countries indicated that their forest area had decreased in size, with 36 of these countries experiencing a rate of loss greater than 1% per year (191). However during the same period 57 countries reported increases in forest area (191). These data illustrate the variations that can exist among countries in terms of forest cover.

19. In terms of biological diversity, frontier forests, defined as “large, relatively undisturbed forest ecosystems” are some of the most important regions because, for the most part, they still maintain their full complements of species. However these types of forests are increasingly under pressure (224). It is reported that frontier forests constitute less than 40% of the total remaining forest area and that 39% of frontier forests are increasingly threatened by anthropogenic activities, such as logging and agricultural expansion (189). Further it was reported by the authors of the Millennium Ecosystem Assessment that 67 countries were devoid of any frontier forest, that 70% of the total remaining frontier forest is found in just 3 countries (Brazil, Canada, and Russia), and that 3% lies in temperate regions (189).

20. Intact forest, defined as “mostly forested, but also non-forested, areas larger than 500 square kilometres and a minimum width of 10 kilometres within the forest zone that show no visible sign of significant human impact”, make up less than 10% of the world’s total land area (233). Of this 10%, 31% is located in tropical Latin America, 28% is in North America, 19% is in Northern Asia, 7% is in South Asia Pacific, 8% is in Africa and less than 3% is found in Europe (233). The intact forest landscape which remains is primarily composed of boreal forest (44%) and tropical rainforest (49%)(233). Only 8% of the total intact forest area is strictly protected, of which 32% is found in Patagonia, 15.5% in Europe, 12% in South East Asia, 8.7% in Africa, 8% in Tropical Latin America, 6.7% in North America, and 4.4% in Northern Asia (233).

21. Ninety-six countries, of the 174 that provided information on the characteristics of their forests to the FRA, reported that they still had primary forest left. Globally it is estimated that 1.3 billion hectares of

primary forest remains, of which 45% is found in South America, 23% is found in North and Central America and 20% is found in Europe - almost all of it in the Russian Federation. Information was, unfortunately, missing from many of the countries in the Congo Basin (54). When the information available for the period between 1990 and 2005 is analysed, the trend observed is a net reduction in primary forest area of 6 million hectares per year due to deforestation and modification of forests through selective logging and other human activities (54). When data from 10 countries, containing a total of 80% of the world's remaining primary forest, was examined it was observed that 9 countries reported primary forest losses of more than 1% in the period from 1990 to 2005 (191). SOFO 2007 singled out the continued and long term loss of primary forest in tropical regions as an issue of concern (191).

22. While the global deforestation rate continues at an alarming rate of about 13 million hectares per year, with few signs of a significant decrease during 1990-2005, the net loss of global forest area is now happening at a slower rate due to increased afforestation and reforestation efforts in some regions. Between 1990 and 2000 the global net loss of forest was estimated to be 8.9 million hectares per year while between 2000 and 2005 the net loss of forest was calculated at 7.3 million hectares annually or 200 km² per day (cf. Figure 1) (54). While the net rate of forest loss is decreasing, this is largely the result of increases in plantation forests. Further, estimates regarding natural forests indicate that they continue to be lost at approximately the same annual rate between 2000 and 2005 as they were during the 1980-1990 period (54), at an estimated rate of 6 million hectares per year, or 16,500 hectares per day. Some countries have made notable progress in reducing their rate of deforestation. For example Brazil has achieved a reduction of close to 25% between 2005 and 2006, due to improved forest law enforcement and governance. Other countries and regions have seen an increase in deforestation rates, in particular in Southeast Asia.

23. The tropical biome accounts for the vast majority of current global deforestation while the boreal and temperate regions' forests cover has been increasing through afforestation, reforestation and the natural expansion of forests on abandoned agricultural land. South America suffered the largest net loss of total forest area from 2000 to 2005 – about 4.3 million hectares per year, or 0.50% of South American forests. Africa lost 0.62% of its forest per year, about 4.0 million hectares (54). Somewhat different information is presented in the Millennium Ecosystem Assessment where it is reported that the rate of deforestation in developing countries has remained constant at 1990 levels, approximately 16 million hectares per year (189). The areas that are experiencing the highest rates of deforestation are located in Africa, with that continent accounting for 50% of net recent deforestation (189). However the authors of the Millennium Ecosystem Assessment report that some values for deforestation in developing countries are contradictory, making an overall assessment of global forest trends problematic.

24. While numerous drivers of deforestation have been identified, it is difficult to isolate the impacts and contributions that these drivers have at the regional or global scale (189). This is especially true for tropical regions (189). For example while poverty is frequently associated with deforestation (as poor individuals are often reliant on primary resource extraction and depend on forest areas for pasture or agricultural lands as well as to fulfill individual and household needs), this generalization does not always hold true (199). The World Bank's (WB) report "At Loggerheads? Agricultural Expansion, Poverty Reduction and Environment in the Tropical Forests" references several examples where despite the presence of poverty, it was not the main driver of deforestation. The majority of the forest area lost in Latin America was converted into large-scale agriculture (206). The Center for International Forestry Research (CIFOR) in their paper "The Underlying Causes of Forest Decline" reach similar conclusions to those presented in the MA and the WB report (211). In a more recent study on "Reducing Emissions From Deforestation and Degradation in Developing Countries", CIFOR groups direct causes of deforestation under headlines of agricultural expansion, wood extraction, and infrastructure extension. Underlying causes are grouped into macro-economic factors such as increases in the profitability of the forest sector; governance factors, such as the decentralization reform in Indonesia; and other factors, such as demography (276). Some of these trends, in particular agricultural expansion, are intensifying in most regions (189, 247).

25. The encroachment of agricultural lands into forested areas has been cited as a leading cause of deforestation. The MA reports that agricultural land is expanding in approximately 70% of the countries examined, declining in 25% and remaining stable in 5% (189). In addition the MA observed the following relationship: In two thirds of the countries where agricultural land is expanding the forest area is decreasing. Conversely in those countries where agricultural land is decreasing, in 60% of the cases the forest area is increasing (189). Throughout the 1990's the loss of natural forests to agricultural expansion and plantations was estimated at 16.1 million hectares per year and of this transformation 15.2 million hectares occurred in the tropics (193). FRA 2000 estimated that 70% of the converted forest area was used for permanent agriculture (206). The scale of this land use conversion varied amongst regions however. Most converted areas in Latin America were used for large scale agriculture while in Africa the converted forests were generally used for small scale farming and in Asia a mixture of the two forms occurred (206).

26. Driven by the food needs of a wealthier and a potentially 50% larger population, it is estimated that by 2050 one billion hectares of natural ecosystems will have been converted to agricultural land (247). This would represent an 18% increase in the total size of the current area used for agricultural purposes (247). It is expected that the majority of this new agricultural land will be from Latin America and Sub-Saharan Central Africa (247). For example it is reported in the World Bank document "At Loggerhead?" that plantations, pasture and crop land are expected to continue to increase over the next 30 to 50 years, with one estimate suggesting that a net 3.8 million hectares of cropland could be created each year during the next three decades in developing countries (199).

27. The growing interest in biofuels, largely driven by rising oil prices, climate change, and the desire for greater energy security, may worsen the rate of encroachment of agricultural land into forested areas. For example one study forecasts that by 2050 14 to 70% of the world's present total agricultural land could be made available for bio-energy production (255). The need for fertile agricultural land to produce biofuels may result in land conflicts and an increase in food prices. This would affect indigenous and local communities as well as small-holder farmers by forcing them to rely more heavily on resources from the wild and/or clear additional forested lands. Although no global figures exists on trends in land conversion for biofuel production, many non-governmental organizations have warned that the expansion of energy crop plantations into natural forest, especially in South-East Asia and Amazonia, may occur. For example, of 6.5 million hectares of oil-palm plantation established in 2004 in parts of South-East Asia, almost 4 million hectares had previously been forested (256). Thus, expansion of biofuel production potentially poses a significant threat to forest and other biodiversity through land conversion and changes in water use for plantations and agricultural expansion. A further concern is that the alleged environmental benefits of biofuels might serve as arguments for additional land conversion. According to a study on global bio-energy potential to 2050 (255), the most promising regions for the large-scale supply of bio-energy, assuming best practice agricultural management systems and technologies, are sub-Saharan Africa, Latin America and the Caribbean.

Goal 6: Control Threats from Invasive Alien Species

28. With regards to target 6.1 (Potential invasive alien species affecting forest ecosystems controlled) global estimates of the damage caused by invasive alien species are not readily available, though it is well-known that invasive species are having a large impact on forest ecosystems. Invasive species have become the major cause of biodiversity loss globally, surpassing habitat destruction (290). Numerous species of plants, insects, bacteria, fungi, birds, mammals, and grasses have become invasive in forest ecosystems throughout the world. Estimates on the total economic cost of invasive species to forest ecosystems are difficult to quantify. As a result numerous estimates exist. The FAO, in their publication "Alien Invasive Species: Impacts on Forests and Forestry" cite a report by Pimentel et al (2001) in which it was estimated that the total annual cost of invasive alien species in Australia, Brazil, India, South Africa, the United Kingdom and the United States was US\$ 314 billion (200). However despite these types of estimates it appears that information on the effects of invasive alien species remains too fragmentary to discern any global trends. Future FAO Forest Resource Assessments or other global studies might address this information gap. The Global Invasive Species Programme (GISP) and its

Strategic Plan 2006-2010 provide guidance for most urgently needed action and cooperation at international level.

29. Several tree species, originally introduced as alternative timber and fodder sources or for ornamental, or soil stabilization purposes, have since become invasive and are threatening native forest biodiversity. For example in South America trees such as acacia, pine (*Pinus* spp), chinaberry (*Melia azedarach*), Japanese cherry (*Hovenia dulcis*), loquat (*Eriobotrya japonica*), African oil palm (*Elaeis guineensis*), tamarisks (*Tamarix* spp) and mesquite (*Prosopis*) have become invasive in many countries and are having a negative effect on soil quality and water availability, and are displacing native forest species (140).

30. Many invertebrates, vertebrates, amphibians, reptiles, birds and mammals have invaded forest ecosystems, with considerable negative consequences for biodiversity such as extinction or extirpation of indigenous species. For example, in Canada and the United States, the Asian long-horned beetle (*Anoplophora glabripennis*) and emerald ash-borer (*Agrylis planipennis*), both from Asia, have been responsible for the deaths of more than 30 million deciduous trees in the central and eastern parts of those countries (291, 292). The effects that some of the most damaging species, such as the brown tree snake (*Boiga irregularis*), crazy ants (*Anoplolepis gracilipes*) or strawberry guava (*Psidium cattleianum*), have had on forest ecosystems are described in IUCN's publication "100 of the world's worst invasive alien species" which is based on the global invasive species database (269).

Goal 7: Address Challenges to Biodiversity from Climate Change, and Pollution

31. Though estimates related to the role of trees in reducing the effects of climate change are available, information directly related to target 7.1 (the capacity of forest ecosystems and their species to adapt to climate change maintained and improved) does not appear to be available. While the Intergovernmental Panel on Climate Change (IPCC) suggests the different types of impacts that climate change may have on forests, estimates quantifying these impacts at the global level are lacking. It is believed that climate change will have a variety of impacts on the distribution of individual organisms and populations as well as impact ecosystem function and composition (201). Further these impacts will be both direct and indirect. The predicted long term impacts of climate change on forests vary from increased tree growth but more forest fires in northern countries to die-backs in tropical countries (195). While there is much uncertainty on the impacts of climate change on forest ecosystem, in general, it is expected that habitats will shift towards the poles and move upwards in elevation (201). As a result of these changes, the IPCC predicts that those species and populations which are already vulnerable will potentially become extinct (201). In general there is increasing evidence that forests will be greatly affected by climate change (191). Other studies have suggested that tree migration rates, at least in North America, can keep pace with expected climate change (293).

32. Most countries do not have adequate information relating to the forest area damaged by disturbances such as diseases, insect pests, weather and forest fires (191). It was reported that the combined forest area affected by both disease and insects was 68 million hectares in 2000 with an average of 1.4% of the forested land affected by insects and 1.4% affected by disease (191). Compared to 1990 values this represents a large decrease in the forest area damaged by insects but a slight increase in the area affected by disease (54). Given the limited amount of information on these topics over time and the lack of data from many countries it is impossible, at this time, to determine any global trends related to insect and disease impacts, however there are some national examples. For example the mountain pine beetle (*Dendroctonus ponderosae*), between 2000 and 2003, caused serious damage to the boreal forests in both Canada and Siberia, affecting more than 20 million hectares of boreal forest, by killing most trees (189). In the Canadian province of British Columbia alone these beetles killed 582 million cubic meters of trees over an area of 14 million hectares during the 2000-2006 period, resulting in an estimated economic loss of 55 billion Canadian dollars (296). In addition the IPCC concluded that it is virtually certain that warmer temperatures and fewer cold days will lead to increased pest outbreaks (49).

33. With regards to target 7.3 (the impact on forest biodiversity of human-induced uncontrolled/unwanted forest fires substantially reduced) the available information is not comprehensive. While forest fire information is available for approximately 80% of forest area globally between 1998 and 2002, information from Africa is largely unavailable (54). According to the FRA for each year of the 2000 reporting period on average 27.7 million hectares of forests and 5.1 million hectares of wooded land were burned, equivalent to 0.9% of the forest area in each of the reporting countries. While fires are a natural element of many forest ecosystems and provide potential ecological benefits, the number and intensity of forest fires has increased recently due to anthropogenic causes, including climate change, resulting in mainly negative ecological consequences (54, 189). However alternative estimates exist (54). In 2000 it was estimated that the global land area affected by fire was 350 million hectares but exactly how much of this area was forest is unclear (196). The largest percentages of forest area burned were found in Africa and Asia (54). Despite this information it is difficult to extrapolate any global trends related to forest fires as 35 countries, of the 91 that provided information to the 2005 FRA on trends in forest fires, reported an increase in the rate of forest fires while 31 countries reported a decrease and 25 reported no change in fire frequency. Therefore from the information reported to the FRA no global trend can be concluded (54). Conversely the MA reports that forest fires have been increasing in both frequency and impact in recent decades and that globally, forest fires are having a large negative impact on forest biodiversity (189). Both the FRA and SOFO caution that forest fire estimates should be used with caution as the information is often incomplete (54, 191).

34. While deforestation exerts major pressures on forest ecosystems, substantial degradation also occurs as a result of air pollution (189). Pollutants such as sulfur, nitrogen, heavy metals and ozone are particularly detrimental to tree health, especially when combined with other pressures such as climate change, acidification and eutrophication (189). Between 1986 and 1995 the temperate and boreal forests in Europe exhibited a continuous decline in forest health as a result of air pollution. For example in 1988 69% of trees in this region were considered healthy however by 1995 this value had fallen to 39%. From 1995 to 2001 the damage to trees from air pollution seemed to stabilize, albeit at a high level, with approximately 25% of trees exhibiting damage related to air pollution (189). Though emissions of air pollutants, such as sulfur dioxide, have decreased in many industrialized countries, they are increasing in several Asian, African, and Central and South American countries (189).

Goal 8: Maintain Capacity of Ecosystems to Deliver Goods and Services and Support Livelihoods

35. In relation to target 8.1 of the 2010 targets, (the capacity of forest ecosystems to deliver goods and services and to support sustainable livelihoods) it is estimated that approximately 240 million people live in forested areas, including about 60 million – mainly indigenous and tribal groups, who are almost wholly dependent on forests. Forests play a key role in the economy of many countries, with an estimated 12-17 million people formally employed in the forest sector globally. Further forests are important for the rural poor, in particular for women, as they are usually reliant on forest resources for fuelwood and other forest goods (54, 189, 265)

36. Forests generate an estimated 2% of global GDP and are the origin of 5000 different commercial products (189). In 2005 the trade in industrial roundwood was valued at US\$ 12 billion, representing 133 million cubic meters of wood or 7.7% of global production of industrial roundwood - or 3.8% of global wood production (204). While many products come from forested areas, wood is one of the most economically important and roundwood in particular has received considerable attention.

37. Illegal logging and illegal harvesting of forest products are key constraints to sustainable development. They are limiting the capacity of forests to deliver essential goods and services and support livelihoods. It is estimated that illegal logging leads to losses in assets and revenue well in excess of US\$ 10 billion and that at least another US\$ 5 billion is lost to Governments because of uncollected taxes and royalties. This is more than four times the official development assistance to the sustainable management of forests. Illegal logging and resulting damage to forest ecosystems often adversely affects vulnerable parts of the populations, such as the rural poor, who often depend directly on forest resources (216). In

addition, illegal logging distorts the marketplace for legal operators. Recent estimates suggest that up to 15% of internationally traded roundwood might be originating from illegal sources (217, 218).

38. The consumption of main timber products (roundwood, sawnwood, pulp, paper) is expected to increase significantly. Currently the total area harvested per year is estimated to be 11 million hectares however harvest intensity is highly variable (189). The rate of roundwood production world wide increased by approximately 0.8% per year for the period from 1996 to 2000 (189). During this same period 3.3 billion cubic meters of wood per annum were harvested from the world's forests (189). By comparison in 2005 the total global standing tree volume was estimated to be around 434 billion cubic meters and above ground woody biomass globally was in the order of 448 billion tons (208). In Europe alone the consumption of coniferous sawnwood is expected to grow at an average annual rate of 1.8% until 2020 while the consumption of non-coniferous sawnwood will grow at a rate of 1.9%. Similarly, in Europe, the consumption of newsprint and other paper and paperboard products is expected to increase at an annual rate of 2.6% and 2.4% respectively until 2020 (201). One estimate suggests that by 2030 the use of solid biofuels for electricity production could be three times larger than current levels (191). Globally, by 2050, the demand for industrial roundwood is expected to increase by 50% to 75% (267).

39. Between 2000 and 2005 the total area of plantations designated for production increased by 2.5 million hectares (54). The MA further reports that though plantations only represent 5% of global forest area, these landscapes provided 35% of the roundwood produced globally in 2000 (189). Under one projection this value could increase to 44% by 2020 (189). The data relating to forest plantations is problematic however as it is often contradictory and highly variable

40. The ITTO, in a market study of tropical plantation timber, estimated that total roundwood consumption in 2004 was 3.4 billion cubic meters per year of which 1.6 billion cubic meters originated from tropical countries (222). When only industrial roundwood is considered it is estimated that 322 million cubic meters of it originates from the Tropics and of this 47% originated from plantations (222). On a regional basis 63% of the industrial hardwood produced in Latin America and the Caribbean originates from plantations while in Asia and Africa this value is 46% and 8% respectively (222). In 2004 the export of forest products from tropical countries were estimated at \$13.4 billion US with the Asia-Pacific region accounting for approximately 60% of this total (222).

41. Big leaf mahogany (*Swietenia macrophylla*), which is included in appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is one forest species which has garnered much attention do to its large social and economic value. However despite this importance ITTO reports that production statistics for many of its member countries are not available (232). Therefore the following figures should be treated with caution. In 2002 the volume of big leaf mahogany exported by the main countries of export was calculated to be 118,687 m³ (232). When the export volume of big leaf mahogany for the period from 1996 to 2002 is compared the trend appears to be one of decreasing exports, though variations exist between years (cf. annex II, table 2).

42. A further forest ecosystem good identified in the MA is fuel wood, which accounts for about half of all the wood globally harvested. According to the MA 7% of the global energy demand is fulfilled through fuelwood; however large variations exist between countries (189). In 34 developing countries fuelwood fulfills 70% of energy needs and in 13 developing countries it fulfills 90% of energy needs (189). Further, of the charcoal and firewood produced and consumed each year, 50% is accounted for by 5 countries: Nigeria, Brazil, India, China and Indonesia (198). Projections of future fuelwood consumption vary from 1.5 billion metres cubed to upwards of 4.25 billion metres cubed (198). This later value would represent an increase of approximately 136% (198). Given the current interest in bioenergy and assuming that technology allows for biofuels from cellulosic biomass (second generation feedstock) to be created in a globally affordable/marketable manner, the demand for wood energy may increase the above figures.

43. Aside from timber resources, forests provide a variety of non-wood forest products (NWFPs). The Global NTFP Partnership estimates that globally more than 2 billion people rely on non-wood

products to fulfill needs related to shelter, medicine, fuel and income generation (226). However despite the important role that NWFPs play in increasing societal wellbeing, they have largely been omitted from Government development strategies (226).

44. It is estimated that globally 21,000 plants are used for medicinal purposes and that the majority of these are located in the world's biodiversity hotspots including the Amazon rainforest, the coastal forests of East Africa and the Western Ghats in South Asia (226). In the Amazon Basin alone it is estimated that 1,300 species of forest plants are used for medicinal and other purposes (271). Further in tropical Africa 50,000 tons of medicinal plants, representing 4,000 different plant species, are consumed (226). The number of species used for medicinal uses in countries in the African region is listed in table 3 of annex II. Further in Ghana, Mali, Nigeria and Zambia, the World Health Organization estimated that 60% of children suffering from high fevers were treated with herbal medicines at home (227). In terms of economic value in 2002 the World Health Organization estimated the value of herbal medicines, based on traditional knowledge, at US\$60 billion (227).

45. Rattan and bamboo are two other NWFPs which have large social and economic significance. Of the 1250 known species of bamboo, over 100 are commercially used while 50 of the 600 known rattan species are traded commercially (228). The International Network for Bamboo and Rattan estimated that for 2004 the export value of the 9 bamboo and rattan commodities identified by international custom codes was over US\$ 8 billion (229). As such bamboo and rattan represent globally important NWFPs.

46. A variety of information on the ecosystem services provided by forests is available. In relation to carbon sequestration it is estimated that the amount of carbon stored in biomass and deadwood as of year 2005 was around 321 billion tons and that this amount increases to 638 billion tons when the carbon stored in litter and soil is included (54). However alternative estimates do exist. For example one estimate suggests that the boreal, tropical and temperate forests contain 337 billion tons of carbon in their above ground biomass while the first one metre of forest soil contains 787 billion tons of carbon (189). By comparison the total area covered by these three forest biomes is 4.17 billion hectares (189). Given the current knowledge of the global carbon cycle, the MA suggests that the net primary productivity of the world's forests is 60 billion tons of carbon per year (189). Global Environment Outlook Three presents similar information. It is estimated, that forests globally, contain more than 50% of the carbon that is stored in vegetation and soil and that of this carbon tropical forests contain 20%, temperate forests contain 7% and boreal forests hold 26% (193). Further, forested peatlands are large carbon stores. While peatlands, many of which are forested, cover only 3 - 4% of the world's terrestrial surface, they store 540 gigatons of carbon, or 1.5% of the world's total carbon store and this represents 25-30% of the carbon contained in terrestrial vegetation and soils (189).

47. As forest ecosystems are important sinks for carbon their loss has serious implications for climate change. Between 1990 and 2005, it is estimated that the size of the carbon stock contained in forest biomass decreased by approximately 5.5% over this period or by an average 0.4% (equivalent to 1.1 billion tons) per year (54). Further the loss of peatlands, as a result of land conversion and degradation, is resulting in large quantities of carbon dioxide being emitted every year, contributing up to 10% of global annual greenhouse gas emissions (274). This loss of peatlands, and thus key carbon storage facilities, is being fuelled presently by the boom for biofuels, in particular in South-East Asia (266). Further while tropical forests are important sinks for carbon dioxide, land use change (largely resulting from deforestation) is resulting in the release of approximately 1.6 +/- 0.8 billion tons of carbon per year (189). For this reason it is currently estimated that deforestation in the tropics, when compared to other forested areas, is having a large negative impact on climate change. Conversely calculations for temperate and boreal lands of the Northern Hemisphere suggest that from the mid 1980's to the mid 1990's between 0.6 and 2.7 billion tons of carbon per year was sequestered (189), although more recent work indicates that North American boreal forests are now releasing more carbon than they are sequestering and do not represent so large a sink as first thought (294, 295). However these types of estimates can vary widely depending on the methodology and assumptions used in their calculations.

48. The amount of forest area which had one of its management objectives related to wood production in 2005 was just over 50%, while 34% was specifically designated for production purposes (191). When the trend data for the period from 1990 to 2005 is examined, it suggests a 5% decline in the amount of forest designated for production over the 15 year period and the amount of forest designated for the conservation of biological diversity has increased by a roughly 5% (54).

49. While forests provide a variety of ecosystem services they are increasingly recognized as being crucial elements in the protection of landscapes, ecosystems and human well-being. This importance is recognized in the European Forest Sector Outlook which provides information on possible developments related to forest resources and forest based industry in Europe (210). Estimates suggest that the use of protective forest plantations is increasing. For example from 1990 to 2000, 405,000 hectares per year of protective plantations were created while from 2000 to 2005, 330,000 hectares per year were created. Globally the amount of protective forest plantations increased from 0.63% of the total forest area in 1990 to 0.82% in 2005 (54). This reflects an increase in the establishment of forests for protective purposes, but may also reflect a reclassification of existing forest plantations over time (54).

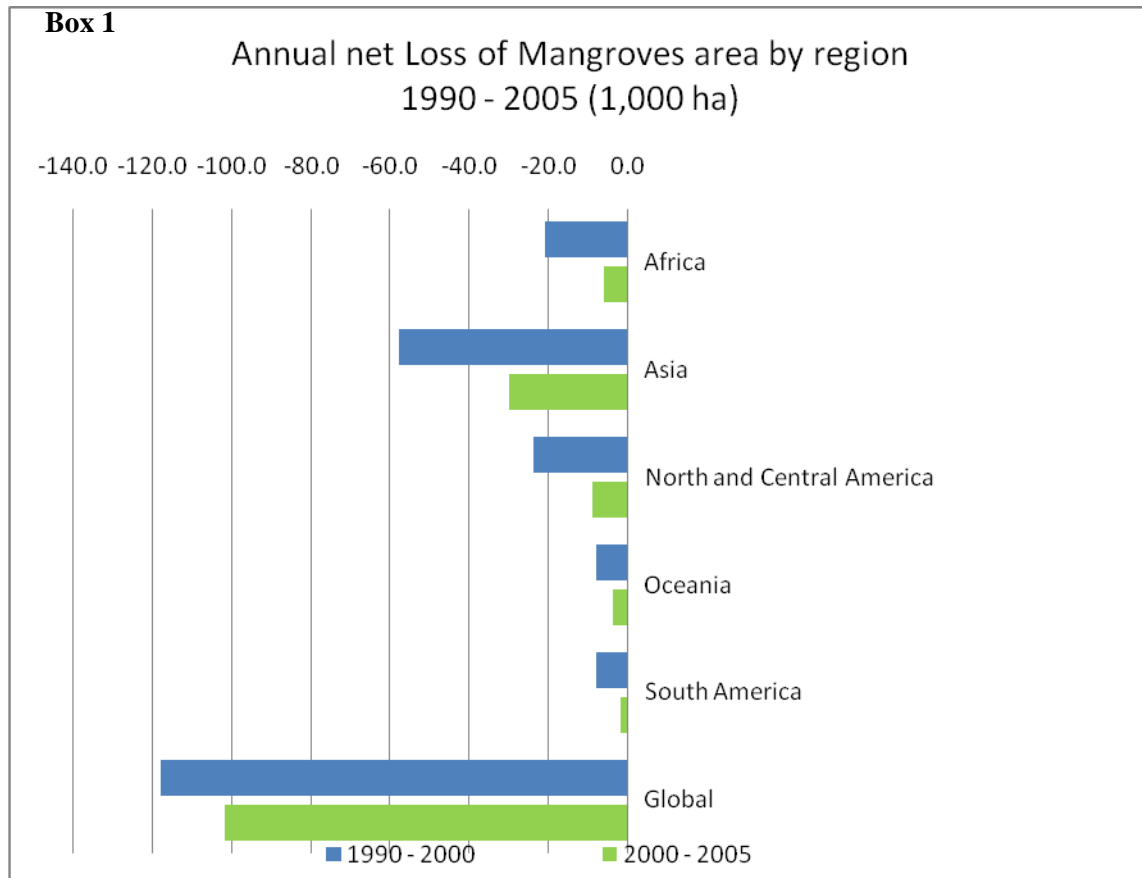
50. In many regions, forests are vital to the protection of soil and water resources. While the overall value of forests in relation to soils is well recognized, quantifying this value at the global level is difficult. As an illustrative example of the relationship between forest cover and soil health the authors of the MA report that in the tropics, rates of soil erosion are 10 to 20 times higher on cleared forest land than in undisturbed forests (189). Forests also play a crucial role in relation to water conservation and quality. Forests, by protecting watersheds, are vital to the survival of people in many regions. Despite this importance 42% of the world's main river basins have undergone substantial deforestation (75% of their original forest cover lost) (189). However increasingly the view that more trees contribute to the development and conservation of water resources and that deforestation results in floods is being challenged. There is mounting evidence that this causal relationship does not always hold true for all ecosystems (191).

51. Estimates of the minimum forest cover required to provide significant protection varies depending on the ecological characteristics of the region. It is estimated that a forest cover of between 7% and 30% is required in the temperate zone in order to provide soil and water protection while for semi-arid and arid regions the estimates vary from 3.5% to 5-6% (189).

52. A further ecosystem service provided by forests is the protection of fragile ecosystems such as small islands, and dry lands. In dry land areas forests provide a variety of regulating services and in mountainous regions forest regulate water supply, stabilize soils and reduce the rates of wind erosion (189). Though forests on small islands only represent 0.2% of forest globally they are vital to the maintenance of individual wellbeing, biodiversity and other ecosystem services (189). For example mangrove forests are particularly important in this regard.

53. Mangrove forests are unique forest ecosystems because they lie at the boundaries of terrestrial and aquatic systems. Currently mangrove forests cover 25% of tropical coastlines (193). Aside from being biologically rich areas, mangrove forests also provide an array of ecosystem services such as the protection of coastlines from wave erosion and the protection of coral reefs and sea grasses from processes such as siltation and act as nurseries for many species of fish and shellfish (193). For example, in Malaysia, the coastal protection services provided by intact mangrove swamps have been valued at US\$300,000 per kilometer (147). However mangrove forests are increasingly being pressured from various anthropogenic activities such as shrimp aquaculture. It is estimated that approximately 50% of mangrove forest loss can be attributed to this latter activity (193). A recent study by FAO estimated that the global mangrove area currently equals about 15.2 million hectares, with the largest areas found in Asia and Africa, followed by North and Central America. An alarming 20 percent, or 3.6 million hectares of mangroves, have been lost since 1980. Over the last two decades it is estimated, based on information representing 54% of global mangrove area, that 35% of all mangrove area has been lost (Cf. Box 2). This represents an annual loss of slightly more than 2% (189). More recently the rate of net loss appears to

have slowed. About 185,000 hectares were lost every year in the 1980s, this figure dropped to some 118,500 hectares per year in the 1990s and to 105,000 hectares per year (-0.6 percent annually) during the 2000–2005 period, perhaps reflecting an increased awareness of the value of mangrove ecosystems (207).



Source: FAO, 2007

54. In addition to the protective functions that forests serve they also provide a variety of social services such as education, recreation, and tourism. Currently it is estimated that 4% of forests globally are managed primarily to ensure the provision of these sorts of social services (54). In this regard Europe in particular stands out as 72% of its forest area has the provision of social services listed as one of its designated functions (54).

55. Tourism, in particular ecotourism, is a further ecosystem service partially dependant on forests. Tourism as a whole generates an estimated \$3.6 trillion in economic activities and is estimated to employ 200 million people, representing 8% of jobs internationally (214). Further in the world's 40 poorest countries tourism is a major source of foreign exchange, second only to oil exports and in 4 out of every 5 countries tourism is ranked as one of the top five export earners (214). With regards to ecotourism specifically, during the 1990s it was growing at a rate of 20-34% per annum and in 2004 ecotourism/nature tourism was increasing three times faster than the tourist industry as a whole (214). Park tourism specifically is credited with directly contributing approximately USD 30 million per year to protected areas in developing countries (223). In addition tourists are increasingly seeking out environmentally friendly forms of tourism. For example 10-20% of European tourists seek green options when traveling while 5-10% demand green holidays (214). Further based on data from several countries, including Canada, Costa Rica, South Africa, and the United States, approximately 60% of leisure tourists in any country visit at least one National Park during each of their trips (223). Therefore ecotourism, much of which relies on forests and in particular on protected forest areas, provides a variety of benefits to countries. However, the fast growth of ecotourism in some regions has raised concerns as to the

sustainability of the sector and the full participation and consent of local stakeholders, in particular indigenous and local communities (214, 277).

56. While the goods and ecosystem services derived from forests sustain the livelihoods of many, illegal actions and unsustainable use are undermining this role. For example the Millennium Ecosystem Assessment cites reports by the WWF and the World Bank which suggest that 70 countries have serious biodiversity issues stemming from illegal logging (189). Further, it is estimated that by 2050 one third of the world's remaining tropical and temperate forests, grasslands and savannas could be converted to agricultural lands in order to meet rising food demands (247). The use of nitrogenous and phosphorous based fertilizers that would accompany such an increased is predicted to result in a 2.4-2.7 fold increase in the eutrophication of terrestrial freshwater and marine coastal ecosystems (247). These changes would result in the simplification of the local environment, the extinction of species and a loss of ecosystem services (247).

Goal 9: *Maintain Socio-Cultural Diversity of Indigenous and Local Communities*

57. The data related to Goal 9 is difficult to quantify at the global scale, although some regional information is available. Based on a review of 14 case studies, CIFOR and The International Alliance of Indigenous and Tribal Peoples of the Tropical Forests (IAITPTF) concluded that Latin America is the region that has made the most progress in the recognition of indigenous people's rights (though variation between countries exists). In Africa and Asia there is a general lack of recognition (202). In many Asian countries traditional forest related knowledge (TFRK) policies are focused on the potential value of such knowledge in relation to bio-prospecting and a similar situation exists throughout the African Region (202).

58. In relation to the use of traditional knowledge in forest management (target 9.1), indigenous groups are increasingly involved in the collaborative management of protected areas. This has been particularly true in Latin America (202). In Africa there have been many mechanisms proposed and developed to allow for local participation in forest management decisions while in several Asian countries participatory management of forest resources plays an important role (202). Despite these advancements, CIFOR and IAITPTF conclude that both the level and efficacy with which indigenous peoples are allowed to participate in forestry decisions is low. The authors attribute this situation to a lack of mechanisms for participation, little access to policy forums, and a lack of awareness of behalf of both indigenous peoples and Government officials (202).

59. In many countries the policies related to indigenous forest knowledge (target 9.2) which do exist have been focused on generating income, fulfilling commercial interests and safeguarding national interests (202). From the evidence available it would appear that the trend has been one of a continued decline in customary governance structures, a continued lack of official land and resource rights and low participation on behalf of indigenous peoples in policy matters (202).

Goal 10: *Ensure the Fair and Equitable Sharing of Benefits Arising out of the Use of Genetic Resources*

60. Information on Goal 10 of the 2010 targets is not readily available for the global level. However some information on payments for ecosystem services (PES) is present. CIFOR reports that there are many PES systems currently in the implementation phase but that they are still at a very early level of development. Most of these are located in Latin America (173). CIFOR concludes that PES programmes are likely to work best when implemented on marginal lands and in situations where modest payments can promote conservation (173). An identified obstacle to the further implementation of these types of programme is the limited knowledge on the demand and supply aspects of ecosystem services (202).

Goal 11: *Parties Have Improved Financial, Human, Scientific, Technical and Technological Capacity to Implement the Convention*

61. The amount of information relating to targets 11.1 (the transfer of new and additional financial resources to developing country Parties to allow for the implementation of the expanded programme of

work) and 11.2 (the transfer of environmentally sound technology to developing country Parties to allow for the implementation of the expanded programme of work) is limited and as such it is not possible to observe any clear trends. However some illuminating information is available. The Millennium Ecosystem Assessment reported that there is increasing interest in using technologies, such as remote sensing, to develop forest inventories. However these technologies are still limited and their reliability is untested (189). Further, while these technologies are valuable tools in generating forest maps, information such as forest ownership, land tenure and property rights are often ignored (189). In addition over the last 20 to 30 years the amount of funds available for constructing forest inventories has decreased in many countries (189). Funds that were traditionally provided by international agencies such as the FAO to help support forest inventory programs are no longer as forthcoming as they once were (189). This creates a financial burden that many countries cannot address.

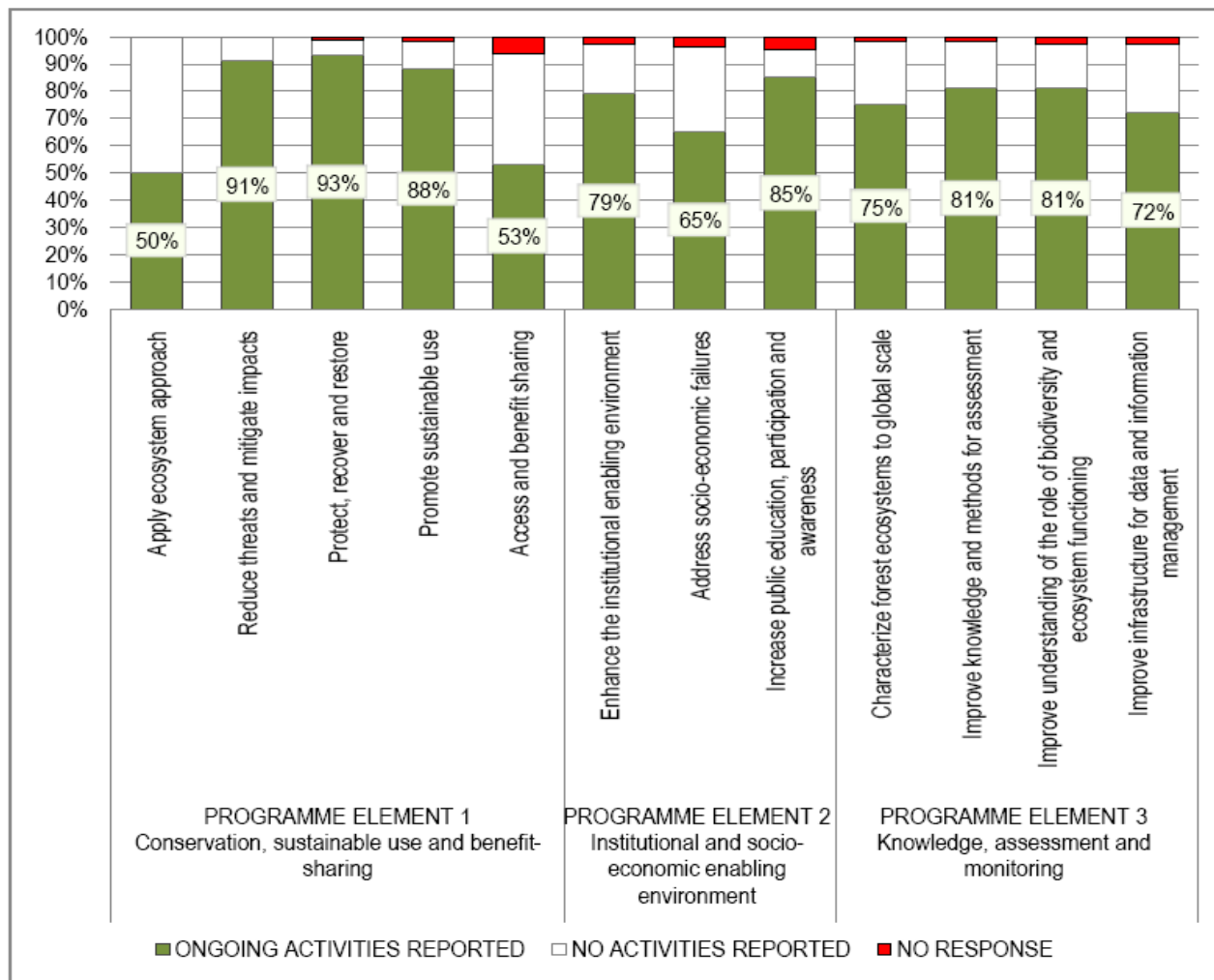
III. SYNTHESIS OF THE REVIEW IMPLEMENTATION OF THE EXPANDED PROGRAMME OF WORK ON FOREST BIOLOGICAL DIVERSITY

A. Introduction

62. This section summarizes the information provided by Parties, other Governments, relevant organizations and processes as listed in section A of the annex to decision VIII/19. The first section of this report summarizes information contained in the third national reports submitted by Parties to the Secretariat of the Convention on Biological Diversity. The level of response to each question is summarized graphically in box 3 below and in the maps accompanying the discussion of each goal. Further, when appropriate, information from the first, second and thematic reports was also included in the first section. The second section of the report provides information on the activities taken by the Executive Secretary and the third section summarizes all other sources of information listed in the annex to decision VIII/19 including:

- (a) Case-studies and projects that are completed or under way;
- (b) Training programmes;
- (c) Relevant forest and biodiversity databases; and
- (d) Independent reports, toolkits, guidelines and peer-reviewed articles.

Box 3: Percentage of countries that responded to the questionnaire of the third national report on forest biological diversity, based on 122 responses^{2/}



PROGRAMME ELEMENT 1: CONSERVATION, SUSTAINABLE USE AND BENEFIT-SHARING

Goal 1: To apply the ecosystem approach to all types of forests

Objectives

1. Develop practical methods, guidelines, indicators and strategies to apply the ecosystem approach adapted to regional differences to forests both inside and outside protected forest areas as well as both in managed and unmanaged forests.

63. There is one objective under goal 1 of programme element 1. This objective calls for the development of practical methods, guidelines, indicators and strategies to apply the ecosystem approach adapted to regional differences to forests both inside and outside of protected forest areas as well as both in managed and unmanaged forests. There are nine activities associated with this objective and they cover issues such as clarifying the conceptual basis of the ecosystem approach, developing guidance to help

^{2/} “Activities implemented” represents the percentage of those countries that reported activities under a given goal; “No activities implemented” represents the percentage of countries that reported no activities under a given goal; “No data” represents the percentage of countries that did not respond to a given question.

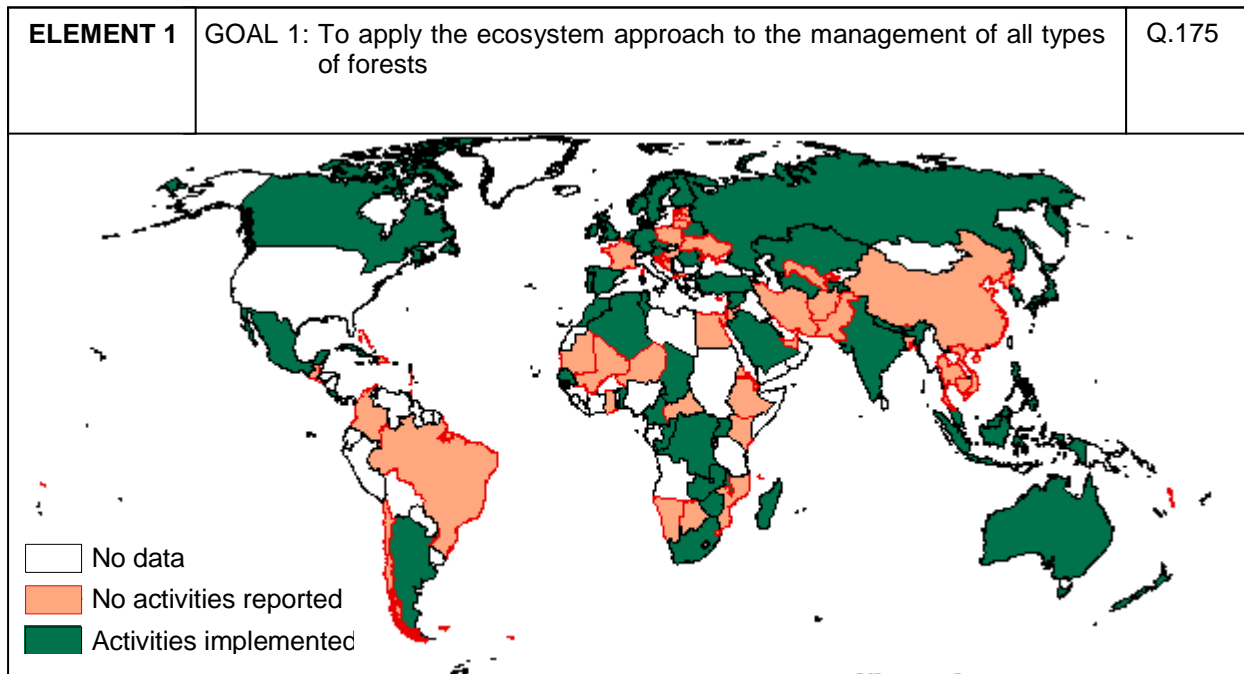
implement suitable forest management practices and promoting research and pilot projects that could help improve management practices in relation to forests and other land uses.

B. Information from the national reports

64. Question 175 of the third national report questionnaire directly related to the application of the ecosystem approach. 121 Parties responded to this question and the responses are as follows:

- a) 61 Parties reported that they are applying the ecosystem approach to all types of forests;
- b) 40 Parties reported that they are not currently applying the ecosystem approach but that potential measures for its application are being identified; and

c) 20 Parties reported that they were not currently implementing the ecosystem approach. The obstacles to implementation reported by these Parties include the lack of qualified staff, the lack of ecosystem and up-to-date vegetation maps and the absence of guidelines for the application of the ecosystem approach to all types of forests. In addition one Party reported that forests are essentially managed for timber production and water shed value, one Party reported that the ecosystem approach was being applied in protected areas but was not focused specifically on forests and one Party reported that they were still trying to understand what the ecosystem approach entails. One Party reported that they lacked the capacity to implement the ecosystem approach and another indicated that the incomplete understanding of local ecological processes was an obstacle to fully implementing the ecosystem approach. Lastly one Party reported that the traditional methods of land and resource tenure were preventing the implementation of the ecosystem approach.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

65. The number of parties reporting positively (that the ecosystem approach is currently being applied to the management of all forest types) was low compared to the other goals of the expanded programme of work on forest biological diversity. 50% of responding Parties indicated that the ecosystem approach was being applied while the average for the entire programme of work is slightly less than 77%.

66. A few Parties (6 in total) reported that the ecosystem approach was applied as part of the process of obtaining forest certificates, such as those supplied by the Forest Stewardship Council and the Pan European Forest Council.

67. Six Parties (Canada, Denmark, European Community, Malaysia, Norway and the United Kingdom of Great Britain and Northern Ireland) related the ecosystem approach to sustainable forest management and highlighted the importance of the two concepts, especially in relation to long-term management strategies. In addition two Parties referred to the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the role it played in bridging the two concepts. Overall, this goal illustrated the relationship between the concepts of sustainable forest management and the ecosystem approach as well as instigated discussions on the two subjects.

68. Specifically with regards to objective 1 (to develop practical methods, guidelines, indicators and strategies to apply the ecosystem approach), the Finnish Forest and Park Service (Metsähallitus) has instituted a method of landscape and ecological planning which allows for multiple uses of forests and has the overall goal of preserving biological resources. The planning process goes through several stages including defining the planning area, the specification of the objectives, the collection of data from various sources, the compilation of the plan and its documentation.

69. The interpretation of the term “all types of forests” differed among the Parties. As stated, under this goal, the term includes forest ecosystems both inside and outside protected forest areas and both managed and unmanaged forests. Some Parties reported more application of the ecosystem approach within state owned forests than in private forests. Some Parties reported difficulties in applying the ecosystem approach in privately-owned forests and involving multiple stakeholders. For private forests one reported obstacle was the insufficient means of implementation. Further given that private land holders generally control relatively small land areas, applying the ecosystem approach would require the participation of numerous land owners in order to successfully implement the ecosystem approach.

70. Information relating to the application of the ecosystem approach was also presented in the second national report. In total the Secretariat received 94 second national reports. A majority of the countries reported that their actions, related to the sustainable use of forest biological diversity, conformed to the principles identified in the ecosystem approach. The Parties reported having applied the ecosystem approach to varying extents (44 to a limited extent and 37 to a significant extent). However, from the additional information provided, it is clear that at the time of reporting, the application of the ecosystem approach was still in its early stages and that the elements of the ecosystem approach were still being tested and explored by some countries.

71. Information on the application of the ecosystem approach was also present in the thematic reports submitted by the Parties. Of the 17 Parties that submitted thematic reports, several report on existing practices, which though they have not been developed to apply to the ecosystem approach per se, can be regarded as contributions to the implementation of the ecosystem approach within forestry (Austria, Denmark, and Germany) or as partly conforming to the ecosystem approach (Estonia, Morocco, Myanmar and the United Kingdom of Great Britain and Northern Ireland). Further Austria, China, Denmark, Germany, and Turkey are in the process of developing guidelines and indicators for the ecosystem approach and Sri Lanka is in the process of introducing a “bio-regional” concept. Colombia, Estonia, Finland, the Islamic Republic of Iran, Morocco, Myanmar, Sweden and United Kingdom have implemented some methodologies for this directive, while Ireland and Poland have implemented comprehensive regulations. One Party has yet to begin assessment measures.

C. Activities by the Executive Secretary

72. In paragraph 19 (a) of decision VI/22 the Conference of the Parties requested the Executive Secretary to carry out a comparative study to clarify the conceptual basis of the ecosystem approach in relation to the concept of sustainable forest management with adequate consideration for regional conditions and undertake a synthesis of case-studies on the ecosystem approach provided to the

Convention on Biological Diversity by Parties. In response to this request the Secretariat published the “Ecosystem Approach: Further Elaboration, Guidelines for Implementation and Relationship with Sustainable Forest Management” (192).

73. The Subsidiary Body on Scientific, Technical and Technological Advice, at its twelfth Meeting in July 2007, reviewed the application of the ecosystem approach. Two important needs were identified: (i) to simplify the description of the ecosystem approach and make it more attractive to, and comprehensible for, key target audiences (which vary widely), and (ii) to improve the “marketing” of the approach, chiefly by promoting it as a tool to achieve improved economic benefits.

74. The Executive Secretary, pursuant to decision VII/11, paragraph 9, developed an on-line source book with case studies on the application of the ecosystem approach. This database also includes numerous case studies for forest biodiversity (<http://www.cbd.int/ecosystem/sourcebook/default.shtml>).

75. In decision VII/11 the Conference of the Parties requested the Executive Secretary, in collaboration with the relevant international and regional organizations, to undertake an analysis of the range of existing tools and approaches that are consistent with the Convention’s ecosystem approach. In response to this request the Secretariat has made arrangements for the WWF to prepare an expanded version of the “Mountains to the Sea” initiative.

D. Activities of international organizations and non-governmental organizations

76. In general, there has been progress in the application of the ecosystem approach, e.g. in the regional policies of Europe, in the development of guideline publications, and the dissemination of best practice examples (e.g. by the World Conservation Union - IUCN) and in the implementation of specific local projects. The main challenge towards improvement lies in increasing the understanding of the ecosystem approach and connecting it with Government policies (270).

77. Three members of the Collaborative Partnership on Forests (CPF) worked in conjunction with five African Governments, a scientific body and local communities to apply the ecosystem approach in restoring West African drylands and improving rural livelihoods by, *inter alia*, building the capacity of rural communities to plan their own sustainable land-use and to train five national teams in the characterization of land degradation and in monitoring interventions for conservation (1).

78. According to the Global Environment Facility (GEF) publication “Forests Matter: GEF’s Contributions to Conserving and Sustaining Forest Ecosystems,” GEF invested \$777.6 million in 150 forest related projects up to June 2003. This accounts for 50 percent of the total GEF biodiversity portfolio (181). Further according to the GEF’s project database Internet site, they are currently funding eight projects applying the ecosystem approach, one regional for Latin America and the Caribbean and seven from Europe, Africa and Asia.

79. FAO published several documents on sustainable forest management and the ecosystem approach including:

(a) “Sustainable Forest Management and the Ecosystem Approach: Two Concepts, One Goal,” which outlines parallels between the two concepts with the aims of fully integrating them and improving policy and field management practices (53); and

(b) The proceedings of the Satellite Event on the Occasion of the Ninth Regular Session of the Commission on Genetic Resources for Food and Agriculture Rome 12-13 October 2002 entitled “Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries”.

80. The IUCN Commission on Ecosystem Management has an internet site describing the ecosystem approach following the 12 principles outlined in decision VII/11. This site also details how to implement the approach as well as presents four in-progress case studies: Panama, Niger-Nigeria border, Indonesia, and Vietnam (85).

81. The Ministerial Conference on the Protection of Forests in Europe (MCPFE), at its fourth conference in Vienna held in April 2003, adopted several key objectives of the expanded programme of work on forest biological diversity into their framework as part of the Vienna resolutions and commitments (13 and 17). Further the Pan-European understanding of the linkage between the ecosystem approach and sustainable forest management was agreed to and adopted by the MCPFE and the Environment for Europe/Pan European Biological and Landscape Diversity Strategy (Efe/PEBLDS). The two Ministerial processes analysed the 12 Malawi Principles of the ecosystem approach and the MCPFE Resolutions and Declaration to assess the linkages between the ecosystem approach and sustainable forest management (17). The issues of cross-sectoral integration, integration between forests and other habitats within a landscape as well as criteria and indicators were emphasized. It was stated that SFM as defined and developed by MCPFE is consistent with the application of the ecosystem approach to forest ecosystems in the pan-European region (17).

82. In an effort to close the gap between policy and the scientific understanding of ecological dynamics, three methods are proposed in a legal journal that can be adapted to environmental law: the precautionary principle, adaptive management and the ecosystem approach (187). In terms of the ecosystem approach, the author of the article stresses the importance of this approach in maintaining ecosystem health, integrity, or sustainability and its ability to connect social and ecological issues. Furthermore, he suggests that the ecosystem approach could be used to explore the interface between ecology and economics.

83. In its decision VI/22 the Conference of the Parties to the Convention on Biological Diversity recognized the role of international and regional organizations and processes in supporting Parties in implementing the expanded programme of work on forest biological diversity. Further in paragraph 38 of decision VI/22 the Conference of the Parties invited the members of the Collaborative Partnership on Forests to support the implementation of the expanded programme of work on forest biological diversity. In response to this decision, in 2004, a voluntary survey was sent by the SCBD to CPF members. This survey was composed of three questions one of which requested organizations to report on the constraints encountered while undertaking any actions aimed at assisting Parties to implement the work programme. Five organizations (FAO, ITTO, UNFF, IUFRO and ICRAF) responded to this questionnaire. Several CPF members indicated that the major constraint related to limited financial capacity and human resources. Other constraints identified included:

- (a) Inadequate institutional mechanisms for assessing progress in implementation;
- (b) Weak linkages between science and legal framework;
- (c) Inadequate transfer of environmentally sound technologies (such as water and soil management and knowledge of the multi-sectoral approach);
- (d) Trade-offs between long-term and short-term gains; and
- (e) Uncertainty and inadequate forest assessment capabilities.

Goal 2: To reduce the threats and mitigate the impacts of threatening processes on forest biological diversity

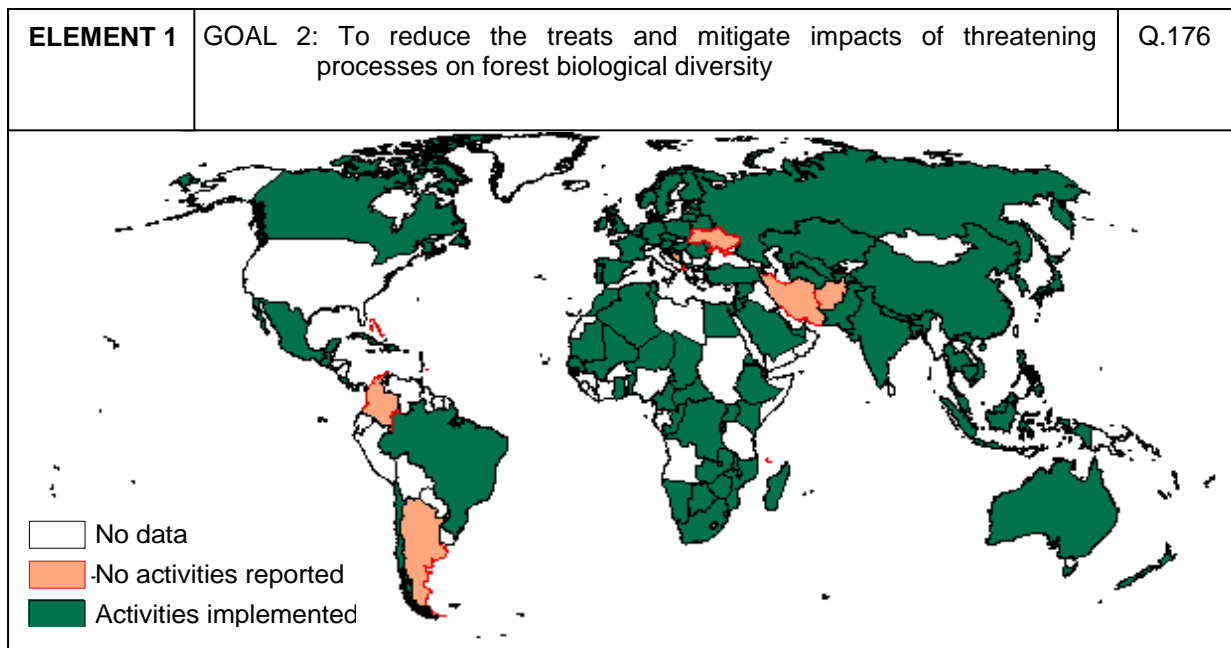
Objectives

1. Prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biological diversity in accordance with international law.
2. Mitigate the impact of pollution such as acidification and eutrophication on forest biodiversity
3. Mitigate the negative impacts of climate change on forest biodiversity
4. To prevent and mitigate the adverse effects of forest fires and fire suppression
5. To mitigate effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur.
6. To prevent and mitigate losses due to fragmentation and conversion to other land uses

84. There are 6 objectives and 25 activities covered under goal 2 of programme element 1. The 6 objectives and related activities are focused on preventing damage to forest ecosystems and on mitigating the impacts of threatening process on forest biological diversity. The activities cover a variety of issues including invasive alien species, pollution, climate change, forest fires, fire suppression and forest fragmentation.

A. *Information from the national reports*

85. Question 176 of the third national reports invited Parties to provide information on measures taken to reduce the threats to forest biological diversity and to mitigate the impact of threatening processes. 121 Parties responded to the question, and about 91% of these reported that they had undertaken activities related to goal 2, making this goal one of the most addressed of the expanded programme of work on forest biological diversity. In particular issues associated with objective 4, preventing and mitigating the adverse effects of forest fires and fire suppression, were widely addressed. Only 18 Parties reported on activities covered by objective 3 (mitigating the negative impacts of climate change on forest biological diversity). Many Parties highlighted the need to address anthropogenic pressures, such as illegal logging, demand for agricultural land, overgrazing, inadequate institutions, and technologies, more clearly in the programme of work on forest biological diversity, and to establish appropriate implementing mechanisms.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

86. The number of Parties reporting obstacles to implementation of goal 2 was high. Overarching obstacles include: institutional barriers such as limited financial support, unsettled legal disputes, and a lack of forest strategies. Specific obstacles reported include:

- (a) Road construction;
- (b) Inflexible institutional arrangements and lack of communication between Ministries and departments;
- (c) The high cost of monitoring and satellite systems;
- (d) Domestic land tenure systems;
- (e) Pressure to expand agricultural land;

- (f) Illegal activities;
- (g) Limited resources resulting in insufficient monitoring and enforcement activities;
- (h) Little coordination between Ministries and various institutions;
- (i) A lack of awareness about forest biodiversity issues;
- (j) Limited abilities with regards to preventing construction-related pollution and waste; and
- (k) The need for fire wood, charcoal and other forest based energy resources

87. Information regarding the mitigation of the impacts of threatening processes on forest biological diversity was also provided by the Parties in their first national reports. In total, 86 first national reports were received and the Parties cite a variety of causes of forest biological diversity loss. In particular forestry measures (wood exploitation) and modern agriculture (the conversion of forest into temporary pasture or land for modern agriculture) were frequently mentioned as the most important causes of forest biodiversity loss. Other causes of deforestation and forest degradation reported include land use (urban development), road construction, mining, building of hydraulic facilities (construction of dams), extraction of oil, gas, and other mineral resources, cattle grazing, water erosion, poverty, communication infrastructure, fires, pests and forest diseases, and the effects of atmospheric deposition. Largely, these causes remain the same in the first and the third national reports. However, it was reported by some countries in the third national reports and by participants of the 4th AHTEG meeting that the rapidly increasing levels of production of biomass for energy, for example palmoil, is accelerating the conversion of primary forests to biomass plantings. This observation is substantiated by several recent studies (272, 273).

88. Actions in response to objectives 1, activity (a) (reinforce, develop and implement strategies to prevent and mitigate the impacts of invasive alien species including risk assessment, strengthening of quarantine regulation, and containment or eradication programmes) were commonly reported. Out of 121 Parties who had submitted their third national report in the required format by August 23, 2007, 8 Parties report that they have a strategy for dealing with Invasive Alien Species. In addition, there are regional strategies for Europe, the Pacific Islands, and the Caribbean.

89. In the thematic reports received by the Secretariat the Parties reported on a variety of actions taken to mitigate or reduce the impacts of threatening processes on forest biological diversity. With regards to invasive alien species Austria, China, Colombia, Denmark, Finland, Germany, Islamic Republic of Iran, Ireland, Myanmar, Poland, Sri Lanka, Sweden, Switzerland, Turkey and the United Kingdom all indicated having adopted measures for the prevention and control of invasive alien species on forest biodiversity. The reported measures include enforcing quarantine laws and national and regional legislation. For example, the Law on Quarantine of Imported and Exported Animals and Plants applies in China. Ireland, Sweden and Switzerland apply the European Union's regulations and guidelines for the prevention and control of invasive alien species. Poland applies the Nature Conservation Act (1991 with later amendments), the Hunting Law Act (1995, revised in 2002), and the Regulation on Establishment of a List of Game Animals and the Hunting Period for Them (1996, revised in 2001). Sri Lanka strictly enforces customs regulations to prevent any unnecessary introductions of invasive alien species and the Austrian Forest Act (amended in 2002) restricts a spectrum of potentially invasive tree species.

90. Parties reported on advances made in raising awareness about fire prevention and integrating it into national plans and legislations, mainly in Asia. Seven Parties gave examples of national plans containing provisions for combating devastating fires. These actions can be classified under activity (h) of goal 2 objective 4. Further, for objective 4, activities that could be classified under activity (e) (Promote development of systems for risk assessment and early warning, monitoring and control, and enhance capacity for prevention and post-fire forest biodiversity restoration) were commonly mentioned. In regards to objective 1, one mitigating measure that was mentioned was the prevention of invasive alien species resulting from trade-related issues, an action which would fall under activity (a). For both

objectives 1 and 4 Parties focused on monitoring and assessment related activities as a means of mitigating potential damages to forest ecosystems.

91. Austria, China, Finland, Islamic Republic of Iran, Ireland, Morocco, Poland, Sri Lanka, Switzerland and United Kingdom of Great Britain and Northern Ireland indicated that they have some measures to prevent and suppress the adverse effects of forest fires. Colombia promotes the development of new practices for agricultural management, forest fire prevention and fire control through the Forest Fires Protection Program. Denmark, Germany, Ireland, and Sweden do not consider forest fires a big problem therefore no specific forest policies are needed. In Germany, only the Federal State of Mecklenburg-West Pomerania has adopted specific action plans against forest fires, while Estonia has measures under development.

92. In relation to objective 5, regarding the loss of natural disturbances necessary to maintain biodiversity, the interpretations of the term “loss of natural disturbance” differed among Parties. Some Parties reported activities such as leaving dead trees in forest stands to resemble natural forest structures.

93. Actions related to objective 6 (prevent and mitigate losses due to fragmentation and conversion to other land uses) were commonly reported, in particular in African countries. Parties reported on a variety of pressures and drivers of forest fragmentation and land use change including the need to expand agricultural land, the need for fuel wood for cooking, poverty, and a lack of awareness. Five Parties (Austria, Belgium, Canada, China and Ethiopia) reported that reserves were a useful tool in mitigating the pressures of fragmentation, land use changes and encroachment. These activities can be classified under activity (a) of this objective. In addition six Parties (Saint Lucia, Rwanda, Malaysia, Malawi, Kenya, and Indonesia) reported on the greater involvement of communities in activities, such as community forest management and fire fighting, to reduce and mitigate the impacts of threatening process of forest biological diversity. Other mitigation measures mentioned included education and institutional improvements, programmes which can be classified under activity (d).

94. In Central and Eastern Europe, a variety of activities were undertaken. Objective 6 was the most addressed objective for the Parties in this region. Several Parties made links to their national and regional legislations and plans.

B. Activities of the Executive Secretary

95. In paragraph 14 of decision VIII/27 the Conference of the Parties requested the Executive Secretary to consult with international organizations regarding international standards on invasive alien species. In response to this request the Secretariat began these consultations in June 2006. Further the Secretariat began implementing the updated joint work plan with the Secretariat of the International Plant Protection Convention (IPPC) by writing to CBD national focal points to inform them of the relevant work of their IPPC counterparts. The Secretariat participated in a workshop to develop a training module on Pest Risk Analysis under the IPPC.

96. In response to decision VIII/30, in which the Conference of the Parties requested SBSTTA to develop advice or guidance for promoting synergy among activities to address climate change at the national, regional and international levels, the Secretariat with support from the Government of Finland published CBD Technical Series 25 – Guidance for Promoting Synergy among Activities Addressing Biological Diversity, Land Degradation and Climate Change.

97. The Secretariat organized two meetings related to climate change and goal 2. The first meeting was the informal consultation on the links between the conservation and sustainable use of forest biodiversity and climate change included within the framework of reducing emissions from deforestation. This meeting was held at the FAO headquarters on 17 March 2007. The second meeting was the Expert Roundtable on the further strengthening of the interlinkages between biodiversity and climate change and it was held in Montreal from 19 to 20 March 2007.

98. The Secretariat of the Convention on Biological Diversity, in collaboration with the United Nations Convention to Combat Desertification (UNCCD) organized a meeting from 5-7 April 2004 in Viterbo, Italy, entitled “Workshop on Forests and Forest Ecosystems: Promoting synergy in the

implementation of the three Rio conventions”. The Secretariat also continues to participate in the Joint Liaison Group between the three Rio Conventions, most recently by attending the Group’s seventh meeting in June in Bonn, Germany, where the Secretariat presented a proposal entitled “Options for Mutually Supportive Activities for the Secretariats of the Rio Conventions, Parties and Relevant Organizations”. An information note on the role of forests for biodiversity conservation, and combating climate change and desertification, and on adapting forest ecosystems to climate change was prepared for the thirteenth meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) December 3 to 14 in Bali, Indonesia. The CBD also convened four meetings of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change between 2002 and 2005.

99. The Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity discussed the new and emerging issues of biofuels during its twelfth meeting, held in Paris from 1-6 July 2007. Given the uncertainty surrounding this issue, the Subsidiary Body requested the Executive Secretary to invite Parties and other Governments to submit relevant information on the impact of biofuels on biodiversity. It also requested the Executive Secretary to identify options for the consideration of this emerging issue in the expanded programme of work on forest biodiversity.

100. There is considerable literature relating to objective 3 (mitigate the negative impacts of climate change on forest biodiversity), which details the methods that can be used to mitigate the impacts of climate change on forests. Both other Rio conventions: the Convention to Combat Desertification (UNCCD) and the Framework Convention on Climate Change (UNFCCC), have activities that correspond to this objective. In addition it would appear that the amount of cooperation between and among organizations to address this issue is continuing to increase. Within the Rio Conventions, cooperation largely takes place within the framework of the Joint Liaison Group and through the joint work programme between the CBD and the Convention to Combat Desertification.

101. The Secretariat of the Convention on Biological Diversity has published two technical series in collaboration with other partners and the Ad Hoc Technical Expert Group on Biodiversity and Climate Change:

(a) Technical Series No. 25: “Guidance for promoting synergy among activities addressing biological diversity, desertification, land degradation and climate change”; and

(b) Technical Series No. 10: “Interlinkages between biological diversity and climate change”, which was published in collaboration with UNFCCC (148).

Box 4: Forest Biological Diversity and Climate Change

The relationship between biodiversity and climate change is gaining increasing prominence in international negotiations and national and local implementation. For this reason the 2007 International Day for Biological Diversity focused on the issue of biodiversity and climate change. The role of forests in climate change mitigation and adaptation planning is one of the key linkages between these important issues.

Climate change is increasingly a cause of forest biodiversity loss as outlined in the Millennium Ecosystem Assessment and the recent reports of the Intergovernmental Panel on Climate Change (IPCC). Forests, with their long-living trees, are particularly threatened by relatively sudden changes in their environment. Forests are also the most important carbon sink in most terrestrial ecosystems. Deforestation and forest degradation are not only destroying biological diversity but are also generating a large amount of greenhouse gases, accounting for around 20 – 25% of global emissions. Therefore the preservation of forests can deliver a double dividend, allowing for the protection of both biodiversity and climate. However it is important to note that there is not an automatic correlation between climate change and biodiversity objectives: with a poorly designed framework for climate protection, perverse incentives could lead to enhanced loss of forest biodiversity (275).

Under the UNFCCC, several proposals for reducing emissions from deforestation and forest degradation are currently being discussed. Generally these proposals involve the mobilization of financial resources to create incentives for developing countries and for forest owners to abstain from deforestation or forest degradation. The World Bank has proposed a Carbon Forest Partnership as a pilot project with the same objective. Implementing proposals such as these could be beneficial for forest biodiversity as they provide an opportunity to more easily

mobilize resources within a framework of co-benefits for biodiversity and climate. However in order to realize these co-benefits the relevant schemes should explicitly take into account biodiversity concerns and perverse incentives must be avoided (275).

The Conference of the Parties in programme element 1, goal 2, objective 3 of the expanded programme of work on forest biological diversity, calls for the promotion of forest biodiversity conservation and restoration in relation to climate change mitigation and adaptation measures and for an assessment of how the conservation and sustainable use of forest biological diversity can contribute to the international work relating to climate change.

B. Activities of international organizations and non-governmental organizations

102. International and non-government organizations have conducted a variety of activities that are related to goal 2 of programme element 1. Considerable initiatives have been undertaken with regards to objective 1, to prevent and mitigate the effects of invasive alien species. Generally organizations have integrated invasive species programmes into their objectives and developed corresponding projects and databases. Furthermore, European and American countries have created monitoring organizations and many relevant guidelines have been published.

103. The Forestry Department of FAO has helped to lay the foundations of the Forest Invasive Species Network for Africa, which consists of seven countries. The Asian-Pacific Forest Invasive Species Network, which has approximately thirty national focal points, has as its main goal to coordinate the range of information relating to forest invasive species for sustainable forest management (61 and 68). FAO also has five “Forest Health and Biosecurity Working Papers” (including a summary report) concerning case studies on the status of invasive woody plant species in the Western Indian Ocean. These unpublished reports aim to fill the knowledge gaps in this region and to recommend management strategies for the mitigation of invasive woody plant species (62). In response to requests from Governments and as part of its Technical Cooperation Programme (TCP), FAO provides direct technical assistance to countries for emergency pest management as well as aids them in developing integrated pest management strategies for both medium and long term threats to forest ecosystems (130). Through the TCP, FAO provides a description, by country, of all forest health field projects (over a dozen of which relate directly to mitigating forests pests) from 1980 to the present (65).

104. The International Plant Protection Convention (IPPC), located at FAO, has 120 contracting parties and more than 15 international standards for phytosanitary measures. The organization’s main purpose is “to secure common action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control (131).” Furthermore, the IPPC has a publication entitled “Identification of risk and management of invasive alien species using the IPPC framework,” which summarizes synergies between the IPPC’s framework and the CBD’s guiding principles as well as regional and national initiatives (132). According to this publication, the CBD and the IPPC have 15 corresponding elements concerning invasive alien species, which can be applied to forests.

105. The European and Mediterranean Plant Protection Organization (EPPO) is a regional body under the IPPC. Its activities include setting regional standards, organizing conferences and workshops for the sharing of knowledge and maintaining an electronic documentation service (136). EPPO’s publications and software include compilations of quarantine lists of pests for Europe and bulletins and databases on plant pests (137). The North American Plant Protection Organization (NAPPO) is another regional plant protection organization of the IPPC for Canada, the United States, and Mexico. It coordinates similar activities to those of EPPO to mitigate the impacts of invasive alien species on biodiversity in accordance with international law (138).

106. The Global Invasive Species Programme (GISP) was founded by IUCN, CAB International, and the Scientific Committee on Problems of the Environment (SCOPE) and it aims to, *inter alia*, develop capacities to employ early warning and rapid assessment response systems in response to invasive species threats, thereby enhancing the ability to manage and mitigate the impacts of invasive alien species (63). GISP plans to achieve this objective by raising global awareness and building partnership networks in addition to other activities. Furthermore, the GISP’s online resources include an alphabetical listing of

national and regional organizations engaged in invasive alien species research (64). The GISP has two publications which are particularly relevant to invasive species and forests:

(a) “South America Invaded: The growing danger of invasive alien species” is an overview of some of the worst invasive alien species in South America including trees, shrubs, grasses, animals, aquatic invaders, insect pests. The same report also provides information on South American species which have become invasive on other continents (140); and

(b) “A Toolkit of Best Prevention and Management Practices,” which outlines the major steps required to deal with invasive alien species, methods to mitigate their impact as well as includes several case studies on the topic.

107. The document “Protection of World Forests from Insect Pests,” published by the International Union of Forest Research Organizations (IUFRO), presents scientific articles and examples of specific mitigation activities to reduce the negative effects of invasive species and pests (72).

108. The publication “People and Plants” is a joint initiative undertaken by the World Wildlife Fund for Nature (WWF), the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Royal Botanical Gardens in Kew, United Kingdom. The book is a conservation manual and it addresses the threat caused by invasive alien species and includes case studies, eight of which apply to forest ecosystems (139).

109. The GEF project database for biodiversity and forest ecosystems contains two projects on preventing the introduction of invasive species and mitigating their negative effects. One of these projects is a regional project for Asia and the other is for Lebanon (157).

110. The Nature Conservancy carries out a number of projects, mostly in North and Latin America. According to The Nature Conservancy’s Alphabetized Project Profile three projects relate to the prevention of the spread of invasive alien species.

111. FAO has a Memorandum of Cooperation with the Secretariat of the UNCCD. This memorandum aids the UNCCD in achieving its objectives by creating information systems and databases, using regional networks in Africa and Asia for assessing, monitoring and developing national forestry action plans for several countries (Senegal, Burkina Faso, Mali, Mauritania, and Islamic Republic of Iran), in compiling best practices, and in fostering awareness-raising activities (80).

112. The Intergovernmental Panel on Climate Change (IPCC) has several publication which address issues related to biodiversity and climate change. These include:

(a) “Climate Change and Biodiversity” Technical Paper V which includes information on the potential impacts of afforestation, reforestation, avoided deforestation, and reduced deforestation on climate change (201);

(b) Third and Forth Assessment Report ‘Working Group II’

113. The International Tropical Timber Organization’s (ITTO) “Technical Series 25: Guidebook for the Formulation of Afforestation and Reforestation Projects Under the Clean Development Mechanism” provides information and guidance on the development of land-use change and forestry projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol (219). This guidebook is divided into three sections covering information on the Kyoto Protocol and the Clean Development Mechanism, the procedures for establishing a land-use change and forestry CDM project and potential means of financing such projects (219).

114. The UNFCCC has two websites with guidelines on how to implement small scale or a large scale (afforestation and reforestation) CDM forest projects (144 and 145). The Forestry Department of FAO has several working papers on forest conservation and climate change in Central American countries, which present mitigation measures for the impacts of climate change (69), FAO has also published

“Forestry projects under the CDM: Procedures, experiences and lessons learned,” with a view of improving past methodologies for adapting to climate change.

115. IUFRO’s Research Series Number 8 is an authoritative review of the effects of greenhouse gases on forest ecosystems and their biological and ecological processes (31). IUCN’s publication “Carbon, Forests and People” presents an overview of the opportunities and challenges for carbon sequestration activities and it includes several project descriptions (45). The publication “Livelihoods and Climate Change” by the International Institute for Sustainable Development (IISD) examines four communities tackling the issue of vulnerability reduction through activities that combine disaster risk reduction, climate change, environmental management and poverty reduction. This publication can also be classified under objective 3 of goal 4 of programme element 1 (46).

116. The Center for International Forestry Research (CIFOR) published “Tropical forests and adaptation to climate change: in search of synergies” in 2005. This document presents the conclusions of a workshop on sustainable livelihoods and biological diversity. The workshop aimed to integrate science, policy making and cooperation while focusing on tropical countries that are more vulnerable to natural disasters due to climatic variables. This publication can also be considered relevant to objective 3 of goal 4, programme element 1; enable local communities to develop sustainable forest management (182). One conclusion presented is that understanding local circumstances needs to be done when considering not only national and international frameworks but also local experience and knowledge. In the chapter on forests the author concludes that an essential element of the adaptation of forests to climate change is the recovery of degraded forests or the establishment of new ones. This includes the establishment of production forests, which also provide economic alternatives for local communities and reduces the pressure on natural forests. It is also concluded that the adoption of the ecosystem approach could be one method of adapting and mitigating the effects of climate change under the objectives of the CBD.

117. The Pan-European Biological and Landscape Diversity Strategy and the Ministerial Conference on the Protection of Forests in Europe jointly developed afforestation guidelines in relation to climate change mitigation in 2006 as part of their framework of cooperation and the implementation of Vienna Resolution 5 on climate change and sustainable forest management in Europe (252). An expert workshop to revise the guidelines was held in 2006.

118. When ongoing WWF projects, updated between 1 February and 2 August 2007, were considered it was found that 150 projects related to climate change (163). The majority of projects identified were located in Africa, Asia and Latin America and the Caribbean. It should be noted, however, that while WWF has many ongoing projects related to climate change only one is relevant to forests: The Ecological Footprint Programme which aims to develop and endorse the Forest Stewardship Council’s standards relating to climate change and toxic issues in forests.

119. A further issue considered under Goal 2 of Programme Element 1 is the mitigation of forest fires. Many organizations, especially CPF members, have created and implemented a number of regional networks and organizations as well as specific projects to address the adverse effects of forest fires. Several organizations have worked on this issue for over a decade, and as a result case studies are prominent. Identified obstacles for the future of such forest fire mitigation programmes will be to maintain these initiatives in an increasingly warm climate, under greater population pressure and with increasing rates of desertification.

120. Many CPF members collaborate on reducing forest fires by participating in agencies and projects, such as:

(a) The Wildland Fire Advisory Group of the United Nations International Strategy for Disaster Reduction (ISDR);

(b) The Global Fire Monitoring Centre of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA);

(c) Training instructors in community-based fire management in sub-Saharan Africa (1); and

(d) Project FireFight Southeast Asia, which was expanded into Russia, West Africa, the Mekong Region and the Northern Andes (1 and 41).

121. For IUCN and WWF forest fires are a main concern. Together the two organizations have published 11 documents and project reviews since 2000 (44). One project on the GEF project database for biodiversity and forest ecosystems related to fire management and it specifically focuses on Russia (157). CIFOR's Occasional Paper #38, "Fires in Indonesia: Causes, Costs and Policy Implications," provides a comprehensive analysis of the situation in Indonesia including conclusions and recommendations for several issues such as degradation and deforestation (resulting from land conversion), smoke haze pollution, fires and legislation, carbon sinks, human factors, and economic costs and assessments (176).

122. Forest fire management is also a major objective of the ITTO and FAO. ITTO has published the Guidelines for Fire Management in Tropical Forests (ITTO Policy Series No.6) and two technical Reports on the Philippines and South East Asia that relate to forest fires (5, 8, 220). Further the "Catalogue of ITTO Projects, Pre-Projects and Activities" lists several projects in Indonesia, Ghana and Côte d'Ivoire. Over the past twenty years, the Forestry Department of FAO supported by the TCP, United Nations Development Programme (UNDP) and a number of bilateral donors (58) has produced more than 100 reports on forest fires and has implemented more than 60 field projects in some 40 countries. In the past ten years case studies on forest fire management were prepared for several major field projects including China, Cuba, Cyprus, Ethiopia, Honduras, India, Indonesia, the Lao People's Democratic Republic, Mongolia, Sierra Leone and Turkey (58). In addition FAO has implemented projects and field training on forest fire prevention and management in Bulgaria, Guatemala and Syria (59). FAO's Forestry Department has a publication about the FireFight Southeast Asia programme that presents case studies from Gambia, Honduras, India, the Lao People's Democratic Republic, and Turkey (71).

123. IUCN, WWF and The Nature Conservancy (TNC) have joined forces to develop a Global Fire Partnership aimed at maintaining or restoring ecologically and socially-acceptable fire in ecosystems that depend on it, and reduce the incidence of unwanted fires in ecosystems where it is detrimental (41). According to the GEF's "Operational Programme Number 3: Forest Ecosystems", the GEF funds activities to assess the impact of natural disturbances and the compound effects of anthropogenic stressors. However it should be noted that no major goals of the biodiversity projects listed in the GEF Project Database Internet site corresponded to the mitigation of the adverse effects of forest fires (142).

124. A few publications and projects have been implemented by international organizations relating to the mitigation and prevention of forest fragmentation and conversion to other land uses (objective 6). For example IUCN's publication "Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation" is a comprehensive guide to establishing wildlife corridors and includes several case studies and many project descriptions (43). The Greenpeace publication "Roadmap to Recovery: The World's Last Intact Forest Landscapes" uses satellite imagery to illustrate the current location and condition of the world's remaining large forested areas and provides a possible baseline for the monitoring of forests (233).

125. The growing worldwide interest for biofuels has raised fears about deforestation, land-use changes and the loss of major carbon sinks. The Global Bioenergy Partnership was launched in 2006 during the Ministerial Segment of the 14th session of the Commission on Sustainable Development to create a global high-level policy dialogue on bioenergy and to promote more efficient and sustainable uses of biomass. This partnership includes, *inter alia*, the UNEP and the UNDP, and works in synergy with other initiatives including, among others, the FAO's International Bioenergy Platform and the UNCTAD Biofuel Initiative

126. UNFCCC's report "National greenhouse gas inventory data for the period 1990-2003 and status of reporting," emphasizes the loss of forests in terms of greenhouse gas emissions from land use, land-use change and forestry (LULUCF) for Parties as a whole (6.5 per cent) and for Parties with economies in transition (45.2 per cent). It should be noted that the number of reporting Parties increased from 21 in 1998 to 39 in 2005 (146).

127. WWF promotes the High Conservation Value Forests Concept as a practical approach towards responsible forestry across all land tenures. The concept was developed to provide a framework for identifying forest areas with special attributes that make them particularly valuable for biodiversity and/or local people. High conservation value forests (HCVF) are defined as forests of outstanding and critical importance due to their environmental, socio-economic, biodiversity or landscape values. At the moment, several projects are carried out around the world (244).

Box 5: Forest Biological Diversity and Bio-energy ^{3/}

Bio-energy production is an important and welcome contribution to climate protection. But if not produced sustainably – and the effects on forests would be a key sustainability concern – the pressure to convert forests to various energy crops could grow tremendously over the next years. To reconcile bio-energy production objectives and forest preservation is a major challenge.

Biomass has been used for energy generation throughout human history. In recent years, large scale production of fuels derived from biomass has been strongly increasing worldwide. This development is expected to continue as population increases and as a growing number of Government programmes, partnerships and other initiatives are promoting greenhouse gas mitigation and increased biofuel production and use (257, 258).

The focus of current attention is on liquid biofuels used in transportation, however biomass is produced for non-transport energy generation (power plants, biogas, heating) as well. In the transport sector the two major types of liquid biofuels are bioethanol and biodiesel. The major biomass sources currently used are sugar cane and corn for bioethanol and rapeseed and palm oil for biodiesel (259). A wide range of cellulosic materials constitute the so-called second generation of feedstocks for which conversion technologies are under development (286). In the non-transport sector a broad range of biomass is used as input: manure, corn, plant oil, wood, residues and others.

The relationship between forest biological diversity and biofuel production is complex. Forests are sources for biomass made from wood (286). Harvesting this biomass can be a sustainable use of forest resources, but it can also threaten forest biological diversity if not harvested in a sustainable manner. At the same time forest areas are converted into agricultural land and forest biological diversity is lost due to increased production of agricultural biomass for energy generation – either directly or indirectly through more complex shifts in land use (286).

It should also be emphasized that bio-energy could – compared to fossil fuels – drastically reduce greenhouse gas emissions if managed appropriately (260, 261). Along with this contribution to climate protection, bio-energy also helps to diminish the negative impacts of climate change on forest biological diversity. Natural forests tend to have the greatest biological diversity and at the same time the biggest potential for carbon storage – a win-win-situation if these forests are preserved. However the conversion of natural forests into production sites for bio-energy may for the same reason lead to a negative green house gas balance due to emissions from deforestation – leading to a loose-loose-situation for forest biodiversity and climate protection. This is particularly relevant for the conversion of peat forests which have a high carbon content.

While sustainable production of biomass for energy generation can increase the income-base for people living in and from forests, including indigenous and local communities (262), deforestation and unsustainable production resulting in forest biodiversity loss will decrease future possibilities for a sustainable use of forest biological diversity. Concerns over the potential impacts of bio-energy production were raised during the fourth meeting of the Ad-hoc Technical Expert Group which meet in Rome, Italy from 28 May to June 1, 2007.

Goal 3: To protect, recover and restore forest biological diversity

Objectives

1. Restore forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes, including in plantations.
2. Promote forest management practices that further the conservation of endemic and threatened species.
3. Ensure adequate and effective protected forest area networks.

^{3/} For further information please also see the information document prepared on this topic for SBSTTA: UNEP/CBD/SBSTTA/12/9 (available at <http://www.cbd.int/>).

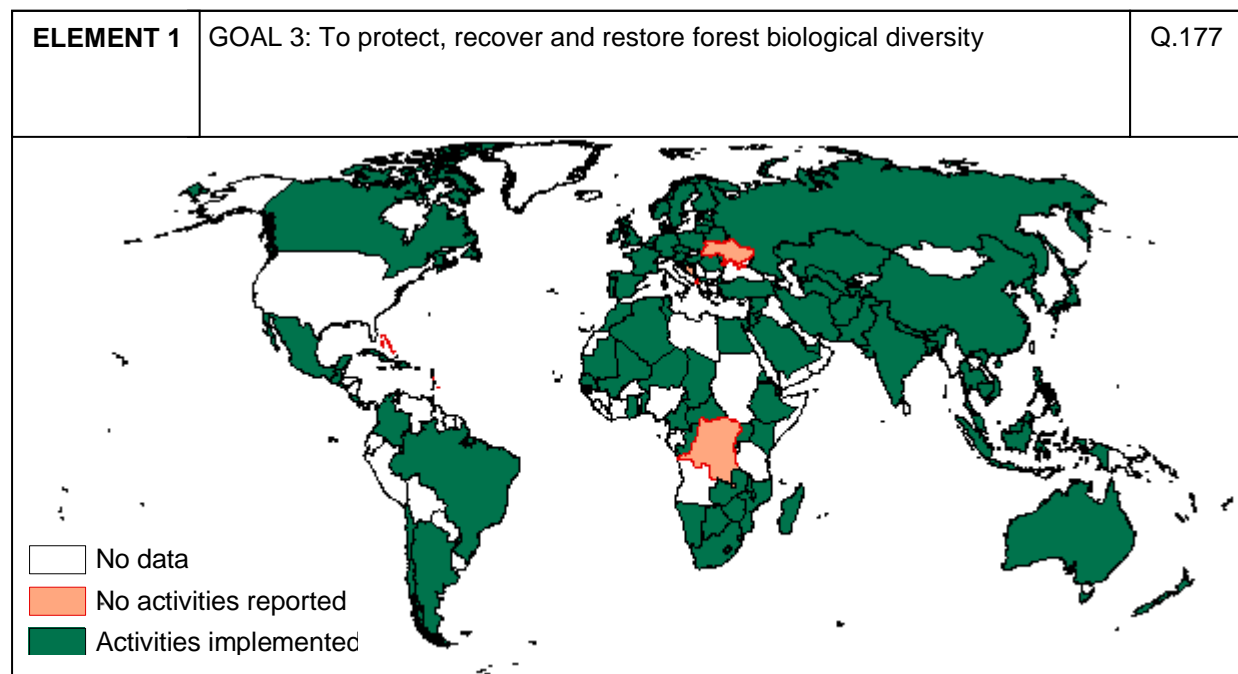
128. Goal 3 consists of three objectives: objective 1 relates to the restoration of forests, objective 2 pertains to the promotion of forest management practices and objective 3 covers issues on forest area networks. In total there are 11 activities associated with this goal. The three activities under restoration of forest biodiversity are multi-dimensional, the two activities under the conservation of endemic and threatened species are targeted, and the six activities under ensuring protected areas networks encourage multi-level cooperation.

A. Information from the national reports

129. In question 177 of the third national reports Parties were invited to provide information on the activities taken to protect, recover and restore forest biological diversity. 120 Parties responded to this question and the results are as follows:

(a) 113 Parties took measures to protect, recover and restore forest biological diversity; and

(b) 7 Parties reported that they had not taken measures in relation to this goal. One Party reported that a lack of policies, political motive, financial support and public awareness were preventing activities from being taken while another reported that disorganization of the forestry system and a lack of clear financial policies were making the application of relevant activities difficult. One Party reported that measures were just beginning to be taken and that their impacts on forest biological diversity were not yet visible. A lack of political will to implement this activity was also reported.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

130. Amongst the three objectives, restoration activities were the most frequently addressed. Four Parties (Belgium, Czech Republic, Ghana and Finland) reported incorporating restoration measures into their forest legislation and laws. Furthermore, elements of the ecosystem approach such as species and habitat dimensions, watershed management, wildlife conservation, measures against illegal activities, and the restoration of agricultural lands were integrated into restoration activities in a number of countries and in total sixteen reforestation projects were reported. One Party reported that the local community had effectively implemented conservation measures for forest biodiversity. Specifically with regards to Objective 3 (ensure adequate and effective protected forest area networks), the METSO Forest

Biodiversity Programme for Southern Finland, which includes 17 distinct areas of action and is overseen by the Ministry of Agriculture and Forestry and the Ministry of Environment, encourages forest owners to voluntarily offer their land for conservation purposes by compensating landowners for any economic losses that they may incur. Further information on the METSO Programme is available from <http://wwwb.mmm.fi/metso/international/>.

131. The reported obstacles to the further application of goal 3 varied. One Party commented that restoration measures using domestic plants were no longer appropriate after intensive destruction and degradation of the surrounding environment. Some Parties reported difficulty in implementing measures with private forest owners due to their limited resources and socio-economic circumstances, and the complexity of a multi-stakeholder participatory approach. A lack of resource assessments, especially relating to endangered species, and the influences of political pressure were reported as being the main hindrances to progress for Parties in Africa.

132. China, Denmark, and Sweden have legal frameworks for preventing and mitigating forest biodiversity loss. While Austria, Germany, Finland, Islamic Republic of Iran, Ireland, Morocco, Myanmar, Poland, Sri Lanka, Switzerland, Turkey, and the United Kingdom of Great Britain and Northern Ireland have undertaken some measures, Colombia and Estonia have identified potential measures for preventing conversion of forest lands to other land uses. In Germany the conversion of forest area to other land uses is strictly regulated by the Federal Forest Act. Further while one third of Thematic Report respondents established major networks of protected areas (Austria, China, Finland, Sweden and the United Kingdom), the majority are in the process of establishing networks of protected areas (Denmark, Estonia, Germany, Islamic Republic of Iran, Morocco, Myanmar, Sri Lanka, and Switzerland). Ireland, Poland, and Turkey have some protected areas established but networks are not in place and in Colombia networks of protected areas are being planned.

133. In relation to the provision of adequate protected forest areas network, both national and international projects were implemented, especially in Western Europe and other developed countries. Old growth forests and wildlife were noted to be the main areas of importance. In addition, there were a few countries that reported increased cooperation among their Ministries (mainly between agriculture and environment). It was noted that many activities are being implemented under the Programme of Work on Protected Areas, which are relevant to the programme of work on forests as well.

134. The EU ecological network “Natura 2000” is close to completion, with 27,000 sites or almost 18% of the area of the 15 EU Members before the 2004 enlargement. The size and number of protected sites is currently being negotiated for each of the ten new member states. Natura 2000 is protecting key habitats and species according to lists defined at the EU level, and Member States regulate the extent and level of protection according to defined lists.

B. Activities of the Executive Secretary

135. In decision VI/22 the Conference of the Parties invited members of the Collaborative Partnership on Forests to support the implementation of the expanded programme of work on forest biological diversity. In response the Secretariat participated in the Kotka V meeting and supported *inter alia* a special study on forests in protected areas by protected area category.

136. In decision VII/28, the Conference of the Parties requested the Executive Secretary to undertake supporting activities to facilitate in the implementation of the programme of work on protected areas. Further in paragraph 10 of decision VIII/24 the Conference of the Parties requested the Executive Secretary to organize regional workshops to implement capacity building activities. In response to these requests, the Secretariat carried out the following activities:

- (a) Participated in the “International Workshop for Better Management of Protected areas;
- (b) Implemented the CBD programme of work on protected areas;
- (c) Held discussions with UNEP-WCMC on further development of the World Database on Protected Areas for monitoring the programme of work on protected areas;

(d) Convened a planning group meeting on protected areas consisting of representatives from an NGO consortium (The Nature Conservancy, Conservation International) Wildlife Conservation Society, BirdLife International, WWF), IUCN- WCPA, the European Commission and the Government of Germany;

(e) Co-sponsored, with The Nature Conservancy, IUCN-WCPA, USAID and Parks-in-Peril, a workshop on "Strategic Plans for Protected Area Systems". The Workshop focused on practical hands-on-tools and training on priority activities which the eighth meeting of the Conference of the Parties recognized for capacity building. These included ecological gap assessments, sustainable finance plans, and management effectiveness: and

(f) Organized a roundtable on the interlinkages between climate change and biodiversity. During the roundtable questions related to the vulnerability of protected areas to climate change as well as their potential to help mitigate climate change were raised.

137. The CBD's Technical Series No. 10: "Interlinkages between biological diversity and climate change," highlights the positive aspects of the UNFCCC's afforestation, reforestation and revegetation activities, including the Clean Development Mechanism (148).

C. Activities of international organizations and non-governmental organizations

138. Two global partnerships on forest restoration have been created. The Global Partnership on Forest Landscape Restoration (GPFLR) was launched in 2003 by several CPF members in association with a network of Governments, international and non-governmental organizations and communities (including IUCN, WWF, ITTO, CIFOR, and UNEP-WCMC). The partnership collaborates on the restoration of forest biological diversity in degraded secondary forests and presents a method for integrating the benefits of forest landscape restoration for both people and nature (1 and 37). The second partnership, The Forest Restoration Information Service (FRIS), was created by The World Conservation Monitoring Centre (WCMC) of the United Nations Environment Programme (UNEP) with the support of other organizations. The FRIS's primary objective is to provide an open-access internet information service (including a database of projects and maps) to support forest restoration projects world-wide (38).

139. In addition to these global partnerships, forest restoration activities have been undertaken by several international organizations including ITTO, IUCN and WWF. For example ITTO in cooperation with IUCN has carried out ten national workshops on forest landscape restoration. Further ITTO resources on the topic include:

- (a) "Technical Series 23";
- (b) "ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Forests" (4 and 10);
- (c) The "Catalogue of ITTO Projects, Pre-Projects and Activities";
- (d) The ITTO Project Portfolio Internet site (8, 12 and 96); and
- (e) Reports of 10 national workshops on forest landscape restoration organized in cooperation with IUCN.

140. Forest landscape restoration (FLR) is also a major goal of the World Conservation Union (IUCN). Hence IUCN has multiple projects in the Mediterranean, the Lower Mekong, East Africa and Central America, as well as a joint publication with WWF on forest restoration guidelines entitled "Rehabilitation and Restoration of Degraded Forests" (35 and 36). Further, the publication "Forest Restoration in Landscapes," represents the collective body of knowledge and experiences of WWF and its partners and serves as a guide for practitioners and research organizations. In addition WWF aims to restore 20 landscapes of great importance by 2020 (185). From the projects analysed on the WWF "Latest Project Listings" Internet site, six projects apply to forest landscape or habitat restoration (163).

141. The joint IUCN-International Council on Mining and Metals (ICMM) publication entitled “Integrating Mining and Biodiversity Conservation” presents two case studies on the rehabilitation and restoration of previously mined lands in Australia and Madagascar (110). It should be noted that this publication also corresponds to programme element 2, goal 1, objective 2 (Governments to integrate biological diversity into other sector policies and programmes).

142. As part of the Kyoto Mechanism, the UNFCCC has a list of activities implemented jointly (AIJ), which describes, in detail, the activities and financial mechanisms related to the restoration of forest biological diversity. Of these listed activities four pertain to afforestation and 14 to forest preservation in various parts of the world (150).

143. One of the main areas of research for the Center for International Forestry Research (CIFOR) is forest rehabilitation and restoration. The primary focus of this research is on the effectiveness of rehabilitation and restoration methods and best practices in tropical countries. The REHAB initiatives promoted by CIFOR and its partners include a glossary with multiple sources, case-studies on Indonesia, China, the Philippines, Vietnam, Brazil and Peru, as well as corresponding case-study publications such as:

(a) “Country case studies on Review of Forest Rehabilitation Initiatives: Lessons from the Past;” (172);

(b) “One century of forest rehabilitation in the Philippines;” and

(c) “Guangdong Province's forest rehabilitation efforts: Potential for contribution to biodiversity conservation” (170 and 171).

144. Further IUFRO supports the restoration of forest biological diversity by examining the scientific basis for forest landscape restoration and its linkages to practice and policy. In May 2007, an IUFRO Conference on Forest Landscape Restoration was held in Seoul, Korea, as a contribution to the Global Partnership on Forest Landscape Restoration. The proceedings of the Conference provide a comprehensive overview of the latest research on forest landscape restoration in all parts of the world (238).

145. The GEF project database for biodiversity and forest ecosystems lists eight projects, from various regions, related to restoring forest biodiversity (157). Furthermore, the GEF project database for land degradation has five forest restoration projects listed: one globally and four for specific countries (158). Further four of the projects listed on The Nature Conservancy’s Alphabetized Project Profile Internet site apply to forest or landscape restoration (164).

146. The Earthscan publication “The Forest Landscape Restoration Handbook” is a practical guide to forest restoration. The publication provides information on a variety of forest restoration issues including how to increase the resilience of landscapes, how to build support of forest landscape restoration projects, and how to monitor and evaluate on site impacts (215). The handbook also provides several case studies (215).

147. Objective 2 of goal 3 promotes forest management practices that further the conservation of forest biological diversity and several organizations have activities that can be classified under this goal. For more than four decades IUCN’s Species Survival Commission (SSC) has been assessing the conservation status of species using the IUCN Red List Categories and Criteria on a global scale, thus forming the IUCN Red List of Threatened Species, which highlights taxa threatened with extinction and promotes their conservation (34).

148. The GEF project database for biodiversity and forest ecosystems has six projects related to the conservation of endemic species, one regionally for Asia and five for different countries globally (157). Out of the 150 projects analysed on the WWF Latest Project Listings Internet site a dozen projects are relevant to the conservation of endangered and endemic species, especially large mammals such as tigers, elephants, Japanese black bears and rhinos (163).

149. Objective 3 of goal 3 relates to the provision of adequate and effective protected forest area networks. Cooperation and partnerships are key elements in the success of projects promoting the creation and proper management of protected forest areas (activity (b)). Hence, many projects included in this section involve the full participation of indigenous and local communities, with respect for their rights, as well as those of other stakeholders. These projects also relate to the sustainable forest management of protected areas (as outlined in activity (f)). Many organizations have implemented ground-level projects for mapping, creating and designating protected areas.

150. CPF members collaborate on multiple projects to ensure the conservation of forest biological diversity in the form of protected forest areas. For example IUCN and the World Commission on Protected Areas (WCPA) have created the Global Transboundary Protected Areas Network, which aims to promote biodiversity through peaceful cooperation across borders. The Network has about a dozen case studies on this topic from various regions of the world (42).

151. FAO's work in protected areas is extensive, with over 200 projects between 1975 and 1996, including the founding of the first two regional wildlife training colleges in Africa: the Mweka Wildlife Training College in the United Republic of Tanzania, for English-speaking Africa, and the Garoua Wildlife Training College in Cameroon, for French-speaking Africa (105). FAO noted that their work in protected areas has become increasingly more complex over the years and has evolved from primarily fieldwork activities, (which are now mostly implemented by large international non-governmental organizations), to the formulation of policies and laws. Some of the FAO's recent activities include producing publications, providing technical advice and assistance as well as developing forest related projects. For example FAO, in association with the Global Environment Facility (GEF), has implemented projects in Africa, including a protected area management project in Sri Lanka and a transboundary conservation project in East Africa.

152. ITTO has many completed and ongoing projects and activities, which bring Governments and donors together. The "Catalogue of ITTO Projects, Pre-Projects and Activities" as well as the ITTO Project Portfolio Internet site list a number of projects related to protected areas. Of particular relevance is the ITTO programme on Transboundary conservation areas, which covers about 10 million hectares (8 and 95).

153. IUCN's Temperate and Boreal Forest Programme in Russia aims to, *inter alia*, evaluate the effectiveness of protected areas using a participatory approach such as capacity building of local indigenous communities (47).

154. The COST Action E27 report, produced by the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) addresses protected forest areas in Europe (280). The report is divided into two sections. The first provides a description and analysis of protected areas in Europe and the other examines the harmonization and improvement of information on forest protected areas in Europe. As such the report aims to develop a reliable and comparable understanding of forest protected areas in Europe (280).

155. The World Bank/WWF alliance, which draws effectively on the combined attributes of both organizations namely WWF's global network of national and programme offices with an extensive presence in the field and the World Bank's economic and policy influence in the donor community and private sector, set a goal of 25 million hectares of new forests under protective management and an additional 75 million hectares of highly threatened forests under effective management by 2010 (115 and 116). Projects for the establishment of new protected areas and the improvement in the management of existing protected areas have occurred in the Congo Basin, the Amazon and Asia (117). According to the World Bank publication "Biodiversity Conservation in Forest Ecosystems", as well as the Forests and Forestry Internet site of the World Bank, the creation and support of protected areas has been a major goal of World Bank assisted projects since 1992 (120 and 122). More recently, the World Bank has funded several multi-objective projects in countries from various parts of the world in order to strengthen the

management of existing parks, establish new conservation areas and strengthen community management (122).

156. The GEF project database for biodiversity and forest ecosystems has three regional as well as 35 local projects (157) related to the creation of protected areas and ensuring their efficient management. In addition some of the projects listed on the WWF Latest Project Listings Internet site are relevant to the formation and sustainable management of protected areas, many of which contain components for indigenous and local community involvement and the conservation of endangered and endemic species (163). Some of the projects on The Nature Conservancy's Alphabetized Project Profile Internet site applied to the formation of protected area networks via "acquiring land" and "building conservation alliances" (164). Further several projects listed on this site concern the formation of marine protected areas and include components for mangroves.

157. The WWF's High Conservation Value Forests project is attempting to ensure that forest of outstanding value are effectively conserved. The WWF has funded several documents on this issue including a sourcebook on landscape analysis and a HCVF toolkit (212, 213). The WWF's initiatives related to High Conservation Value Forests are complimented by the High Conservation Value Resource Network which provides information on high conservation value projects and further promotes their use. In addition the network has organized meetings and training workshops on the subject. Further some of the projects listed on the WWF Latest Project Listings Internet site are relevant to the formation and sustainable management of protected areas. Many of these projects contain components for indigenous and local community involvement and the conservation of endangered and endemic species. These projects include "Forests and biodiversity in the Congo Basin", "Dry Forest Programme" in Madagascar, "Promotion of Sustainable Forest Management in Vietnam, Laos and Cambodia" and the "Green Belt Programme" in the Mediterranean (163).

Box 6: Protected Areas Network		
<i>Region/Country</i>	<i>Network</i>	<i>Website</i>
Multinational Networks		
<i>Government Activities</i>		
Central Africa:	Commission des Ministres en charge des Forêts d'Afrique Centrale (COMIFAC)	http://www.comifac.org
Cameroon, Congo, Gabon	Tri-DOM Ecological Network	
Central America	Mesoamerican Biological Corridor / Paseo Pantera	http://www.biomeso.net
Denmark, Germany, Netherlands, UK	Transnational Ecological Network (TEN)	http://www.ten-project.net
EU	NATURA 2000	http://www.bfn.de/0316_natura2000.html
European non-EU countries	Emerald Network	http://www.coe.int/t/e/cultural_co-operation/environment/nature_and_biological_diversity/ecological_networks/The_Emerald_Network/
Europe	Ministerial Conference on the Protection of Forests in Europe (MCPFE)	http://www.mcpfe.org
Europe / Northern Asia	Pan-European Ecological Network	http://www.coe.int/t/e/cultural_co-operation/environment/nature_and_biological_diversity/ecological_networks/PEEN/
Europe / Northern Asia	European Coastal and Marine Ecological Network (part of Pan-European Ecological Network)	
Parties to the Bonn Convention on the Conservation of Migratory Species of Wild Animals:	Memoranda of Understanding and Agreements on particular species	http://www.cms.int
<i>Nongovernmental Activities</i>		
Bolivia, Peru	Vilcabamba-Amboró Conservation Corridor	http://www.cepf.net/ImageCache/cepf/content/pdfs/final_2etropicalandes_2evilcabambaamboro_2ebriefingbook_2epdf/v1/final.tropicalandes.vilcabambaamboro.briefingbook.pdf
Bosnia and Herzegovina, Croatia, Serbia, Slovenia, Montenegro	Sava River Ecological Network	http://www.iucn-ce.org/econets/database
Carpathian mountain range	Carpathian Ecoregion Initiative	http://www.carpates.org
Central Africa	Central African Regional Programme for the Environment (CARPE)	http://carpe.umd.edu/
East Asia and Australasia	East Asian-Australasian Shorebird Site Network	http://www.environment.gov.au/biodiversity/migratory/waterbirds/infosrn1.html
Europe (Fennoscandia, Central Europe, South-Eastern Europe)	European Green Belt	http://www.iucn-ce.org/econets/database
North and South America:	Ecological Corridor of the Americas (EcoAméricas)	
North and South America	Western Hemisphere Shorebird Reserve Network	http://www.whsrn.org
Southeast Asia	Rewarding Upland Poor for Environmental Services (RUPES)	http://www.worldagroforestrycentre.org/sea/Networks/RUPES/
National Networks		
Australia: National	Reserve System Program	http://www.environment.gov.au/parks/nrs/program/index.html

Belarus	National Ecological Network	http://www.iucn-ce.org/econets/database
Belgium (Walloon)	Ecological Networks of Walloon / Réseau écologique	
Belgium (Flanders)	Ecological Networks of Flanders / Réseau écologique	
Colombia	Naya Conservation Corridor	
Czech Republic	Territorial System of Ecological Stability	http://www.iucn-ce.org/econets/database/
Denmark	Ecological Networks / Naturverbindsele	
Estonia	Green Network	http://www.iucn-ce.org/econets/database
Estonia	Network of Ecologically Compensating Areas	
Germany (Rhineland-Palatinate)	Interwoven Biotope Systems / Planung vernetzter Biotopsysteme	http://www.luwg.rlp.de/internet/nav/416/broker.jsp?uCon=2fc5040e-7ea8-1d01-33e2-dcfc638b249d&uBasVariantCon=11111111-1111-1111-1111-111111111111
Hungary	National Ecological Network	http://www.kvvm.hu , http://www.iucn-ce.org/econets/database/
Italy	Reti Ecologiche	
Italy (Central Appenines)	PLANECO Project	http://dau.ing.uniqa.it/planeco/
Latvia	Ecological Network of Latvia	http://www.iucn-ce.org/econets/database/
Lithuania	Lithuanian Ecological Network / Lithuanian Nature Frame	http://www.iucn-ce.org/econets/database/
Moldova	Econetwork (part of Pan-European Ecological Network)	http://www.biotica-moldova.org/Eco-Net/index.htm
Netherlands	National Ecological Network / Ecologische Hoofdstructuur	
Poland	National ECONET / ECONET–Polska	http://www.iucn-ce.org/econets/database/
Portugal	Greenways System for the Lisbon and Porto Metropolitan Areas	
Romania	National Network	http://www.iucn-ce.org/econets/database/
Russian Federation (Central Russia)	Heart of Russia (part of Pan-European Ecological Network)	
Russian Federation (Orenburg)	Ecological Network of the Orenburg Region	http://www.iucn-ce.org/econets/database
Russian Federation (Volga/Ural):	Volga-Ural Econet	http://www.iucn-ce.org/econets/database
Russian Federation	Econet of the Russian Forest-Steppe Region	http://www.iucn-ce.org/econets/database http://www.wvf.ru
Slovakia	Territorial System of Ecological Stability & National Ecological Network	http://www.iucn-ce.org/econets/database
Switzerland	National Ecological Network / Réseau écologique national	
Ukraine	National Ecological Network	http://www.iucn-ce.org/econets/database
United Kingdom (Cheshire)	Cheshire ECONet	http://maps.cheshire.gov.uk/econet/index.asp http://www.cheshire.gov.uk/SREP/NHE_ECOnet_Ecointro.htm
United Kingdom (Scotland)	Forest Habitat Network	http://www.forestresearch.gov.uk/fr/INFD-69PF6U
United Kingdom (Scotland)	Lowland Habitat Network	http://www.forestresearch.gov.uk/website/forestresearch.nsf/ByUnique/INFD-6W7EVK
United Kingdom (Wales)	Habitat Network	http://www.forestresearch.gov.uk/website/forestresearch.nsf/ByUnique/INFD-6A5BNW

United States	Wildlands Project	http://www.twp.org/cms/index.cfm
United States (California):	Conception Coast Project	
United States (Vermont)	Maine Wildlands Reserve Network	
Reference: Schmitt, C.B.(2007). <u>List of regional protected area networks</u> . Institute of Forest and Environmental Policy (IFP), University of Freiburg. Unpublished.		

Box 7: Concepts for prioritization of global biodiversity conservation activities developed by NGOs	
Organization	Website
<i>Representative</i>	
Centres of Plant Diversity (WWF, IUCN)	www.nmnh.si.edu/botany/projects/cpd/index.htm
Endemic Bird Areas (BirdLife International)	www.birdlife.org/action/science/endemic_bird_areas/index.html
Megadiversity Countries (Conservation International, CI)	
<i>Proactive</i>	
Frontier Forests (World Resources Institute)	www.wri.org
Last Intact Forest Landscapes (Greenpeace)	www.greenpeace.org
Last of the Wild (WildLife Conservation Society)	www.wcs.org
Wilderness Areas (CI)	www.conservation.org
<i>Reactive</i>	
Biodiversity Hotspots (CI)	www.biodiversityhotspots.org
Crisis Ecoregions (The Nature Conservancy)	www.nature.org
Global Gap Analysis of Protected Areas (CI)	www.conservation.org/xp/frontlines/science/strategy24-2.xml www.biodiversityscience.org/xp/CABS/home/
High Biodiversity Wilderness Areas (CI)	www.conservation.org/xp/CIWEB/regions/priorityareas/wilderness/
Alliance for Zero Extinction (AZE)	www.zeroextinction.org
Key Biodiversity Areas (CI, BirdLife International, Plantlife International)	
Important Bird Areas (BirdLife International)	www.birdlife.org/action/science/sites/index.html
Reference: Schmitt, C.B. (2007). <u>Global Prioritization of Biodiversity Conservation Activities</u> . Institute of Forest and Environmental Policy (IFP), University of Freiburg. Unpublished.”	

Goal 4: To promote the sustainable use of forest biological diversity

Objectives

1. Promote sustainable use of forest resources to enhance the conservation of forest biological diversity
2. Prevent losses caused by unsustainable harvesting of timber and non-timber forest resources.
3. Enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity.
4. Develop effective and equitable information systems and strategies and promote implementation of those strategies for *in situ* and *ex situ* conservation and sustainable use of forest genetic diversity, and support countries in their implementation and monitoring

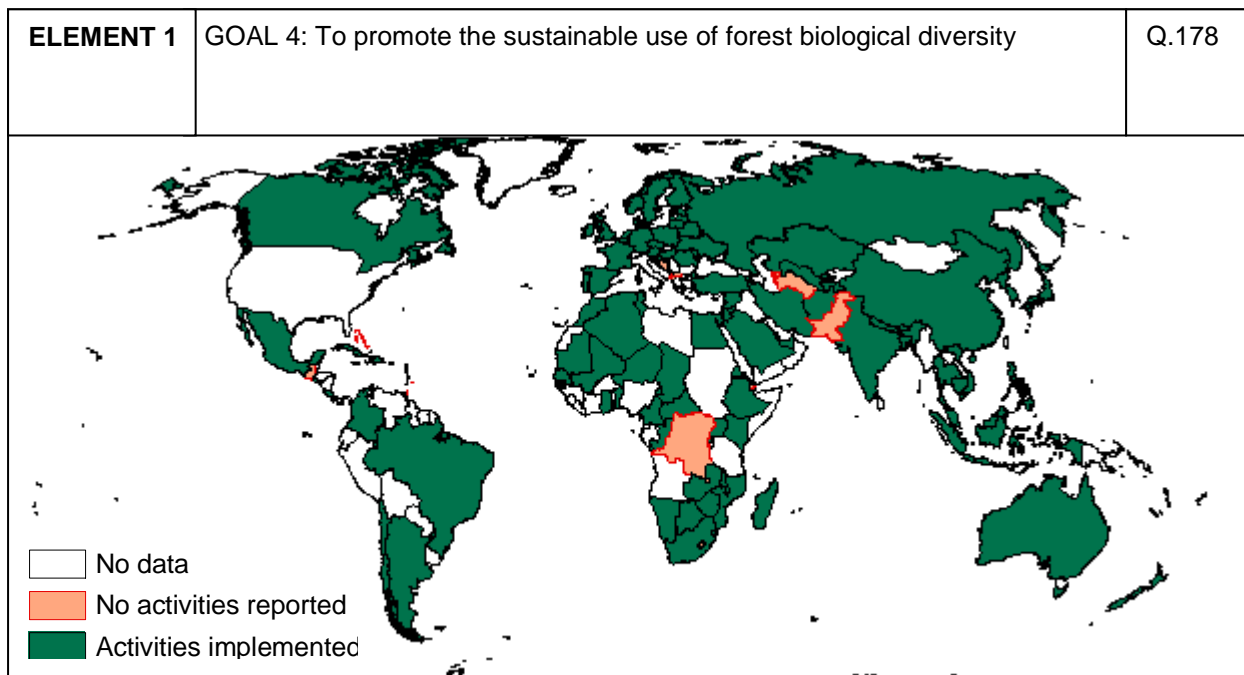
158. Goal 4 overlaps with one of the three main goals of the Convention, the sustainable use of the components of biological diversity. There are 4 objectives under goal 4 and 26 activities. The objectives promote the sustainable use of forest resources, the prevention of unsustainable harvesting, the enabling of local and indigenous communities to develop and implement community management and the development of effective and equitable information systems.

A. Information from the national reports

159. Question 178 of the third national report questionnaire requests Parties to report on the measures taken to promote the sustainable use of forest biological diversity. Most Parties reported that they have

promoted the sustainable use of forest biological diversity. 120 Parties responded to this question and the responses are as follows:

- (a) 108 Parties reported undertaking activities in relation to goal 4;
- (b) Three Parties (Canada, Germany, and Lithuania) reported that they have identified unique types of forest ecosystems in their states;
- (c) Three Parties reported that illegal activities are a major obstacle to implementing objective 2, (reducing the losses caused by the unsustainable harvesting of timber and non-wood forest resources) but that actions have been taken to reduce these negative activities; and
- (d) Of the Parties not implementing activities related to this goal two Parties indicated that goal 4 was not a priority and two Parties mention institutional issues as preventing implementation. One Party reported that more studies on sustainable usage were needed and one Party reported that activities were still in the planning stages.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

160. This goal was widely implemented, with 90% of responding Parties indicating that they have undertaken activities. As goal 4 of programme element 1 has 4 associated objectives and 26 activities there was variation in the measures taken by the Parties. The majority of the reported activities related to the first two objectives (the sustainable use of forest resources and the prevention of losses caused by unsustainable use). Activities covered under objective 3 (on the involvement of indigenous and local communities in sustainable forest management) and objective 4 (the conservation and sustainable use of forest genetic diversity) were reported less.

161. Both market and policy-based activities were reported as means of implementing goal 4. A number of Parties reported on the positive role of forest certification, specifically in state-owned forests, in promoting the sustainable use of forest biological diversity. Parties also reported on the formation of regulations, laws (Hunting Law, Law for the Protection of the Environment, Law for Banning Unsustainable Logging Practice, Provincial Laws on Nature Protection, and Regulations on Logging for examples) and the establishment of protected areas as a means of preventing the unsustainable use of forest resources. Related programmes, such as national forest programmes, which contributed to the mainstreaming of sustainable forest use, were also reported. There was little mention of strategic plans in

the responses though some Parties indicated that they were attempting to prevent and mitigate illegal activities in forest areas. Thus, the majority of this goal was carried out in the areas of regulation and policy development.

162. The Parties reported the following obstacles to the further implementation of this goal:

(a) The need to develop and implement laws to promote the sustainable use of forest biodiversity;

(b) The changing dynamics of local communities make it difficult to implement community-led sustainable forest management;

(c) The structures and mechanisms for regulating natural resources are not working as they used to; and

(d) The inability to adapt to dynamic changes is leading to the degradation and unsustainable use of forest biological diversity.

163. With regards to the information contained in the thematic reports most respondent countries indicated that the sustainable use of forest resources is part of sustainable forest management and that the process was present in national objectives and legislation. This is the case for the Finnish Forest Act, the Austrian Forest Act, the Polish Act on Forests and the Federal Forest Act of Germany. Further Estonia and Sri Lanka reported that they have relevant policies and programmes under development, while Austria, China, Denmark, Islamic Republic of Iran, Ireland, Morocco, Myanmar, Turkey and the United Kingdom of Great Britain and Northern Ireland have some policies and programmes in place. Finland, Germany, Poland, Sweden and Switzerland report that comprehensive policies and programmes are in place for the sustainable use of forest resources.

164. In the thematic reports Parties also indicated, that in general, national forest programmes include a series of measures to promote conservation and sustainable use of forest resources. In Colombia, for example, the *in situ* biodiversity conservation strategy of the National Forest Development Plan promotes threatened ecosystems within a programme entitled the Protected Areas National System, as well as the selection and adoption of ecological corridors. Similarly, the Danish National Forest Programme includes the establishment of protected areas (10% of the national forest area) and the use of guidelines for sustainable forestry. In Ireland, forest operations must follow guidelines issued by the forest service, including the Forest Biodiversity Guidelines, as well as promote the ecosystem approach. In Switzerland, the criteria for ecologically sound forest management are contained within the Swiss National Forest Programme. The Islamic Republic of Iran has two national programmes in place: the Northern Forest Preservation Plan and the Zagros Project.

165. Another instrument for the sustainable use of forest biodiversity mentioned in the thematic reports is certification schemes. Along with many other Parties, Austria, Canada, Germany and the United Kingdom of Great Britain and Northern Ireland consider the implementation of voluntary independent forest certification schemes as a further way to encourage the sustainable use and conservation of biodiversity. In addition, the United Kingdom of Great Britain and Northern Ireland system takes into consideration socioeconomic standing as well as biodiversity. The regulation of the size of allowable harvest is a method used to conserve biodiversity in countries such as Poland and China.

166. Further in some cases, restrictions on clear-cutting and unsustainable harvesting of timber and non-wood forest resources are addressed by national forest acts. This is the case for the forest acts of Austria, Finland, Germany, Ireland, Poland and Sweden. For instance, the Austrian Forest Act forbids clear-cuttings that would permanently reduce soil productivity, influence water regulation in a negative way, enhance soil erosion, or impair the function of protective forests. In Finland, the regulation of timber resources is integrated into forest policy and legislation, and it is implemented through all forestry related programmes and action plans at different levels. In Germany, legal provisions on sustainable harvesting are contained in the Federal Forest Act and Forests Acts of Landers. Forestry acts control timber harvesting in Ireland as well. The Act on Forest regulates forest owners' rational use of forests in Poland

in a way that can ensure optimal compliance with all forest functions. The Swedish Forest Act and the Environmental Code establishes binding rules, including obligations on forest regeneration.

167. Finally, a common concern that was expressed by many Parties in the thematic reports is insufficient law enforcement. While in Germany the enforcement of laws governing the unsustainable harvesting of timber and non-wood forest resources are considered effective, as practices violating current regulations are reported and prosecuted, illegal logging remains an important issue for Poland. Forest guards in Poland cooperate with police forces and other services in order to prevent illegal activities in forests.

B. Activities of the Executive Secretary

168. In decision VIII/19 paragraph 4(a) the Conference of the Parties requested the Executive Secretary to strengthen collaborations on issues regarding the promotion of sustainable forest management with organizations such as ITTO, FAO and CIFOR. Further in decision VIII/19 paragraph 4 (c) and decision VI/22 paragraph 19 (e) the Executive Secretary was requested to prepare an assessment of the impacts of the unauthorized harvesting of forest biological diversity on fauna (including “bushmeat”) flora, indigenous and local communities and revenue loss at the local and national level.

169. In response to the above decisions the Secretariat in conjunction with CIFOR, prepared a document on the harvesting of non-wood forest products. This document, tentatively entitled “Conservation and use of wildlife-based resources: the “bushmeat crisis” in question” addresses a variety of issues related to the unauthorized harvesting of forest biological resources, with a particular focus on “bushmeat”. This publication will be made available online.

170. The publication related to unauthorized harvesting of non-wood forest products reflects the conclusions and recommendations presented in document UNEP/CBD/SBSTTA/11/INF/12 which served as part of the basis for decision VIII/19 paragraph 4(e). In this document it is stated, that given the limited number of voluntary country submissions on the topic, the scope of the paper should focus specially on the unauthorized harvesting of fauna in order to provide recommendations to Parties on bringing bushmeat hunting to sustainable levels.

C. Synthesis of activities of international organizations and non-governmental organizations

171. The activities undertaken by international and non-governmental organizations to promote the sustainable use of forest resources have been widespread. Numerous site-specific, sustainable forest management projects and case studies have been undertaken by international organizations such as ITTO, FAO, GEF, WWF, and the Nature Conservancy. These activities have been carried out in many parts of the world but especially in developing regions of Africa, Latin America, and Southeast Asia.

172. In regards to objective 1 several international and non-governmental organizations have on going or completed projects on the sustainable use of forest resources. For example one of ITTO’s main foci is the promotion of sustainable forest management, particularly in tropical and mangrove forests. The “Catalogue of ITTO Projects, Pre-Projects and Activities” and the ITTO Project Portfolio Internet site contain about 50 completed and in- progress projects and activities addressing this issue(8 and 12). The same website lists 12 projects on the promotion of the sustainable use of timber and non-wood resources. In addition the ITTO, in association with IUCN, is currently field testing the ITTO/IUCN Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Production Forests (32).

173. The GEF project database for biodiversity and forest ecosystems has a number of projects relating to the sustainable use of forest resources (one regional project for Latin America and the Caribbean and 31 from various countries throughout the world (157). The listed projects often include the involvement of indigenous and local communities.

174. Two CPF members, in association with the private sector and local NGOs, have encouraged sustainable harvesting and the marketing of seeds from the Allanblackia tree in Ghana as part of an effort to decrease unsustainable harvesting practices while reducing poverty in local communities (1).

175. A few of the projects listed on the WWF Latest Project Listings Internet website are relevant to the conservation and sustainable use of forest resources in non-protected areas (163). Similarly, a few projects on The Nature Conservancy's alphabetized Project Profile Internet site have the primary goal of creating a sustainable forest management plan, often with the involvement of indigenous and local communities and stakeholders (164).

176. In addition to the ongoing and completed projects related to the promotion of sustainable use of forest resources there are also a variety of publications available. For example the FAO Forestry Department's "Forest Management Working Papers" and "In Search of Excellence" publications present evaluations of forestry management programmes and multiple case studies from various countries in Africa, Central America, and Asia and the Pacific. These publications present illustrative examples of best practices in forest management (57 and 66).

177. The United Nations Forum on Forests (UNFF) published the paper "Transfer of environmentally sound technologies for sustainable forest management: an overview," which defines the scope of existing forest management technologies that can be transferred to different regions. An important aspect of the report is a non-exclusive list of areas where specific technologies are needed to improve forest practices on the ground (143).

178. The ITTO, on a yearly basis, is publishing the "Annual Review and Assessment of the World Timber Situation", which compiles statistics on the global production and trade of timber with an emphasis on the tropics and provided information on trends in forest area, forest management and the economies of ITTO member countries (93). The ITTO newsletter, "Tropical Forest Update," reports on current issues in sustainable forest management, with a focus on member countries (91 and 92). Further ITTO has produced several Technical Reports related to objective 1 (5, 8 and 12).

179. The World Bank publication "Biodiversity Conservation in Forest Ecosystems" points out that the sustainable use of forest resources was a major objective of projects to which the World Bank provided assistance, especially in relation to joint forest management activities. These projects led to the establishment of over 2400 oversight committees (120).

180. Greenpeace has released several documents related to objective 1 including one examining the impacts of industrial logging in the forests of Asia Pacific and another examining Europe and its role in the illegal timber trade (234, 235). Both these documents serve to highlight issues of concern or obstacles to the sustainable use of forest resources. Further the document "Legal Forest Destruction: The Wide Gap Between Legality and Sustainability" illustrates that though timber may be legally harvested it is not necessarily sustainably harvested. This document provides 10 case studies where forests have been harmed as a result of legal timber harvest and suggests methods for addressing the problem (236).

181. From the above examples it can be seen that a variety of organizations, including ITTO, FAO, GEF, and WWF, have implemented or are in the process of implementing field-level projects and that several have published guidelines, toolkits and analyses on the sustainability of current forest practices. Many of these projects include components for capacity building in local communities and Government departments, as prescribed by activity (a) of goal 4, objective 1 of the expanded programme of work on forest biological diversity. No materials examined tried to mitigate the loss of unsustainable harvesting by increasing awareness among consumers.

182. Objective 2 of goal 4, programme element 1, deals with the prevention of loss caused by the unsustainable harvest of timber and non-wood resources. Both international and non-governmental organizations have implemented activities related to this objective. For example FAO has several publications and programmes which can be classified under objective 2. FAO's sustainable wood energy system programme, a priority area for the Sustainable Forest Management Programme in the African APC region, strives to strengthen the institutional capacity of member countries, stakeholders and partners to allow for the adoption of sound wood energy policies and the implementation of cost-effective projects (activity (b) of objective 2) (75 and 76). FAO's document depository of "Forest Harvesting Case

Studies presents examples of forest harvesting best practices for a variety of countries (77). Additional FOA resources relating to objective 2 include:

(a) The 57th issue of the “FAO Yearbook of Forest Products” which presents annual data on the production and trade in forest products (78); and

(b) “FAO’s Non-Wood Forest Products (NWFP) Programme which provides country profiles and socio-economic and ecological information for NWFP use (79).

183. One CIFOR publication, “Life after logging: Reconciling wildlife conservation and production forestry in Indonesian Borneo”, is a comprehensive analysis and nature survey of forest animals and the effects of logging. The publication provides recommendations for government planning, current management concessions as well as suggests areas for further research to help fill the existing information gaps on the subject (169). In addition the article “Logging for the ark: improving the conservation value of production forests in South-East Asia”, also prepared by CIFOR, focuses on production guidelines for forest managers in South-East Asia in order to allow them to adopt more environmentally benign logging practices and to increase the value of logged forests for conservation and local livelihoods (285).

184. With regards to projects and programmes the GEF has funded four projects on the reduction of the unsustainable harvest of forest resources (157). The WWF Latest Project Listings Internet site lists five projects that are relevant to sustainable harvesting practices of large mammals and forest wood products (163). Further the Nature Conservancy’s Alphabetized Project Profile Internet site, lists two projects which have the primary goal of preventing the unsustainable loss of forest resources (164).

185. The MCPFE, through Vienna Resolution 2, is promoting activities to minimize the negative effects of illegal harvesting of forest products in Europe. Activities include an evaluation of the effectiveness of legislation and adopting better practices (19). These activities correspond to activity (c) of this objective. Further following the MCPFE Work Programme a report from an MCPFE Workshop held in Madrid, Spain in November 2005 on “Combating Illegal Harvesting and Related Trade of Forest Products in Europe” was published (250). This report provides an overview of ongoing initiatives to combat illegal logging and provides information on social, economic and environmental consequences of illegal harvesting activities in and beyond Europe. Developing options for prohibiting or criminalizing the import and trade of illegally harvested timber as well as preventing corruption and money laundering were also highlighted in the report as was the need to review the effectiveness of existing policies and instruments with respect to combat illegal logging, to integrate measures against illegal logging into rural development mechanisms and to support alternative economic opportunities for forest depended people in order to reduce illegal forest activities related to poverty (250).

186. A considerable amount of information on enabling indigenous and local communities to develop and implement adaptive community-management systems (objective 3) is available as several international organizations have programmes and publications on this topic. Numerous resources, including case studies, working groups, site-specific as well as regional projects, and publications have been developed to increase awareness and involvement of local and indigenous communities in managing resources (collaborative management) as well as to help them achieve the right to own their resources independently from their Governments (devolution). In the latter cases only some groups have achieved success, generally with the involvement of international and local NGOs as well as a strong civil society. Examples are provided in the following paragraphs.

187. According to the “Catalogue of ITTO Projects, Pre-Projects and Activities,” ITTO has over a dozen ongoing and completed collaborative activities on empowering indigenous and local communities from around the world (8). Furthermore, ITTO’s capacity-building programme, implemented at both the national and local levels, provides training and assistance to government departments, the private sector, and local and non-governmental organizations to help build capacity (11).

188. Similarly, IUCN facilitated the Working Group on Community Involvement in Forest Management (WG-CIFM), which between 1997 and 2000 helped over 150 individuals, representing forest departments, donor agencies, NGOs, and academic institutions, from various regions of the world

increase their awareness of indigenous and local community involvement as well as provided information on the scope and successes related to their involvement in forest management (149).

189. The Forestry Department of the FAO has a Technical Cooperation Programme (TCP) with projects that emphasize participatory forest management activities and its Internet site has a Community Forestry Case Studies Series, Field Manuals, and Working Papers (81 and 82). Further the National Forest Programme Facility, hosted by the FAO, is a partnership of bilateral donors and international organizations that supports the national forest programmes of 36 countries' via, *inter alia*, participatory methodologies, global and regional networking and community processes (84 and 160). The Forestry Department of FAO also supports community-based forest enterprises, a list of which can be found on the FAO Internet site (86 and 87).

190. GEF has funded 26 projects with the major aim of empowering indigenous groups to develop resources. Furthermore, GEF has funded many other projects with the secondary aim of involving indigenous groups in the management process (157). Overall it was noted that indigenous communities and organizations generally praise the GEF-UNDP Small Grants Programme (156). According to the GEF publication "Forests Matter: GEF's Contributions to Conserving and Sustaining Forest Ecosystems," the Small Grants Programme has committed over \$117 million to more than 3,000 projects that reconcile biodiversity and sustainable livelihoods (181).

191. PROFOR's Forest Governance Internet site provides three case studies from Guatemala, Zimbabwe and the Philippines which address the decentralization of forest resources and the strengthening of local community capacity (108). The World Bank's Forest and Forestry Internet site lists four featured projects and case studies from Lao People's Democratic Republic, India, Mexico and Honduras which enable local communities to achieve sustainable forest management (decentralized approach) with the specific goal of alleviating rural poverty. Hence these projects can also be categorized under programme element 2, goal 2, objective 1 (122).

192. 14 projects on the WWF Latest Project Listings Internet site are related to enabling community-based resources management initiatives and a few include specific components for the conservation of endangered and endemic species (163). A further four projects are relevant to the development of *in situ* and *ex situ* conservation strategies for large mammals (163). The Nature Conservancy's Alphabetized Project Profile Internet site has information on eight projects for which the primary goal is to involve indigenous and local communities and stakeholders in creating sustainable resource management plans (164). It should also be noted that this objective is the most prominent secondary goal of The Nature Conservancy's projects.

193. A variety of publications examining the involvement of indigenous and local communities in forest management plans are available. For example a large portion of CIFOR's work involves investigating how forests and livelihoods are connected through mechanisms such as resource management and trade. As such, CIFOR's mission is to contribute to the sustained well-being of people in developing countries, particularly in the tropics and especially through participatory methods that present concrete data for decision makers (167). CIFOR's publications on this subject (Objective 3) include:

(a) "Exploring biological diversity, environment and local people's perspectives in forest landscapes: Methods for a multidisciplinary landscape assessment," which was developed in association with indigenous groups and local communities of East Kalimantan, Indonesia, as a means of gathering natural resource information to develop sustainable management and present results to decision makers (168);

(b) "Recent Experience in Collaborative Forest Management" is a worldwide review and summary of collaborative forest management experiences. This document reports that although the most rapid development of collaborative forest management has occurred in countries with well-funded forest

institutions (i.e. developed states), the most significant gains lie in countries where partnerships have resulted in governmental recognition of local communities rights of use and access (186); and

(c) “Local forest management: the impacts of devolution policies” is a three-year examination of forest policies in three Asian countries. The publication determined that in most cases devolution failed to deliver what it had promised primarily because the forest departments promoting devolution tended to promote their own interests in timber production and forest conservation often to the detriment of local communities.(178).

194. The IUCN Working Group on Community Involvement in Forest Management (CIFM) produced several publications in a series entitled “Community and Forest Management in: Canada and the United States, Southeast Asia, Mesoamerica, South Asia, and Western Europe” (48). These publications, which are based on case studies, provide indigenous communities an opportunity to share their experiences on sustainable forest management plans. Furthermore, IUCN has three publications in their Livelihoods and Landscape Series including, the guideline publication “Poverty and Conservation: Landscapes, Peoples and Power” which includes 5 case studies (39 and 40).

195. In relation to programme element 1, goal 4, objective 4 (the development of effective and equitable information systems and strategies for forest genetic resources) several international organizations have activities, including implementing projects and developing databases.

196. The Forestry Department of FAO has reported extensive work on forest genetic resources including:

- (a) The exploration, collection and evaluation of forest genetic resources;
 - (b) The conservation and management of genetic resources and forest reproductive material;
- and
- (c) The assessment of forest genetic resources and information services.

These actions could be categorized under activities (a) and (c) of objective 4 of this goal (73). Further for the conservation and use of genetic diversity FAO has developed an online Guide to Forest Reproductive Material, including information on selection, procurement, propagation, improvement and policy matters (133). In terms of guidelines, FAO and The International Plant Genetic Resources Institute (IPGRI) have a three-volume publication entitled “Forest Genetic Resources: Conservation and Management” (22). More specifically, volume 2, “In managed natural forests and protected areas (*in situ*),” highlights the role that managed natural production forests and protected areas play in the conservation of forest genetic resources whereas volume 3, “In plantations and gene banks (*ex situ*),” highlights technical requirements and strategies for *ex situ* conservation of forest genetic resources (134 and 135). More recently during the 11th Session of the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA), the Commission emphasized the need to conserve and sustainably use forest genetic resources and also noted that the current lack of information on this subject is an obstacle to decision making. To overcome this issue the Commission recommended that information systems such as the FAO’s global information system on forest genetic resources, (REFORGEN) be strengthened (243).

197. In addition IUFRO has a series of ongoing research activities related to forest genetics. A workshop jointly organized by IUFRO and Biodiversity International in May 2006 focused on “Forest genetics and climate change – Impacts for sustainable forest management in Europe”. The findings of this workshop relate to activities (c), (d) and (g) of objective 4. They underline the crucial role of forest genetic diversity in maintaining forest biological diversity at both species and ecosystem levels under conditions of climate change. The workshop adopted four recommendations which emphasize the need to incorporate forest genetic diversity in national forest programmes, to maintain evolutionary processes of forest trees and support natural regeneration of forests, and to develop pan-European guidelines for the transfer of forest reproductive material in Europe on a basis of scientific knowledge (239).

198. Several obstacles related to goal 4 and in particular objective 3 exist. These obstacles were highlighted by The Forest Peoples Programme (FPP) which was established in 1990 to promote

Indigenous Peoples rights, *inter alia*, works collaboratively with many networks to help coordinate NGO positions on international forest policy and related intergovernmental and private sector initiatives (155). Under such initiatives, a report entitled “Indigenous Peoples and the Global Environment Facility (GEF)” was published to clarify whether the rights of Indigenous Peoples have repeatedly been ignored or undermined by GEF (156). Through case studies of GEF full-sized conservation and sustainable use projects, field visits, and interviews with indigenous organizations and support NGOs, the FPP’s report found many problems in the preparation and implementation of some GEF projects, including:

- (a) Treating indigenous peoples as “beneficiaries” rather than rights holders;
 - (b) Seeking to mitigate rather than avoid negative social impact;
 - (c) A lack of field baseline studies or only carrying out such studies after a project has started;
- and
- (d) Failing to pinpoint critical legal, rights and cultural issues in social assessments.

199. In the above report it was also noted that the GEF is seeking to respond to some of these criticisms by, for example, increasing its monitoring capacity by developing social and participation indicators. In this regard the GEF Small Grants Programme can be seen as a successful method of supporting indigenous and local communities.

200. The Forest Peoples Programme (FPP) in a report entitled “Forest Peoples, Customary Use and State Forests: the case for reform”, evaluates the progress in implementing, *inter alia*, Article 10(c)4 of the CBD as well as indigenous-related objectives of the expanded programme of work on forest biological diversity (166). The FPP, in the above document, reports that countries are shifting “the balance of power over forests away from forest-dwellers and in favor of industry and political elites, creating major obstacles to sustainable forest management and to policies that respect indigenous peoples’ rights.” In terms of indigenous community management, it was concluded in the report that only a few of the communities involved in the studies had developed formal codes of customary laws or set them down in writing, yet all had informal and generally known methods for encouraging compliance with customs and social norms. In terms of Governments, it was reported that most countries have barely begun to transfer forests to community management. For example in Indonesia, despite changes in legislation designed to promote community involvement, only 0.2 percent of State Forest Areas are considered to be under community management. Furthermore, the transfer of property rights only occurs where there is strong mobilization of forest-dependant peoples and supportive civil society organizations pressuring for recognition of their rights. The studies also show that communities have much greater incentive to use biodiversity sustainably when they have secure rights over their territories and resources.

Goal 5: Access and benefit-sharing of forest genetic resources

Objectives

1. Promote the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge

201. This goal is central to one of the three overall objectives of the Convention on Biological Diversity, the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. This goal has one objective: to promote the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge. There are three activities associated with this objective.

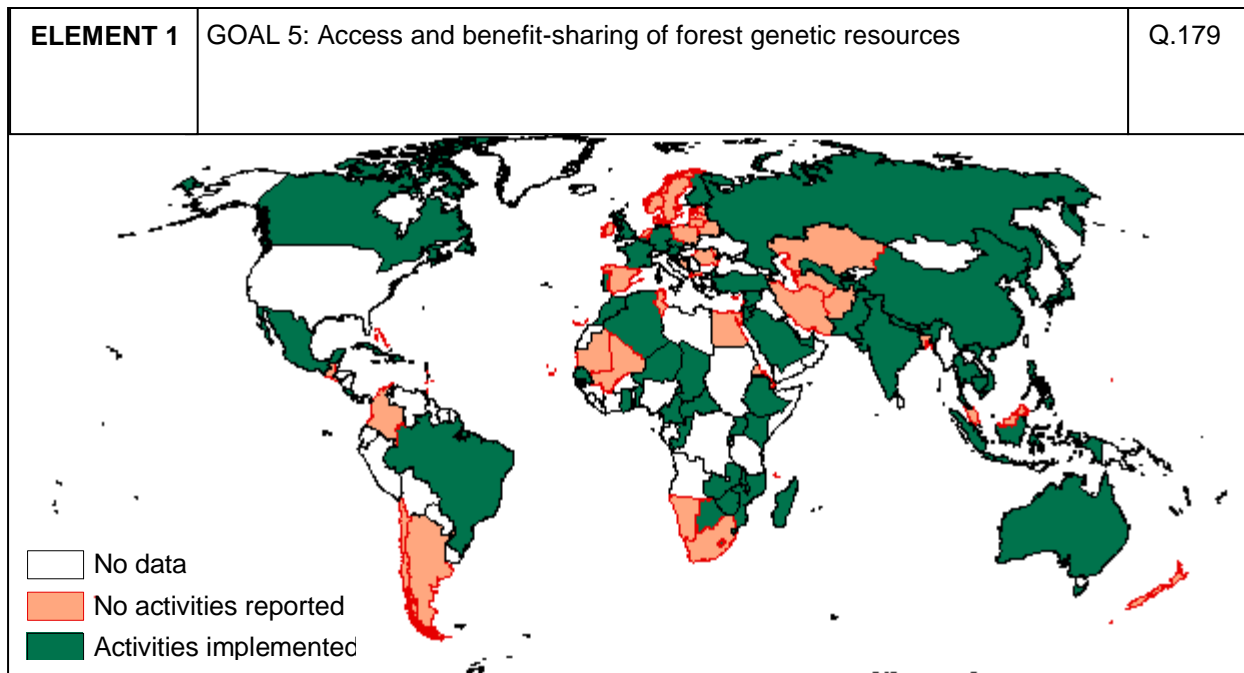
^{4/} Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.

A. Information from the national reports

202. One question (question number 179) of the third national report questionnaire directly related to the activities taken on access and benefit sharing (ABS). This goal is the least commented on section of the third national report questionnaire. This can partially be ascribed to the fact that ABS regimes and related instruments are still under negotiation. 116 Parties responded to this question and the responses are as follows:

(a) 67 Parties reported undertaking ABS activities related to forest genetic resources; and

(b) Of the 49 Parties reporting that no measures had been taken 3 Parties indicated that this issue was not a priority, and one Party indicated that ABS was not currently a priority but that it might become one in the future. Further 2 Parties reported that relevant legislation was currently being reviewed and 1 Party reported that no national framework had yet been established. In addition 2 Parties indicated that the issue had not been sufficiently examined to begin taking actions, 2 Parties reported, that as only forest owners have the right to use timber but other forest products are available to communities, it was difficult to undertake ABS measures. One Party reported that the slowness and disorganization of the forestry system and the lack of clear financial policy was preventing the successful implementation of activities. One Party indicated that ABS is a new concept in the country while one Party reported that ABS measures were still in their planning stages.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

203. While a few Parties reported that progress was being made in reviewing ABS procedures on forest biodiversity, including the examination of established frameworks, from the comments received it appears that the application of ABS has been limited. The reported progress is as follows:

(a) Four Parties (Canada, India, Austria and Indonesia) reported using *ex-situ* conservation and ABS related activities. These activities included creating “Seedling Seed Orchards,” promoting seed production, and establishing gene banks;

(b) Two Parties (Gambia and Mozambique) responded that communities own and manage their forest resources and that a percentage of the revenue generated from forest is returned to the community;

(c) One Party (Zimbabwe) reported that resource-sharing schemes were creating employment opportunities and greater ownership of resources thereby promoting the sustainable use of biodiversity;

(d) One Party (Kenya) reported that the ABS scheme for forest resources was promoting gender-balanced development in that country;

(e) Several developing countries plan to strengthen bio-prospecting (research on their genetic resources) systems by implementing controls, regulations or by discouraging inequitable use (bio-piracy);

(f) Some developed countries have reviewed the general status of their genetic resources and ABS;

(g) Commonly reported activities related to *ex-situ* conservation and sharing experiences and information from gene banks; and

(h) References to the Bonn guidelines were made, especially with respect to those guidelines that promoted the formation of relevant laws and frameworks.

204. Since ABS is still in its developmental phase there is a general absence of information regarding its implementation. However several Parties reported obstacles to the further application of goal 5. These include:

a) The need for an institutional setup at a national level as well as the need for an international movement to push ABS measures forward;

b) Some Parties reported on a lack of awareness either amongst local communities or local officials as being an obstacle to the further implementation of goal 5;

c) Two Parties expressed the need for market mechanisms, such as an appropriate certification system. To date an international system of certificates has not been put in place which can indirectly affect the national application of ABS processes;

d) Barriers resulting from tenure systems and the ownership of forests and forest genetic resources were reported. For example some Baltic countries indicated that forest owners exclusively possess the rights to timber resources by law. In other cases, as with some former communist regimes, forests are still owned by the state and are in the process of establishing local ownership of forests;

e) The incompatibility of domestic law with ABS requirements was also reported. Some Parties mentioned that local laws dictate that the benefits arising from forests belong to the owners; and

f) One Party reported that the ambiguous definition of "local knowledge" hampered efforts to apply ABS mechanisms in forest areas.

205. Information related to this goal was also presented in the thematic reports received by the Secretariat. A number of respondent countries reported that no initiatives have been taken at the national level to address forest genetic resources or that they are in a very early stage of development. In Denmark for instance, there are no policies or programmes dealing specifically with forest genetic resources however a provision in the Danish Penal Code is meant to address the issue of prior informed consent for the use of genetic material under mutually agreed terms. In addition, in Poland the issue of traditional knowledge associated with the utilization of forest genetic resources has not been addressed yet. Issues pertaining to the conservation of genetic resources are included in the general provisions of the National Policy on Forests, which promotes forest management methods that respect ecological functions of forests and takes into account their economic and ecological conditions. Similarly, in Ireland, given the limited utilization of genetic resources, the issue of forest traditional knowledge is addressed more generally by the section of the Strategic Plan for the Development of the Forestry Sector on Sustainable Forest Management, in which biodiversity is a key element.

B. Activities of the Executive Secretary

206. In paragraph 4 (a) of decision VIII/19 the Executive Secretary was requested by the Conference of the Parties to strengthen collaboration, on issues regarding the promotion of sustainable forest management, including, as appropriate, forest law enforcement, governance and related trade, with CPF member organizations. Following this decision the Secretariat undertook the following actions:

a) The Secretariat organized a meeting of the Group of Technical Experts on an internationally recognized certificate of origin/source/legal provenance, in Lima, Peru, held from 22 to 25 January 2007;

b) The Secretariat participated in the 10th Session of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, from 5 to 8 December 2006, in Geneva, Switzerland; and

c) The Secretariat participated in the ABS Capacity-building Workshop for Africa, Cape Town, South Africa, organized under the framework of the Dutch-German ABS Capacity-building Initiative for Africa, from 19 to 24 November 2006.

C. Activities of international organizations and non-governmental organizations

207. Of the organizations examined, two international organizations, IPGRI and ITTO, aided Parties in promoting the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources.

208. IPGRI has over a dozen regional and global multidisciplinary projects focused on supporting countries in assessing and monitoring genetic diversity resource programmes (20). Furthermore, IPGRI has many forest genetic resource publications. These publications are often published in association with the FAO and an example is the quarterly newsletter entitled "Plant and Genetic Resources Newsletter" that contains articles on genetic research including, for example, endangered species conservation (21 and 23).

209. ITTO has two recent projects on the conservation and sustainable use of forest genetic resources:

a) Strengthening national capacity and regional collaboration for sustainable use of forest genetic resources in tropical Asia (Malaysia)

b) Pre-project for the conservation and management of genetic resources in the natural tropical forests of Ecuador (12)

These two ITTO projects are being implemented in conjunction with a GEF project relating to the development of strategies for the sustainable use of genetic resources (157).

210. The International Alliance of Indigenous and Tribal Peoples of the Tropical Forests was founded in 1992 by a range of organizations, peoples, representatives and leaders to establish a forum and mechanism by which Indigenous Peoples could participate in major environmental negotiations and policy developments (151). In 2004, the Alliance held an Expert Meeting on Traditional Forest-Related Knowledge (TFRK) in which a series of regional and national case studies was commissioned to determine if national Governments had met their international commitments for the promotion and protection of forest-related knowledge (152). This report concluded that the lack of recognition of indigenous peoples and communities was the main obstacle to international commitments concerning traditional forest related knowledge (153 and 162).

211. According to the summary report submitted to the fifth session of the UNFF entitled, "Report on Traditional Forest Related Knowledge and the Implementation of Related International Commitments: International Alliance of Indigenous and Tribal Peoples of the Tropical Forests" - 6-10 December 2004, San Jose, Costa Rica (E/CN.18/2005/16), several key themes emerged and broad obstacles were identified. Based on these themes and identified obstacles 81 consolidated recommendations were

formulated. Noteworthy, for the review of the implementation of the expanded programme of work on forest biodiversity, are the following recommendations: ^{5/}

(a) The CBD, UNFF and their Member States should strengthen national reports by including, in an equitable way, the perspectives of Indigenous Peoples, and by providing equitable funding and resources for Indigenous Peoples to submit parallel reports to complement and enrich the national reporting process to the CBD;

(b) The CBD, and any future international arrangement on forests, must increase and accelerate work on mainstreaming Indigenous Peoples' issues as crosscutting issues across all of the thematic and other areas of the CBD;

(c) The United Nations Permanent Forum on Indigenous Issues (UNPFII) should provide greater coordination and guidance and make recommendations to the UNFF, governing bodies of the CPF member organizations, including the CBD, in their work relevant to Indigenous Peoples;

(d) International Arrangement on Forests/CBD should institute/establish a Northern Regional process on forest issues, with a particular focus on TFRK in the Northern and Boreal regions. In creating this process, the Arctic Council should be seen as an example of good practice of high-level cooperation between Governments and indigenous peoples;

(e) The UNFF/CBD should direct increased attention to global warming in their work, and activities relating to TFRK, since global warming is an increasing source of destruction of TFRK, particularly concerning the Arctic region, the Amazon basin and small island developing states;

(f) Governments, any future international association on forests, and the CBD, should support national and/or international policies which restore full access and rights to resources and traditional territories necessary for Indigenous Peoples to exercise traditional land use activities, such as hunting, fishing, gathering, herding, and ceremonial activities required to maintain and rejuvenate TFRK and support the livelihoods of Indigenous Peoples. Additionally, in consultation with the relevant Indigenous Peoples, Governments should halt current projects that are contributing to the degradation of traditional lands until it has been established what rights Indigenous Peoples have to the land. Also, a process should be established to determine these rights and interests;

(g) IAF and CBD should encourage member states to develop new institutional arrangements, such as an Indigenous Peoples' forest tenure, consistent with the community forest movement, which would additionally address indigenous peoples' rights, and incorporate their unique forest values and interests; and

(h) The Secretariats of the Convention on the Elimination of Discrimination Against Women, UNFF, CBD as well as UNIFEM and other UN agencies should compile best practices related to Indigenous women's traditional knowledge of forest management.

PROGRAMME ELEMENT 2: INSTITUTIONAL AND SOCIO-ECONOMIC ENABLING ENVIRONMENT

Goal 1: enhance the institutional enabling environment

Objectives

- 1.** Improve the understanding of the various causes of forest biological diversity losses.
- 2.** Parties, Governments and organizations to integrate biological diversity conservation and sustainable use into forest and other sector policies and programmes.
- 3.** Parties and Governments to develop good governance practices, review and revise and implement

^{5/} Note: the recommendations included in the report are numbers 40(b), 41, 42, 45, 47, 52, 56, and 63.

forest and forest-related laws, tenure and planning systems, to provide a sound basis for conservation and sustainable use of forest biological diversity.

4. Promote forest law enforcement and address related trade

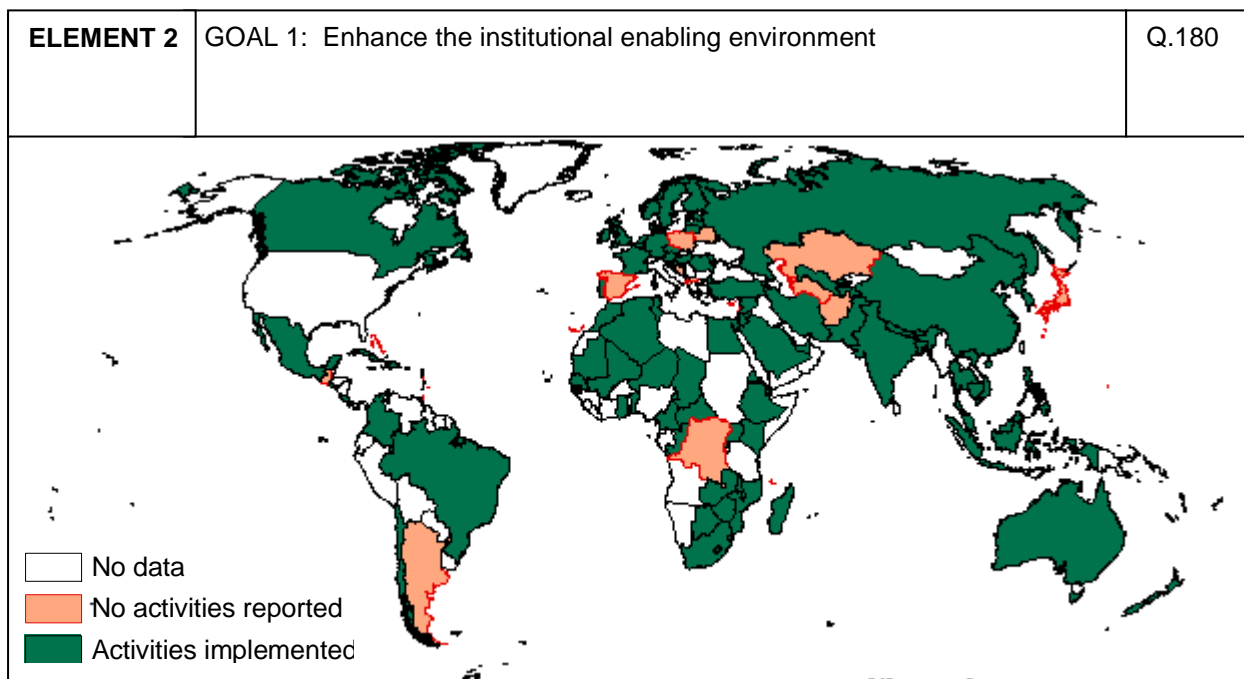
212. The second programme element of the expanded programme of work on forest biological diversity aims to enhance the institutional and socio-economic enabling environment. Goal 1 of this programme element has 4 objectives and a total of 23 activities. The first objective focuses on enhancing the understanding of the losses of forest biodiversity and has three related activities. The second objective has nine multi-dimensional activities for Governments and organizations to integrate biodiversity into their activities. The third objective has eight activities to aid Governments to develop good governance practices. The last objective has six activities mostly related to law enforcement.

A. Information from the national reports

213. Question 180 of the third national report invites Parties to report on any measures undertaken to enhance the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing. 117 Parties answered this question and the responses are as follows:

a) 96 Parties reported they undertook activities to enhance the institutional enabling environment; and

b) Of the 21 Parties not undertaking activities, two reported that this issue had not been sufficiently studied to begin undertaking activities, one reported that they have no provisions, guidelines or procedures to allow for such activities, one reported that they were not aware of this initiative and one reported that they could not undertake activities related to this goal as they had not yet applied the ecosystem approach. One Party indicated that the restructuring of institutions and civil services was ongoing while another Party has just established the required institutions and legislation to allow for the development of a national forest programme. One Party reported that they lacked the financial and human resources to implement activities related to this goal



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

214. A variety of obstacles to the further application of Goal 1 were reported in the third national reports. These obstacles generally stemmed from limited institutional resources. The reported obstacles to the further implementation of goal 1 include:

- (a) The limited application of the cross-sectoral approach or the ecosystem approach to forest management;
- (b) A lack of institutional communication across different governmental and regional organizations;
- (c) A lack of resources and capital especially in developing countries;
- (d) The inability to identify the underlying causes of forest biological diversity loss; and
- (e) A lack of effective implementation of relevant policies and legal measures. However the establishment of the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT) was reported as a welcoming trend.

215. Given the number of activities associated with goal 1 of programme element 2, there was great variation in the actions taken by Parties. However, generally, the reported activities can be divided into two categories, the establishment of scientific programmes and institutions and the strengthening of forest institutions, laws and forest law enforcement.

216. With regards to the establishment of scientific programmes and institutions the Parties reported on a variety of activities intended to improve the understanding of the various causes of forest biodiversity loss (objective 1). The reported activities include:

- a) The use of remote sensing technology and GIS to gather data on current forest status and trends;
- b) A number of Parties reported that national and regional programmes were using scientific knowledge to better understand the causes of forest biological diversity loss; and
- c) Parties reported that scientific data could eventually serve as basis for comprehensive “red books” and to highlight the causes of forest biological diversity loss.

217. The second group of activities commonly reported by Parties relates to the strengthening of forest institutions, laws and forest law enforcement and examples include regional FLEG initiatives and the European Union’s FLEGT initiative which have been established to address problems related to forest governance. These activities fall under objectives 2, 3 and 4 of this goal. Other activities reported include:

- a) The greater financial support, by central governments, for the planning of forestry institutions;
- b) The formation or improvement of legal instruments in order to develop and improve the institutional environment; in particular, some of the new EU Member States and EU candidate countries reported that they were adapting their legislation to comply with EU requirements;
- c) Mainstreaming the sustainable use of forest biological diversity into other policy and programme areas;
- d) Increased collaboration among federal, provincial and territorial governments as well as aboriginal authorities and local communities in order to promote an institutional and socio-economic enabling environment. One such example is the Kipepeo Project, a community based butterfly farming venture in Kenya’s Arabuko-Sokoke Forest, which has raised awareness of the challenges that communities neighboring protected areas face, generated livelihood opportunities, informed policy on the potential use of non-wood forest products and built local support for the conservation of the forest (241);
- e) The strengthening of forest law enforcement e.g. through the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT) and AFLEG for African countries (in the framework

of the New Partnership for Africa's Development (NEPAD) and the with the support the International Tropical Timber Council (ITTC), International Institute for Sustainable Development (IISD), IUCN (the World Conservation Union), and the Department for International Development of the United Kingdom (DfID))⁶;

- f) Capacity building activities for officers and institutions implementing or supporting activities related to bioprospecting, including measures to discourage the illegal use of biological resources. Bioprospecting was also reported as a future priority activity by several developing countries;
- g) The development of policies and legal measures based on International indicators and programmes such as those of the International Tropical Timber Organization (ITTO); and
- h) The introduction of tax laws to promote both forest law enforcement and the cross-sectoral approach.

B. Activities of the Executive Secretary

218. In paragraph 4 (a) of decision VIII/19 the Conference of the Parties requested the Executive Secretary to Strengthen collaboration on issues regarding the promotion of sustainable forest management, including, as appropriate, forest law enforcement, governance and related trade, with the UNFF, the International Tropical Timber Organization (ITTO), the Food and Agriculture Organization of the United Nations (FAO), the Center for International Forestry Research (CIFOR), the World Bank, other members of the Collaborative Partnership on Forests, and regional forest-related processes in order to complement and contribute to ongoing processes and initiatives. In response to this decision the Secretariat facilitated the coordination of the 4th AHTEG meeting in full collaboration with the FAO. Further the Secretariat exchanged relevant information with FAO, attended the meetings of CPF members and commented on documents. Further the Secretariat is in the process of preparing a toolkit on the application of the cross-sectoral approach to forest management. The Secretariat is also preparing, jointly with the UNFF Secretariat, an analysis of areas for synergies between the expanded programme of work on forest biological diversity, and the UNFF's non-legally binding instrument on all types of forests.

C. Activities of international organizations and non-governmental organizations

219. Numerous international and non-governmental organizations, especially in developing countries are actively involved in the development and implementation of forest policy and law. Similarly numerous Indigenous Peoples' and community-based organizations are supporting local initiatives. The activities taken by these organizations can be divided into two categories: publications and databases and programmes and projects. Many organizations have periodic publications which disseminate scientific information and update readers on relevant international activities concerning forest processes, such as the summary of convention meetings. These sorts of publications are produced by a variety of organizations including the FAO, ITTO, CIFOR, the Global Forest Coalition, IUCN, the World Rainforest Movement and WWF. For example the FAO publication "State of the World's Forests 2007," is a comprehensive global view of forest resources, forest management, conservation and sustainable development as well as identifies emerging issues related to forest biological diversity (52). As such this publication directly relates to objective 1 (improve the understanding of the various causes of forest biological diversity loss). Further FAO publications on this topic include:

- a) The "Forestry Sector Outlook Studies for Latin America, Europe, Asia-Pacific and Africa" which presents long-term trends on the supply and demand of forest products. In addition this publication highlights the potential impacts of these trends on industry, society and the environment (100, 101, 102, and 103);
- b) "FAO's Global Forest Resources Assessment," examines the current status and recent trends of the extent, condition, use and value of forests and other wooded land. (54);

⁶/ Further information is available on the following websites: www.IISD.CA/LINKAGES/SD/SDYAO; www.iucn.org; www.dfid.uk

c) Forestry Paper 142, “Cross-sectoral policy impacts between forestry and other sectors,” presents material on methods for coordinating and harmonizing policies with the use of specific country level case studies. (98);

d) The Forest Resources Assessment Working Paper 63 presents status and trends on mangrove areas worldwide (74); and

e) The publication “Unasyuva” discusses, in each issue, one particular thematic topic related to forest conservation. Many of the topics covered correspond to the objectives of the expanded programme of work on forest biodiversity (55).

220. The information contained in the above FAO forest publications is complimented by a variety of other documents from intergovernmental and nongovernmental organizations. For example and specifically related to tropical forests, ITTO has a report entitled “Status of Tropical Forest Management 2005” that provides a comprehensive analysis of the approaches to the allocation and management of forest resources by 33 member countries (80 percent of global tropical forests) (90). The report concludes that the amount of forests under sustainable forest management in Africa, Asia and the Pacific, and Latin America and the Caribbean is still very low and unevenly distributed. A further publication dealing with tropical forests is The “WRM Bulletin, which is published monthly and reports on various forest topics, such as country or region specific case studies and summaries of environmental meetings. The World Rainforest Movement (WRM) is part of the Global Forest Coalition (129).

221. The IUFRO publication entitled “Scientific Summaries” presents information on the progress, processes and results of scientific knowledge on forest ecosystems since 2005 (27). Further the newsletter “Arborvitae” which has been published by IUCN/WWF three times a year since 1996 provides information on issues and events that impact the forestry sector and the conservation and sustainable use of forest resources (49) and the newsletter “Arborvitae Specials” focuses on specific opportunities and threats to the conservation and sustainable use of forest resources (50). As such these publications directly relate to Objective 1 of this goal.

222. CIFOR’s publication “Oil wealth and the fate of the forest: a comparative study of eight tropical countries,” illustrates the complex interactions that can lead to biodiversity loss and as such is directly related to objective 1. The report concludes that while it is certain that in some places the oil industry has done harm to the environment and peoples, in five of the eight countries studied oil wealth has helped to slow down deforestation in periods of high oil prices. However when prices fell people tended to drift back to agriculture and convert forests to farmland (178).

223. For the fourth MCPFE meeting the document “Europe’s Forests in the Spotlight” was prepared. It describes the state of 40 European countries’ forests and focuses on what could be improved in terms of forest management (15). Further IUFRO’s Occasional Paper 17, entitled “Working Effectively at the Interface of Forest Science and Forest Policy—Guidance for Scientist and Research Organizations,” provides guidelines for decision-makers on how to plan, conduct, and organize research activities so that results can be transformed into usable information efficiently (29).

224. A coalition of Governments, intergovernmental organizations, NGOs and Indigenous peoples’ organizations organized a series of regional and global workshops to analyse and develop solution-oriented approaches to the underlying causes of deforestation and forest degradation. The process included the compilation of 60 case studies and in-depth studies on the underlying causes of forest loss from over 40 countries. These case studies and workshop reports are available on the World Rainforests Movement’s website at www.wrm.org.uy.

225. Specifically related to the Convention on Biological Diversity and to objectives 2 and 3, The Global Forest Coalition publication “Status of Implementation of Forest-Related Clauses in the CBD,” evaluates 10 aspects of 21 countries’ commitments to the CBD’s forest programme of work, including: reporting frequency, implementation and integration, participation, and indigenous people’s rights (128).

226. Related to objectives 2 and 3 one CPF forest initiative created a Sourcebook on Funding for Sustainable Forest Management with an online database of nearly 500 potential founding sources (1). These resources were created in order to develop adequate financial resources for forest biological diversity projects. The Sourcebook also compiles information on policies and delivery mechanisms, with a focus on developing countries (126). As such these resources contribute to the creation of an institutional and socio-economic enabling environment.

227. Specifically related to objective 3 (Parties and Governments develop good governance practices to provide a sound basis for conservation and sustainable use) the Forestry Department of FAO has a National Forest Programmes internet site that contains a variety of information including basic information on what constitutes a national forest programme, detailed information on how to establish and conduct a country-specific programme as well as who can help implement the programme (97). Similarly the World Bank publication “Sustaining Forests: A Development Strategy,” outlines the overall vision, strategic framework and objectives for forests in terms of poverty reduction and environmental management as seen by the World Bank Group (121).

228. In relation to Objective 4 (Promote forest law enforcement and address related trade) a variety of publications are available. The FAO Forestry Paper 145: “Best practices for improving law compliance in the forestry sector,” is a joint FAO-ITTO publication that provides a comprehensive overview of the efforts being made at the local, national and international levels to address illegal forest operations (28). The report also notes that Governments are taking the initiative to design and implement appropriate measures to combat illegal forest activities. CIFOR’s Occasional Paper #44, “Fighting forest crime and promoting prudent banking for sustainable forest management: the anti money laundering approach,” adopts a unique strategy on forest law enforcement by focusing on the masterminds of illegal logging and their methods of money laundering (175). The report focuses mostly on Indonesia, stating that both national and international banks as well as international financing institutions play a large role in the financing of industrial timber. As such, the proper implementation of prudent banking practices, such as anti money laundering policies, can aid in curtailing forestry crimes. This publication is complimented by the document, published by the World Bank—WWF Alliance, “Establishing the Foundation for Sustainable Forest Management in Africa,” which sets out a new stepwise approach to improve the legality and sustainability of timber forest operations in Africa (118).

229. In relation to forest law enforcement there are publications, such as PROFOR’s “Tools for Civil Society Action to Reduce Forest Corruption: Drawing Lessons from Transparency International”, which target the general public. The above publication provides 30 tools and suggested activities for local, national and international organizations to improve law enforcement (107). Further the CIFOR document, published in association with PROFOR, “Justice in the Forests—Rural Livelihoods and Forest Law Enforcement,” explores the types of issues that arise from forest law enforcement (109). Lastly the World Bank—WWF Alliance has a publication entitled “Forest Law Assessment in Selected African Countries,” the main purpose of which is to assess the scale of the “law enforcement gap” in forest sector governance in nine African countries (119).

230. In addition to these publications there are several programmes and projects that have also been implemented by international and non-governmental organizations to address goal 1. For example the European Union Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT), which was adopted in 2003 to mitigate illegal logging, directly relates to objective 4 (Promote forest law enforcement and address related trade) of this goal. The core components of the FLEGT action plan are to improve governance in wood-producing countries and to promote a licensing scheme to ensure legal timber production (89). The African Forest Law Enforcement and Governance (AFLEG), which is part of the New Partnership for Africa’s Development (NEPAD) has also been adopted (113). AFLEG aims to strengthen high level commitment in Africa to build capacity for forest law enforcement and associated trade, as well as strengthen international and multi-stakeholder commitment. .

231. The Forest Law Enforcement programme of the Forestry Department of FAO has organized regional workshops jointly with ITTO in the Amazon region, Central America, Central Africa and South

East Asia to develop methods for countries to decrease the impacts of illegal logging to share experiences and best practices and to develop regional networks (88). In particular, ITTO has several projects relating to increasing forest monitoring systems in Africa, Indonesia and Latin America (94).

232. During the fourteenth meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) it was decided that Brazil wood (*Caesalpinia echinata*) would be added to the list of appendix II species. During this meeting a plan of action was developed to complete the knowledge regarding the status and trade in cedar (*Cedrela odorata*) and three types of rosewood (*Dalbergia retusa*, *Dalbergia grandillo* and *Dalbergia stevensonii*). Further CITES has a working group addressing issues related to big-leaf mahogany and its trade.

233. GEF has funded 14 projects to enhance national institutions' capacity to manage natural resources and biodiversity. These projects include developing public-private partnerships and streamlining reporting (157). GEF has also funded 8 projects relating to the development, implementation or review of forest management policies.

234. On the WWF Latest Project Listings Internet site half a dozen projects on integrating biodiversity into other industries are listed (163). Furthermore 19 of the projects listed on this site include strengthening anti-poaching and timber measures in protected and non-protected areas as objectives (163). Of the projects listed on The Nature Conservancy's Alphabetized Project Profile internet site two have the primary goal of integrating biodiversity into other sectors and eight have building the capacity of local government agencies and indigenous groups, local communities and stakeholders as a primary goal (164). These programmes and projects relate directly to objectives 2 and 3.

235. Further, in relation to objective 2, for almost 20 years the ITTO has worked with government agencies and departments to assist in developing forest conservation projects. The "Catalogue of ITTO Projects, Pre-Projects and Activities" and the ITTO Project Portfolio Internet site have multiple examples of completed and ongoing projects exemplifying this work. Several of the projects listed in these two sites also correspond to other objective of the expanded programme of work on forest biological diversity (8 and 12).

236. The European Plant Conservation Strategy (EPCS) has the objective of conserving the wild plants of Europe and their habitats by 2007. The strategy has 42 targets, arranged into five objectives. Each target has a lead organization charged with its implementation. The strategy is a joint initiative of the Council of Europe and Planta Europa (179). A further European project which relates to objective 4 is the European Union's FLEGT (Forest Law Enforcement, Governance and Trade) process which originated from the Ministerial Conference on Forest Law Enforcement and Governance (FLEG) in Europe and North Asia. The FLEG conference, organized in part by the World Bank, was held in St Petersburg in 2005 to identify the relative roles of Governments, the private sector and civil society in the FLEG. This conference resulted in the development of the St Petersburg Declarations (111 and 112).

237. The World Bank's Operational Policy is a statement of the Bank's obligations to all Bank activities covered under the policy, including projects that have or may have impacts on the health and quality of forests (123 and 124). More specifically, the World Bank's Forests and Forestry Internet site lists four featured projects in Russia, Romania, Georgia, and Bosnia and Herzegovina that promote the sustainable management of State and private forests (122). Furthermore, the Development Policy Lending programme in Mexico, Benin and Gabon aims to stop rapid environmental degradation by improving policies related to environmental and natural resources management (122).

Goal 2: Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity

Objectives

1. Mitigate the economic failures and distortions that lead to decisions that result in loss of forest biological diversity.

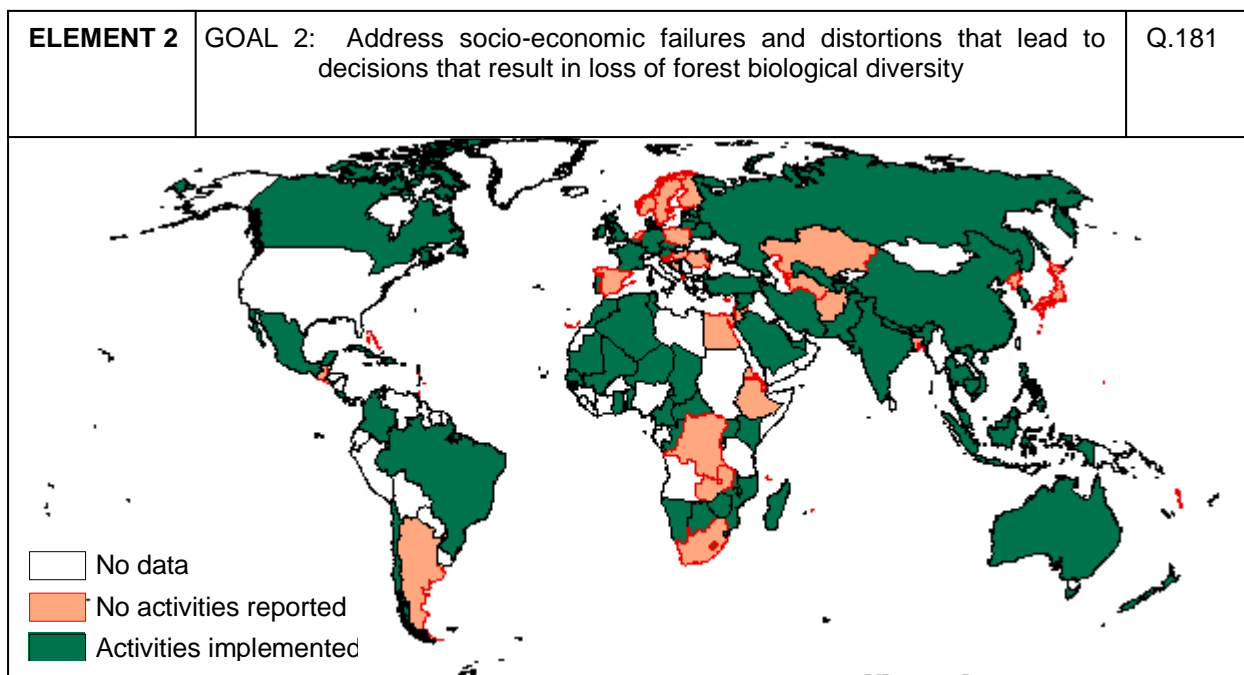
238. The second goal of programme element 2 addresses the socio-economic failures and distortions that lead to decisions resulting in a loss of forest biological diversity, with the overall objective to mitigate those economic failures and distortions. The nine associated activities cover the: (a) equitable sharing of benefits and costs of forest biodiversity management among stakeholders; (b) valuing forest biodiversity and the incorporation of those values into planning and management; (c) incorporation of forest biodiversity values into national accounting systems; (d) economic incentives for conservation and sustainable use of forest biodiversity; (e) elimination or reform of perverse incentives, in particular subsidies; (f) provision of market and other incentives for the use of sustainable practices, alternative sustainable income generation programmes and self-sufficiency programmes; (g) analyses of compatibility between production and consumption patterns with respect to the limits of forest ecosystem functions; (h) compatibility of national laws and policies and international trade regulations with conservation and sustainable use of forest biodiversity; (i) knowledge on cost-benefit accounting for forest biodiversity evaluation.

A. Information from the national reports

239. Question 181 of the third national report questionnaire invites parties to report on the measures undertaken to address the socio-economic failures and distortions that lead to decisions that result in a loss of forest biological diversity. 116 Parties responded to this questions and the responses are as follows:

(a) 78 Parties indicated that they had undertaken activities;

(b) Of the 38 Parties not currently undertaking activities related to this goal, 6 Parties reported that the activities associated with this goal were of a low priority. Further, 5 Parties reported that institutional obstacles, low capacity or the inability to suggest changes were preventing progress on this goal. In addition, 3 Parties reported that the issue had not been sufficiently examined or that they had no experience with this issue and where therefore unable to implement this goal of the expanded programme of work on forest biological diversity. One Party reported that activities to address socio-economic failures and distortions were not being undertaken by the forest department but that this issue was being addressed by other departments within the Government and one Party reported that such measures were under consideration.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

240. Out of the 78 Parties undertaking pertinent measures, 44 Parties identified priority actions and described measures undertaken to address these priorities. These activities can generally be divided into three categories: tax and fee systems, the development or improvement of forest management programmes and knowledge raising activities. Specific actions reported include:

- a) The establishment of incentive fees to promote the proper management of forests and to compensate for forest biological diversity loss (activities (a), (d) and (f));
- b) The creation or use of forest certification programmes (activity (d));
- c) The promotion of community forest programmes (activity (f));
- d) Creating reforestation programmes on farmland or supplying subsidies to agricultural organizations that discourage further forest conversion (activity (d));
- e) The creation or strengthening of forest management programmes and the promotion of sustainable forest management (activity (h)); and
- f) The establishment of awareness raising activities aimed at officials and local residents with the goal of fostering a deeper understanding of economic incentive measures, clarifying the linkages between agricultural activities and forest biological diversity (activities (g) and (i)).

241. Several Parties identified a variety of obstacles to the further implementation of this goal. The obstacles reported by the Parties include:

- a) Three Parties report that it is difficult to create methods to determine the economic value of forest biological diversity (activities (b) and (c));
- b) Ecosystem services are usually reflected only through timber prices. The value of non-wood forest products is of special importance to local communities and is usually not reflected in taxes, policy formations and conservation activities;
- c) A few Parties reported that the interests of local authorities and communities conflicted;
- d) Pressure on forest resources resulting from immigration;
- e) The illegal, unreported and unregulated trade in wildlife and timber harvesting;
- f) Poverty in local communities; and
- g) The extent to which non-wood forest products are covered by the reported activities is unclear.

242. Questions 83 to 87 of the third national report address the implementation of Article 11 of the Convention and the responses provided by Parties are also relevant to goal 2 of programme element 2 of the expanded programme of work on forest biological diversity. The replies provided are largely consistent with the replies provided to question 181. However it is noteworthy that forestry featured prominently in the information on the sectoral application of incentive measures that was provided by Parties (second only to agriculture)⁷.

243. With regards to the challenges associated with the implementation of incentive measures, question two of the third national report questionnaire is also pertinent. Measured by the sum of the scores assigned by reporting Parties, the lack of mainstreaming and integration of biodiversity issues into other sectors is identified as the most important challenge in implementing Article 11, closely followed by the lack of financial, human, and technical resources. On the other hand, an analysis of the answers provided to question two also reveals that the absence of (economic) incentive measures is perceived by Parties as

^{7/} For further details please see the synthesis report of information on incentive measures provided by Parties in the third national reports, prepared for the in-depth review of the work on incentive measures to be undertaken by the Conference of the Parties at its ninth meeting. The report is available under: <http://www.cbd.int/doc/programmes/socio-eco/incentives/nr-03-syn-report-en.pdf>.

one of the most pressing challenges in implementing many Articles of the Convention. Out of the 27 potential challenges proposed by question two, the lack of economic incentives is identified as the highest challenge in implementing Article 10 (sustainable use), and ranks as the second-highest challenge (after the lack of financial, human and technical resources) to the implementation of many other Articles of the Convention, namely: 6 (general measures for conservation and sustainable use), 7 (identification and monitoring), all of 8 (in-situ conservation), 9 (ex-situ conservation), 12 (research and training), 16 (access to and transfer of technology), 17 (exchange of information), and 18 (technical and scientific cooperation).

244. In replying to question 181, Parties did not provide information on measures undertaken with regard to the removal or reform of perverse incentives. However, question 87 inquired on the general progress made in removing or mitigating policies or practices that generate perverse incentives for the conservation and sustainable use of biological diversity. Almost half of reporting countries indicated that they made progress, with 36 Parties reporting that relevant policies and practices were identified but not entirely removed or mitigated, and 6 Parties reporting that relevant policies and practices were both identified and removed or mitigated. 25 Parties reported that the identification of perverse incentives is under way, and 23 Parties reported no progress. Several Parties reported on the removal or mitigation of perverse incentives in specific sectors, and forestry was again a close second after agriculture.

245. In addition several of the Parties who submitted thematic reports addressed the issue of perverse incentives and their impact on forest biodiversity. Austria, Islamic Republic of Iran, Sri Lanka, and Turkey indicated that reviews of such incentives were underway. Estonia, Myanmar, and Sweden indicated that some measures to address this issue have been identified. Finland reported that financial support is now only granted for renovating ditching and remedial fertilization, while Denmark indicated that perverse incentives, such as drainage subsidies, have been abandoned.

C. Activities of the Executive Secretary

246. In paragraph 4 (a) of decision VIII/19, the Conference of the Parties requested the Executive Secretary to strengthen collaboration on issues regarding the promotion of sustainable forest management, including, as appropriate, forest law enforcement, governance and related trade, with the UNFF, the International Tropical Timber Organization (ITTO), the Food and Agriculture Organization of the United Nations (FAO), the Center for International Forestry Research (CIFOR), the World Bank, other members of the Collaborative Partnership on Forests, and regional forest-related processes in order to complement and contribute to ongoing processes and initiatives. In response to this request the Secretariat has participated in the relevant meetings, made presentations, and commented on documents.

247. Pertinent activities were also undertaken in the context of the programme of work on incentive measures (Article 11 of the Convention), many of which relate to goal two of programme element 2 of the expanded programme of work on forest biological diversity:

(a) An analysis of perverse incentive in selected economic sectors, including a section on perverse incentives in the forest sector, was prepared for the second workshop on incentive measures, which took place in Montreal, Canada, in June 2003.^{8/} Further to decision VII/18, paragraph 11, an analysis of existing and new instruments that provide positive incentives, including payments for ecosystem services (cf. below), was prepared for consideration by SBSTTA at its eleventh meeting, in November 2005.^{9/} The analysis contains a number of examples of incentive measures applied in the forest sector

(b) Further to decision VII/18, paragraph 12, and decision VIII/25, paragraph 10 (a), a technical series document was published in 2007 which provides in-depth information on the application

^{8/} See document UNEP/CBD/WS-Incentives/2/INF/1, available under www.cbd.int. Further to decision VI/15, paragraph 7, the workshop elaborated proposals for the application of ways and means to remove or mitigate perverse incentives; pending their finalization, the Conference of the Parties, by decision VII/18, paragraph 2, encouraged Parties and governments to use the proposals as voluntary interim guidance

^{9/} Document UNEP/CBD/SBSTTA/11/INF/11.

of tools for the valuation of biodiversity and biodiversity resources and functions. The application of such tools is illustrated by the syntheses of thirteen valuation studies covering a variety of ecosystems from around the globe, 5 of which address forest ecosystems. ¹⁰

(c) A technical series document on the value of forest ecosystems was commissioned. It was prepared by the late David Pearce and Corin Pearce from University College London, United Kingdom, and published in 2001. ^{11/}

(d) In several decisions, the Conference of the Parties invited Parties, other Governments and international organizations to submit relevant information on incentive measures, including case studies and best practices, to the Executive Secretary, and requested the Executive Secretary to disseminate this information through the clearing house mechanism of the Convention. An online database on incentive measures was subsequently implemented, which is searchable by country and region as well as by type of incentive measure, ecosystem, and a list of pertinent keywords. As of September 2007, the database contained 80 entries of relevance to forest ecosystems, from a total of 43 countries, as well as general (country-independent) information.^{12/}

C. Activities of international organizations and non-governmental organizations

248. The recent activities of international and non-governmental organizations which address the socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity have, to a large extent, focused on payments for (forest related) ecosystem services. A number of organizations have implemented pilot programmes relating to payments for ecosystem services in the last years and have started conducting investigations on the benefits or results of such payment schemes.

249. There are many organizations including GEF, ITTO, the World Agroforestry Centre (ICRAF) and the WWF that are financing farmers and indigenous peoples for ecosystem services such as carbon sequestration. For example the GEF has funded four projects related to the payment for environmental services (157) while the WWF lists 6 projects, on its Latest Project Listings internet site, on initiatives for poverty reduction such as grants and payments for environmental services (163). Further ITTO Technical Series 21 provides several examples of payments for ecosystem services (PES) programmes (3) and ITTO carries out projects related to increasing the income of indigenous and local communities through the sustainable use of forest resources (projects which could be classified under activity (f) of this goal) (8).

250. ICRAF's Rewarding Upland Poor for Environmental Services is a programme taking place in several Asian countries. The programme aims to alleviate poverty via the transfer of necessary management tools. The tools are developed for each area and are provided to local communities to promote effective and sustained management of their resources (184).

251. The World Bank publication "Biodiversity Conservation in Forest Ecosystems" states that since poverty alleviation is an overarching mission of the World Bank it finances payments for ecosystem services (PES) programmes, including projects in India, Sri Lanka, Ethiopia, Ghana and Nigeria (120). Furthermore, the Forests and Forestry Internet site of the World Bank lists two projects in Mexico and Costa Rica which aim to conserve biodiversity while establishing mechanisms for PES programmes (122).

252. A further valuable source of information on this topic is the Katoomba Group's Ecosystem Marketplace which is one of the largest sources of information on markets and payment schemes for ecosystem services including water quality, carbon sequestration and biodiversity (6).

253. CIFOR's Occasional Paper No. 42, "Payments for environmental services: Some nuts and bolts," breaks down the concept of payment for environmental services and provides practical 'how-to' hints on

^{10/} See CBD Technical Series No. 28. Cases I, III, IV, V, and VIII address forest ecosystems.

^{11/} See CBD Technical Series No. 4.

^{12/} The database is accessible under <http://www.cbd.int/programmes/socio-eco/incentives/case-studies.asp>

PES design (173). The report concludes that service users will continue to drive PES, but their willingness to pay will only rise if schemes can demonstrate carefully established baselines, if trust-building processes with service providers are sustained, and if PES recipients' livelihood dynamics are better understood. This report was expanded from CIFOR's Occasional Paper No. 40, "Exploring the Forest-Poverty Link: Key concepts, issues and research implications," which focuses on the actual and potential role of forests in poverty alleviation in relation to three benefits: non-wood forest products, timber and environmental services (177). Further the report points out three main observations:

- a) Non-wood forest products have so far failed to provide adequate capital to meet the needs of the poor;
- b) Capital-rich individuals and companies are the main beneficiaries of the value of tropical timber because extraction involves large capital investments and land ownership laws frequently exclude the poor; and
- c) The people living in the forest benefit from a healthy ecosystem and from receiving payments for environmental services that in turn allows them to safeguard the forest

254. Commissioned by FAO, the WWF recently concluded a review of current GEF PES initiatives and developed recommendations for future PES support by GEF and FAO programmes.(282) The report notes that private sector participation in GEF PES projects has been high on the supply side (considering farmers as private sector businesses), but it has been very low on the demand side. It concludes that GEF PES projects have been and will be important for developing institutional frameworks and capacity building in the participant countries as well as for improving the design, management and delivery of the pre-existing programs and bringing in co-financing, but that their country-wide direct impact will probably be minimal in terms of biodiversity conservation if they are not scaled-up.

255. UNEP and IUCN, in close cooperation with the CBD Secretariat, have initiated a research project on scaling-up payments for ecosystem services to the international level. One component of this work is to address the opportunities and challenges associated with avoided deforestation as an emerging form of international payments for ecosystem services, and to explore the potential for avoided deforestation to include other ecosystem services (with a special focus on biodiversity protection) in voluntary and regulated carbon markets. 13/

256. In addition to the previously listed projects and publications there are a number of other publications that pertain to the mitigation of economic failures which lead to forest biodiversity loss. For example the IUFRO publication "Research Series Number 11" examines a variety of case studies and focuses on the social, economic and political perspectives of forestry and environmental change. Further IUCN has two publications entitled "Linking Poverty Reduction with Forest Conservation", one dealing with Vietnam and the other with Lao People's Democratic Republic.

Goal 3: Increase public education, participation, and awareness

Objective

1. Increase public support and understanding of the value of forest biological diversity and its goods and services at all levels.

257. The seven activities of goal 3, programme element 2 deal with raising the level of awareness, education and participation of the general public in relation to forest biological diversity issues. These sorts of awareness raising activities are common to many other CBD programmes of work.

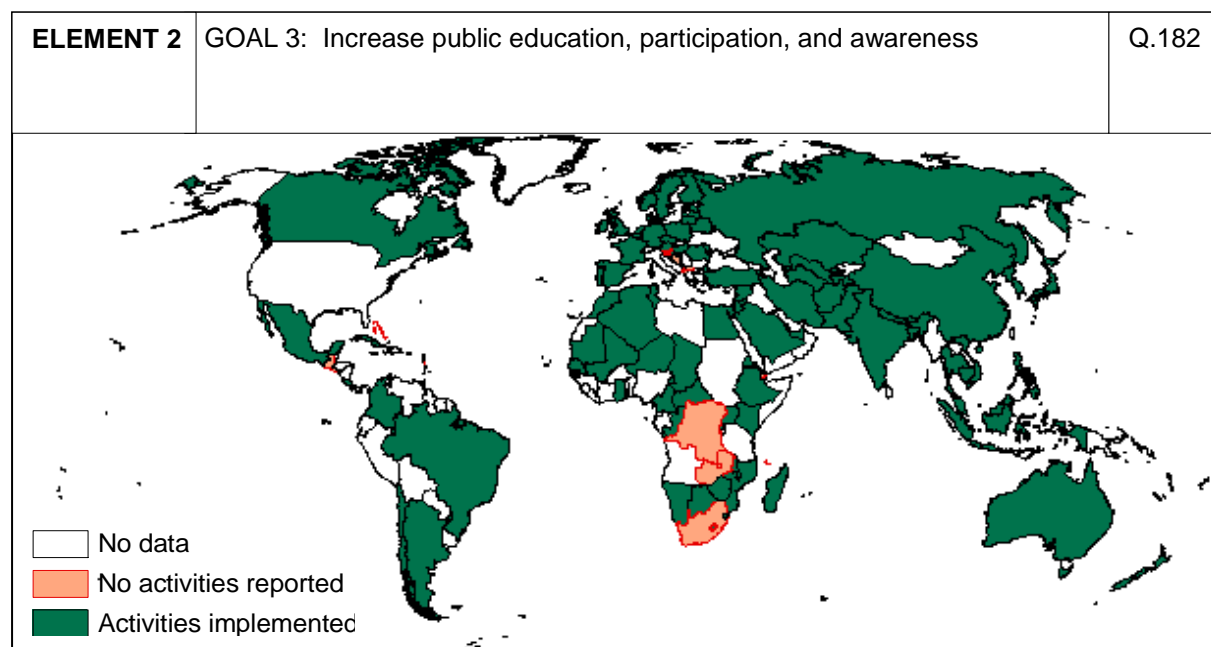
^{13/} This work was presented during a side-event to the Second meeting of the Ad hoc Open-ended Working Group on Review of Implementation of the Convention, on 11 July 2007, in Paris. Cf. http://www.unep.ch/etb/events/2007WGRI_AD9July.php for further information.

A. Information from the national reports

258. Question 182 of the third national report questionnaire asked Parties to report on any measures undertaken to increase public education, participation and awareness. 117 Parties responded to the question and the responses to this question are as follows:

a) 104 Parties indicated that they had implemented activities to increase public education, participation and awareness; and

b) 13 Parties reported that they had not undertaken any measures to increase public awareness and participation. Of these Parties, one reported that activities under this goal were not a priority and that political initiative, human resources and policies were needed before any activities could be initiated. Further one Party reported that a clear financial policy is needed before effective and successful actions can be implemented and One Party reported that they do not have a specific forest plan.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

259. A variety of activities were undertaken by the Parties and the targeted audiences were mixed. Some of the activities were specifically targeting resource managers and policy makers while other activities focused on educating children and the general public. Further these activities were implemented through different modalities and various media outlets. For example

a) Thirteen Parties reported that forest workshops were used as a means to increase awareness of forest biological diversity issues;

b) Two Parties (China and Singapore) reported on the role of museums in raising awareness of forest biological diversity;

c) Two Parties (Nepal and Austria) have awards rewarding good forest management or outstanding contributions by individuals and organizations to the environment;

d) One Party (India) reported that a forest academy was helping to raise awareness amongst students; and

e) One Party (Zimbabwe) holds competition-style events on general environmental knowledge in schools.

260. A number of Parties organized activities by designating specific days on which biodiversity issues would be promoted (activity (a)). These events are targeted at the public broadly and are intended to raise awareness of forest and biodiversity issues. In these events the public was invited to participate in planting trees and other forest management activities. Many of these celebrations are multi-dimensional in that they apply to culture, ecology, economy and society. These days include:

- a) Mountain day (Nepal);
- b) Bird-loving week (China);
- c) Flora and fauna day (Indonesia);
- d) National Arbor Day (Japan);
- e) National Tree Week (Ireland); and
- f) National Tree Planting Week (Kenya).

261. In addition to these biodiversity and forest days the Parties reported that more targeted activities were undertaken such as the promotion of various nursery practices. One Party (Sweden) focused on private forest owners and how they can voluntarily implement national forest policies (activity (g)) while activities specially targeted to policy makers (activity (e)) included raising awareness of codes of practice, the development of guidelines and capacity-building activities.

262. There were only a few reported obstacles to the further application of this goal. Generally the obstacles reported were the result of limited financial and human resources. These include:

- a) Limited access to resources to implement the programme of work on forest biological diversity;
- b) The budget for raising awareness is generally subject to economic situations, such as national incomes; and
- c) One Party pointed out that awareness-raising activities need to be linked with poverty reduction and improving living conditions, which are often the underlying causes of environmental degradation.

263. In the second national report a significant number of countries (54) reported having taken measures to ensure the participation of some stakeholders. One fourth of the reporting countries indicated that they had involved all stakeholders in the implementation of the programme of work. This may be because many countries are increasingly aware of the importance of participatory approaches in the conservation and sustainable use of forest resources and forest biodiversity.

264. Information regarding the measures taken to increase public education, participation and awareness was also present in the thematic reports of several countries. Austria, China, Estonia, Germany, Islamic Republic of Iran, Ireland, Morocco, Myanmar, Sweden, Switzerland, and Turkey reported that measures to increase public support and understanding of the value of forest biodiversity were underway. Further Denmark is establishing and developing several activities, such as capacity building of nature guides, and outdoor facilities for education on forest biodiversity in both state and private forests. In Finland, comprehensive sets of programmes are in place.

B. Activities of the Executive Secretary

265. In paragraph 6 of decision VIII/6 the Conference of the Parties requests the Executive Secretary to enhance communication, education, and public awareness activities on all issues related to the realization of the three objectives of the Convention and in particular the achievement of the 2010 biodiversity targets.

266. In response to the above decision the Secretariat carried out a number of activities including:

- a) Activities for the implementation of International Day for Biological Diversity (IBD);

- b) The preparation of publications and outreach materials in support of the programmes of work of the Secretariat including Technical Series volume number 25, on adaptation to climate change;
- c) The Secretariat finalized the joint Rio Conventions Calendar for 2007;
- d) The programme for Gincana magazine was finalized and a number of volumes are planned; and
- e) The Secretariat's website has been redesigned to produce a more-user friendly and a stronger tool for outreach (www.cbd.int)

C. Activities of international organizations and non-governmental organizations

267. Although, in general, many organizations have the intention of raising awareness of forest biodiversity, few organizations have targeted educational activities. Further the international organizations that have activities to increase public understanding operate on different levels. Several have education programmes targeted at elementary school students, such as comic books, while others are more geared towards high school students and the public more generally. Most organizations have a considerable amount of environmental information on their Internet portals. However, it is unclear how many individuals visit these websites to increase their awareness of biodiversity or how much information is retained.

268. Most international and non-governmental organizations seek to raise the level of awareness, education and participation of individuals through either publications or educational programmes. In terms of publications, the FAO Forestry Department publishes a series of community forestry cartoon booklets entitled "Earthbird Magazine". This publication is available in English, French and Spanish and aims to teach children of the importance of forest products, food security, nutrition and community-based natural resource management (83). Furthermore, the Forestry Department of the FAO has a Forestry Education internet site with two online databases. One of these lists 356 forestry educational institutions, from 78 countries and the other identifies various funding sources for education and public awareness activities (99 and 104). Similarly the WWF, on their Latest Project Listings Internet site, lists half a dozen projects on creating education programmes at various levels (163).

269. The Global Forest Coalition (GFC) has a humorous, quarterly newsletter entitled "Forest Cover," which facilitates the informed participation of NGOs and Indigenous Peoples' Organizations (IPO) at the international level by summarizing intergovernmental meetings related to forests, such as decisions made at COP (127). This publication is related to activity (f) (Implement effective measures to recognize, respect, protect and maintain traditional forest-related knowledge and values in forest-related laws and forest planning tools, in accordance with Article 8(j) and related provisions of the Convention on Biological Diversity) of this goal.

270. The MCPFE's report entitled "Forests and Our Cultural Heritage" is a compilation of papers identifying the challenges, threats and future steps to increasing public education and cultural heritage in forests (16). This report was preceded by the publication "Europeans and their Forests", which evaluated European society's views and opinions of forests and forest management (18).

271. The Farmer Field School Approach of CAB International aims to, *inter alia*, teach farmers in three regions (Africa, Asia and Latin American and the Caribbean) to conserve natural enemies of crop pests and to understand the natural ecology of their fields and lands, thereby increasing the knowledge of the goods and services of neighboring ecosystems. (165).

PROGRAMME ELEMENT 3: KNOWLEDGE, ASSESSMENT AND MONITORING

Goal 1: To characterize and to analyse from forest ecosystem to global scale and develop general classification of forests on various scales in order to improve the assessment of status and trends of forest biological diversity

Objectives

1. Review and adopt a harmonized global to regional forest classification system, based on harmonized and accepted forest definitions and addressing key forest biological diversity elements.
2. Develop national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis).
3. To develop, where appropriate, specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity

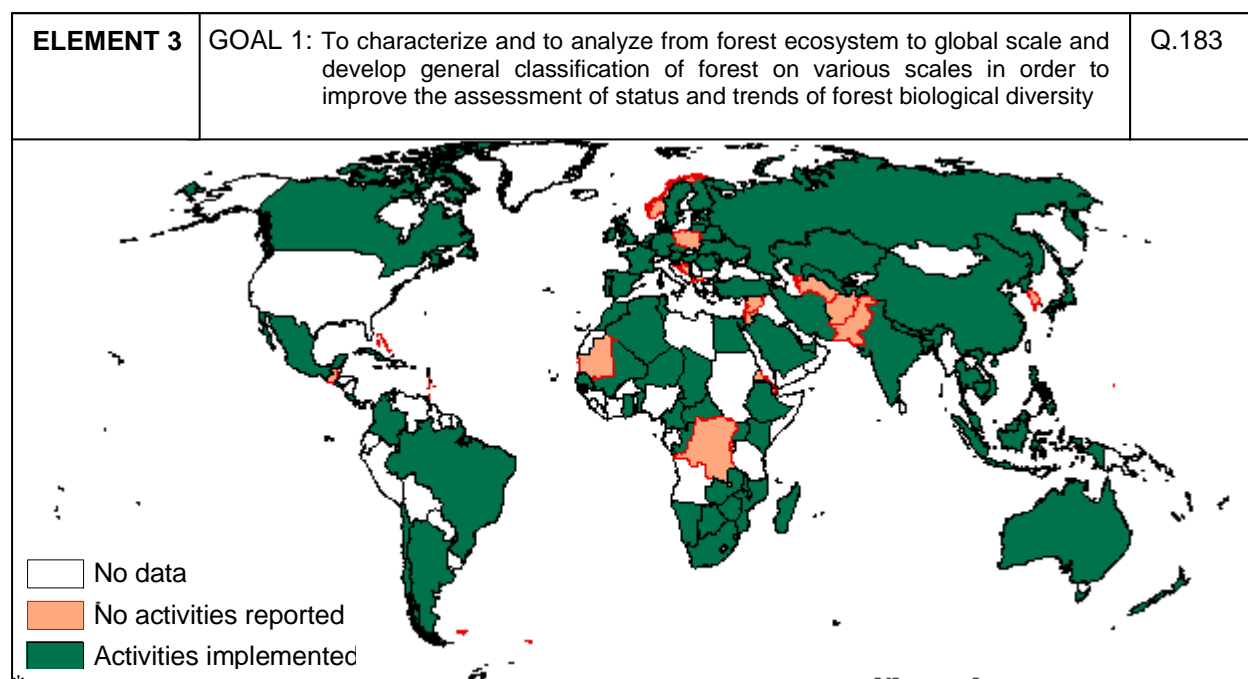
272. The third element of the programme of work on forest biological diversity addresses the knowledge, assessment and monitoring of forest biodiversity. Goal 1 of this programme element has 3 objectives and 7 associated activities. These activities call on Parties to review, adapt and identify information on forest biological diversity.

A. Information from national reports

273. In question 183 of the third national report questionnaire Parties were requested to report on any measures taken to characterize forest ecosystems at various scales in order to improve the assessment of the status and trends of forest biological diversity. 119 Parties responded to the question and the results are as follows:

a) 91 Parties reported that they had undertaken activities to characterize and analyse from forest ecosystems to the global scale and to develop general classifications of forests; and

b) 28 Parties indicated that they were not undertaking activities related to goal 1. Of these 28 Parties 3 reported that their current understanding of their forest ecosystems was fragmentary and that expertise was lacking. Two Parties reported that they had no priorities in relation to this goal. Other reported reasons for not undertaking actions include the limited application of the ecosystem approach, not being aware of such measures the neglect of forest biological diversity compared to other functions of the forest, the lack of research facilities, limited financial and human capital, limited capacity, inconclusive regional and international negotiations on uniform classification systems, and the European Community reported that these types of activities were dependant on the competence of member states.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

274. Obstacles reported by Parties included:

- The lack of understanding of what forest ecosystem function is, as the underlying obstacle for both assessments and classifications. This lack of knowledge also made the application of the ecosystem approach more difficult, as discussed in programme element 1 goal 1;
- Limited financial resources;
- Limited availability of experts or specialists to conduct monitoring or research.

275. When asked to report on the measures taken to accomplish goal 1 most of the responding Parties (more than 76%) answered positively. The implemented activities were largely based on existing national inventories, international reporting frameworks and collaborations.

276. Since the adoption of the programme of work on forest biological diversity a number of regional and national forest assessments and classifications have been conducted (activity (a) of objective 1). These assessments and classifications have been conducted at three scales: the ecosystem and/or habitat level, the species level, and the genetic level. For the ecosystem level assessments the most commonly reported geographic area or unit of measure used was that of the habitat or forest stand. For the species and genetic level assessments both geographic information systems (GIS) and ground level assessments were reported as being the main methods for collecting and analysing information. Several Parties (Brazil, Czech Republic, Finland and Romania) reported the digitization of their assessment data (activity (c) of objective 2). In addition to the assessments and classifications, several Parties reported on the development of their own sets of national criteria and indicators while others are evaluating their monitoring techniques for forest ecosystems (activity (b) of objective 2). However forest ecosystem surveys for conservation or sustainable use of priority areas were not reported with high frequency (activity (a) of objective 3).

277. In general the reported forest assessments were conducted as a part of national forest inventories and mainly monitored growing stock. However several Parties did report having integrated information on forest biological diversity into their inventories. In addition there were a number of capacity-building activities reported in developing countries including the training of staff and experts, the acquisition of

equipment, the development and improvement of databases and the promotion of scientific investigations and research.

278. Less than half of the Parties who submitted thematic reports have classification systems in place, while the remaining countries are in early (Colombia, Denmark, Islamic Republic of Iran, Myanmar, Poland, Sri Lanka, Turkey, and United Kingdom) or advanced (Ireland) stages of development. Three Parties report that they are still reviewing their forest classification systems (Denmark, Poland, and Sri Lanka) or that results are not yet available (China). Finland remarked that the review and adaptation of harmonized global or regional forest classification system requires international collaboration; therefore proposed activities should not be implemented by individual countries alone. A forest classification system addressing key forest biodiversity elements is reported to be in place in Colombia while Austria, Estonia, Ireland, Morocco, Sweden, Switzerland, Turkey and United Kingdom have adopted a system of forest classification based on harmonized and accepted forest definitions and addressing key forest biodiversity elements. In addition, Morocco's classification system is founded on the physical make-up of the forests.

B. Activities of the Executive Secretary

279. In paragraph 4 (a) of decision VIII/19 the Conference of the Parties requested the Executive Secretary to Strengthen collaboration on issues regarding the promotion of sustainable forest management. In response to this request and in line with this goal the Secretariat contributed to the development of the FAO's Land Cover Classification System by providing input on the general classification of forests.

C. Activities of international organizations and non-governmental organizations

280. In relation to objective 1 of this goal, many organizations have databases of forest definitions however only a few are working in cooperation to harmonize existing knowledge and to implement forest-related projects.

281. At the international level the CPF is instrumental in harmonizing forest systems and streamlining reporting. The CPF has created the CPF Task Force on Streamlining Forest-related Reporting, whose objectives include reducing the forest-related reporting burden through streamlining requests, synchronizing reporting cycles, harmonizing data collection methods and increasing data comparability and compatibility in order to create better information management systems. This will allow for information and data to be both easily accessible and more widely available (125). To accomplish this task the CFP created the Common Information Framework internet site which facilitates access to information, minimizes reporting burdens and maximizes the use of information for UNFF, CBD, FAO FRA and ITTO (154).

282. IUFRO's Occasional Paper 14 examines issues of forest terminology and definitions (30). Further IUFRO has also created "SilvaVoc", a multilingual forest terminology database that aims to harmonize and integrate existing and future terminology, provide bibliographic and consultation services, compile and improve available data in an electronic format, and produce special glossaries for target groups (33).

283. In relation to objective 2 (Develop national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis) a few organizations, such as FAO, have programmes that aid national Governments to develop classification systems.

284. Activities pertaining to objective 3 (to develop, where appropriate, specific forest ecosystem survey in priority areas for conservation and sustainable use of forest biodiversity) are primarily carried out by international conservation organizations, such as ITTO, WWF and the Nature Conservancy, which have conducted or are in the process of conducting ecosystem surveys. Some of these surveys are derived from traditional ecological knowledge, with the express purpose of creating protected areas for endangered species or further enabling local and indigenous communities to carry out sustainable forest management.

285. According to the “Catalogue of ITTO Projects, Pre-Projects and Activities” and the ITTO Project Portfolio Internet site, ITTO has several inventory research projects for conservation and sustainable use, such as the Inventory and Preparations for the Management of the Minkebe-Forest Area of Gabon (8 and 12). Similarly the Nature Conservancy’s project on the MesoAmerican Reef in Belize has the primary goal of identifying important aspects for sustainable use and conservation. Further the WWF Latest Project Listings Internet site indicates that 5 WWF projects have the primary goal of creating maps and ecosystem surveys for the formation of sustainable forest management plans for indigenous groups, local governments and/or the conservation of endangered and endemic species (163).

286. There is a limited number of global-scale classifications derived from national level data. One such classification is FAO’s Forest Resource Assessment (FRA). The FRA aims to enhance the social, economic and environmental functions of forest and tree resources on the basis of a better understanding of their qualitative and quantitative importance. To accomplish this the FRA:

- a) Develops and reinforces the capacity of national forestry institutions to design, plan, implement forest inventory projects and manage information;
- b) Designs and carries out a forest inventory project that satisfies national needs for information and reliability and sets up a monitoring system for future surveys; and
- c) Designs and sets up a forestry information system to process field data and manage the generated information.

287. The main obstacle for the further implementation of this Goal by international and non-governmental organizations is the difficulty of developing efficient collaborations between the vast numbers of forest-related international organizations, and avoiding duplication of efforts.

Goal 2: Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity, based on available information

Objectives

1. Advance the development and implementation of international, regional and national criteria and indicators based on key regional, subregional and national measures within the framework of sustainable forest management.

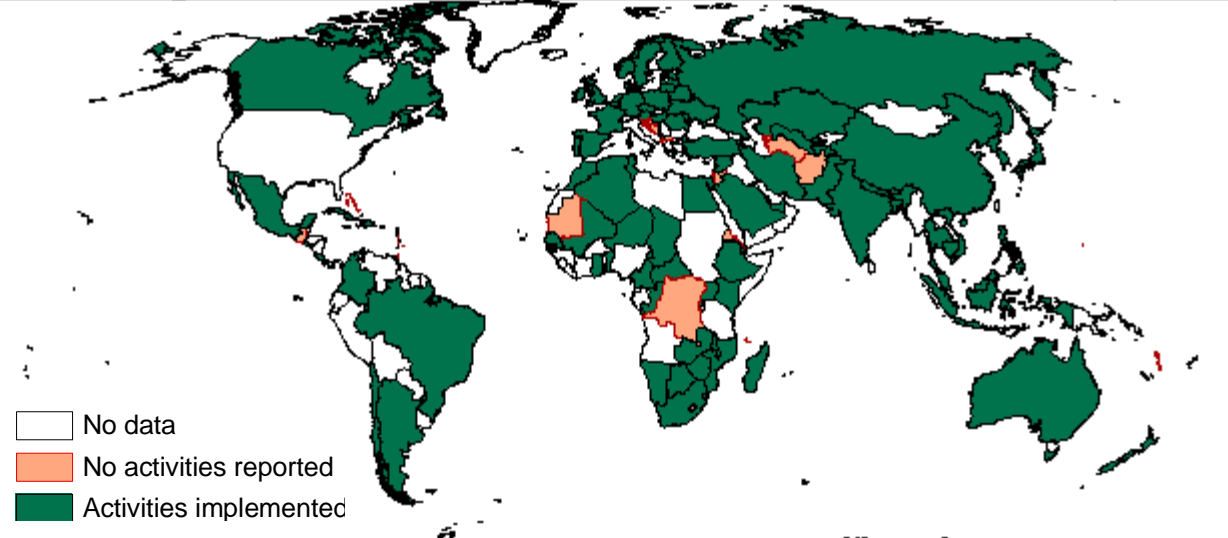
288. The second goal of programme element 3 focuses on improving knowledge on and methods for the assessment of the status and trends of forest biological diversity based on available information. This goal has one objective (the development and implementation of international, regional and national criteria and indicators based on key regional, subregional and national measures within the framework of sustainable forest management) and two associated activities.

A. Information from the national reports

289. In question 184 of the third national report questionnaire the Parties were requested to report on any measures undertaken to improve knowledge on, and methods for, the assessment of the status and trends of forest biological diversity. 120 Parties answered this question and the responses are as follows:

- (a) 99 Parties reported having implemented measures to improve knowledge and methods for the assessment of forest biological diversity; and
- (b) 21 Parties reported that they were not undertaking any measures related to this goal. Of these 21 Parties 2 suggested that these types of activities were not a priority as their countries were either largely grassland or because there had been little change in forest biodiversity over the last decade. One Party indicated that this Goal was not a priority and one Party reported that the domestic security situation, the lack of financial resources and limited technological knowledge were preventing activities from being implemented. One Party reported that such activities are still in the planning stages while one Party reported that they lack measures to address this goal and that activities had not been undertaken as a

result of the lack of implementation of the programme of work. Lastly one Party reported that they lacked the capacity to implement activities to address this goal.

ELEMENT 3	GOAL 2: Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity, based on available information	Q.184
 <p data-bbox="207 779 540 892"> No data No activities reported Activities implemented </p>		

* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

290. Many Parties made noticeable progress in the development of national criteria and indicators. Furthermore there appears to be a trend towards a greater harmonization of indicators and criteria at the regional level in Eastern and Western Europe. Numerous Parties pointed to the Ministerial Conference on the Protection of Forests in Europe (MCPEF) and to The Montréal Process as two processes which provided the frameworks for the development of national criteria and indicators. Two Parties (Indonesia and Malaysia) in the tropics developed their frameworks in collaboration with the Center for International Forestry Research (CIFOR) and the International Tropical Timber Organization (ITTO). One Party (Finland) reported that the development process for criteria and indicators had contributed to awareness-raising and capacity building by developing a national consensus on the content or components of sustainable forest management.

291. A few Parties discussed the development of experimental indicators for forest biological diversity and forest ecosystems. For example Australia's Vegetation Assets States and Transitions (VAST) framework orders native vegetation by degree of human modification according to six different condition states allowing for the compilation of mapped datasets describing the modification of native forest condition states across the landscape (Additional information on the VAST framework can be found at <http://www.daffa.gov.au/brs/forest-veg/vast>).

292. Other Parties implemented scientific studies—including genetic resource analysis (Vietnam and Czech Republic), species quantification (Vietnam), and taxonomic studies (Belgium)—to identify indicators for forest biological diversity. In addition, one Party (Lebanon) is forming a strategy for including herbal, medicinal and aromatic plants in the development of assessments but reports that this issue is complex and that the assessment has yet to be fully implemented.

293. A variety of obstacles to the further application of this goal were reported. These include the lack of up-to-date satellite images and equipment, limited resources and expertise, difficulty in communicating with local communities, forest resource extractors not following certification guidelines and forest administrators having a limited knowledge of forest biological diversity and evaluation methods.

B. Activities of the Executive Secretary

294. In paragraph 6 of decision VII/8, the Conference of the Parties requested the Executive Secretary to continue collaborating with the FAO, the Organization for Economic Co-operation and Development, the European Environment Agency, and other relevant international and regional organizations and initiatives on the further development and consolidation of indicators relevant to the 2010 target in accordance with decision VII/30 and the thematic programmes of work of the Convention. In the same decision the Conference of the Parties encouraged Parties to share experience in the development and use of indicators and monitoring and to cooperate and promote, where useful, harmonized procedures and formats for data acquisition, computation and reporting, especially at subregional and regional levels

295. In response to the above decision the Secretariat participated in a meeting on harmonizing forest-related reporting with FAO and ITTO (Rome, 6 April 2006). Further the Secretariat reviewed the relevance of the format of the Global Forest Resources Assessment 2005 for reporting on progress towards the 2010 target. These comments were incorporated in the background documents for the Expert Consultation on Global Forest Resources Assessment: Towards FRA 2010 (Kotka, Finland, June 12-16, 2006) (Kotka V meeting), which agreed to develop a measure for area under sustainable forest management. During this meeting the Secretariat invited participants to a side event on the 2010 Biodiversity Indicators Partnership and to report on ongoing activities related to the development of targets, indicators and reporting frameworks.

296. In addition the Secretariat held consultations with FAO to identify ways in which the Secretariat could support the development and implementation, by FAO, of global indicators relevant to forestry and sustainable use.

C. Activities of international organizations and non-governmental organizations

297. At the international level a considerable amount of cooperation has gone into the creation and development of criteria and indicators, including the publication of several reports and the development of projects.

298. The International Tropical Timber Organization (ITTO) has two publications with guidelines concerning the development of criteria and indicators for sustainable forest management. These publications are:

(a) “Revised ITTO Criteria and Indicators (C&I) for the Sustainable Management of Tropical Forests Including Reporting Format” which is a tool that aids countries in monitoring, assessing and reporting changes and trends in forest conditions (2); and

(b) “African Timber Organization (ATO)/ITTO Principles, Criteria and Indicators for the Sustainable Management of African Natural Tropical Forests” which is designed to aid African countries in developing sustainable forest management (9).

In addition to the above publications ITTO also has an ongoing training programme for forest managers and concessionaires. This training programme provides these individuals with the knowledge to incorporate criteria and indicators into sustainable forest management and national reports (7 and 12). ITTO is also assisting its member countries in the development and implementation of national sets of C&I, including through regional projects, in Africa in cooperation with the African Timber Organization (ATO) and in Latin America in cooperation with the Amazon Treaty Cooperation Organization (ATCO). Of note is the ITTO/IUCN Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Production Forests, which is under revision and includes specific information for assessing the conservation of biodiversity.

299. The International Conference on Criteria and Indicators for Sustainable Forest Management was held in Guatemala City, 3-7 February 2003. The conference report entitled “the Contribution of Criteria and Indicators to Sustainable Forest Management: The Way Forward,” aimed to, *inter alia*, strengthen the application and promote the use of criteria and indicators as a tool for sustainable forest management by

building a common understanding of sustainable forest management, coordinating data collection and dissemination, monitoring and assessing forest conditions, and influencing national policies and practices as well as international cooperation (180). The meeting produced 30 conclusions and 24 recommendations for the advancement of criteria and indicators including capacity building.

300. The MCPFE Work Programme, as part of the Vienna commitments of the Fourth Ministerial Conference on the Protection of Forests in Europe, developed a set of quantitative and qualitative criteria and indicators to improve sustainable forest management policies in Europe (13). Further the MCPFE, in collaboration with ITTO, the Montreal Process, the FAO, the UNECE and the U.S. Forest Service, organized a workshop in 2006 on Inter - Criteria and Indicators Process Collaboration (251). The workshop was held in response to repeated calls for improved cooperation between criteria and indicator processes and its conclusions have been presented in a report (251). Similarly the FAO's Forestry Department has developed specific genetic criteria and indicators as part of the larger economic, environmental and social criteria and indicators for monitoring forest sustainability in tropical forests (56). Further, specifically for boreal and temperate forests, the Montreal Process has developed several internally agreed upon criteria and indicators which are relevant to the forest programme of work. The criteria cover a variety of topics including the conservation of biological diversity, the maintenance of ecosystem health, forests as part of the global carbon cycle and legal and institutional frameworks for forest conservation (263).

301. The UNEP report entitled "Biodiversity Indicators for National Use: Experience and Guidance," contains a set of flexible indicators for several ecosystem types (183). In terms of methodology, some conclusions reached are that workshops are not the best format to conduct reviews and that different groups within a country have different expectations (local communities were mostly interested in the end result and the extent to which the indicators could empower them in the decision-making process and Governments and policy makers were mostly interested in determining the state of forest resources). The report also expressed the need to link indicators directly with actions and that without an existing policy implementation framework the role of indicators was compromised. Yet if such frameworks do not exist, indicators may still be able to drive capacity building and raise the level of awareness on biodiversity conservation.

Goal 3: Improve understanding of the role of forest biodiversity and ecosystem functioning

Objectives

1. Conduct key research programmes on the role of forest biodiversity and ecosystem functioning.

302. The third goal of programme element 3, as stated by the Conference of the Parties in the annex to decision VI/22, is to improve the understanding of the role of forest biodiversity and ecosystem functioning by conducting key research programmes. This goal has one objective and 4 associated activities. These activities are:

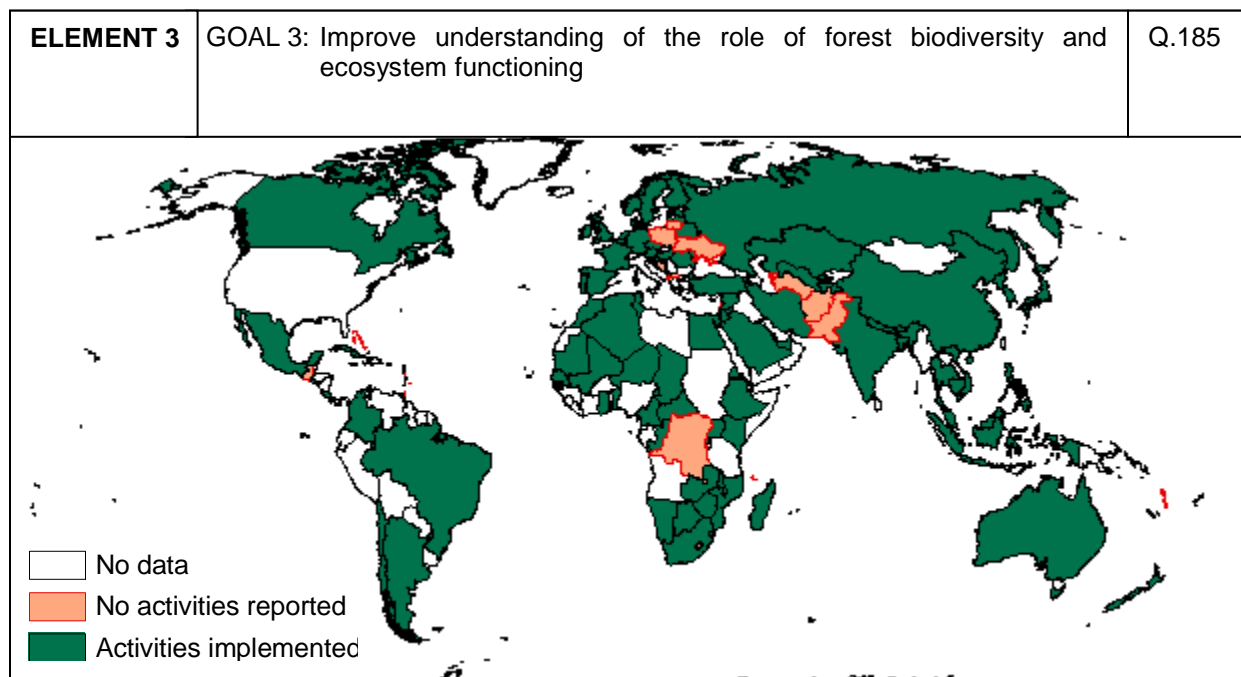
- (a) Research on understanding the relationship between forest biological diversity and ecosystem functioning;
- (b) Research on critical thresholds of forest biological diversity loss and change;
- (c) Development and application of forest ecosystem restoration techniques; and
- (d) Development and support of research on the impact of current forest management practices for forest biodiversity.

A. Information from the national reports

303. In question 185 of the third national report questionnaire the Parties were requested to report on any measures taken to improve the understanding of the role of forest biodiversity and ecosystem functioning. 118 Parties responded to this question and the results were as follows:

- (a) 99 Parties reported having undertaken actions in response to this goal; and

(b) Of the 19 Parties not undertaking activities, two Parties indicated that institutes and organizations aimed at carrying out such research are rare, one Party reported that they were focusing on increasing forest cover, one Party reported that the research activities being carried out were narrow in scope, one Party reported that they were unaware of any such measures being taken and one Party reported that these type of activities were not a priority. Two Parties reported that research tends to focus on specific species and the capacity to conduct work on this issue is limited.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

304. Several developing countries reported that limited resources were the main obstacle to the application of this goal as this decreased their abilities to develop research programmes. Unlike developing regions of Western Europe, where networks of landscape and ecosystem functions are in the process of being developed, research in African developing countries is less extensive, with one of the main limitations being the integration of multi-faceted landscape elements into these assessments. A lack of qualified staff members was another challenge that was reported as was the limited sharing of knowledge between national stakeholders and a lack of integration among national institutions.

305. The reported activities focused on international cooperation, the establishment of institutions at the national level, and awareness-raising activities. Further there were three main achievements observed from the Parties' responses. First, much research has been conducted at the national level. Second, using bilateral and multi-lateral methods, a number of international collaboration efforts were implemented with the aid of international organizations. Third, initial research activities are being linked with general awareness-raising and outreach activities.

306. The research activities undertaken by the Parties varied from assessments of the general status of forest ecosystems and biodiversity to more specific research on forest genetics, taxonomy and ecological functioning. A variety of research foci were indicated by Parties and in most instances these activities were carried out by universities, relevant government departments or ministries and forest institutions.

307. Most of the international cooperation efforts implemented by the Parties were bilateral and the Parties referred to organizations such as the ITTO, the World Bank, the European Union, the United States Agency for International Development (USAID), the Japan International Cooperation Agency (JICA), and the Germany Technical Cooperation (GTZ) as facilitating these cooperative efforts. At the

regional level progress was reported in developing the European network of sites for forest ecosystems and landscape research.

308. Awareness activities were implemented to link forest biodiversity and ecosystem functioning. Reported activities included: radio (Malawi) and TV programmes (Zimbabwe), workshops (Ethiopia), and publications.

309. In their thematic reports China, Finland and Sweden indicate that they have conducted comprehensive research programmes on the role of forest biodiversity and ecosystem functioning. Austria, Germany, Islamic Republic of Iran, Ireland, Morocco, Myanmar, Sri Lanka, Switzerland and the United Kingdom of Great Britain and Northern Ireland reported having conducted some research. Germany cited two modular project examples, on forest biological diversity, funded by the Federal Ministry of Consumer Protection, Food and Agriculture, as well as the research programme "Forest management of the future" funded by the Federal Ministry of Education and Research (1998-2003), which aims to investigate the consequences of the transformation of managed forests according to ecological criteria. Denmark, Estonia, Poland and Turkey have research programmes under development.

B. Activities of the Executive Secretary

310. In paragraph 4 of decision VIII/19 the Conference of the Parties requested the Executive Secretary to strengthen collaboration on issues regarding the promotion of sustainable forest management. In response to this decision, and in the context of improving the knowledge on methods for the assessment of forest biological diversity, the Secretariat has provided information, such as taxonomic data, to the Global Biodiversity Information Facility (GBIF). In addition the Secretariat has promoted the development of The Global Earth Observation System of Systems (GEOSS) by participating in a meeting related to its operation and to define user needs. Lastly the Secretariat, through its Clearing House Mechanism, is promoting high standards in information gathering and sharing.

C. Activities of international organizations and non-governmental organizations

311. Research conducted by international and non-governmental organizations on forest biodiversity and ecosystem functioning is difficult to assess. Examples of activities are presented in scientific publications, peer-reviewed articles and, as previously discussed, the information contained on the internet portals of international organizations. Research varies from small forest projects, to national, regional and international undertakings with comprehensive projects such as the Millennium Ecosystem Assessment and the Global Forest Resources Assessment being examples of the later. In April 2007, the Collaborative Partnership on Forests launched a new Joint Initiative on Science and Technology. This initiative which is led by IUFRO aims to support forest-related intergovernmental processes and conventions by comprehensively assessing available scientific information and by producing reports on forest-related issues of high concern (240). As such, the Joint Initiative provides a mechanism for strengthening collaborative research at the global level on issues relating to SFM and forest biodiversity. The first assessment report will address adaptation of forests to climate change, including the role of forest biodiversity (240).

Goal 4: Improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biological diversity

Objectives

1. Enhance and improve the technical capacity at the national level to monitor forest biological diversity, benefiting from the opportunities offered through the clearing-house mechanism, and to develop associated databases as required on a global scale.

312. Goal 4 of this programme element has one objective (to enhance and improve the technical capacity at the national level to monitor forest biological diversity, benefiting from the opportunities offered through the clearing-house mechanism and to develop associated databases as required on a global scale) and one associated activity (develop and implement a strategy and a plan of action and

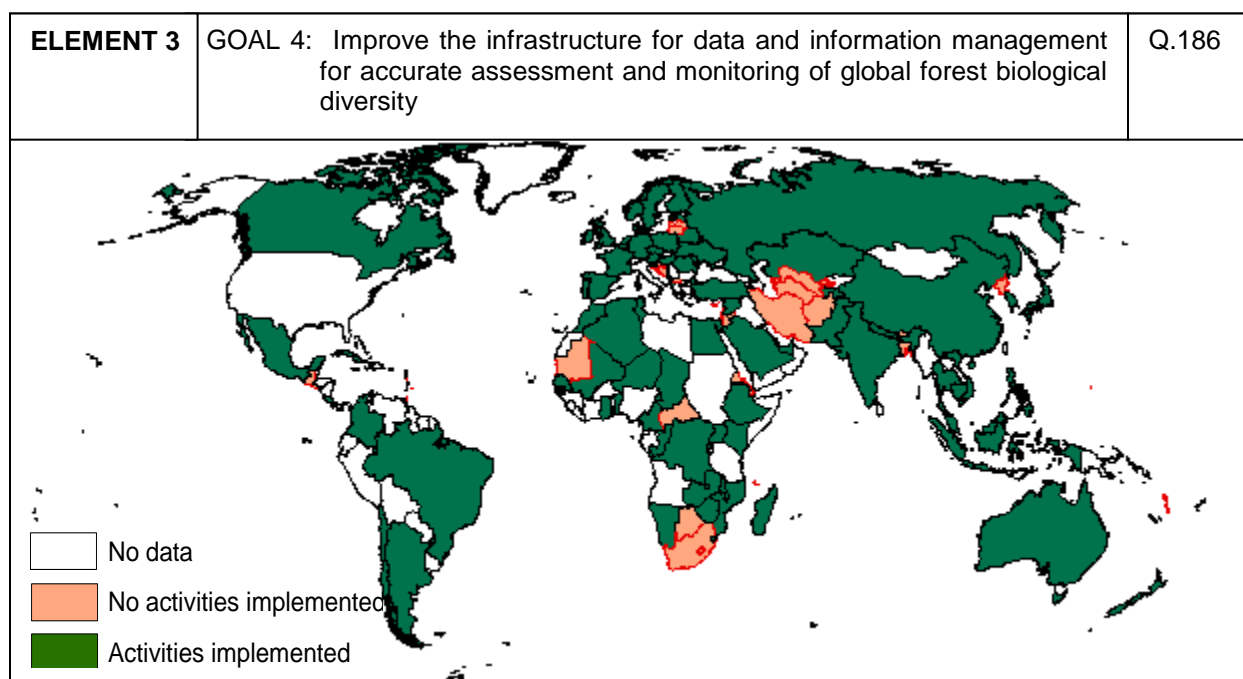
facilitate transfer of technology to provide infrastructure and training in developing countries, in order to monitor forest biological diversity and develop associated databases).

A. Information from the national reports

313. In question 186 of the third national report Parties were invited to report on the activities they had undertaken in response to goal 4 of programme element 3. 118 Parties responded to this question and the responses are as follows:

(a) 88 Parties reported that they undertook activities to improve the infrastructure for data and information management; and

(b) 30 Parties reported that they have not taken any actions in response to this goal. Of these 30 Parties 5 reported that limited financial resources and capacity were the major obstacle preventing actions from being taken. Further one Party reported that a lack of financial commitment to activities related to goal 4 was an obstacle to implementation, one Party reported that these activities were not a priority, one Party reported that the partnerships required to allow for such activities are not yet developed and one Party reported that their national forestry inventory plan is still being developed.



* Colour versions of this map are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

314. The reported obstacles to the implementation of activities associated to this goal varied between developed, developing, and in transition countries. There were few obstacles reported by developed countries and Parties mainly reported that their databases and biodiversity networks were still being developed or improved. The obstacles commonly reported by developing countries and countries in transition were the lack of financial resources, limited capacity to implement such activities, the long time requirements to develop appropriate technologies, insufficient information and limit information sharing mechanisms.

315. Some of the activities undertaken in response to goal 4 overlapped with those reported for other goals of programme element 3. Generally the types of activities taken by the Parties can be divided into three categories: the establishment of national databases and networks, the greater involvement of stakeholders at the national level and participation in international processes.

316. The harmonization of national data and information with regional processes, such as integrating assessments of deadwood by the MCPFE, was reported by several Parties. A further observed trend is that Parties are developing their own indicators for assessments, such as those for biodiversity conservation, ecological stability, and forest regeneration. There is also an increasing trend to using interactive and participative databases to improve the infrastructure for data and information management. For example one Party (Canada), has a database (Canadian Biodiversity Information Network or CBIN) which is serving as an open-ended data resource, allowing users to enrich the database by accessing the site and adding or changing information. The participatory or interactive design of this database improves the infrastructure for data and information-sharing on forest biological diversity. In general, from the responses received, it appears that Parties particularly those from developed countries, are focusing on improving forest biodiversity indicators and their parameters.

317. As with the previous goals of programme element 3, sharing knowledge across different stakeholders is regarded as a critical step in the realization of this programme element. There have been encouraging signs in developing countries in relation to the development of educational activities such as workshops and websites, which help address this need. Further positive trends were reported in the area of technology transfer and experience-sharing. It was reported that these actions were supported by international organizations, such as the Food and Agriculture Organization of the United Nations (FAO) which is promoting research through Forest Resource Assessments and regional projects that strengthen monitoring, assessment and reporting techniques.

B. Activities of the Executive Secretary

318. In section A of paragraph 4(d) of decision VIII/19 the Conference of the Parties requested the Executive Secretary to suspend the operation of the forest web portal of the Convention on Biological Diversity because of its low rate of use, and instead to direct Parties, via a hyperlink to the Collaborative Partnership on Forests' Joint Information Framework web site, hosted by the Food and Agriculture Organization of the United Nations. In response to this request the operation of the forest web portal of the Convention on Biological Diversity has been suspended and Parties are now redirected to the Collaborative Partnership on Forests joint information framework website (<http://www.fao.org/forestry/site/2082/en>)

319. During the last quarter of 2006, the clearing-house mechanism, in collaboration with the Outreach and Major Groups unit of the Secretariat, focused on the redesign of the Convention on Biological Diversity's website in order to better serve the Parties and other web users. Part of this process is devoted to the review and enhancement of each thematic programme's section of the website, including the section on forest biological diversity. The strategy is to introduce each thematic programme with a concise welcome page that highlights the most important information on the issue and provides links to additional information, such as implementation activities, databases and external partners.

320. The Secretariat contributed technical expertise during the second week of the sub-regional training workshop on the implementation of the clearing-house mechanism (CHM) organized in Antananarivo, Madagascar from 6 to 17 November 2006. This sub-regional CHM training workshop was jointly organized by the Governments of Madagascar and Belgium within the framework of the partnership between some African countries and Belgium to strengthen the capacity of national clearing-house mechanisms in Africa. The objective was to assist three Indian Ocean countries (Madagascar, Comoros and Mauritius) in the implementation of their national CHM websites. Fifteen participants were trained on the use of European CHM Portal Toolkit, on web-based technologies, and on matters related to the clearing-house mechanism.

C. Activities of international organizations and non-governmental organizations

321. The CPF has undertaken several activities to improve the infrastructure for data and information management and to improve the accuracy of global forest biological diversity assessment and monitoring. For example:

a) The Global Forest Information Service (GFIS) is an Internet gateway that provides access to forest information including maps, data, books, articles and other materials (1);

b) The Forestry Research Network for Sub-Saharan Africa (FORNESSA), which is a regional component of GFIS combines the resources of approximately 130 institutions and provides a variety of data and information on forest biodiversity issues (25 and 26); and

c) The CPF Sourcebook on Funding for Sustainable Forest Management compiles information on funding sources, policies and delivery mechanisms, with a particular focus on projects in developing countries (67).

322. The WWF Latest Project Listings Internet site lists two projects which involve technical capacity building at the local level. These projects are located at two environmental institutions: the Ugyen Wangchuck Institute of Environment and Forestry Studies and the Rangsit Nature Education Centre-Asian Institute of Technology (163).

323. The International Forestry Resources and Institutions (IFRI) Research Programme conducts research on forestry and institutions with the aim of analysing both forest and social data (242). This research is conducted with the assistance of a network of Collaborating Research Centers located in Africa, Asia and Latin America. IFRI aims to collect, analyze, assess, develop and monitor biophysical and social-economic data on factors that affect forest conditions. The programme was established to obtain a multi-country and multi-year collection of data on forestry and institutions in order to fill knowledge gaps that have been identified in natural resource management. Specifically in East Africa, the research agenda is focused on investigating the link between institutional regimes, sustainable forest management and human livelihoods, and to subsequently contribute to the development of forest policies. The overall aim of IFRI in this region is to reduce deforestation rates and the depletion of other forest resources through the involvement of local forest adjacent communities. To date the IFRI Research Programme has trained researchers, allowed for the development of databases, provided information on the impacts of human activity on forest resources, improved assessment capacities in collaborating institutions and trained communities on the management of natural forests, nurseries and tree planting (Additional information on IFRI can be found in www.inidana.edu/ifri. (242).

IV. SYNTHESIS OF NATIONAL FOREST PROGRAMMES AND NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS

324. In paragraph 4(b) of decision VIII/19, the Conference of the Parties requested the Executive Secretary to synthesize, in collaboration with relevant members of the Collaborative Partnership on Forests (CPF), existing information on the way Parties are promoting the implementation of their national forest programmes (NFPs) and national biodiversity strategies and action plans (NBSAPs). Pursuant to this decision the information received from the Parties is collected and summarized in this section of the in-depth review of the expanded programme of work on forest biodiversity. Part A presents a summary of the NFPs that Parties submitted to the Secretariat of the Convention on Biological Diversity and Part B presents a summary of the NFP progress reports collected by other CPF members.

A. *Information from national reports*

325. In the third national reports provided to the CBD, slightly more than half of the Parties (62 Parties) reported that they had incorporated relevant parts of the work programme into their national biodiversity strategies and action plans (NBSAP) and national forest programmes (NFP). A dozen Parties reported fully integrating their NFPs and NBSAPs into their respective governmental frameworks. The activities most frequently referred to are:

- a) The integration of the ecosystem approach into NBSAPs or NFPs (corresponding to goal 1 of programme element 1);
- b) The protection and restoration of forest area (corresponding to goal 3 of programme element 1);
- c) The establishment or improvement of monitoring activities (corresponding to objective 4 of goal 4, programme element 1);
- d) Raising awareness of the importance of forest genetic resources (corresponding to goal 5 of programme element 1);
- e) Mainstreaming and integrating the relevant elements of the forest programme of work into national and regional plans (corresponding to objective 2 of goal 1, programme element 2); and
- f) One common activity that was mentioned but that did not correspond to a specific goal of the programme of work is the consultation process that took place across different Ministries within the same Government.

326. Sixteen Parties reported that protected areas were an integral component of their national biodiversity strategies and action plans and national forest programmes. The activities related to protected areas included:

- (a) Increasing the amount of protected forest area;
- (b) Creating a network of protected forest areas;
- (c) Restoration of degraded forests in protected areas; and
- (a) New institutional and legal arrangements for protected forest areas.

327. Ten Parties explicitly referred to their progress in integrating monitoring activities of the programme of work into their NBSAPs or regional action plans. The reported activities included integrating NFP related activities into NBSAPs, creating information databases to share experiences and methodologies and monitoring projects of certain species as indicators of environmental change.

328. Eight Parties mentioned the ecosystem approach, one of which linked the forest programme of work to water conservation by integrating the ecosystem approach into regional strategic plans and projects in relation to the sustainable use of water, marsh ecosystems, and forest mangroves.

329. Four Parties mentioned private sector involvement in their NFPs and NBSAPs. Since the Conference of the Parties noted that the private sector is arguably the least engaged of all stakeholders in the implementation of the Convention (decision VIII/17), this reference is particularly noteworthy. In one case the expansion of the biodiversity programme into the industrial sector was reported and reference was made to a new communications policy to facilitate such expansions.

330. Common across most of the barriers to the further application of the expanded programme of work on forest biological diversity was the lack of institutional coordination at the local, regional and national levels. The following items were identified by the Parties as the major barriers to the implementation of this programme of work, relating directly to the mainstreaming of elements of the programme of work on forest biological diversity through the NBSAPs or NFPs:

- (a) Institutional and communication barriers, including difficulties related to cooperation between government agencies and local communities;
- (b) Technical difficulty in coordinating different levels of implementation and planning;
- (c) Difficulty in conserving biodiversity outside of protected areas, especially in developing countries where poverty presents a major challenge; and
- (b) Different timeframes for the commencement of projects, achieving targets and implementing NBSAPs and NFPs

B. Activities of international organizations

331. In the fifth session of the UNFF, the report of the Secretary-General on “the review of the effectiveness of the international arrangement on forest” (E/CN.18/2005/6) summarizes the progress made in implementing the proposals for action according to the 16 thematic elements of the Intergovernmental Panel on Forests (IPF) and the International Forum on Forests (IFF) (159). The summary is based on a questionnaire sent to UNFF members (46 countries responded), CPF members (5 responded), and other organizations (four organizations responded). Two general trends were noted. First in some countries programmes are developed at the sub-national level because significant forest policy responsibilities have been decentralized and secondly NFPs (or similar frameworks) have helped to bring stakeholders together in developing a common vision for forests and in identifying priorities for implementation.

332. Thematic elements 6, “forest health and productivity,” and 3, “combating deforestation and forest degradation,” are classified under programme element one. The UNFF report summarizes two trends in the national reports. First, with regards to the prevention of infestations through trade, international cooperation was essential (objective 1). Second the sharing of experiences was useful in combating forest fires as it allowed Parties to learn from other countries experiences (objective 4). The UNFF report concluded that no progress was made for thematic element 3. The report also noted that the major challenge to progress in combating deforestation was the lack of cross-sectoral coordination and the need to strengthen professional and institutional capacity, especially in law enforcement.

333. Thematic element 8 (economic, social and cultural aspects of forests) of the IPF/IFF proposals for action can be divided into two categories. The economic aspects are discussed under programme element 2, goal 2, and objective 1 whereas the social and cultural aspects are discussed under goal 4. According to the UNFF report E/CN.18/2005/6, national progress was marked by initiatives aimed at strengthening the role of women and a number of Parties refer to the development of women’s forestry organizations (159). Furthermore, the establishment of community-based management and ownership initiatives intended to generate income for local use and promote local responsibility for sustainable forest management was also noted. One major challenge noted in this report was to ensure that society places a proper value on forests (reflecting their non-market, public good outputs, as well as financial returns) and that wider national development policies take full account of the potential contribution of forests.

334. Two thematic elements of the IPF/IFF proposals fit into goal 5 programme element 1 of the expanded programme of work on forest biodiversity: Thematic element 4 (traditional forest-related knowledge”) and thematic element 5 (forest-related scientific knowledge). According to the UNFF report E/CN.18/2005/6, national progress for thematic element 4 was marked by the creation of inventories that record traditional knowledge (159). For thematic element 5, national progress was marked by the use of dissemination methods including: the electronic publication of printed materials, meetings, professional education, and training. Furthermore it was stressed that international cooperation was an integral component to sharing scientific knowledge.

335. Thematic elements 14 (financial resources) and 15 (international trade and sustainable forest management) of the IPF/IFF proposals fit into goal 1 programme element 2 of the expanded programme of work on forest biodiversity. According to the UNFF report E/CN.18/2005/6, national progress for thematic element 14 was marked by innovative approaches to financing sustainable forest management, including securing funds from the voluntary sector (159). Some countries, in response to financial constraints, identified other forms of adaptation, including improving efficiency and low-input silviculture. Furthermore, many countries remarked that financing of sustainable forest management in conjunction with payments for non-market ecosystem services remains a critical factor for success. Conversely, several countries recognized the need to improve their investment environment in order to attract funding. For thematic element 15, national actions taken to combat illegal trade followed forest law enforcement and governance processes, including the World Trade Organization and forest certification processes (as described in UNFF report E/CN.18/2005/6)(159).

336. As stated previously, the first part of thematic element 8 (economic aspects of forests) of the IPF/IFF proposals fit into goal 2 of programme element 2. According to the UNFF report E/CN.18/2005/6, national progress was marked by Governments helping to offset the costs that private forest owners incur when implementing sustainable forest management or afforestation projects (159). However, a number of countries mentioned that resources for gathering information on forest products are inadequate.

337. Thematic element 2 (promoting public participation) of the IPF/IFF proposals fits into goal 3, programme element 2. According to the UNFF report E/CN.18/2005/6, national progress for this element was marked by the promotion of stakeholder participation at various levels of management including:

- a) Policymaking;
- b) In the preparation of codes of practice; and
- c) Local consultation on forest management decisions regarding publicly owned forests (159).

338. Of the IPF/IFF proposals, thematic element 10 (monitoring, assessment and reporting; concepts, terms and definitions), is relevant to two objectives of the forest programme of work: Forest definitions apply to objective 1 goal 1 programme element 3, whereas monitoring and assessment apply to objective 2. According to the UNFF report E/CN.18/2005/6, harmonizing forest-related terms and definitions was accomplished more at the international level (159). Several developing countries reported that they had difficulty with monitoring, assessing and reporting largely due to a lack of expertise and funding. For assessment and monitoring, the UNFF reports that many countries have well-established forest inventory systems that are being further developed to collect a wider range of information including: ecological conditions, biological diversity, and tree health. However, more effort is needed to address the lack of expertise and funding of developing countries in establishing their forest inventory systems.

339. Of the IPF/IFF proposals, thematic element 7, “criteria and indicators of sustainable forest management,” can be classified under goal 2. The UNFF stated that many countries are in the process of developing criteria and indicators and in general there has been a gradual convergence towards an internationally agreed upon framework, which is supported by CPF members (159).

340. Of the IPP/IFF proposals, only thematic element 16, (international cooperation in capacity building and transfer of environmentally sound technologies) fits into goal 4 programme element 3 of the

forest programme of work. According to the UNFF summary report E/CN.18/2005/6, many national reports cited numerous examples of bilateral and multilateral cooperation between countries and NGOs (159). However, the UNFF report concludes that the issues of capacity building and the transfer of environmentally sound technology remains to be addressed.

341. Two challenges to developing and implementing NFPs were noted by the UNFF. First there is a need to ensure cross-sectoral integration between policies such that national forest programme priorities are reflected in broader national development plans. Second there is a need to gain high-level political support for national forest programmes to secure adequate financing for the implementation of the programmes.

V. SUMMARY AND CONCLUSIONS

342. Based on the analysis of available information, the Secretariat and the Ad Hoc Technical Expert Group recommend that the expanded programme of work on forest biological diversity be continued in its present form, as adopted in the annex of decision VI/22. However, it is strongly recommended that the implementation of certain activities be adapted to changing conditions, in particular climate change, and that implementation of certain activities is strengthened and accelerated in view of the 2010 target, in particular in the following fields: To reduce threats and mitigate the impacts of threatening processes on forest biological diversity (programme element 1, goal 2); To protect, recover and restore forest biological diversity (programme element 1, goal 3); and To promote the sustainable use of forest biological diversity (programme element 1, goal 4).

343. Information from Parties in the third national report suggest that the programme of work on forest biological diversity is a useful tool providing guidance in forest management and forest policy development. It is one of several valuable tools made available to Parties to reduce the loss of biological diversity. Directly measuring its impacts is not possible, as it interacts with other international and regional agreements and processes. The programme of work is being implemented by many Parties, but considerable work remains to be done to significantly reduce the loss of forest biodiversity. Targeted support from the Secretariat and from international organizations should be provided to Parties to facilitate implementation, and an exchange of information and experience. There is, in particular, a need to provide and develop capacity to overcome identified obstacles for the implementation of the programme of work on forest biological diversity, and to increase cooperation at regional level.

344. While the third national reports provided ample information on the implementation of activities by Parties, they did not provide sufficient information to assess the status and trends of forest biodiversity. The collection and collation of information on the status and trends of forest biodiversity need to be improved in view of the 2010 target and beyond, according to agreed criteria and indicators at the global level, and based on the identified information gaps and other obstacles such as lack of capacity.

345. Despite many efforts to implement the programme of work, the loss of forest biodiversity continues at a highly alarming rate.

346. Deforestation and forest degradation are the most significant causes of forest biodiversity loss. Notable progress in reducing the rate of deforestation has been made by some countries. At the global level, deforestation and conversion of primary and modified natural forests continue unabated, and have accelerated in some regions (programme element 1, goal 2 and goal 3).

347. Climate change has far-reaching consequences for forest biodiversity. In many cases, implementation strategies and action plans at national and regional levels do not yet adequately reflect the need to mitigate the negative effects of climate change on forest biodiversity (programme element 1, goal 2). Analysis of the integration of climate change impact and response activities within the programme of work reveals that while there is adequate coverage within the text of the programme of work, only a few Parties are reporting on implementation.

348. Response activities to climate change through avoided deforestation present new opportunities for forest biodiversity. Reports of national level activities indicate that biodiversity co-benefits of emerging opportunities, including financial mechanisms, are not fully harnessed (programme element 1, goal 2).

349. The coverage of forest protected areas has increased considerably in recent years. The target of conserving at least 10% of all forest types by 2010 has not yet been reached in some forest biomes and types, e.g. forested wetlands and boreal forests, and protected areas often lack connectivity. The protection, recovery and restoration of forest biodiversity is often severely hampered by a lack of funding, particularly in developing countries (programme element 1, goal 3).

350. Regional and international cooperation has resulted in significant progress in implementation of the programme of work. Successful examples include the activities of the Collaborative Partnership on Forests, and regional processes such as the Amazon Cooperation Treaty Organization (ACTO), the Ministerial Conference for the Protection of Forests in Europe (MCPFE), and the initiatives on forest law enforcement and governance (FLEG).

351. Bioenergy production, if undertaken sustainably with due regard to net carbon accounting, offers potential benefits for mitigating climate change, but at the same time poses a significant threat to forest and other biodiversity through land conversion and water use increase for plantations and agricultural expansion. These impacts should be monitored carefully and should be addressed where appropriate (programme element 1, goal 2 and programme element 2, goal 1).

352. Despite the importance of forest biodiversity for the economic and spiritual well-being of indigenous and local communities, forest decision-making processes often do not take their rights and concerns sufficiently into account (programme element 1, goals 3 and 4; programme element 2, goal 3; ecosystem approach principles 11 and 12).

353. While the programme of work does not require additional goals or objectives at this stage to meet identified challenges for forest biodiversity, implementation efforts need to be strengthened considerably to meet the 2010 target, in particular in the field of reducing threats and mitigating impacts of drivers of biodiversity loss such as climate change, unsustainable use, land conversion, habitat fragmentation, forest fires, and invasive alien species (programme element 1, goal 2), and in the field of forest biodiversity monitoring (programme element 3). Cooperation, exchange of experience, and technology transfer on the implementation of the programme of work regarding these and other programme areas at regional and global level are limited.

354. The available information on the potential impacts of genetically modified trees in the long term is largely confined to hypotheses at this stage. Considerable scientific uncertainty remains, and a continued application of the precautionary approach is recommended (programme element 1, goal 4).

A. *Recommendations and conclusions for individual Programme Goals and Objectives*

Programme element 1: Conservation, sustainable use and benefit-sharing

355. On programme element 1, goal 1: “To apply the ecosystem approach to the management of all types of forests”, 61 Parties reported that they are applying the ecosystem approach to all types of forests; 60 Parties reported that they are not currently applying the ecosystem approach to the management of forest biodiversity. In analyzing information from the third national reports and suggesting ways forward for improved implementation, the fourth AHTEG report¹⁴ reiterates that the ecosystem approach is the main tool for much needed integration of forest biodiversity issues into other sectors. In particular, agriculture and mining often have negative impacts on forest ecosystems, if the principles of the ecosystem approach are not considered. While progress has been made on clarifying the conceptual basis of the ecosystem approach in relation to sustainable forest management, information from the third national report suggests that the concept is not yet widely known in the forest sector. Information sharing

^{14/} Conclusions and recommendations from the fourth AHTEG meeting are presented in document UNEP/CBD/SBSTTA/13/INF/1

and exchange of experiences from different pilot projects and best practice examples would be useful at this stage. Further guidance and awareness raising activities by international organizations, NGOs, and national extension services are needed to translate the core messages of the ecosystem approach, in particular regarding the participatory approach, into appropriate language for the forest sector and other sectors.

356. On programme element 1, goal 2: “To reduce the threats and mitigate the impacts of threatening processes on forest biological diversity”, many Parties emphasized the need to address anthropogenic pressures, such as uncontrolled/unwanted wild-land fires, expansion of agricultural land, overgrazing, and illegal logging, more clearly in the implementation of the programme of work on forest biological diversity. Land-use planning, forest law enforcement and governance, and other appropriate implementing tools and mechanisms should be strengthened. Conservation strategies and management plans may need to be revised to consider climate change as a major driver of forest biodiversity loss. Furthermore:

- a) Out of 121 Parties that reported on progress in addressing the threat of invasive alien species, only 8 Parties have a strategy to address this major threat for forest biodiversity.
- b) Climate change and the conservation of forest biodiversity are inextricably linked:
 - (i) Thirty-four Parties reported on the implementation of at least one of the climate change related activities within the forest biodiversity programme of work. No Parties reported on assessing how the conservation and sustainable use of forest biodiversity can contribute to international work on climate change. This lack of reporting may, however, be due to the fact that this activity overlaps with reporting activities conducted under the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Furthermore, only two Parties reported on exploring possibilities for establishing an international network to monitor and assess the impact of climate change on forest biodiversity.
 - (ii) The fourth AHTEG report concludes that emerging initiatives and mechanisms for the reduction of emissions from deforestation could have positive effects both for combating climate change and for preserving forest biodiversity (43). The development of new financial mechanisms in this regard should be supported, if they aim to maximize biodiversity co-benefits. Negative impacts on forest biodiversity from possible new financing mechanisms for reducing emissions from deforestation should be avoided.
 - (iii) The AHTEG considers it as very urgent to improve implementation in particular in the following objectives under goals 1.2 and 1.3: *Mitigate the negative impacts of climate change on forest biodiversity* (goal 1.2, objective 3); *To prevent and mitigate losses due to fragmentation and conversion to other land uses* (goal 1.2, objective 6); and *Ensure adequate and effective protected forest area networks* (goal 1.3, objective 3).

357. On programme element 1, goal 3: “To protect, recover and restore forest biological diversity”, 113 Parties reported on measures under this goal, including e.g. reforestation projects, restoration measures, and the establishment of protected areas. It was noted that many activities are being implemented under the Programme of Work on Protected Areas, which are relevant to the Programme of Work on Forests as well. The fourth AHTEG report concludes that:

- a) Forest ecosystem restoration is applied in many countries as an effective tool to stop and revert forest degradation, but current efforts are not sufficient given the present rate of deforestation and forest degradation. The necessary funds and technologies for forest restoration are often not available, in particular in developing countries. Demonstration areas, using the ecosystem approach, can be a useful tool to accelerate restoration efforts.

b) Several international NGOs reported that participation and prior informed consent of indigenous and local communities and other stakeholders are often not adequately considered in the establishment of forest plantations in areas (previously) managed by indigenous and local communities.

c) Despite some national and regional success stories, the establishment of forest protected area networks remains insufficient and underfunded. Reported examples of transboundary protected areas indicated that they can be successful building blocks for the establishment of forest protected area networks.

d) Traditional knowledge is useful for the establishment and management of forest protected areas, but is often not being considered. Parties and relevant international organizations, as well as the private sector, should provide for the effective management and sustainable financing of protected areas, taking into account ecosystem services.

358. On programme element 1, goal 4: “To promote the sustainable use of forest biological diversity”, 120 Parties reported measures under this goal, such as actions to address illegal activities; the formation or revision of laws and regulations; and the establishment of protected areas as a means of preventing the unsustainable use of forest resources. In suggesting ways forward for improved implementation, the fourth AHTEG report concludes that:

a) Demonstration and learning sites for sustainable forest management (SFM) should be used more frequently to increase the area under SFM e.g. by demonstrating the economic advantages of SFM in the medium- and long-term.

b) Few links between water resources and the sustainable use of forest biodiversity were mentioned in the national reports. However, this area is crucial given expected water shortages in many regions. In this context, synergies in implementation of the CBD programme of work on inland water biological diversity and the programme of work on forest biological diversity biodiversity should be strengthened at national level.

c) Forest certification schemes when appropriately designed, agreed, and implemented, were seen as useful instruments in assisting achieving biodiversity conservation. Several Parties refer to increases in the areas under various forest certification schemes, while it was reported by NGOs that some certification schemes do not take the rights and concerns of indigenous and local communities into account, in particular for recently established plantations. A compilation of information on the criteria in forest certification schemes relating to the participation and prior informed consent of indigenous peoples and local communities, and forest biodiversity, would be a useful tool to improve forest management.

d) Few Parties reported on the sustainable use of non-wood forest products. The AHTEG recommends the promotion of sustainable use of non-wood forest products as a useful way to combat unsustainable forest management and unsustainable harvesting.

e) Limited information on efforts to strengthen forest law enforcement and governance (FLEG) is available from national reports, however, other information e.g. from international organizations and NGOs indicates that FLEG is an essential concern to achieve a reduction in the loss of forest biodiversity, and that more efforts are needed to improve FLEG as the basis for sustainable forest management.

f) Lack of land rights and disputes over land rights are major obstacles for land management by indigenous and local communities. However, few Parties reported directly on land tenure and land rights issues. While some success stories for the support of indigenous and local communities in relation to natural resource management exist, adequate financial resources for capacity building and organizational structures for the management of natural resources by indigenous peoples are mostly not available and are urgently required. Close cooperation between the UNFF and the CBD Secretariats on these matters is needed.

g) Genetic engineering is developing rapidly and is creating new challenges for access and benefit sharing (ABS). These developments should be monitored carefully. The precautionary approach¹⁵ is seen as an adequate tool to avoid potential negative environmental, cultural and socio-economic impacts.

359. On programme element 1, goal 5: “Access and benefit-sharing of forest genetic resources”, 67 Parties reported on measures taken, while 49 Parties reporting that no measures had been taken. This goal is the least commented on section of the third national report questionnaire. This can partially be ascribed to the fact that an international ABS regime is still under negotiation. Reported activities include the promotion of community-based resource and revenue management; strengthening systems for the control of bio-prospecting; and ex-situ conservation and sharing experiences and information from gene banks. The fourth AHTEG report concludes that the multilateral system of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) can be useful to address ABS and forest biodiversity.

Programme element 2: Institutional and socio-economic enabling environment

360. On programme element 2, goal 1: “Enhance the institutional enabling environment”, 96 Parties reported that measures were undertaken, mainly focusing on the establishment of scientific programmes and institutions, and the strengthening of forest institutions, laws and forest law enforcement. Examples include regional FLEG initiatives and the European Union’s FLEGT initiative, and the introduction of taxation to promote forest law enforcement. In addition, the AHTEG found that:

a) Few Parties reported specifically on land tenure related issues, while information from international organizations indicates that unresolved or unclear land tenure issues are a major obstacle for the implementation of the programme of work. These issues are of cross-cutting nature and of particular relevance to the CBD, often involving several Ministries at national level. There is a need to ensure the full and informed participation of indigenous people, local communities, women, and other major groups in the decision making process related to the conservation and management of forest biodiversity.

b) Some Parties reported on institutional reforms, including e.g. the merging of Ministries or departments. Multi-sectoral approaches, especially inter-ministerial, and the integration of forest biodiversity management aspects into other sectors, are seen as key tools to promote the conservation and sustainable use of biodiversity.

361. On programme element 2, goal 2: “Address socio-economic failures and distortions”, 78 Parties indicated that they had undertaken measures, and 44 Parties identified priority actions and described measures undertaken to address these priorities. Reported activities can generally be divided into three categories: tax and fee systems, the development or improvement of forest management programmes and awareness raising and capacity building activities. Specific actions reported include the creation or use of forest certification programmes; and reforestation programmes on farmland or supplying subsidies to agricultural organizations that discourage further forest conversion. The fourth AHTEG report concludes that:

a) Socio-economic distortion, market failures and perverse incentives are driving deforestation and unsustainable forest management at many levels. Governments should address these issues, especially in relation to biofuel production.

b) Governments should be encouraged to address underlying causes of forest biodiversity loss, including those related to forest law enforcement.

c) Timely cost-benefit analysis could allow the negative impacts of certain development projects to be mitigated.

^{15/} As contained in the Preamble and Article of the Cartagena Protocol on Biosafety. Furthermore, Article III(4) of the Protocol states that “lack of scientific knowledge of scientific consensus should not necessarily be interpreted as indicating a particular level of risk, an absence of risk, or an acceptable risk”.

362. On programme element 2, goal 3: “Increase public education, participation and awareness”, 104 Parties indicated that they had implemented measures, while 13 Parties reported that they had not undertaken any measures. Some of the activities were specifically targeting resource managers and policy makers while other activities focused on educating children and the general public. Examples include the use of museums in raising awareness of forest biological diversity; the establishment of a forest academy to raise awareness amongst students; and the designation of specific days to promote biodiversity issues, such as National Arbor Day in Japan. The important relationship between human health and forest health was mentioned by some Parties; however, it is at present not well understood by the public and by policy makers. Further research and awareness raising efforts are needed.

Programme element 3: Knowledge, assessment and monitoring

363. On programme element 3, goal 1: “To develop general classification of forests on various scales”, 91 Parties reported that they had undertaken activities relating to this goal, while 28 Parties indicated that they were not undertaking activities. Less than half of the Parties who submitted thematic reports had classification systems in place, while the remaining countries were in early or advanced stages of development. National and regional assessments and classifications have generally been conducted at three scales: the ecosystem and/or habitat level, the species level, and the genetic level. One Party remarked that the review and adaptation of harmonized global or regional forest classification system requires international collaboration; therefore activities should not be implemented by individual countries alone. The AHTEG report concludes that:

a) A number of Parties do not yet have the technological resources needed to develop baseline information for assessing levels of deforestation and its impact on biodiversity. Such technology is critical *inter alia* in facilitating the linkage between climate change and biodiversity issues.

b) There is a need for a harmonized system of forest classification compatible with current observational technology. Priority should be given to specific forest ecosystem surveys of areas with high biodiversity values which undergo rapid environmental change, and combine the results of these surveys with the result of the analysis on the direct and underlying causes of forest biodiversity loss (programme element 2, goal 1), including causes related to specific sectors like biofuel production.

c) An agreed global definition of forests (and other forest related terms) as well as a global forest classification system that reflects forest biodiversity elements, taking into account ongoing dialogue and work, should be developed.

364. On programme element 3, goal 2: “Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity”, 99 Parties reported measures, such as the development and improvement of methods for the assessment of forest biological diversity. Criteria and indicators for Sustainable Forest Management (SFM), including criteria and indicators for non-wood forest products, were seen as important tools in promoting SFM and creating awareness of the importance of forest biodiversity in the forest sector at the global, regional, and national levels. Many Parties made noticeable progress in the development of national and regional criteria and indicators, e.g. in Europe. The Ministerial Conference on the Protection of Forests in Europe (MCPEF) and The Montréal Process were frequently mentioned as two processes which provided the frameworks for the development of national criteria and indicators. Two Parties in the tropics developed their frameworks in collaboration with the Center for International Forestry Research (CIFOR) and the International Tropical Timber Organization (ITTO). The fourth AHTEG report recommends that research programmes should be aimed at, *inter alia*, improving the understanding of the role of forest biodiversity and ecosystem functioning, and on improving the decision making basis for sustainable forest management, with a view to promote technology transfer.

365. On programme element 3, goal 3: “Improve understanding of the role of forest biodiversity and ecosystems functioning”, 99 Parties reported activities, which focus mainly on international cooperation, the establishment of institutions at the national level, and awareness-raising. Parties pointed out the important role of facilitators for bilateral and international cooperation, such as the ITTO, the World

Bank, the European Union, the United States Agency for International Development (USAID), the Japan International Cooperation Agency (JICA), and the Germany Technical Cooperation (GTZ), and others. The fourth AHTEG report concluded that more emphasis in future research on forest ecosystem should be given to the importance of ecosystem functions for women, in particular indigenous women taking into account the work done under Article 8(j).

366. On programme element 3, goal 4: “Improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biological diversity”, 88 Parties reported activities such as the establishment of national databases and networks; facilitating the involvement of stakeholders at the national level; and participation in international processes. There is a positive trend to use interactive and participative databases to improve the infrastructure for data and information management. As with previous goals, the role of international organizations was found essential, in this regard particularly the Food and Agriculture Organization of the United Nations (FAO).

B. Recommendations from the AHTEG

367. The Ad Hoc Technical Expert Group (AHTEG) on the review of implementation of the programme of work on forest biological diversity, at its fourth meeting in May 2007 in Rome, Italy, made a number of recommendations for improved implementation of the programme of work (cf. text box 8).

Box 8: AHTEG Recommendations, fourth AHTEG meeting, Rome, May 2007

Programme element	Recommendations for improving implementation of the programme of work on forest biological diversity
All programme elements	Information-sharing, collaboration and targeted joint activities between the CBD Secretariat, UNFF Secretariat and other CPF members and other relevant organizations and processes, in particular WTO, should be enhanced, also adding to the implementation of the Non-Legally Binding Instrument on All Types of Forests. The rapidly emerging threat posed to forest biodiversity by bioenergy production, in particular biofuels, should be addressed.
Programme element	Recommendations for improving implementation of the programme of work on forest biological diversity
Programme element 1 goal 2 Climate change <i>Very urgent</i>	Develop tools and mechanisms to maximize contributions for forest biodiversity and avoid negative impacts on forest biodiversity from possible new financing mechanisms for reducing emissions from deforestation. Improve collaboration between the Secretariats and Subsidiary Bodies of the CBD and UNFCCC, enhance coordinated implementation of both conventions at the national level, and include biodiversity experts, including holders of traditional forest related knowledge, in current discussions on reducing emissions from deforestation.
Programme element 1, goal 2, objective 4 Forest fires <i>Urgent</i>	Work to address human-induced, uncontrolled/unwanted wild-land fires, which are caused by the agriculture sector, and strengthen relevant governance structures.
Programme element 1, goal 2, objective 6 Fragmentation and conversion to other land uses <i>Very urgent</i>	Identify risks from bioenergy production, in particular biofuels, to forest biodiversity and establish working modality for the proposed link from CBD to FAO Bioenergy Platform. Ensure that guidelines or standards for the production of biofuels take into account the direct and indirect effects of land conversion on forest biodiversity.
Programme element 1, goal 3, objective 1 Forest restoration <i>Urgent</i>	Give guidance on potential benefits for forest biodiversity of restoring biological diversity in degraded secondary forests and other landscapes, including in plantations.
Programme element 1, goal 3, objective 3 Protected area networks	Provide for sustainable financing of protected areas and their effective management taking into account ecosystem services.

<i>Very Urgent</i>	Define and specify areas of particular importance for forest biodiversity.
Programme element 1, goal 4, objective 3 Indigenous and local communities natural resource management <i>Urgent</i>	Provide adequate financial resources for capacity-building and organizational structures for the management of natural resources by indigenous peoples.
Programme element 1, goal 4, Objective 4 <i>In-situ</i> and <i>ex-situ</i> conservation strategies	Apply the precautionary approach to the use of genetically modified trees.
Programme element 1, goal 5 Access and benefit-sharing <i>Urgent</i>	Improve national coordination for ABS, including forest biodiversity experts, taking into account the discussion about the international regime on ABS.
Programme element 2 goal 1, objective 1 Improve understanding of causes of biodiversity loss	Encourage Governments to implement more activities to analyze and address underlying causes of forest biodiversity loss, especially those related to emerging issues, such as biofuels.
Programme element 2, goal 1, objective 2 Multi-sectoral approaches	Promote multi-sectoral approaches, especially inter-ministerial, and integration of forest biodiversity management policies to enhance the ecosystem approach.
Programme element 2, goal 1, objective 3 Governance and land tenure	Land tenure should be better addressed as a priority.
Programme element 2, goal 2, objective 1 Socio-economic distortion and perverse incentives	Encourage Governments to undertake more activities to address socio-economic distortion and perverse incentives, especially as they relate to biofuel production and forest law enforcement, and eliminate perverse incentives in support schemes for biofuel production.
Programme element 2, goal 3, objective 1 Awareness	<p>Increase awareness among consumers, especially in developed countries, on the impacts of their consumption patterns of forest and non-forest products on forest biodiversity and inform them of more sustainable options.</p> <p>Educate public and policy-makers about the importance of forest biodiversity and natural forests, the impact of forest degradation on natural forests and different values of different types of forests, and plantations.</p> <p>There is a need to ensure full and informed participation of indigenous people, local communities, women, other major groups and the general public in the decision-making process related to the conservation and management of forest biodiversity.</p>
Programme element 3 goal 1, objective 1 Definition	<p>Adopt an agreed global definition of forest (and other forest-related terms) that reflects forest biodiversity elements, taking into account ongoing dialogue and work.</p> <p>Adopt a harmonized global forest classification system compatible with current observational technology.</p>
Programme element 3, goal 1, objective 2 Classification	Countries to complete their forest classification systems.
Programme element 3, goal 1, objective 3 Forest ecosystem surveys	Prioritize specific forest ecosystem surveys of areas with high biodiversity values that undergo rapid environmental change, and combine the results of these surveys with the result of the analysis on the direct and underlying causes of forest biodiversity loss (Programme element 2, Goal 1), including causes related to specific sectors like biofuel production.

Programme element 3, goal 3, objective 1 Prioritizing research	Recommend prioritizing research on the importance of forest biodiversity and specific ecosystem functions for women, in particular indigenous women, taking into account the work done on Article 8(j).
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C. Obstacles to implementation

368. In the third national report, several Parties reported on constraints to the further implementation of the programme of work. Reported obstacles can be grouped broadly into (1) information gaps for the assessment and monitoring of forest biodiversity and (2) other obstacles, mostly connected to lack of resources, political leverage, and coordination.

1. Gaps in information

369. The information gaps which need to be addressed by the Secretariat and its partner organizations include:

- (a) The lack of harmonization of information (and reporting requirements) from relevant regional and international processes;
- (b) The lack of information on results and outcomes of implemented activities;
- (c) Insufficient collaboration between the members of CPF and other international organizations and processes in supporting Parties in their progress towards sustainable forest management.

370. The information gaps and obstacles which need to be addressed by Parties and the scientific community include:

- (a) Inadequate national monitoring systems and the lack of relevant information, for both international and domestic needs (in particular in developing countries the availability of data is often limited due to lack of capacity and funds);
- (b) The lack of a global baseline for forest biodiversity makes observing any related changes or trends problematic;
- (c) No global forest fire classification system distinguishes between fires which are ecologically beneficial and fires which are ecologically harmful;
- (d) Current information allows for the identification of a general group of deforestation drivers, but it is difficult to isolate the impacts and contributions that these drivers have at the regional or global scale. This is especially true for tropical regions;
- (e) There is no internationally accepted methodology for extrapolating information on forest genetic resources from data related to changes in forest ecosystems;
- (f) Most countries do not have adequate information relating to the forest area damaged by disturbances such as diseases, insect pests, weather and forest fires;
- (g) The quality of data relating to forest plantations is problematic, often contradictory and highly variable;
- (h) Information relating to areas of particular importance to forest biological diversity is not readily available for the global level;
- (i) Unclear definitions of key terms for which Parties in their third national reports used varying interpretations, such as the ecosystem approach or primary and natural forests;
- (j) The lack of knowledge on methods to allow for the greater involvement of non forest related sectors and in particular actors from private sector institutions and organizations.

2. Other obstacles, related to lack of capacity; coordination; and political will

371. According to the third national reports, countries identified a number of obstacles related to lack of resources, coordination, and leverage. In particular, the following obstacles were identified:

- (a) The lack of cross-sectoral integration between internal (national) Ministries and Departments;
- (b) Inadequate financial resources committed to implementation;

- (c) Inadequate capacity including lack of equipment, facilities and expertise;
- (d) Continued pressure to expand other land-uses, in particular agriculture;
- (e) Continued causes of deforestation and forest degradation, including urban development, road construction, mining, building of hydroelectric facilities (construction of dams), extraction of oil, gas and other mineral resources, land conversion (e.g. for cattle grazing, cropland, and forest plantations), soil erosion, fires, pest and forest disease, and the effects of atmospheric deposition;
- (f) Inadequate awareness of forest biodiversity issues among the public, and policy and law-makers;
- (g) Poverty, in particular in indigenous and local communities;
- (h) A lack of understanding of forest ecosystem functions and value of services, in particular non-wood forest products.

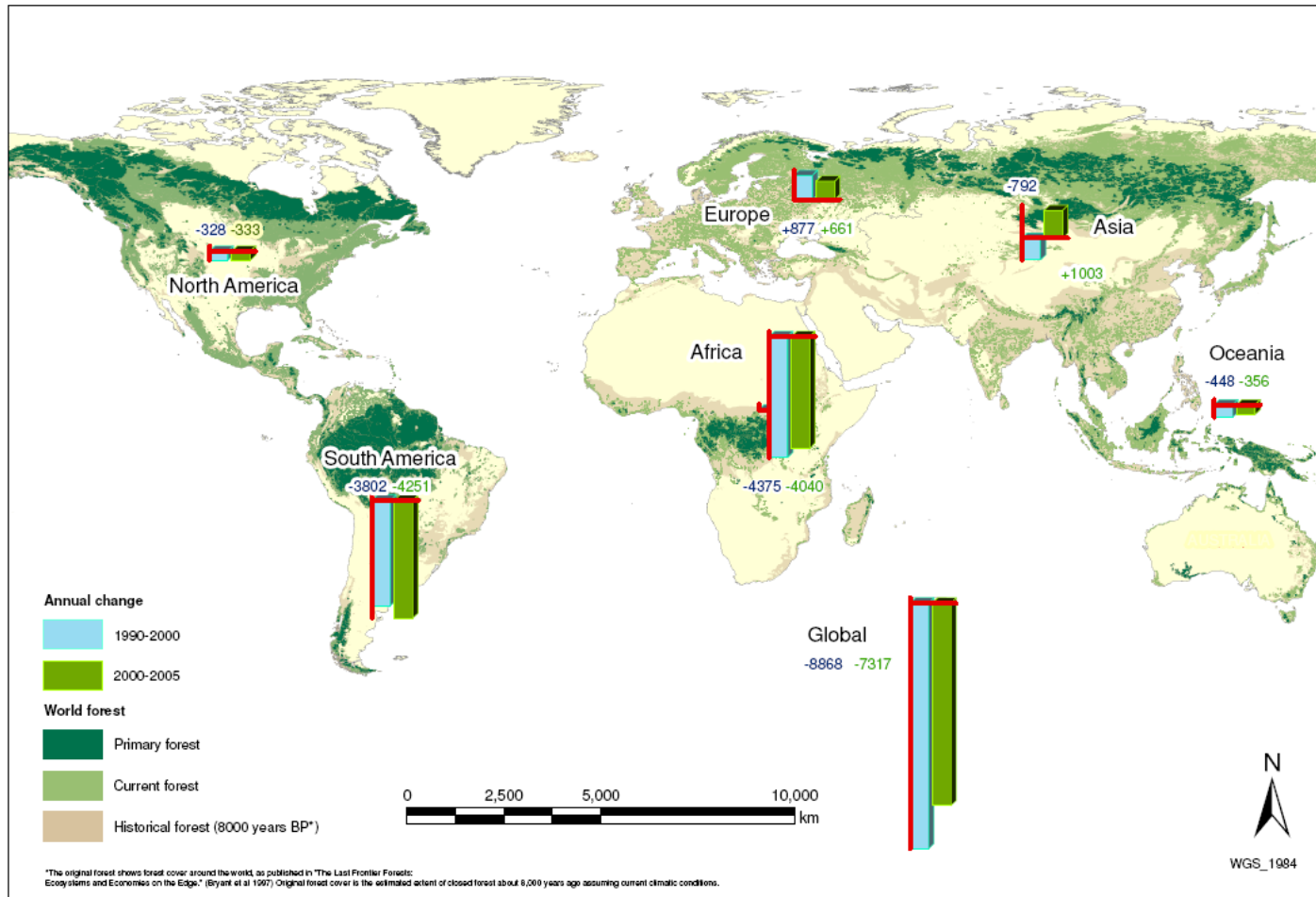
372. The most commonly mentioned obstacle for developing countries was lack of capacity (financial and human). In addition, reports on activities of international organizations suggest that a lack of good governance in general, and of law enforcement in particular, are key obstacles to the implementation of many goals and objectives of the programme of work. Corruption, illegal logging, and unresolved land tenure issues are amongst the most commonly mentioned obstacles (1, 6, 47). Based on the identified impediments, the questionnaire for national reporting should be improved to enable Parties to provide more comprehensive information in future.

Annex I MAPS*

Figure 1: Net annual change in forest area

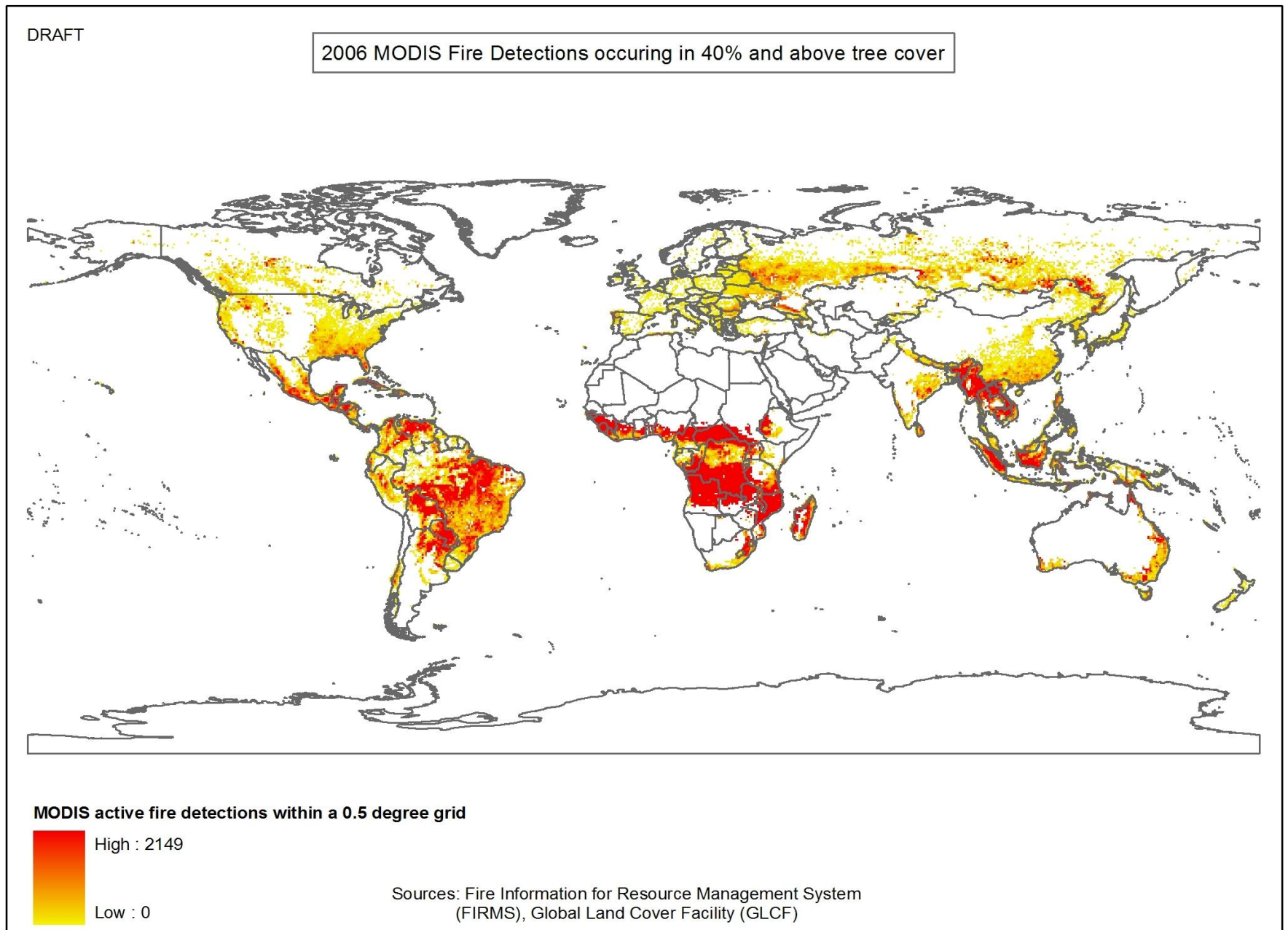
**Net annual change in forest area by region
1990 - 2005 (1,000 ha per year)**

CBD Secretariat
November 2007

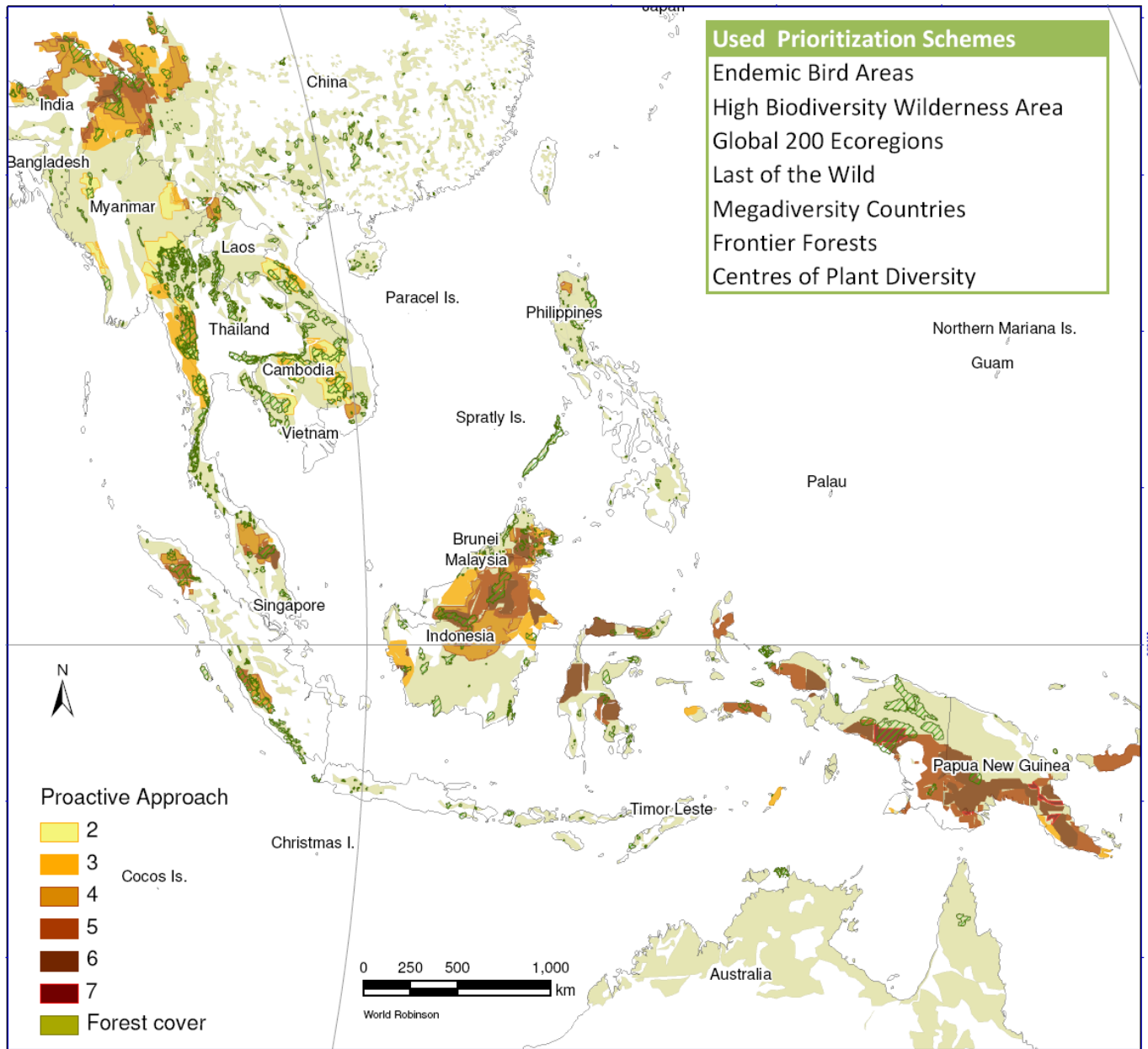


* Colour versions of these maps are available electronically at www.cbd.int. A limited number of colour copies can be obtained from the CBD Secretariat.

Figure 2: Forest fire events in 2006 (image produced for the CBD Secretariat by the Geography Department of the University of Maryland)



Forest Biodiversity Hotspots in South-East Asia: Regions of maximum overlap of International Priority Schemes



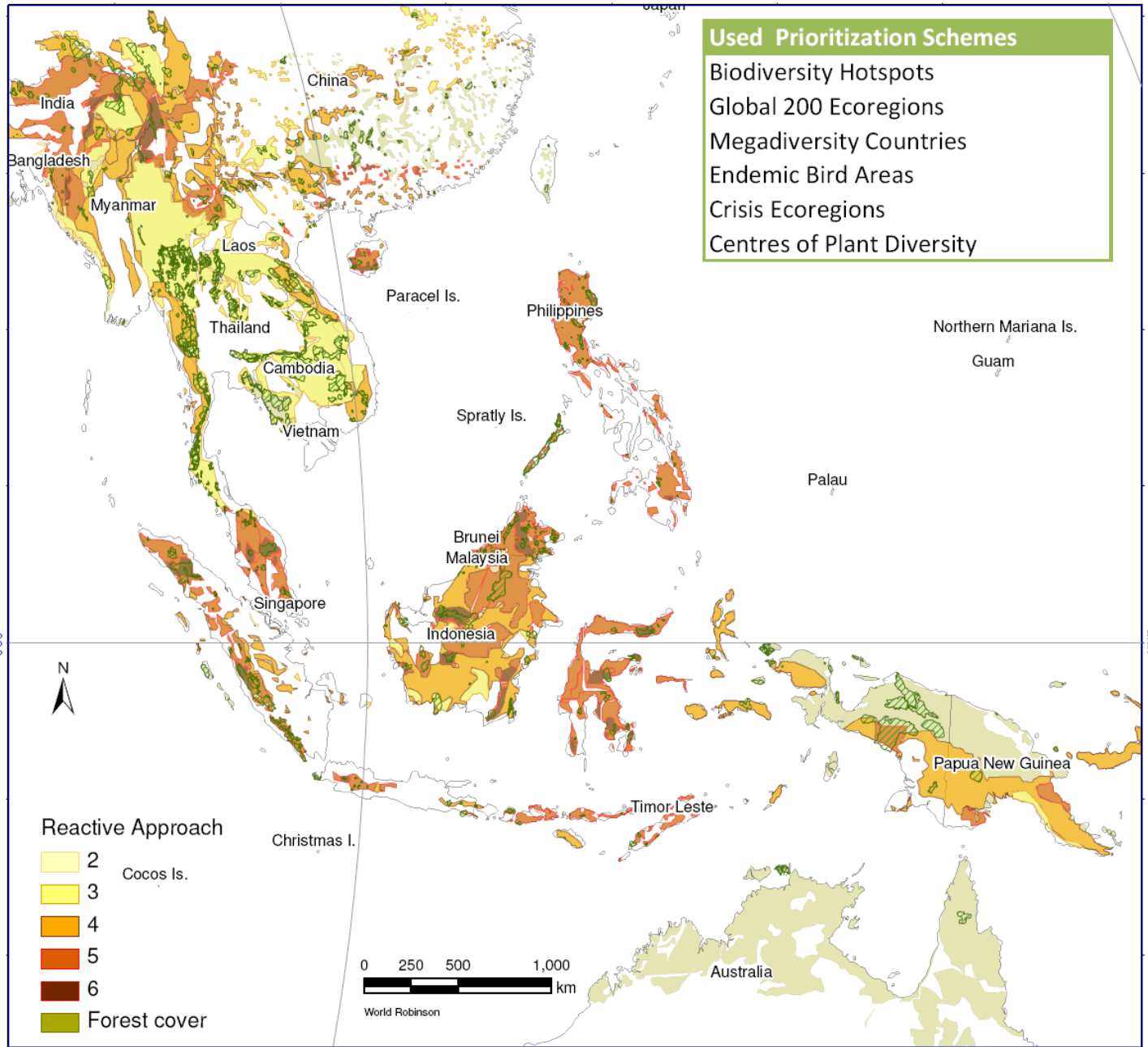
This map illustrates the importance of South-East Asian forests for biodiversity. It overlays forest land cover data, existing protected areas (IUCN categories I-VI), and a set of global templates for conservation priorities. These templates can be broadly grouped into those using “proactive” and those using “reactive” approaches (Brooks et al., 2006). Proactive approaches prioritize areas of high irreplaceability and low (current) level of threat.

Figure 4: Important biodiversity areas in South-East Asia (reactive approach)

DRAFT

CBD Secretariat
August 2007

Forest Biodiversity Hotspots in South-East Asia: Regions of maximum overlap of International Priority Schemes



Sources: BirdLife International, Conservation International, CIFOR, IUCN, UNEP-WCMC, WWF, FAO

This map illustrates the importance of South-East Asian forests for biodiversity. It overlays forest land cover data, existing protected areas (IUCN categories I-VI), and a set of global templates for conservation priorities. These templates can be broadly grouped into those using “proactive” and those using “reactive” approaches (Brooks et al., 2006). Reactive approaches prioritize regions of high irreplaceability under high threat.

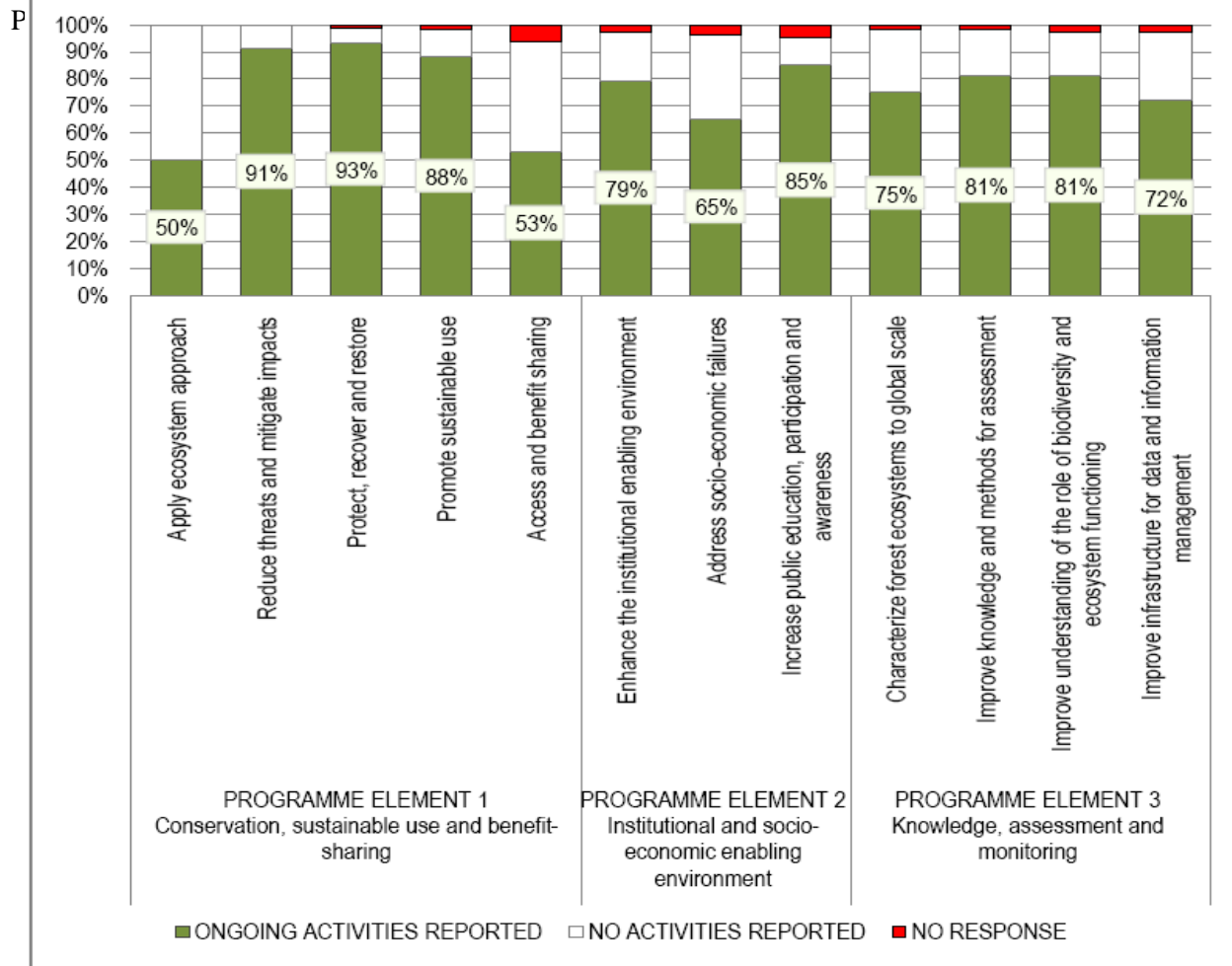
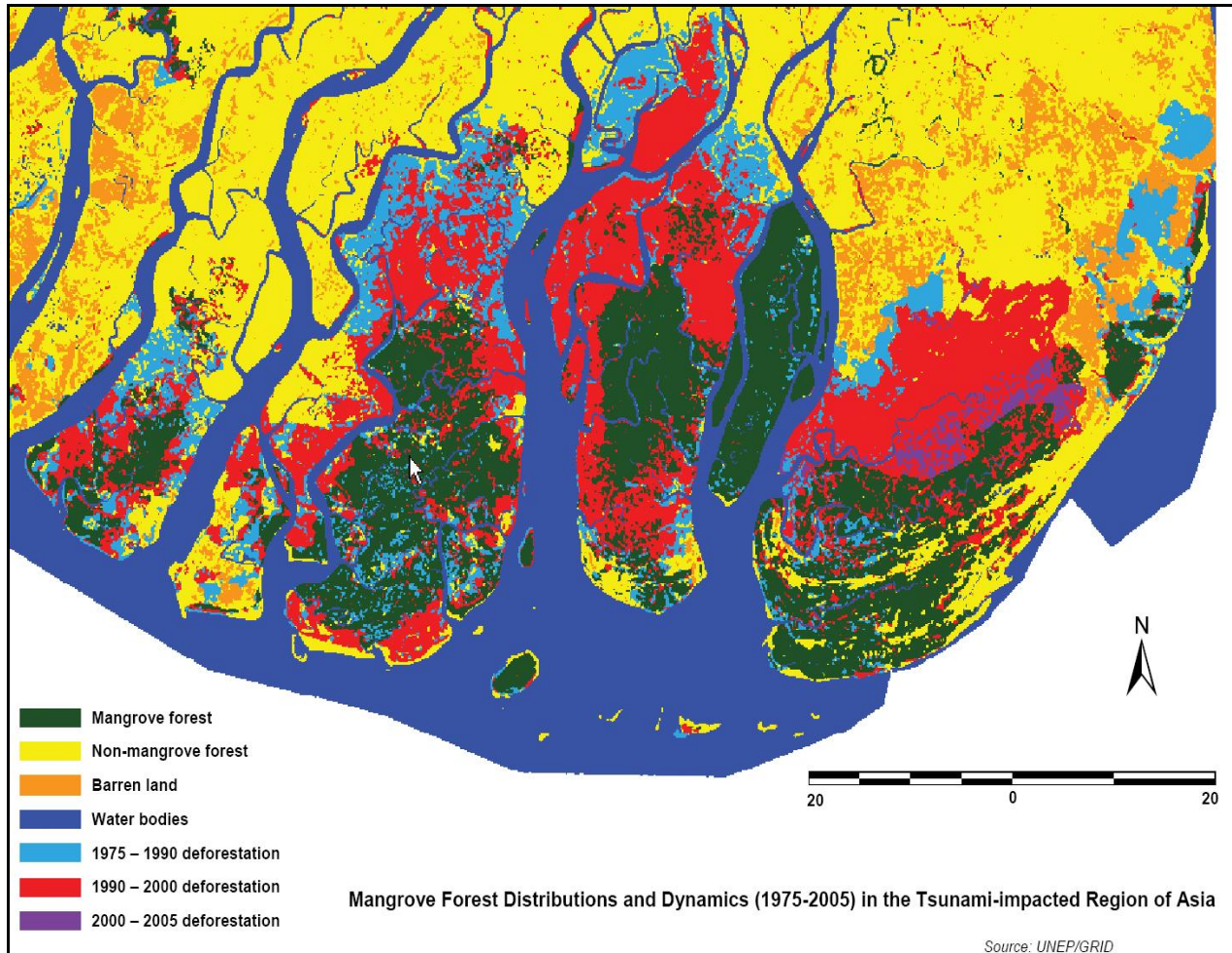


Figure 5: Percentage of countries that responded to the questionnaire of the third national report on forest biological diversity, based on 122 responses¹⁶

^{16/} “Ongoing activities reported” represents the percentage of those countries that reported activities under a given goal; “No activities reported” represents the percentage of countries that reported no activities under a given goal; “No response” represents the percentage of countries that did not respond to a given question.

Figure 6: Mangrove distribution in Tsunami-impacted area



Source: *Giri, C. and Batish, S.(2007). Mangrove Forest Distributions and Dynamics (1975-2005) in the Tsunami-impacted Region of Asia' unpublished paper (283)*

Annex II

OTHER USEFUL INFORMATION

Table 1: Regional distribution and extent of protected areas in Central Africa according to RAPAC (231)

Country	Total land area (km ²)	Number of protected areas	Area of protected areas (ha)	Percentage of total land area (%)
Cameroon	475,442	25	3,755	7.9
Central African Republic	623,000	16	67,615	10.9
Chad	1,284,200	10	139,962	10.9
Congo	342,000	15	36,554	10.7
Democratic Republic of the Congo	2,345,409	20	183,523	7.8
Equatorial Guinea	28,051	13	5,860	20.9
Gabon	267,667	13	30,674	11.5
Sao Tomé and Príncipe	1,001	4	300	30.0
Total	5,366,770	116	502,045	9.4

Table 2: Annual volumes of *Swietenia macrophylla* exported by main export countries (232).

Year	1996	1997	1998	1999	2000	2001	2002
Volume (m ³)	155,313	155,931	92,464	124,357	92,729	102,290	118,687

Table 3: Global statistics of medicinal plant species cited in different countries in the PHARMEL database in 31 December 1993 according to Adjanohoun & al. 1994 (230)

Country	Number of Plant species
Canaries	22
Central Africa	
Burundi	502
Cameroon	65
Central African Republic	580
Congo	1229
Gabon	299
Equatorial Guinea	46
Rwanda	177
DR Congo	641
West Africa	
Benin	526
Burkina Faso	133
Ivory Coast	310
Mali	109
Niger	159
Nigeria	271
Senegal	500
Togo	412
East Africa	
Kenya	182
Ouganda	281
South Africa	
Zimbabwe	448
Mascareignes	
Comores	124
Malagashi	518

Country	Number of Plant species
Maurice	106
Seychelles	77
Total	4000

*Annex III***LIST OF ACRONYMS**

ABS	Access and Benefit-sharing
AHTEG	The Ad Hoc Technical Expert Group
AIJ	Activities Implemented Jointly, programme by UNFCCC
AFLEG	Africa Forest Law Enforcement and Governance
APA	American Psychological Association
C&I	Criteria and Indicators
CBD	The Convention on Biological Diversity
CDM	The Clean Development Mechanism of the UNFCCC
CHC	Clearing House Mechanism
CIFOR	The Center for International Forestry Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of the Parties
COMIFAC	Commission en Charge des Forêts d'Afrique Centrale
CPF	The Collaborative Partnership on Forests
CSD	The United Nations Commission on Sustainable Development
EPCS	The European Plant Conservation Strategy
EPPO	The European and Mediterranean Plant Protection Organization
FAO	The Food and Agriculture Organization of the United Nations
FLEG	Forest Law Enforcement and Governance
FLEGT	Forest Law Enforcement, Governance and Trade
FLR	Forest Landscape Restoration
FRA	The Global forest resources assessment
FRIS	The Forest Restoration Information Service
FPP	The Forest Peoples Programme
GEF	The Global Environment Facility
GFC	The Global Forest Coalition
GFIS	The Global Forest Information Service
GIS	Geographical Information Systems
GISP	The Global Invasive Species Programme
GPFLR	The Global Partnership on Forest Landscape Restoration
GPP	Green Public Procurement
GTZ	Germany Technical Cooperation
IAITPTF	The International Alliance of Indigenous and Tribal Peoples of the Tropical Forests
ICRAF	The World Agroforestry Centre
IFF	The International Forum on Forests
IISD	The International Institute for Sustainable Development
IPCC	The Intergovernmental Panel on Climate Change
IPGRI	The International Plant Genetic Resource Institute
IPPC	The International Plant Protection Convention
ISDR	The United Nations International Strategy for Disaster Reduction
IPF	The Intergovernmental Panel on Forests
ITTO	The International Tropical Timber Organization
IUFRO	The International Union of Forest Research Organizations
IUCN	The World Conservation Union
JICA	Japan International Cooperation Agency
LULUCF	Land use, land-use change and forestry
MA	The Millennium Ecosystem Assessment
MCPFE	The Ministerial Conference on the Protection of Forests in Europe

NAPPO	The North American Plant Protection Organization
NBSAP	National Biodiversity Strategies and Action Plan
NEPAD	New Partnership for Africa's Development
NFP	National Forest Programme
NGO	Nongovernmental Organization
NTFP	Non-timber forest product
NWFP	Non-wood forest product
OCHA	The United Nations Office for the Coordination of Humanitarian Affairs
PES	Payments for Ecosystem Services
RAPAC	Réseau des Aires Protégées D'Afrique Centrale
SBSTTA	The Subsidiary Body on Scientific, Technical and Technological Advice
SCOPE	The Scientific Committee on Problems of the Environment
SFM	Sustainable Forest Management
SSC	Species Survival Commission of IUCN
TCP	The Technical Cooperation Programme of the FAO
TFRK	Traditional Forest-Related Knowledge
TNC	The Nature Conservancy
UNCCD	The United Nations Convention to Combat Desertification
UNDP	The United Nations Development Programme
UNEP	The United Nations Environment Programme
UNESCO	The United Nations Educational, Scientific, and Cultural Organization
UNFCCC	The United Nations Framework Convention on Climate Change
UNFF	The United Nations Forum on Forests
UNIFEM	The United Nations Development Fund for Women
UNPFII	The United Nations Permanent Forum on Indigenous Issues
USAID	United States Agency for International Development
WCMC	The World Conservation Monitoring Centre of UNEP
WCPA	The World Commission on Protected Areas
WG-CIFM	Working Group on Community Involvement in Forest Management of IUCN
WRI	World Resources Institute
WRM	World Rainforest Movement
WWF	World Wildlife Fund for Nature

*Annex IV***THE EXPANDED PROGRAMME OF WORK ON FOREST BIOLOGICAL DIVERSITY**

In undertaking this expanded programme of work, Parties, Governments, international and regional organizations and processes, civil society organizations and other relevant bodies and all relevant implementers are invited to take into account the following considerations:

- a. The need to focus on key priorities for sustainable use of forest resources and the equitable sharing of benefits;
- b. The need to facilitate adequate participation of indigenous and local communities and the need to respect their rights and interests;
- c. The need for urgent conservation action for forests that are ecologically significant and/or most important for biological diversity on national and regional scales, in accordance with national priorities, where forest biodiversity loss or threats of loss are significant or of great concern, but also to work to enhance conservation in all types of forests, both within and outside protected areas;
- d. The need to achieve synergies and avoid duplications between the work of the key international instruments and bodies, such as the Secretariat of the Convention on Biological Diversity, and the other members of the Collaborative Partnership on Forests;
- e. The need to ensure capacity-building and the provision of adequate financial, human and technical resources to allow implementation of the work programme by all relevant stakeholders;
- f. The need to ensure that relevant activities be effectively incorporated into national and subnational forest and biological diversity strategies and programmes;
- g. The need for clarification of the links between the ecosystem approach and sustainable forest management.

PROGRAMME ELEMENT 1. CONSERVATION, SUSTAINABLE USE AND BENEFIT-SHARING

GOAL 1

To apply the ecosystem approach to the management of all types of forests

Objective 1

Develop practical methods, guidelines, indicators and strategies to apply the ecosystem approach adapted to regional differences to forests both inside and outside protected forest areas as well as both in managed and unmanaged forests.

Activities

- a. Clarify the conceptual basis of the ecosystem approach in relation to sustainable forest management.
- b. Develop guidance for applying the ecosystem approach in forest ecosystems.
- c. Identify key structural and functional ecosystem elements to be used as indicators for decision-making and develop decision-support tools on a hierarchy of scales.
- d. Develop and implement guidance to help the selection of suitable forest management practices for specific forest ecosystems.
- e. Develop and implement appropriate mechanisms for the participation of all stakeholders in ecosystem-level planning and management.
- f. Develop an informal international network of forest areas for piloting and demonstrating the ecosystem approach and exchange related information through the clearing-house mechanism.
- g. Hold workshops to train and familiarize decision makers and managers with the foundations, principles and modalities of the ecosystem approach.

h. Promote research and pilot projects to develop understanding of the functional linkages between forest biological diversity and agriculture with the aim to developing practices that could improve the relations between forest management and other land use methods. Promote assessment of functional linkages between mining, infrastructure and other development projects and forest biodiversity, and develop best practice, guidelines for such development projects to mitigate adverse impacts on forest biodiversity.

i. Promote activities that minimize the negative impacts of forest fragmentation on forest biodiversity, including afforestation, forest restoration, secondary forest and plantation management, and agroforestry, watershed management and land use planning aimed at providing a combination of economic and environmental goods and services to stakeholders.

GOAL 2

To reduce the threats and mitigate the impacts of threatening processes on forest biological diversity

Objective 1

Prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biological diversity in accordance with international law.

Activities

a. Reinforce, develop and implement strategies at regional and national level to prevent and mitigate the impacts of invasive alien species that threaten ecosystems, including risk assessment, strengthening of quarantine regulation, and containment or eradication programmes taking into account the guiding principles on invasive alien species if adopted at the sixth meeting of the Conference of the Parties.

b. Improve the knowledge of the impacts of invasive alien species on forest ecosystems and adjacent ecosystems.

Objective 2

Mitigate the impact of pollution such as acidification and eutrophication on forest biodiversity

Activities

a. Increase the understanding of the impact of pollution, e.g., acidification and eutrophication, and other pollutants (such as mercury and cyanide) on forest biodiversity; at genetic, species, ecosystem and landscape levels.

b. Support monitoring programmes that help evaluate the impacts of air, soil and water pollution on forest ecosystems, and address the impacts of changing environmental conditions on forest ecosystems.

c. Encourage the integration of forest biodiversity consideration into strategies and policies to reduce pollution.

d. To promote the reduction of pollution levels that adversely affect forest biodiversity and encourage forest management techniques that reduce the impacts of changing environmental conditions on forest ecosystems.

Objective 3

Mitigate the negative impacts of climate change on forest biodiversity

Activities

Taking into account the work of the Ad Hoc Technical Expert Group on Climate Change and Biodiversity:

- a. Promote monitoring and research on the impacts of climate change on forest biological diversity and investigate the interface between forest components and the atmosphere;
- b. Develop coordinated response strategies and action plans at global, regional and national levels;
- c. Promote the maintenance and restoration of biodiversity in forests in order to enhance their capacity to resist to, and recover from and adapt to climate change;
- d. Promote forest biodiversity conservation and restoration in climate change mitigation and adaptation measures;
- e. Assess how the conservation and sustainable use of forest biological diversity can contribute to the international work relating to climate change.

Objective 4

To prevent and mitigate the adverse effects of forest fires and fire suppression

Activities

- a. Identify policies, practices and measures aimed at addressing the causes and reducing impacts on forest biological diversity resulting from human-induced uncontrolled/unwanted fires, often associated with land clearing and other land use activities.
- b. Promote understanding of the role of human-induced fires on forest ecosystems and on species, and of the underlying causes.
- c. Develop and promote the use of fire management tools for maintaining and enhancing forest biological diversity, especially when there has been a shift in fire regimes.
- d. To promote practices of fire prevention and control to mitigate the impacts of unwanted fires on forest biological diversity.
- e. Promote development of systems for risk assessment and early warning, monitoring and control, and enhance capacity for prevention and post-fire forest biodiversity restoration at the community, national and regional levels.
- f. To advise on fire-risk prediction systems, surveillance, public education and other methods to minimise human-induced uncontrolled/unwanted fires.
- g. Develop strategies to avoid the negative effects of sectoral programmes and policies which could induce uncontrolled forest fires.
- h. Develop prevention plans against devastating fires and integrate them into national plans targeting the biological diversity of forests.
- i. Develop mechanisms, including early warning systems, for exchange of information related to the causes of forest biodiversity loss, including fires, pests and diseases, and invasive species.

Objective 5

To mitigate effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur.

Activities

- a. Develop and promote management methods that restore or mimic natural disturbances such as fire, wind-throw and floods.

Objective 6

To prevent and mitigate losses due to fragmentation and conversion to other land uses

Activities

- a. Encourage the creation of private reserves and private conservation methods where appropriate, respecting the rights and interests of indigenous and local communities.
- b. Establish ecological corridors on a national and regional basis.

- c. Promote cost-benefit analysis of development projects that might lead to the conversion of forest into other land uses incorporating the impacts on forest biological diversity.
- d. Implement policies, practices and measures aimed at addressing the causes and reducing impacts on forest biological diversity resulting from human-induced uncontrolled clearing or other uncontrolled land-use activities

GOAL 3

To protect, recover and restore forest biological diversity

Objective 1

Restore forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes, including in plantations.

Activities

- a. Promote the implementation of systems and practices for restoration in accordance with the ecosystem approach
- b. Promote restoration of forest biological diversity with the aim to restore ecosystem services.
- c. Create and improve where appropriate international, regional and national databases and case-studies on the status of degraded forests, deforested, restored and afforested lands.

Objective 2

Promote forest management practices that further the conservation of endemic and threatened species.

Activities

- a. Determine status and conservation needs of endemic or threatened species and the impacts of current forest management practices on these species.
- b. Develop and implement conservation strategies for endemic and threatened species for global or regional application, and practical systems of adaptive management at national level.

Objective 3

Ensure adequate and effective protected forest area networks.

Activities

- a. Assess the comprehensiveness, representativeness and adequacy of protected areas relative to forest types and identify gaps and weaknesses.
- b. Establish (in accordance with Article 8(j)) with the full participation and with respect for the rights of indigenous and local communities, and other relevant stakeholders, comprehensive, adequate, biologically and geographically representative and effective networks of protected areas.
- c. Establish, in a similar manner, restoration areas to complement the network of protected areas where needed.
- d. Revise in a similar manner and ensure the comprehensiveness, adequacy, representativeness and efficacy of existing protected area networks.
- e. Assess the efficacy of protected forest areas for the conservation of biological diversity.
- f. Ensure that relevant protected areas are managed to maintain and enhance their forest biodiversity components, services and values;

GOAL 4

To promote the sustainable use of forest biological diversity

Objective 1

Promote sustainable use of forest resources to enhance the conservation of forest biological diversity

Activities

- a. Support activities of indigenous and local communities involving the use of traditional forest-related knowledge in biodiversity management.
- b. Develop, support and promote programmes and initiatives that address the sustainable use of timber and non-timber forest products.
- c. Support regional cooperation and work on sustainable use of timber and non-timber forest products and services, including through technology transfer and capacity-building within and between regions.
- d. Improve forest management and planning practices that incorporate socio-economic and cultural values to support and facilitate sustainable use.
- e. Promote cooperative work on the sustainable use of forest products and services and its relation to biodiversity conservation with the other members of the Collaborative Partnership on Forests.
- f. Encourage implementation of voluntary third-party credible forest certification schemes that take into consideration relevant forest biodiversity criteria and that would be audited, taking into consideration indigenous and local community rights and interests.
- g. Set up demonstration sites that would illustrate forest conservation and on-ground delivery of goods and services through sustainable forest management, which are also representative of various types of forest, themes and regional needs, through case-studies.
- h. Facilitate and support a responsible private sector committed to sustainable harvesting practices and compliance with domestic laws through effective development and enforcement of laws on sustainable harvesting of timber and non-timber resources.

Objective 2

Prevent losses caused by unsustainable harvesting of timber and non-timber forest resources.

Activities

- a. Establish a liaison group with an associated workshop to facilitate development of a joint work plan with relevant members of the Collaborative Partnership on Forests to bring harvesting of non-timber forest products (NTFP)s, with a particular focus on bush meat, to sustainable levels. This group should have a proportionate regional representation, giving special consideration to subregions where bush meat is a major issue and representation of relevant organizations such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The mandate of this group is to:
 - i. Consult in a participatory manner with key stakeholders to identify and prioritize major issues pertaining the unsustainable harvesting of non-timber forest products, particularly of bushmeat and related products;
 - ii. Provide advice on the development of policies, enabling legislation and strategies that promote sustainable use of, and trade in, non-timber forest products, particularly bushmeat and related products;
 - iii. Provide advice on appropriate alternative sustainable livelihood technologies and practices for the affected communities;
 - iv. Provide advice on appropriate monitoring tools.
- b. Promote projects and activities that encourage the use and supply of alternative sources of energy to prevent forest degradation due to the use of firewood by local communities.
- c. Develop any necessary legislation for the sustainable management and harvesting of non-timber forest resources.
- d. Solicit input from Parties, other countries and relevant organizations on ways and means to encourage and assist importing countries to prevent the entry of unsustainably harvested forest resources, which are not covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and consider this information as a basis for further steps on this issue.

Objective 3

Enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity.

Activities

Taking into account the outcome of the Ad Hoc Open-ended Inter-Sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity:

- a. Strengthen the capacity of, and provide incentives for, indigenous and local communities to generate opportunities for sustainable use of forest biodiversity and for access to markets;
- b. Strengthen the capacity of indigenous and local communities to resolve land rights and land use disputes in order to sustainably manage forest biodiversity;
- c. Encourage the conservation and sustainable use of forest biological diversity by indigenous and local communities through their development of adaptive management practices, using as appropriate traditional forest-related knowledge;
- d. Provide incentives for the maintenance of cultural diversity as an instrument to enhance forest biological diversity;
- e. Develop and implement education and awareness programmes on traditional uses of forest biological diversity in accordance with Article 8(j);
- f. Create an environment that fosters respect, and stimulates, preserves and maintains traditional knowledge related to forest biological diversity, innovations and practices of indigenous and local communities.

Objective 4

Develop effective and equitable information systems and strategies and promote implementation of those strategies for in situ and ex situ conservation and sustainable use of forest genetic diversity, and support countries in their implementation and monitoring.

Activities

- a. Develop, harmonize and assess the diversity of forest genetic resources, taking into consideration the identification of key functional/keystone species populations, model species and genetic variability at the deoxyribonucleic acid (DNA) level.
- b. Select, at a national level, the most threatened forest ecosystems based on the genetic diversity of their priority species and populations and develop an appropriate action plan in order to protect the genetic resources of the most threatened forest ecosystems.
- c. Improve understanding of patterns of genetic diversity and its conservation *in situ*, in relation to forest management, landscape-scale forest change and climate variations.
- d. Provide guidance for countries to assess the state of their forest genetic resources, and to develop and evaluate strategies for their conservation, both *in situ* and *ex situ*.
- e. Develop national legislative, administrative policy measures on access and benefit-sharing on forest genetic resources, taking into account the provisions under Articles 8(j), 10(c), 15, 16 and 19 of the Convention on Biological Diversity and in conformity with future decisions of the Conference of the Parties, as appropriate.
- f. Monitor developments in new biotechnologies and ensure their applications are compatible with the objectives of the Convention on Biological Diversity with respect to forest biological diversity, and develop and enforce regulations for controlling the use of genetically modified organisms (GMOs) when appropriate.
- g. Develop a holistic framework for the conservation and management of forest genetic resources at national, subregional and global levels.
- h. Implement activities to ensure adequate and representative *in situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic forest species and complement the *in situ* conservation with adequate *ex situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic species and species of economic potential.

GOAL 5

Access and benefit-sharing of forest genetic resources

Objective 1

Promote the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge

Activities

Based on the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization, as adopted by the Conference of the Parties at its sixth meeting⁽⁴⁸⁾:

- a. Establish mechanisms to facilitate the sharing of benefits at local, national, regional and global levels.
- b. Strengthen capacity of indigenous and local communities to negotiate benefit-sharing arrangements.
- c. Promote dissemination of information about benefit-sharing experiences through the clearing-house mechanism and appropriate means at the local level.

PROGRAMME ELEMENT 2: INSTITUTIONAL AND SOCIO-ECONOMIC ENABLING ENVIRONMENT

GOAL 1

Enhance the institutional enabling environment.

Objective 1

Improve the understanding of the various causes of forest biological diversity losses

Activities

- a. Each Party to carry out, in a transparent and participatory way, thorough analysis of local, regional, national and global direct and underlying causes of losses of forest biological diversity. A distinction should be made between broad socio-economic causes such as demographic growth and more specific causes such as institutional weaknesses and market or policy failures.
- b. Each Party on the basis of the above analysis to implement their recommendations.
- c. Parties to report through the clearing-house mechanism of the Secretariat on successful experiences involving control and mitigation of the underlying causes of deforestation, which would make it possible to understand lessons learned.

Objective 2

Parties, Governments and organizations to integrate biological diversity conservation and sustainable use into forest and other sector policies and programmes.

Activities:

- a. Parties to formulate appropriate policies and adopt sets of priority targets for forest biological diversity to be integrated into national forest programmes, national sustainable development strategies, poverty reduction strategy papers, related non-forest programmes and national biological diversity strategies and action plans. Ensure that there is coherence and direct interaction between the different programmes.
- b. Seek ways of streamlining reporting between the different forest-related processes, in order to improve the understanding of forest quality change and improve consistency in reporting on sustainable forest management.
- c. Develop a set of indicators that might be used in assessing progress in implementing the national biodiversity strategies and action plans and relevant work programmes;

- d. Donor bodies and other financial institutions to incorporate forest biological diversity and sustainable use principles and targets into forest and related programmes, including watershed management, land-use planning, energy, transport, infrastructure development, education and agriculture, mineral exploitation, and tourism.
- e. Seek to harmonize policies at regional and subregional levels in the area of forest biological diversity.
- f. Develop strategies for effective enforcement of sustainable forest management and protected area regulations, including adequate resourcing and involvement of indigenous and local communities.
- g. Parties and donor bodies to develop and implement, strategies, in particular national financing strategies in the framework of national biodiversity strategies and action plans and national forest programmes, and provide adequate financial, human and technical resources.
- h. Encourage the Executive Secretary to coordinate and seek synergies between Convention on Biological Diversity, the United Nations Forum on Forests and the members of the Collaborative Partnership on Forests, including establishment of memoranda of understanding, as appropriate, between the Convention on Biological Diversity and the other members of the Collaborative Partnership on Forests, and recommend such an memorandum of understanding with the International Tropical Timber Organization and the United Nations Framework Convention on Climate Change as a first step.
- i. Increase emphasis on capacity-building, research and training, public education and awareness, access to and transfer of information and technology, technical and scientific cooperation, with focus on capacities required to address forest biodiversity-related issues.

Objective 3

Parties and Governments to develop good governance practices, review and revise and implement forest and forest-related laws, tenure and planning systems, to provide a sound basis for conservation and sustainable use of forest biological diversity.

Activities

- a. Develop appropriate measures and regulations to secure a permanent forest area sufficient to allow for the conservation and sustainable use of forest biological diversity.
- b. Seek to resolve land tenure and resource rights and responsibility, in consultation with all relevant stakeholders including for indigenous and local communities, in order to promote the conservation and sustainable use of forest biodiversity.
- c. Encourage Parties and countries to ensure that forest and forest-related laws adequately and equitably incorporate the provisions of the Convention on Biological Diversity and the decisions of the Conference of the Parties.
- d. Implement effective measures to protect traditional knowledge and values in forest laws and planning tools.
- e. Develop legislation, administrative or policy measures on access and benefit-sharing for forest genetic resources, taking into account the draft Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization.
- f. Invite Parties, Governments and other relevant organizations to submit case-studies and research on the role of performance bonds in forest concessions, in the conservation and sustainable use of forest biological diversity; and request the Secretariat to make these available.
- g. Parties, Governments and relevant stakeholders to develop mechanisms and processes to work toward good governance to promote conservation and sustainable use of forest biological diversity.
- h. Develop and apply environmental and socio-economic impact assessment methods as appropriate prior to land-conversion decisions.

Objective 4

Promote forest law enforcement and address related trade

Activities

- a. Invite Parties, Governments and relevant organizations to provide information on a voluntary basis to enable a better comprehension of the effects of unsustainable harvesting, exploitation of other forest resources and associated trade, as well as on the underlying causes, on forest biological diversity. On the basis of dissemination of this information countries may decide to take relevant measures such as enforcement actions.
- b. Evaluate and reform, as required, legislation to include clear definition of illegal activities and to establish effective deterrents.
- c. Develop methods and build capacity for effective law enforcement.
- d. Develop codes of conduct for sustainable forest practices in logging companies and the wood-processing sector to improve biodiversity conservation.
- e. Encourage and support the development and implementation of tracking and chain-of-custody systems for forest products to seek to ensure that these products are legally harvested.
- f. Invite Governments and relevant organizations to develop and forward to the Secretariat case-studies and research on the impacts of unsustainable timber and non-timber harvesting and related trade.

GOAL 2

Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity.

Objective 1

Mitigate the economic failures and distortions that lead to decisions that result in loss of forest biological diversity.

Activities

- a. Develop mechanisms to ensure that monetary and non-monetary costs and benefits of forest biodiversity management are equitably shared between stakeholders at all levels.
- b. Develop, test and disseminate methods for valuing forest biological diversity and other forest ecosystem goods and services and for incorporating these values into forest planning and management, including through stakeholder analysis and mechanisms for transferring costs and benefits.
- c. Incorporate forest biological diversity and other forest values into national accounting systems and seek to estimate such figures for subsistence economies.
- d. Elaborate and implement economic incentives promoting forest biological diversity conservation and sustainable use.
- e. Eliminate or reform perverse incentives, in particular subsidies that result in favouring unsustainable use or loss of forest biological diversity.
- f. Provide market and other incentives for the use of sustainable practices, develop alternative sustainable income generation programmes and facilitate self-sufficiency programmes of indigenous and local communities.
- g. Develop and disseminate analyses of the compatibility of current and predicted production and consumption patterns with respect to the limits of forest ecosystem functions and production.
- h. Seek to promote national laws and policies and international trade regulations are compatible with conservation and sustainable use of forest biological diversity.
- i. Increase knowledge on monetary and non-monetary cost-benefit accounting for forest biodiversity evaluation.

GOAL 3

Increase public education, participation, and awareness.

Objective 1

Increase public support and understanding of the value of forest biological diversity and its goods and services at all levels.

Activities

- a. Increase broad-based awareness of the value of forest biological diversity through international, national and local public awareness campaigns.
- b. Promote consumer awareness about sustainably produced forest products.
- c. Increase awareness amongst all stakeholders of the potential contribution of traditional forest-related knowledge to conservation and sustainable use of forest biological diversity.
- d. Develop awareness of the impact of forest-related production and consumption patterns on the loss of forest biological diversity and the goods and services it provides.
- e. Increase awareness of the value of forest biological diversity amongst public authorities and decision makers through specific information and training actions.
- f. Implement effective measures to recognize, respect, protect and maintain traditional forest-related knowledge and values in forest-related laws and forest planning tools, in accordance with Article 8(j) and related provisions of the Convention on Biological Diversity.
- g. Develop awareness of the value of forest biological diversity among forestry workers, owners of forest land, logging contractors, and consulting firms.

PROGRAMME ELEMENT 3: KNOWLEDGE, ASSESSMENT AND MONITORING

GOAL 1

To characterize and to analyse from forest ecosystem to global scale and develop general classification of forests on various scales in order to improve the assessment of status and trends of forest biological diversity.

Objective 1

Review and adopt a harmonized global to regional forest classification system, based on harmonized and accepted forest definitions and addressing key forest biological diversity elements.

Activities

- a. Review and adopt a minimum forest classification for forest types, compatible with remote sensing technologies, that includes broad indicators of biodiversity that can be taken into account in all international and regional forest-related programmes, plans and activities.
- b. Adapt frequency of forest resource inventory at regional and global scales, where resources permit, preferably at least to every ten years.
- c. Review and contribute (from the biodiversity point of view) to standard forest definitions in cooperation with the United Nations Forum on Forests and the Collaborative Partnership on Forests to be used in global and regional reporting to the scale of forest types.

Objective 2

Develop national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis).

Activities

- a. Review existing national forest ecosystem classification systems and maps.
- b. Develop and apply national forest ecosystem classification systems and maps that include key components of forest biological diversity to be used in assessment reports on forest types including socio-economic and cultural aspects.
- c. Use adapted technology, for example geographic information system, to develop a baseline for assessing levels of deforestation and impacts on biodiversity.

Objective 3

To develop, where appropriate, specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity.

Activities

- a. To identify and prioritize relevant areas to carry out these surveys.

GOAL 2

Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity, based on available information.

Objective 1

Advance the development and implementation of international, regional and national criteria and indicators based on key regional, subregional and national measures within the framework of sustainable forest management.

Activities

- a. Advance the development and implementation of international, regional and national criteria and indicators based on key measures within the framework of sustainable forest management.
- b. Develop and select international, regional and national criteria and where appropriate quantifiable, indicators for forest biological diversity, taking into account, as appropriate, existing work and processes on criteria and indicators on sustainable forest management, as well as the knowledge held by indigenous and local communities. Such criteria and indicators should be used for assessment reporting at least 10-year intervals.

GOAL 3

Improve understanding of the role of forest biodiversity and ecosystem functioning.

Objective 1

Conduct key research programmes on the role of forest biodiversity and ecosystem functioning.

Activities

- a. Develop and support focused research to improve understanding of the relationship between forest biological diversity and ecosystem functioning, taking into account forest ecosystem components, structure, functions and processes to improve predictive capability.
- b. Develop and support research to understand critical thresholds of forest biological diversity loss and change, paying particular attention to endemic and threatened species and habitats including forest canopies.
- c. Develop and apply forest ecosystem restoration techniques to address biodiversity loss at the ecosystem level.
- d. Develop and support research on impact of current forest management practices for forest biodiversity within forests and on adjacent land.

GOAL 4

Improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biological diversity.

Objective 1

Enhance and improve the technical capacity at the national level to monitor forest biological diversity, benefiting from the opportunities offered through the clearing-house mechanism, and to develop associated databases as required on a global scale.

Activities

- a. Develop and implement a strategy and a plan of action and facilitate transfer of technology to provide infrastructure and training in developing countries, in order to monitor forest biological diversity and develop associated databases.

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