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AD HOC TECHNICAL EXPERT GROUP ON REVIEW OF  
THE IMPLEMENTATION OF THE PROGRAMME OF  
WORK ON FOREST BIOLOGICAL DIVERSITY  
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**FOREST BIOLOGICAL DIVERSITY: PRELIMINARY SYNTHESIS OF THEMATIC  
NATIONAL REPORTS ON SUCCESSES, CHALLENGES AND OBSTACLES TO THE  
IMPLEMENTATION OF THE PROGRAMME OF WORK**

*Note by the Executive Secretary*

**I. INTRODUCTION**

1. In paragraph 27 of decision VI/22, the Conference of the Parties agreed to call a voluntary thematic report in relation to implementation of the programme of work on forest biological diversity, to elicit information on:

- (a) Priority actions that Parties have identified under the programme of work;
- (b) Successes in implementing the programme of work; and
- (c) Challenges and impediments to implementing these priority actions, and, as appropriate, the programme of work.

1. In order to provide input to the ad hoc technical expert group on the review of implementation of the programme of work, pursuant to paragraph 26 of decision VI/22, the present note synthesizes the views of the ten Parties<sup>1</sup> who submitted their voluntary reports to the Secretariat based on notification 2003-057 in June 2003 and SCBD/I&O/BK/39078 in September 2003 to extend the deadline for the submission of the questionnaires. The questionnaire contains a total 31 questions. In the first three questions, Parties were requested to identify priority actions from the programme of work and within these, to report on successes as well as challenges/impediments during their implementation. The fourth question relates to regional and international cooperation. The remaining 27 questions relate to each objective in the expanded programme of work on forest biological diversity. Due to the low number of respondent countries, the

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\* UNEP/CBD/AHTEG/REVFBD/1/1

<sup>1</sup> As at 31 October 2003: Austria, China, Denmark, Estonia, Germany, Ireland, Poland, Sri Lanka, Sweden, and Switzerland. From these countries, 7 are developed, 2 are developing, and another one is an economy in transition.

present synthesis should not be taken as a reflection of current status and trends. The annex contains the questionnaire included in the format for a voluntary report on implementation of the expanded programme of work on forest biodiversity.

## II. PRELIMINARY SYNTHESIS OF VOLUNTARY REPORTS

### 2.1 Priority actions identified by Parties to implement the programme of work

2. The responses to Question 1 vary among the reporting countries. A few countries indicated that work was under way to identify priority goals and actions for implementing the expanded programme of work on forest biodiversity. Some countries reported that priorities for conservation and sustainable use of forest biodiversity had been incorporated in their environmental and/or biodiversity strategies and action plans, including a National Forest Programme or Policy. A few countries have identified specific targets and priority actions for implementing the programme of work on forest biological diversity adopted under the Convention.

3. **Austria** indicated that the National Commission on Biodiversity was carrying out the process of setting up priority goals, objectives and activities for implementing the expanded programme of work on forest biodiversity in order to include them in the National Strategy on Biodiversity and the Austrian Forest Dialogue which was established to elaborate a National Forest Programme. **Finland** also indicated that the assessment of priorities for implementing the expanded programme of work was under way. A preliminary assessment undertaken by Finland shows that most of the proposed activities in the expanded programme of work are of high or medium relevance to Finland.

4. **China** indicated that it had identified the goal by increasing the number of forest reserves to 2,000 by the year 2050, with the total area covered by the forest reserves accounting for 16% of China's total land area and 85% of national key wild plants and animals covered by these reserves. China also reported on its recent efforts in this field. From 1991 to the end of 2002, China had increased the number of nature reserves of various categories from 708 to 1757, with the coverage increased from 56.06 million hectares to 132.90 million hectares. China had also been implementing a programme of work to rescue those endangered species, which had produced obvious results which were indicated by the increasing number of some endangered species in China.

5. **Denmark** indicated that its priorities had been mainly laid down in the National Forest Programme, a process that had been initiated before COP 6 and finalized shortly after that, in June 2002. Denmark also indicated that the further identification of priorities in this field was based on the National Biodiversity Strategy and Action Plan, which was recently revised and fully coordinated with the National Forest Programme. In addition, Denmark attached to its thematic report a list of both high and low priority activities it had identified to implement the expanded programme of work. Out of a total of 130 activities listed in the expanded programme of work, Denmark had identified 92 activities as high priorities for implementation.

6. **Germany** indicated that it had undertaken an analysis of the relevance of the proposed activities to the specific national conditions and of the degree to which relevant activities had been already covered by existing programmes and initiatives. In the forest sectoral strategy whose implementation had started in 2000, 11 priorities were identified for the implementation of the Convention on Biological Diversity, specifically,

- Monitoring the state of forest biodiversity;
- Reducing external threats to forest biodiversity;
- Implementing the concept of ecological silviculture;
- Improving conditions for timber utilization;
- Regulating game populations;

- Carrying out conservation measures;
- Carrying out forestry measures in a way compatible with the ecosystem;
- Continuing and developing measures for conservation, promotion and sustainable use of genetic diversity of forest trees and shrubs;
- Developing economic incentives for the conservation and development of biodiversity in private and local forests;
- Continuing and developing public relations and environmental education;
- Carrying out research projects on forest biodiversity.

7. **Ireland** has identified the following as its priorities for implementing the expanded programme of work.

- Implement the Forestry Acts 1946 and 1988, the Wildlife Act 1976 and 2000, and relevant EU Directives;
- Identify and give statutory protection to the most valuable semi-natural woodlands;
- Promote and implement the Native Woodland Scheme to conserve and expand Ireland's native woodland;
- Ensure that sustainable forest management is the core of forest planning and operations;
- Implement Forest Biodiversity Guidelines (2000) and the Code of Best Forest Practice (2000) for all forest types and all forest operations;
- Adapt the forest inventory to include biodiversity;
- Develop an inventory and classification of broadleaf woodlands;
- Afforestation to consist of 30% broadleaf by 2006;
- Encourage local provenances of native species;
- Review and upgrade forest legislation as appropriate to provide for conservation and sustainable use of biodiversity;
- Expand research to obtain information on biodiversity of plantation forests and semi-natural woodlands.

8. **Poland** indicated that its priorities were included within the framework of Programme Element 1 of the expanded programme of work. Poland is especially interested in implementing the activities identified under Goal 1, which are related to the development of the ecosystem approach to the management of all types of forests. The activities identified under the Objective 1 of Programme Element 1 are very high on the list of priorities for Poland. However, other goals and objectives are also important for the Polish forestry.

9. **Sri Lanka** has identified the following as its priorities for implementing the expanded programme of work.

- Habitat mapping; biodiversity survey and development of action plan for endemic species conservation;
- Promote activities that minimize the negative impacts of forest fragmentation, including afforestation, forest restoration, watershed management;
- Develop and implement strategies at regional and national level to mitigate the impacts of invasive alien species;
- Improve the knowledge of IAS, public education and awareness;

- Promote practice of fire prevention and control;
- Determine the conservation needs of threatened and endemic species;
- Ensure adequate and effective networks of protected areas for management of protected areas and conservation of wildlife;
- Undertake surveys and demarcation of all natural forest areas under the Forest Resources Management Project.

10. **Sweden** indicated that it had not identified priority goals, objectives and activities for implementing the expanded programme of work. However, while identifying specific targets for the implementation of its Environmental Quality Objectives, Sweden has identified the following interim targets for the environmental quality objective for the forest called “Sustainable Forests”:

- A further 900,000 hectares of forestland of high conservation value will be excluded from forest production by the year 2010.
- By 2010 the amount of dead wood, the area of mature forest with a large deciduous element and the area of old forest will be maintained and increased by (i) increasing the quantity of hard dead wood by at least 40% throughout the country and considerably more in areas where biodiversity is particularly at risk; (ii) increasing the area of mature forest with a large deciduous element by at least 10%; (iii) increasing the area of old forest by at least 5%; and (iv) increasing the area regenerated with deciduous forest.
- By 2010 forestland will be managed in a way to avoid damages to ancient monuments and to ensure that damages to other known cultural heritages are negligible.
- By 2004, an action plan will be developed for threatened species that are in need of targeted measures.

11. **Switzerland** indicated that it had a long tradition of preserving and managing forest biodiversity, which is indicated by the legal requirement for close-to-nature forest management. Switzerland also indicated that an assessment was under way to identify priority goals, objectives and activities for implementing the expanded programme work, in conjunction with the assessment of the IPF/IFF Proposals for Action.

## 2.2 Successes in implementation of priority activities in the programme of work

12. From the responses to Question 2, only a few countries were of the view that some of their activities to implement the expanded programme of work had produced some positive impacts. Some countries were of the view that it was premature to assess any successes in implementation considering that the expanded programme of work was adopted only at COP 6 or that some domestic programmes established in light of the expanded programme of work have just started. Some countries indicated that successes in implementing the programme of work were reflected in the responses to the questions designed to assess the implementation of various objectives in the expanded programme of work.

13. **Denmark** indicated that it had achieved some successes in preventing and mitigating losses due to fragmentation and conversion to other land uses (Programme Element 1, Goal 2, Objective 6), as a result of centuries of efforts in promoting afforestation programmes. Since 1989, the afforestation programme has been intensified and based on integrated land use planning, taking into account economic, social/recreational and environmental concerns and opportunities. This has been achieved through state forest plantation and mainly incentives provided to private landowners. Another contribution is from the establishment of wind mantles on arable land. In doing the above, incentives are given to the use of domestic species and a mixture of species, which benefit biological diversity. The implementation of the above programmes has resulted in significant improvement for wild flora and fauna, including those important for forest biodiversity. These efforts have partly reduced the negative impacts caused by the deforestation and fragmentation of forests and other natural sites in the open land. Internationally,

Denmark has provided technical and financial support to some countries for the development of some national action plans for conservation and sustainable use of forest genetic resources, including Sahelian African countries, East and South African countries, some Pacific and Central American countries.

14. One success story provided by **Estonia** is the implementation of the Woodland Key Habitats Process in Estonia. This process was initiated by the Estonian Forestry Development Programme and supported by the Estonian Forest Policy and the Forest Act. Drawing upon the Swedish experience in this field, this process was launched as a joint Estonian-Swedish project to assess the distribution of high-value forest habitats in Estonia. The main outcome of the project was the detailed and illustrated inventory of woodland key habitats in Estonia, including area, number and types of habitats, elements, indicator species and habitat specialists.

15. **Ireland** cited a number of examples indicative of its success in implementing the expanded programme work. First, Ireland has taken measures to ensure that field officers, inspectors and staff of the Forest Service, the National Parks and the Wildlife Service comply with relevant legislation. Secondly, Ireland has developed the Native Woodland Scheme, which included a successful training and publicity programme. It was preceded by the People's Millennium Forests which included an outreach programme and a very effective publicity programme. Thirdly, Ireland is implementing the Forest Biodiversity Guidelines for all operations, particularly in plantation forests. In addition, Ireland is developing a national forest inventory, including a component on forest biodiversity. Ireland also aims to increase broadleaf afforestation to 30% by the year 2006.

16. **Poland** indicated that it had elaborated in its National Forestry Policy the main principles for sustainable forest management, including provisions relating to forest biodiversity. Poland was of the view that its NFP was not only consistent with the expanded programme of work but also with the international agreements adopted by the Ministerial Conference on the Protection of Forests in Europe.

17. One example of success provided by **Sri Lanka** is the National Conservation Review (NCR) undertaken by the Forest Department of Sri Lanka with the technical assistance from the World Conservation Union (IUCN). The review constituted a systematic assessment of biodiversity in the natural forests of the country. Although the biodiversity assessment was restricted to woody plants, vertebrates, molluscs and butterflies, the NCR is hailed as one of the most detailed, comprehensive and innovative evaluations of its kind carried out on a countrywide scale to date. In addition to valuable records of the species assessed, the review has also revealed critical gaps in biodiversity and hydrology conservation, even though Sri Lanka has established an extensive network of protected areas.

18. **Switzerland** indicated that it had made a lot of achievements in the past two decades in the management and preservation of forest biodiversity, such as "close-to-nature" forest management.

### **2.3 Challenges/impediments to the implementation of priority activities**

19. Only a few countries provided some further comments on the challenges or impediments they faced in the implementation of the priority actions they had identified to implement the expanded programme of work. Comments vary from country to country, however, a few countries consider constraints in financial, human and technical resources as main impediments for their actions in this field.

20. **China** considered population pressure as one of its major challenges to forest resources management. In particular some unsustainable human activities bring severe threats to forest biodiversity. Secondly, the activities such as the unregulated hunting and exploitation of medicinal herbs and other economic plants have been identified as key factors to cause the loss of biodiversity. Thirdly, the excessive deforestation has had serious impacts on loss of biodiversity, such as shrinking of forest habitats for some wild flora and fauna and reduction in forest types. Fourthly, the increasing forest fires, pests and diseases in recent years are also identified as one of main threats to conservation of forest biodiversity. Finally, the practice of plantations currently followed has led to destruction of the natural forests with abundant biodiversity and reduction in types and structure of forests, which have caused severe losses of forest biodiversity. The impacts of environmental pollution on forest biodiversity are also identified as one threatening factor.

21. **Denmark** indicated that limited resources were a common problem for state forest and private owned forests, which makes it necessary to identify priorities for implementation. For forest biological diversity, one challenge may be the priority level attached by some owners of private owned forests. **Estonia** indicated that one of its challenges would be to achieve the goals already set for increasing the area of protected forests and the number of species protected. Other challenges for Estonia include updating the forest inventory in light of the land reform, establishing proper support structures for private forest owners, introducing effective protection measures in light of further assessment of the protection value of forests and establishment of a more effective system of environmental planning and monitoring. In addition, the lack of an integrated plan of implementation measures was considered as a factor to retard the implementation of the Estonian Forest Policy.

22. **Germany** indicated that the problems in implementing the programme of work arose partly from methodological and economic constraints. The methodological constraints are mainly in the evaluation of biodiversity. There is a need to improve the integration of forest biodiversity considerations into other sectoral policies in order to reduce adverse impacts from other sectors on forest biodiversity. **Poland** pointed out that one of the most important challenges would be to further improve sustainable forest management. **Sri Lanka** cited financial constraints, lack of technical capacity, and shortage of trained manpower and poor participation of other relevant departments as main impediments to successful implementation of the activities for implementing the programme of work. **Switzerland** was of the view that the overlaps and duplications in the current international processes related to forest presented challenges for small countries like Switzerland in the identification and implementation of priorities.

#### **2.4 Collaboration with other Governments and regional and international organizations and processes to implement regional or international activities in the expanded programme of work**

23. The additional information provided in response to Question 4 mostly covered the cooperative activities undertaken by various reporting countries to implement the programme of work in general, without being restricted to the regional or international activities identified in the expanded programme of work.

24. A number of European countries, such as **Austria, Denmark, Finland, Germany, Ireland, Poland, Sweden and Switzerland**, indicated that some collaborative activities were undertaken within the framework of the Ministerial Conference of the Protection of Forests in Europe (MCPFE) and the processes such as "Environment for Europe" and the Pan-European Biological and Landscape Diversity Strategy (PEBLDS). **Austria and Denmark** reported that they had signed the recent Vienna Resolution 4 under MCPFE, which strives for coordinated implementation among member states of the MCPFE of the expanded programme of work on forest biodiversity under the Convention on Biological Diversity. This resolution also contains a framework for cooperation between MCPFE and "Environment for Europe" Process through the Pan-European Biological and Landscape Diversity Strategy (PEBLDS).

25. **China** indicated that in recent years, it had strengthened cooperation with many countries and international organizations to promote the conservation and sustainable use of forest biodiversity. China has been undertaking bilateral cooperation with countries such as Austria, Australia, Canada, Japan, India, Russia and USA in the field of nature reserves, which aim to improve the management level and techniques of nature reserves in China. China has also been collaborating with some international organizations such as the World Bank, UNDP, and WWF in promoting the conservation and sustainable use of forest biodiversity. With the assistance of UNDP and FAO, China has developed national and local indicators and criteria consistent with those formulated by the International Tropical Timber Organization (ITTO), the Montreal Process and the new Regional Initiative for Dry Forests in Asia.

26. In addition to the above, **Denmark** has been participating in a number of international forums where forest biodiversity is either a key issue or an integral part of relevant issues, including UNFF, CBD, UNFCCC, UNCCD, FAO, ITTO. Denmark actively participates in the Nordic Council of Ministers, the Baltic 21 Forest Sector as well as their jointly established Consultation Committee for Agriculture and Forestry. **Estonia** indicated that it was involved in a limited collaboration with some of

its neighbouring countries such as Sweden and Denmark, as well as in some regional initiatives such as Baltic Environment Forum, Agenda 21 for the Baltic Sea Region

27. **Germany** provided detailed information on various cooperation activities in this field. In addition to regional cooperation mentioned in paragraph 31, Germany has been undertaking extensive collaboration in the activities such as establishment of ecological corridors at national and regional levels (e.g. EU habitat and birds directives), development of a holistic framework for conservation and management of forest genetic resources (e.g. participation in the European Forest Genetic Resources Programme), development and implementation of conservation strategies for endemic and threatened species for global or regional application. Germany has been providing technical and financial support through bilateral and multilateral channels to the forest-related activities in various countries, some of which are directly related to some activities identified in the expanded programme of work. For example, Programme Element 2 (institutional and socio-economic enabling environment) is a crucial part of German development cooperation in the field of forest biodiversity. As part of the activities in implementing Objective 4, Goal 1, Programme Element 2, Germany supports the development of the EU Action Plan on Forest Law Enforcement, Governance and Trade (FLEGT) to combat the illegal production and trade in timber and wood products by supporting the establishment of administrative and legal systems and governance in wood-producing countries, and controlling the illegal trade in wood and wood products, including measures taken by wood-importing countries. Support to developing countries for their efforts in forest conservation and sustainable use has been and continues to be a major part of German development cooperation programmes. Since 1985, Germany has supported more than 300 projects worldwide which contribute to the conservation and sustainable use of forest biological diversity. Areas of technical cooperation include nature and resource conservation, sustainable use of forest biodiversity and social forestry, improvement of capacity in partner countries, knowledge and technology transfer. Germany has been cooperating with some international NGOs such as IUCN, WWF in implementing some projects in the field of protected areas management and environmental education. German development cooperation is devoting increasing attention to the support of regional processes and partners in the field of sustainable forest development, with particular focuses on three regions, namely Congo Basin, Southeast Asia and Amazon Basin.

28. In addition to regional cooperation mentioned in paragraph 31, **Ireland** mentioned that it played an active role in the Cost Action Programme by getting involved in the Cost E4 Forest Reserves Research Network, Databank of Forest Reserves, Cost Action E25 (establishment of a database for forest ecosystem research sites and Cost Action E27 (protected forest areas). Ireland also participates in the establishment of the regional network of NATURA 2000 sites by having established special areas of conservation and special protected areas in Ireland. In addition to regional cooperation through MCPFE, **Poland** also participates in other regional and international cooperation in various forums and organizations, such as OECD, the Timber Committee of UNECE, the European Forestry Commission of FAO, the International Union of Forest Research Organizations (IUFRO), and the European Forester's Union. **Sri Lanka** is collaborating with IUCN in the implementation of several activities identified in the expanded programme of work, such as mitigating impacts of invasive alien species and conservation of threatened species.

### **Programme element 1. Conservation, sustainable use and benefit sharing**

#### **2.5. Activities to develop practical methods, guidelines and/or indicators to apply the ecosystem approach in relation to sustainable forest management**

29. Several Parties mention existing approaches and guidelines, which have not *per se* been developed to apply to the ecosystem approach, but which can be regarded as contributions to the implementation of the ecosystem approach within forestry (**Austria, Denmark, Poland**), or which are seen as partly and indirectly conform with the ecosystem approach (**Estonia, Germany, Ireland**). **China** is in the process of developing guidelines and indicators for the ecosystem approach, while **Sri Lanka** is in the process of

introducing a “bio-regional” concept. The German Federal Agency for Nature Conservation is planning to support the development and implementation of the ecosystem approach, as defined by the CBD, in selected forest biosphere reserves. In Ireland, the ecosystem approach is explicitly implemented within the “Native Woodland Scheme”. Poland has recently started the implementation of a Resolution adopted at 4<sup>th</sup> Ministerial Conference in Vienna (2003) and the Improved Pan-European Indicators for Sustainable Forest Management. Other Parties also mention the Pan-European criteria and indicators for sustainable forest management (SFM; Denmark, **Switzerland**). In Sweden, the concept of SFM is said to be difficult to implement and control in privately-owned areas.

30. While most Parties consider the practices of “sustainable forest management” as conform to the ecosystem approach, some look at the two approaches in greater detail (Denmark, Germany and Switzerland) to ensure consistency in the use of terms. The majority of Parties emphasize that sustainable forest management practices are in place.

31. Criteria and indicators relating to national strategies, policies or programmes for sustainable forest management are in place (e.g. Denmark, Ireland, Poland) but need development for the ecosystem approach.

## **2.6. Measures taken to prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biodiversity in accordance with international law**

32. Respondent countries indicated having action plans for the prevention and control of AIS impacts on forest biodiversity by enforcing quarantine laws, 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 regulations and guidelines for the prevention and control of AIS. 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 custom regulations to prevent any unnecessary introductions of AIS and the **Austrian** Forest Act (amended in 2002) restricts a spectrum of potentially invasive tree species.

33. Austria and Sri Lanka promote activities to raise awareness of the negative impacts of AIS on forest biodiversity using workshops, homepages and guides. **Denmark** has developed networks and websites for controlling and combating alien species. Other important instruments being used to prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biodiversity include research, inventorying and monitoring of AIS. Sri Lanka has identified the AIS under their jurisdiction using this instrument.

## **2.7. Measures taken to mitigate the impact of pollution on forest biodiversity**

34. **Austria** reported that its Forest Act contained provisions for preventing forests and forest vegetations from damages of atmospheric pollution. To this end, a forest damage monitoring system has been put in place. The National Environmental Plan has recommended measures to reduce damages to forests caused by atmospheric pollution. Various scientific studies had been undertaken in the past two decades to investigate the impacts of pollution such as acidification on the health and stability of forest ecosystems. Despite considerable progress made, the exact impacts of atmospheric pollution on many groups of species remain widely unknown due to complex chemical synergies and antagonisms, metabolic processes, different reactions of individual species, a large number of chemical substances released. Austria indicated that the levels of emission of many air pollutants affecting forests had been considerably mitigated in the past decades.

35. **China** reported that it had undertaken a preliminary survey on the impacts of acid rain on forest ecosystems and found that environmental pollution, particularly acid rain, heavy metals and pesticide concentration in ecosystems were threatening many species and ecosystems. In addition, acid rain has



also caused soil acid and land degradation. However, further studies are needed on the impacts of acid rain on biodiversity and how to mitigate those impacts.

36. **Denmark** indicated that research was under way to increase the understanding of impacts of pollution on forest health. Denmark has participated in the previous European forest health monitoring system and will continue to participate in the new monitoring system called “Forest Focus”. Denmark will conduct a national forest inventory which include a forest health monitoring system. Both systems address forest health issues related to pollution and climate change. In addition to general environmental measures to reduce industrial pollution, current forest policies are aiming to move towards forest management practices based on near-to-nature principles. **Estonia** indicated that measures had been taken to restore part of the forest land degraded and polluted by oil shale, underground mining, waste disposal of power plants, and chemicals, metals, minerals, wastes and oil used by the military bases.

37. **Germany** reported that a large number of measures had been taken at national level over the past few decades in order to reduce impacts of pollutants and eutrophication on German forests, including the introduction and further development of the Federal Emission Control Act, the Ordinance on Large Combustion Plants and tax benefits for the use of catalytic converters in cars. Germany has also taken measures to mitigate emission of air pollutants within the framework of the UNECE Convention on Long-range Transboundary Air Pollution, relevant EU regulations and the new German regulation on national emission rates. Germany also mentioned a few specific measures to mitigate impacts of pollution on forests, such as compensatory fertilization by application of lime and stabilizing forest ecosystems by promoting ecological silviculture.

38. **Ireland** indicated that it had comprehensive legislation on control of air, soil and water pollution. Efforts to reduce pollution are ongoing through the integrated pollution control licensing system for pollutant-discharging companies. **Poland** reported that one of the legal measures taken to mitigate the impacts of pollution was maximum allowable amount of air pollutants. The monitoring on a regular basis of negative impacts of pollution on forest biodiversity is another measure to mitigate the negative impacts of pollution on forests. **Sweden** indicated that it had been combating for decades the impacts of pollution on all ecosystems, including forests. **Switzerland** has adopted the Ordinance on Air Pollution Control that imposes strict limitations on the emission of stationary installations and requirements for fuel quality. Switzerland has also ratified all the Protocols of the Convention on Long-range Transboundary Air Pollution.

## 2.8. Measures taken to mitigate the negative impacts of climate change on forest biodiversity

39. The **Austrian** Climate Strategy to meet the Kyoto targets contains a cluster of forest-related measures in order to increase the overall stability and adaptability of forest ecosystems. Austria has also undertaken a number of studies for the purpose of developing priority restoration measures in forests that have shown destabilization symptoms induced by climate change. **Denmark** indicated that research was under way to increase the understanding of impacts of climate change on forest health. The regional and national forest health monitoring systems address forest health issues related to climate change. **Estonia** also indicated that research and monitoring activities were being undertaken to mitigate impacts of climate change on forest biodiversity. The data management system mainly follows the criteria and indicators recommended by the Ministerial Conference on the Protection of Forests in Europe and the FAO Framework of Global Forest Resources Assessment.

40. **Germany** reported that research activities were undertaken by various institutions on the possible impacts of climate change on forests and forest biodiversity. Germany also undertook an in-depth study of the impacts on forests and forestry in Germany and of options for actions while implementing the project on “Forests and Forestry in Germany in the Context of Global Change (1997-2001)”. The research areas under the German Climate Impact Programme also covered the impacts of climate change and analysis of the resilience of different systems. The forest management programmes launched by the federal and local governments are designed to improve the capability of forests to adapt to future climate conditions in

Germany. Germany plays a leading role in the planning and coordination of the monitoring activities initiated under the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests, which include indicators that allow conclusions to be drawn vis-à-vis the effects of climate on the condition and development of European forests. In addition to adaptation measures such as silvicultural measures, Germany is also pursuing an active policy to reduce emissions of greenhouse gases while implementing the United Nations Framework Convention on Climate Change.

41. **Ireland** indicated that its National Climate Change Strategy had included a commitment to afforestation. **Poland** reported that its forest monitoring programme was introduced in 1989 and extended in 1995 to cover the changes in the level of threats to forest ecosystems posed by environmental factors. Poland has also included the assessment of carbon sequestration in forest ecosystems in its forest monitoring programme. Poland has started elaborating the role of forests in the mitigation of climate change in its National Forest Programme. **Sri Lanka** indicated that some studies on adaptation measures were under way while recognizing that the full impacts of climate change on biodiversity are not clear at this stage.

## **2.9. Measures taken to prevent and mitigate the adverse effects of forest fires and fire suppression (where fire is a natural disturbance agent)**

42. Some measures to prevent and suppress the adverse effects of forest fires are taken from **Austria, China, Poland, Switzerland** and **Sri Lanka**. **Denmark, Germany, Ireland, Sweden** do not consider forest fires a big problem, so normal fire emergency measures are in place but no specific forest policy measures are needed. In **Germany** only the Federal State of Mecklenburg-West Pomerania has adopted specific action plans against forest fires: besides organisational measures in case of fire, it also outlines precautionary principles and associated training measures. **Estonia** does not take any measures at time.

## **2.10. Activities to mitigate the effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur**

43. **Austria** provided a number of examples of measures that had been taken to mitigate these effects, including:

- Reducing natural flood dynamics of floodplain forests by regulating river systems and building of hydro-electric power plants;
- Establishing a network of nature forest reserves aiming at, inter alia, investigating natural ecological processes and developing methods of close-to-nature silviculture;
- Leaving dead wood in the forests without instantly having to remove it, in accordance with the amended Austrian Forest Act;
- Restoring some of the regulated floodplain forest ecosystems;
- Applying close-to-nature river regulation techniques.

44. **Denmark** reported that sudden natural disturbances were limited to windfall, which is still occurring. A former subsidy scheme including subsidies provided to ditching and drainage has been stopped. Focus is now put on reestablishing wet areas in forests. **Estonia** indicated that important forest elements that ensure conservation of biodiversity such as dead trees had been extensively preserved to maintain forest biodiversity. In addition, a variety of methods simulating natural processes are being identified.

45. **Germany** reported that knowledge was lacking of potential natural disturbance regimes in German forests because it is not possible to make any direct observations on forest dynamics of primary forest in the Central Europe, which has disappeared as a result of a high population density and centuries of multiple and unsustainable use. In the view of Germany, natural disturbances that are considered important for the maintenance of biodiversity include windthrow, flooding, landslides, avalanches and possibly insect gradations following other disturbance events. Germany indicated that the facilitation of natural forest dynamics without human interference is a key objective for some of German protected areas. The research and monitoring undertaken in protected areas help enhance the understanding of the role of natural disturbances in forest ecosystems and of possible ways to mitigate the consequences of their losses. In forests outside protected areas, many principles of ecological silviculture are employed to mitigate the loss of disturbances, e.g. by promoting and using natural processes, prolonging regeneration stages by applying single stem cutting or cutting small areas only or by integrating ageing and disintegration stages as well as a share of dead wood into managed forests.

46. **Ireland** indicated that its Forestry Act and Wildlife Act provided protection to existing woodlands. The Native Woodland Scheme of Ireland places particular importance on connectivity in the creation of new native woodlands. **Poland** has also established a strong legal and policy basis for protection of forest ecosystems from various human and natural disturbances, such as Forest Act, National Forest Policy, National Programme for Augmenting Forest Coverage, Act on Protection of Agricultural and Forest Lands and the Environmental Protection Law Act. **Sweden** reported that prescribed burning was practiced at a small scale or by some large forest owners at their own cost for the purpose of enhancing biodiversity. **Switzerland** reported that programmes were in place through which riparian forests are restored in order to allow natural disturbances (such as periodic flooding) again. Furthermore, strict forest reserves are established to allow natural processes and successional changes to occur at their natural rate as well as to protect biotic communities and ecological integrity.

#### **2.11. Activities to prevent and mitigate losses of forest biodiversity due to fragmentation and conversion to other land uses**

47. **Denmark, Germany and Ireland** have legal framework for preventing and mitigating forest biodiversity loss. While **Austria, Poland, Sri Lanka, Sweden and Switzerland** have undertaken some measures, **China and Estonia** have identified potential measures for preventing conversion of forest lands to other land uses.

#### **2.12. Activities to restore forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes**

48. **Austria** has taken a number of measures to restore forest biodiversity in degraded secondary forests, including undertaking environmental impact assessments for infrastructure projects, conducting case studies to develop recommendations for conservation and restoration of connectivity, identifying supraregional wildlife ecological corridors, developing guidelines for roadplanners with respect to wildlife passages and granting subsidies for close-to-nature silvicultural measures.

49. **China** has imposed bans on the logging of natural forests, particularly in the upper and middle reaches of the Yangtze River and the Yellow River. Compensational funds are provided to those areas affected by this ban. China has also implemented the project on returning cropland to forest and grazing lands in order to restore forests and grasslands. Subsidies and compensations are provided to those farmers and communities that have returned their land for afforestation and grazing.

50. **Denmark** has put in place guidelines for afforestation that contain provisions for choice of species, silvicultural practice, location, etc. Financial incentives are provided for compliance with the guidelines. Relevant policies, including incentives, are put in place to promote forest management regimes, which are of benefit to development and protection of biodiversity. Denmark is also redrafting its forest act, which contains provisions for protection of forest biodiversity and promote the near-to-nature forest management principles. An action plan for promoting close-to-nature forest management will be

implemented in the state forests. **Estonia** indicated that some project-based measures were under development to restore forest biodiversity in degraded secondary forests and in forests established in abandoned farmlands.

51. **Germany** reported that the restoration of productive potentials of stands entailed afforestation of fast-growing conifer species, which were suitable for the establishment of closed stands on degraded soil. During the past three decades, measures have been taken in forestry to initiate the transformation of stands towards a higher share of deciduous species. With the introduction of ecological management rules by the local forest authorities, efforts have been intensified to restore forest ecosystems to a more natural state. Some measures contributing to ecological silviculture in private and local forests are funded within the framework of the “Joint Task for Improvement of Agricultural Structure and Coastal Protection”.

52. **Ireland** indicated that its Native Woodland Scheme encourages and provides grant aid to the activities to restore forest biodiversity in secondary degraded forests. Poland reported that special programmes on management of former industrial lands included the restoration of forest biodiversity in forests established there. The preservation of degraded secondary forests and forests established on former forest lands and other landscapes is maintained through (i) stand reconstruction in line with the principle of adjusting species composition of stands to habitat conditions; (ii) implementation of the programme for small-scale retention of water in forests; (iii) preventing forest fires; (iv) educational programmes provided to the public, students and visitors.

53. **Sri Lanka** reported that a number of projects undertaken contributed a great deal to the rehabilitation and management of degraded forests, such as cultivation of native tree species in degraded natural forests, integrated management planning. **Sweden** indicated that a part of its forest policy was to restore biodiversity in stands or landscapes where intensive land use has led to species-poor forests. **Switzerland** reported that there was an overall policy goal and long-standing tradition of close-to-nature forest management, which contributes to the prevention of degraded secondary forests.

### **2.13. Activities to promote forest management practices that further the conservation of endemic and threatened species**

54. **Denmark, Estonia, Germany, Ireland, Poland and Switzerland** are promoting forest management practices that further the conservation of endemic and threatened species. **Sri Lanka** is promoting only the ban to cut down of certain highly threatened tree species. **Austria, Sweden and China** do not promote forest management practices that further the conservation of endemic and threatened species; they have only a red list of threatened and endemic species. In Austria there are some species conservation programmes in place in some federal provinces.

### **2.14. Activities to ensure adequate and effective protected forest area networks**

55. While half of the respondents established major networks of protected areas (**Austria, China, Germany, Sweden and Denmark**), the rest have established some protected areas only (**Ireland and Poland**). **Estonia, Switzerland and Sri Lanka** are in the process of establishing networks of protected areas.

### **2.15. Activities to promote sustainable use of forest resources to enhance the conservation of forest biological diversity**

56. Respondent countries indicated that usually the promotion of sustainable use of forest resources is an overall objective contained in national legislation and strategies for the sustainable management of forests. This is the case for instance of the **Austrian** Forest Act, the **Polish** Act on Forests and Federal Forest Act of **Germany**.

57. In general, national forest programmes include a series of measures to promote conservation and sustainable use of forest resources. For instance, 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 as important means to achieve sustainable forestry. Similarly, in **Ireland**, forest operations must follow guidelines issued by the Forest Service, including the Forest Biodiversity Guidelines, and promote the ecosystem approach. In **Switzerland** guidance is provided by the criteria of ecologically sound forest management contained in the Swiss National Forest Programme.

58. As far as the establishment of protected areas is concerned, **Sri Lanka** has launched the protected area management and wildlife conservation project which will be instrumental to the creation of a system of protected areas that, while protecting biodiversity, will generate employment and income. Also, the **Swedish** model for the maintenance of biodiversity and sustainable use of forest resources is based on formal and voluntary area protection, reaching the 5- 10 % of the total forest area.

59. Other instruments for the sustainable use of forest biodiversity include certification schemes. For instance **Austria** and **Germany** consider the implementation of voluntary independent forest certification schemes as a further way to encourage the sustainable use and conservation of biodiversity. The regulation of the size of allowable harvest is another method used to conserve biodiversity, such in the case of **Poland** and **China**. In this latter case it has facilitated the control of over-logging and the conservation of forest resources.

## **2.16. Activities to prevent losses caused by unsustainable harvesting of timber and non-timber forest resources**

60. In most cases, restrictions on clear-cutting and unsustainable harvesting of timber and non-timber forest resources are addressed by National Forest Acts. 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 **Germany**, legal provisions on sustainable harvesting are contained in the Federal Forest Act and Forests Acts of Landers. The Forestry Acts control timber harvesting in Ireland too. The Act on Forest and the Regulation obligate forest owners to the rational utilization of forest in Poland, in a way that can ensure optimal compliance with all forest functions. The **Swedish** Forest Act and the Environmental Code establish binding rules, including obligations on forest regeneration.

61. In addition to national legislation, criteria and indicators for sustainable forest management are often used to avoid unsustainable management practices and to ensure a regular and sustainable yield of those goods and services which society expects. In **Austria** criteria and indicators contribute to the prevention of losses caused by unsustainable hunting. In Ireland, the Forest Harvesting and the Environment Guidelines ensure that forest harvesting adopts sound planning procedures, operating techniques and control measures to reduce any potentially adverse effects.

62. Other instruments to prevent losses caused by unsustainable uses include the respect of the sustained yield principle, according to which the removal of the resource should not exceed its increment. This is for instance the case of the regulation of Austrian timber resources, or the use of **China's** forest flora and fauna, to be collected with the assurance that "resource consume should be lower than that of natural growth". Other countries have also established "no-take" zones, natural reserves where the use of the resource is not allowed. Under the Danish law, in some special protected forest areas, clear cuttings are not allowed. In **Sri Lanka**, many wet zone forests have been designated as "conservation forests" where no commercial logging is permitted. Nature reserves have also been established in **Sweden** to this purpose.

63. Finally, a common concern expressed by many respondent countries is law enforcement. While in **Germany** the enforcement of laws governing the unsustainable harvesting of timber and non-timber forest resources is considered fairly good, 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. The role of forest guard officers has been strengthened in order to assure that illegal activities are identified and prosecuted.

In **Estonia**, violations of forest protection regulations, considered the most critical aspect of unsustainable uses of forest biodiversity, are monitored by the Estonian Environmental Inspection.

### **2.17. Measures taken to enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity**

64. Although indigenous concerns are not addressed directly by forest legislation and instruments, in general balancing the interests of different users is part of the forest policy processes in many countries. In **Sweden**, for instance, forest management is undertaken through local participation in a multi-stakeholder approach involving the Sami people. In Austria there are several examples of participation of local communities in the forest management, e.g. platforms for the management of protective forests, the **Austrian** Forest Dialogue which shall lead to a National Forest Programme, and the implementation process of Natura 2000 (EU nature conservation legislation).

65. Also **China** encourages minority communities to participate in the conservation of biodiversity. With the assistance of corresponding government departments and international organizations, participatory management approaches have been implemented in some nature reserves where a number of minorities live together. This approach encouraged indigenous communities and women to participate in the management of nature reserves. Similarly in **Sri Lanka**, protected area management and wildlife conservation project promoted community strengthening and partnership building around protected areas.

66. In many cases respondent countries indicated the existence of only a limited number of activities pertaining to the use of traditional related knowledge and the involvement of indigenous communities in forest management. In general, the issue of participation is considered under other activities such as the integration of forestry goals with the sustainable development of communities (**Denmark, Austria, Poland**).

### **2.18. Activities to develop effective and equitable information systems and strategies and to promote implementation of those strategies for *in situ* and *ex situ* conservation and sustainable use of forest genetic diversity**

67. **Austria** has adopted a number of measures for *in-situ* measures, such as establishment and stewardship of the nature forest reserve programme as well as of protected areas. Austria has also undertaken some measures for *ex-situ* conservation, including gene conservation forests, seed plantations, clone archives, work on forest genetics. Austria has undertaken a comprehensive study on the hemeroby of Austrian forest ecosystems as well as developed and published a Red List of threatened forest biotope types. Austria has collected data on potentially natural forest communities while developing the Austrian Forest Inventory.

68. **China** has established a system of monitoring and assessment of forest resources at national and local levels. China undertakes surveys of forests at national and local levels every five years to gain information on the status and trends of national forest resources, which provides a scientific basis for the development of forest management plans and forest resources management. China has also been conducting monitoring of biodiversity in some forest ecosystem reserves and established biodiversity information management systems for this purpose. Since 1997, China has been developing a national network of information concerning forest pest and disease control, which accelerates the diffusion of relevant information across provinces for the management of forest pests and diseases and provides a sound basis for decision making in this regard.

69. **Denmark** indicated that research was under way to identify genetic variability for important tree species, with coordination undertaken at the EU level or within the framework of the European Forest

Genetic Resources Programme.<sup>2</sup> Denmark adopted in 1994 the Strategy for the Conservation of Genetic Resources for Trees and Shrubs, which is closely linked to the Strategy for Natural Forests and Other Forest Types of High Conservation Value. The Danida Forest Seed Centre, in collaboration with FAO, IPGRI, ICRAF, has developed guidelines for in situ and ex situ conservation of forest genetic resources. In addition, Denmark has provided assistance to a number of countries through tree seed programmes, including technical and financial support to specific programmes on in situ and ex situ conservation.<sup>3</sup>

70. **Estonia** indicated that insufficient gathering, processing and analysis of forest-related information as well as lack of communication among different organizations dealing with the sustainable management and use of biodiversity had been identified as the main weakness in the forest management. To improve this situation, Estonia has established an integral information system (registry) on forests and forest management. The registry is maintained for access to various interested audiences and updated regularly to meet potential new demands.

71. **Germany** has established a prototype database providing information on conservation of genetic resources of trees and shrub species.<sup>4</sup> Germany revised in 2000 the forest gene conservation concept<sup>5</sup>. One priority of the concept is the conservation of genetic diversity in situ where it can be integrated into forest management practices. Other elements of the concept include registration and evaluation of forest genetic resources, specific conservation measures for endangered, valuable and rare tree and wood shrub species, research programmes and development of a long-term genetic monitoring system and cooperation with the framework of international conservation programmes. Germany is also actively participating in the work of the European Forest Genetic Resources Programme (EUROPEN). One of the outputs produced by the EUROPEN networks are long-term conservation strategies and guidelines for genetic conservation and use of various tree species.

72. **Ireland** reported that there was an information system on some conservation sites such as Special Areas of Conservation, Special Protected Areas and Natural Heritage Areas. The National Forest Inventory also records information on forests in Ireland. The People's Millennium Project promotes the diffusion of relevant information to households. The legislation concerning forest reproductive materials (FRM) ensures the traceability and certification of genetic integrity of FRM.

73. **Poland** is implementing a programme for forest gene resources conservation and selective breeding of forest trees. As a result, Poland has established a considerable number of seed bases, seed extraction plants, regional seed stores, seed testing stations and seed quality monitoring stations to meet the needs of both state forests and private owned forests. Poland has established forest gene banks for protection of Polish genetic resources of threatened species of trees, shrubs and forest floor plants. Poland has undertaken studies on ex situ conservation of forest genetic resources. In addition, Poland has established rules for trade in forest reproductive materials in accordance with the Act on Forest Reproductive Material and relevant EU directives. Poland has also employed ways for in situ conservation such as utilization of forest resources on the basis of sustainable forest management and renaturalizing ecosystems. **Switzerland** reported that it had developed genetic inventories for some species and work was under way to develop inventories for other species and a strategy for preserving genetic diversity of all tree species.

## **2.19. Activities to promote the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge**

74. A number of respondent countries have reported that no initiatives have been undertaken at the national level to address this objective to date (**Austria, Estonia, Sweden, Switzerland**), or they are in a

<sup>2</sup> See [www.ipgri.cgiar.org/networks.euforgen/euf\\_home.asp](http://www.ipgri.cgiar.org/networks.euforgen/euf_home.asp).

<sup>3</sup> For more information, please see [www.dfsc.dk/index.htm](http://www.dfsc.dk/index.htm).

<sup>4</sup> The database can be accessed at [www.genres.de/fgrdeu](http://www.genres.de/fgrdeu).

<sup>5</sup> The concept can be viewed at [www.genres.de/fgrdeu/concept/concept\\_content.htm](http://www.genres.de/fgrdeu/concept/concept_content.htm).

very early stage of development. In **Denmark** for instance, there are no policies or programmes dealing specifically with forest genetic resources. Only 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.

75. Also in **Poland** the issue of traditional knowledge associated with the utilization of forest genetic resources has not been tackled 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 take 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.

76. While **China** did not report on the development of arrangements regarding access and benefit sharing, it stressed the relevance of the issue and the need for local communities to derive benefits from the use and conservation of biodiversity. Given the importance attributed to China's vast and rapidly expanding traditional medicine herb industry, forest gene banks classified by species and germplasm storage were built.

77. The CBD Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out their utilization are under consideration by a number of Parties, including **Denmark** and **Germany**. In Germany, the Federal Office for Nature Conservation is supporting a project which will contribute to the follow-up process to the implementation of the Bonn Guidelines. Also the Federal Ministry of Education and Research is funding a joint interdisciplinary pilot project which is intended to elaborate a workable model for fair and equitable benefit-sharing in cooperation with the indigenous communities of an Ecuadorian rainforest area. In addition, the *Deutsche Gesellschaft für Technische Zusammenarbeit GmbH* (GTZ) (German organization responsible for government-sponsored technical development cooperation) has supported several projects contributing to the implementation of access and benefit-sharing regulations.

78. Amongst respondent countries, **Sri Lanka** seems to be the only one where legislation addressing access to genetic resources and the equitable sharing of benefits is in an advanced stage of development, as a new Biodiversity law addressing the issue has been drafted. Also, a new legal instrument on medicinal plant traditional knowledge and the national policy on traditional knowledge are under development.

## **Programme element 2 Institutional and socio-economic enabling environment**

### **2.20. Activities to improve the understanding of the various causes of forest biodiversity losses**

79. **Austria** has undertaken a comprehensive study on the hemeroby of Austrian forest ecosystems, which focuses on the present conditions and explores specific causes of biodiversity losses. The Austrian Forest Inventory has adopted parameters which are appropriate to describe biodiversity aspects during its last two inventory periods. Appropriate technical analysis and interpretation of these biodiversity-related data might contribute to increasing the understanding of some causes of biodiversity losses to some extents. A Red List of threatened forest biotope types also provides some information on the causes of threats. A case study on the implementation of the ecosystem approach in Austrian forests also investigates threats to forest biodiversity on the basis of a comprehensive review of relevant literature.

80. **China** reported that various educational and publicity programmes had been launched to increase the public understanding of biodiversity-related issues, including forest biodiversity. **Denmark** cited a few analyses it had undertaken to increase the understanding of various causes of forest biodiversity losses, including analysis of effects of change from broadleaves to conifers on vegetation and time needed for



reestablishment; impacts of afforestation on vegetation and impacts of pesticides and soil treatment on fauna diversity. **Estonia** has developed a number of ecosystem-level inventories which partly indicate the status of forest management sustainability, including an inventory of old-growth forest, an inventory of wooded meadows and an inventory of woodland key habitats. Estonia has also developed national criteria and indicators for sustainable forest management in accordance with the Pan-European Ministerial Forest Process. However, Estonia indicated a need for more focused and comprehensive analysis of various causes of forest biodiversity losses.

81. **Germany** indicated that there was a large body of literature on the impacts of external factors and management measures affecting the state of forest ecosystems and their biodiversity. Research on these subjects has been undertaken by various German institutions. One of the main areas of interest over the past decade has been on the so-called “new types of forest damage” and the impact of air-borne pollutants on forest ecosystems. However, Germany indicated that its understanding of the causes of forest biodiversity losses was far from complete.

82. **Ireland** states that the current risks to the Irish forest biodiversity include (i) deer population increase without any natural predation; (ii) spreading of invasive alien weeds; (iii) grazing by farm animals; and (iv) neglect of woodland management.

83. **Poland** has identified three main factors which are responsible for the current condition of forests in Poland, namely air pollution, anomalous weather conditions and consequences of silvicultural procedures in the past. In general, main threats to forests are anthropogenic changes in the environment, including soil and water pollution, decreasing of underground water level, excessive fragmentation of forest areas, land use changes related to mining, intensified penetration of forests by people, schematic forest management oriented towards obtaining raw materials, and forest fires.

86. **Sri Lanka** reported that deforestation, overexploitation, and illegal mining could be major causes of forest biodiversity losses. In addition, introduction of invasive alien species is becoming a threat to forest biodiversity. Environmental pollution can also impact on the populations of some sensitive species such as lichens. **Sweden** indicated that it had begun to implement the strategies developed on the basis of conservation biology and landscape ecology, which focuses future conservation on those areas with many valuable habitats and important features for biodiversity.

## 2.21. Activities to integrate biodiversity conservation and sustainable use into forest and other sector policies and programmes

84. The **Austrian** National Forest Programme, which is being developed, aims at furthering sectoral integration. The Austrian Strategy for Sustainable Development also requires sectoral integration. However, practical implementation of cross-sectoral integration is not keeping pace with the progress made at the conceptual, legislative and strategy levels. **China** has integrated biodiversity conservation and sustainable use into forest and other sectoral policies and programmes. Indicative of this is the inclusion of nature reserve establishment into the 10<sup>th</sup> National Five-year Plan for Economic and Social Development and the integration of forest biodiversity conservation and sustainable use as an important part of the National Programme for Ecology Conservation.

85. **Denmark** developed a National Forest Program in 2002 which aimed at a cross-sectoral approach. Some laws highly relevant to forest policy such as those on agriculture, spatial planning, nature protection are being drafted simultaneously with the new Forest Act. These processes are well coordinated and forest issues are duly taken into consideration. Forestry is also integrated into national strategies, policies and plans for spatial development, sustainable development and biodiversity.

86. **Estonia** has integrated biodiversity conservation and sustainable use into forest and other sectoral policies and programmes mostly through national biodiversity strategy and action plan. Forest biodiversity is also addressed in the Estonian Forest Policy and the Estonian Forestry Development Plan. **Germany** has integrated biodiversity conservation and sustainable use into programmes and policies

within the forest sector, e.g. through the forest sector strategy or the National Forest Programme. However, Germany indicated the integration into other sectors still needed to be improved. The main instruments for ensuring the consideration of biodiversity aspects in the activities of other sectors include the Federal Act on Environmental Impact Assessment, the so-called intervention provision of the Federal Nature Conservation Act and the conservation requirements in landscape planning.

87. **Ireland** indicated that biodiversity conservation and sustainable use was integrated into forest sector through an ecosystem approach to forest planning and management and integration of forestry with agricultural, sustainable and rural development. The Irish National Forest Standard has defined criteria and indicators for sustainable forest management. And the Irish NBSAP pays special attention to the need for integrating biodiversity conservation and sustainable use into all relevant sectors.

88. **Poland** pointed out that its current structure of forest management promotes a bottom-up approach, which aims at cross-sectoral harmonization of forest with relevant sectors, such as agriculture, environment, energy, transport, spatial planning. The National Forest Programme which Poland has just launched establishes links to relevant programmes and strategies. **Sri Lanka** reported that its wildlife and forest sectors directly addressed biodiversity and sustainable use in their relevant policies and there was a growing tendency of recognizing this in other sectoral policies as well. Switzerland indicated that its national forest programme which is to be finalized by the end of 2003 contained a number of objectives and activities related to biodiversity conservation and sustainable use.

#### **2.22. Activities to develop good governance practices, review and revision of and implementation of forest and forest-related laws, tenure and planning systems, in order to provide a sound basis for conservation and sustainable use of forest biodiversity**

89. **Austria, China, Denmark, Estonia, Germany, Ireland, Poland, Sweden and Switzerland** developed good governance practices, reviewed and revised and implemented forest and forest-related laws, tenure and planning systems, to provide a sound basis for conservation and sustainable use of forest biodiversity. In **Sri Lanka** there has been a considerable re-orientation in policy adopted by the Forest Department over the years.

#### **2.23. Activities to promote forest law enforcement and addressing related trade**

90. **Ireland and Switzerland** have comprehensive measures in place to strengthen forest law enforcement and address related trade, **Austria, China, Poland, Sri Lanka** have some measures in place, and **Estonia** as well as **Sweden** have identified potential measures.

91. In **Denmark and Germany**, at national level, forest law enforcement is not considered to pose a serious problem. Concerning international trade, they are working to ensure the provenance of imported wood from legal sources within the scope of CITES regulations and by supporting voluntary independent forest certification.

#### **2.24. Activities to mitigate the economic failures and distortions that lead to decisions that result in loss of forest biodiversity**

92. **Austria and Sri Lanka** indicate that reviews are under way. **Estonia and Sweden** indicated that some measures have been identified. **Denmark** indicated that perverse incentives such as drainage subsidies have been abandoned.

93. **Austria, China, Germany, Ireland and Poland** have programmes in place to promote forest conservation, to compensate forest owners for the external benefits generated by forests and to counteract the cost-revenue squeeze observable for many forests. Incentives are provided by direct payments, tax rebates and grant aid schemes.

94. **Estonia** has schemes in place to provide market incentive for the use of sustainable practices and to develop alternative income generation programmes for local communities. **Germany** encourages voluntary independent forest certification.

95. **Austria** and **Germany** noted the role of non-monetary forest benefits and values. **Austria** noted that such values have not been integrated in national accounting systems yet. **Germany** pointed to recent investigations carried out on the public values of ecological forests and the valuation of several non-market goods and services, as a basis for further deliberations on how to reduce economic failures and distortions.

### **2.25. Activities to increase public support and understanding of the value of forest biodiversity and its goods and services at all levels**

96. **Austria, China, Estonia, Ireland, Sweden** and **Switzerland** are increasing public support and understanding of the value of forest biodiversity. **Denmark** established and/or is developing several activities such as capacity building of nature guides, as well as outdoor facilities to the understanding of the value of forest biodiversity are being established in state and private forest districts.

97. In **Germany** the value of forest biodiversity is addressed in the public awareness programmes of, *inter alia*, the *Länder* Forest Administrations, large-scale protected areas such as biosphere reserves and national parks, and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, as well as the Federal Ministry of Consumer Protection, Food and Agriculture. The extension services offered to private forest owners by local forest authorities also represent an important tool in promoting the understanding of and support for concerns regarding the conservation and sustainable use of biodiversity.

98. In **Poland** there are some *Promotional Forests Complexes* as a place for implementing protection on a deep scale and, in accordance with the Convention on Biological Diversity for reconciling economic and conservationist goals – preserving all the organisms occurring in the forests and especially supporting those that, for different reasons, have the greatest value. These include species and biocenoses along with their habitats that are protected by law or deserve legal protection. Simultaneously, PFC plays an important role in the process of shaping awareness on the aims of sustainable forest management. Additionally, the Forest Culture Centre in Goluchów and the Forest Education Centre in Rogów play an important role in ecological education conducted by State Forests.

99. In **Sri Lanka** the Biodiversity Conservation Action Plan (BCAP) – Framework for action and the strategy for Biodiversity conservation identifies different sectors of biodiversity as separate chapters. Issues of these sectors have been identified and relevant recommendations have been given. Revision of the BCAP will address the activities and institutions recommended. It is anticipated to incorporate these policies into sectoral policies of each institutions identified.

## **Programme element 3. Knowledge, assessment and monitoring**

### **2.26. Activities to review and adopt a minimum forest classification system, based on harmonized and accepted forest definitions and addressing key forest biodiversity elements**

100. The responses of several Parties are ambiguous, in that forest definitions and forest biodiversity elements do not explicitly figure when mention is made of adopted forest classification systems (e.g. **Austria, Estonia, Ireland, Sweden** and **Switzerland**). Three Parties are still reviewing their forest classification systems (**Denmark, Poland, Sri Lanka**) or results are not yet available (**China**). **Germany** requests clarification of the term “minimum classification system”.

### **2.27. Activities to develop national forest ecosystem classification systems and maps that use agreed international standards and protocols**

101. The majority of Parties have classification systems in place (**Austria, China, Estonia, Sweden** and **Switzerland**), while in the remaining countries early (**Denmark, Poland, Sri Lanka**) or advanced (**Ireland**) stages of development are mentioned. No internationally agreed national forest ecosystem classification systems are said to be in place mentioned in Germany.

## **2.28. Activities to develop specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity**

102. While establishment of Natural Forest Reserves is mentioned (**Austria**), few direct responses are given with regard to ongoing surveys (**Denmark, Estonia, Poland, Sri Lanka**) and/or to surveys which are part of long-term monitoring (**Ireland**). Surveys have been completed in the past by **China, Estonia, Poland, Sri Lanka, Sweden** and **Switzerland**. **Germany** requests clarification of the expression "specific forest ecosystem surveys". Several Parties participate since 1988 in the *European Network of Permanent Sample Plots for Monitoring of Forest Ecosystems*.

## **2.29. Activities to 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**

103. Pan-European guidelines for sustainable forest management and monitoring programmes of the Ministerial Conferences on the Protection of Forests in Europe (MCPFE) are mentioned by several Parties (**Austria, Denmark, Estonia, Germany, Ireland, Poland, Switzerland**) as guiding the development of national indicators. The aforementioned Parties contribute to their development at Pan-European level as well as improving and adapting them to nationally relevant guidelines.

104. **China** mentions a national goal of increasing the extent of protected forest area. Relevant programmes are being developed by **Sri Lanka**.

## **2.30. Activities on key research programmes on the role of forest biodiversity and ecosystem functioning**

105. **China** and **Sweden** have conducted comprehensive research in programmes on the role of forest biodiversity and ecosystem functioning. **Austria, Germany, Ireland, Sri Lanka** and **Switzerland** have only conducted some research. **Germany** cited the example of two modular projects: "On forest biological diversity in Germany" funded by the Federal Ministry of Consumer Protection, Food and Agriculture (cf. question 20), as well as in the research programme "Forest management of the future" funded by the Federal Ministry of Education and Research (1998-2003), which aim to investigate the consequences of the transformation of managed forests according to ecological criteria. **Denmark, Estonia** and **Poland** have research programmes under development.

## **2.31. Activities to enhance and improve the technical capacity at the national level to monitor forest biodiversity, benefiting from the opportunities offered through the Clearing House Mechanism of CBD**

106. **China** has a National Clearing House for Biodiversity Information and has developed databases and information networks of biodiversity. The Chinese Academy of Science and its institutions have developed over 50 databases of biodiversity mainly including databases of: species inventory, rare endangered species, specimens, ecosystems, taxonomical code, crop germplasm resources and an external information exchange network of germplasm. Departments of environmental protection, forestry, and oceanography have developed environment database systems, such as a forestry and an oceanography database systems. The development and use of these databases promotes the cooperation in science and technology between China and other countries and furthers technology communication and transfer. There is a concern that Chinese database and database systems are currently separated by department and there is a need for conformity and standardization in order to exert adequately the function of the database systems.

107. **Estonia** has improved the technical capacity at the national level *inter alia* to monitor forest biodiversity, benefiting from the GEF funded project GF/2716-01-4354 “Assessment of Capacity building needs for Biodiversity and Participation in Clearing House Mechanism in Estonia.

108. In **Germany**, capacity for the monitoring of forest biological diversity is considered to be adequate in terms of both access to technical equipment and availability of trained specialists. Limiting factors are seen with respect to financial resources and as a result of the need to coordinate existing monitoring activities carried out by different players on varying geographical scales (e.g. in individual protected areas).

109. In **Ireland**, an audit of the Irish National Forest Standard is being developed at present, which will include the biodiversity criterion. Research programmes are also in place. In **Poland**, numerous groups of scientific experts, representing not only the forestry but also other sectors, have been taking part in the process of improving the monitoring of forest biodiversity. The work will result in the elaboration of the Forest Code, which will include general principles and directions of forest development and conditions of sustainable forest management and its monitoring.

110. **Sweden** has some programmes in place, such as the Swedish National Forest Inventory, which describes the state of and changes in forest resources. All types of land are included in the survey but the most detailed information concerns forestland. Around 25 % of the key habitats are known in Sweden. The Woodland key habitat (WKH) survey is a concept that is widely recognized as a practical instrument for conservation within the Swedish forest sector. These are areas where red-listed animals and plants exist, or could be expected to exist. The term serves as a stamp of quality for various valuable forest types, e.g. old fire-influenced pine wood, hillsides, swamps with spruce and black alder, old and mature broadleaf trees and wooded pastures. The concept has also been included in different forest certification standards.

111. In **Switzerland**, the Swiss Agency for the Environment, Forests and Landscape (SAEFL) has launched a programme for this purpose called Biodiversity Monitoring in Switzerland (BDM). In conjunction with the BDM programme, experts contracted by the Federal Government will regularly count animals and plants in numerous predetermined areas in the field.

**Annex.**  
**Format for a voluntary report on implementation of the expanded programme of work on forest biodiversity**

1. Has your country identified priority goals, objectives and activities included in the expanded programme of work for implementation at the national level?	
a) no (please specify the reasons)	
b) yes (please provide a list of priorities identified)	
Further comments on identification of priority goals, objectives and activities	
2. From the list of priorities, did some or all of them produce the expected impacts after their implementation (i.e. a success)?	
a) no (please specify the reasons)	
b) yes (please specify success stories)	
Further comments on impacts of implementation of priority activities	
3. Were there any challenges/impediments to the implementation of priority activities that could have negatively affected their chance of success?	
a) yes (please specify the activities and the main challenges/impediments)	
b) no	
Further comments on challenges/impediments to implementation of priority activities	

4. Is your country collaborating with other Governments and regional and international organizations and processes to implement regional or international activities in the expanded programme of work?	
a) no	
b) yes, limited collaboration (please provide details)	
c) yes, significant collaboration (please provide details)	
Further comments on collaboration with other Governments and regional and international organizations and processes to implement regional or international activities in the expanded programme of work	

**Programme Element 1: Conservation, Sustainable Use and Benefit-sharing**

5. Has your country developed practical methods, guidelines and/or indicators to apply the ecosystem approach in relation to sustainable forest management?	
a) no (please specify the reasons)	
b) relevant methods, guidelines and indicators under development	
c) some methods, guidelines and indicators developed (please provide details)	
d) a comprehensive set of methods, guidelines and indicators developed (please provide details)	
Further comments on the practical methods, guidelines and indicators to apply the ecosystem approach in relation to sustainable forest management	
6. Has your country taken any measures to prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biodiversity in accordance with international law?	
a) no	
b) relevant measures under development	
c) yes, some measures taken (please outline the measures)	
d) yes, comprehensive measures taken (please outline the measures)	
Further comments on the measures taken	

7. Has your country taken any measures to mitigate the impact of pollution on forest biodiversity?	
a) no	
b) under consideration	
c) relevant measures under development	
d) yes, some measures taken (please provide details)	
e) yes, comprehensive measures taken (please provide details)	
Further comments on the measures taken to mitigate the impact of pollution on forest biodiversity	
8. Has your country taken any measures to mitigate the negative impacts of climate change on forest biodiversity?	
a) no	
b) relevant research and monitoring programmes under development	
c) some research and monitoring activities being undertaken but no measures taken	
d) yes, some measures taken (please outline the measures)	
e) yes, comprehensive measures taken (please outline the measures)	
Further comments on the measures taken to mitigate the negative impacts of climate change on forest biodiversity	
9. Has your country taken any measures to prevent and mitigate the adverse effects of forest fires and fire suppression (where fire is a natural disturbance agent)?	
a) no	
b) relevant measures being considered	
c) relevant measures under development	
d) yes, some measures undertaken (please specify)	
e) yes, many measures being undertaken (please specify)	
Further comments on the measures to prevent and mitigate the adverse effects of forest fires and fire suppression	



10. Is your country mitigating effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur?	
a) no	
b) monitoring and assessment of effects ongoing	
c) potential measures identified	
d) yes, some adopted and being implemented (please provide details)	
e) yes, comprehensive measures adopted and being implemented (please provide further details)	
Further comments on measures adopted to mitigate effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur	
11. Is your country preventing and mitigating losses of forest biodiversity due to fragmentation and conversion to other land uses?	
a) no	
b) potential measures identified	
c) yes, some measures undertaken	
b) yes, comprehensive measures undertaken	
1. Is your country restoring forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes?	
a) no	
b) potential measures identified	
c) yes, some measures implemented in some areas (please provide details)	
d) yes, comprehensive measures implemented in major areas (please provide details)	
Further comments on the measures to restore forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes	
12. Is your country promoting forest management practices that further the conservation of endemic and threatened species?	
a) no	
b) relevant forest management practices under development	
c) yes, some practices adopted and promoted (please provide details)	
d) yes, some practices being implemented (please provide details)	
Further comments on the forest management practices that further the conservation of endemic and threatened species	

13. Is your country ensuring adequate and effective protected forest area networks?	
a) no	
b) networks of protected areas being planned	
c) some protected areas established but networks not in place	
d) networks of protected areas taking shape	
e) major networks of protected areas established	
14. Is your country promoting sustainable use of forest resources to enhance the conservation of forest biological diversity?	
a) no	
b) relevant policy and programme under development	
c) yes, some policies and programmes in place (please provide details)	
d) yes, comprehensive policies and programmes in place (please provide details)	
Further comments on the policies and programmes for promoting sustainable use of forest resources to enhance the conservation of forest biodiversity	
15. Is your country preventing losses caused by unsustainable harvesting of timber and non-timber forest resources?	
a) no	
b) potential measures identified	
c) some measures undertaken (please provide details)	
d) comprehensive measures undertaken (please provide details)	
Further comments on the measures to prevent losses caused by unsustainable harvesting of timber and non-timbering forest resources	
16. Is your country taking any measure to enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity?	
a) no	
b) not applicable	
c) relevant policy and programme under development	
d) yes, some policies and programmes in place (please specify)	
Further comments on the policies and programmes to enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity	

17. Has your country developed effective and equitable information systems and strategies and promoted implementation of those strategies for <i>in situ</i> and <i>ex situ</i> conservation and sustainable use of forest genetic diversity?	
a) no	
b) relevant information system and strategy under development	
c) relevant information system in place	
d) relevant strategies in place (please provide details)	
e) relevant information system and strategies in place (please provide details)	
Further comments on the strategies for <i>in situ</i> and <i>ex situ</i> conservation and sustainable use of forest genetic diversity	
18. Is your country promoting the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge?	
a) no	
b) relevant policies and programmes under development	
c) some policies and programmes in place (please specify)	
d) comprehensive policies and programmes in place (please specify)	
Further comments on the policies and programmes for promoting the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge	

### **Programme Element 2: Institutional and Socio-economic Enabling Environment**

19. Is your country improving the understanding of the various causes of forest biodiversity losses?	
a) no	
b) a limited analysis being undertaken	
c) a thorough analysis being undertaken	
d) yes, some analyses completed and results available (please outline some findings from these analyses)	
e) yes, comprehensive analysis completed and results available (please provide some findings from these analyses)	
Further comments on the analysis of the various causes of forest biodiversity losses	
20. Has your country integrated biodiversity conservation and sustainable use into forest and other sector policies and programmes?	

a) no	
b) under consideration	
c) yes, integrated into policies and programmes in some sectors (please provide details)	
d) yes, integrated into policies and programmes in major sectors (please provide details)	
Further comments on the integration of biodiversity conservation and sustainable use into forest and other sector policies and programmes	
21. Has your country developed good governance practices, reviewed and revised and implemented forest and forest-related laws, tenure and planning systems, to provide a sound basis for conservation and sustainable use of forest biodiversity?	
a) no	
b) review under way	
c) review and revision completed	
d) some good governance practices and related laws developed and implemented (please provide details)	
e) a comprehensive set of practices and laws developed and implemented (please provide details)	
Further comments on the practices and laws developed and implemented to provide a sound basis for conservation and sustainable use of forest biodiversity	
22. Is your country promoting forest law enforcement and addressing related trade?	
a) no	
b) review under way	
c) potential measures identified	
d) yes, some measures in place to strengthen law enforcement and address related trade	
e) yes, comprehensive measures in place to strengthen law enforcement and address related trade	
23. Is your country mitigating the economic failures and distortions that lead to decisions that result in loss of forest biodiversity?	
a) no	
b) review under way	
c) potential measures identified	
d) yes, some measures taken (please provide details)	
e) yes, comprehensive measures taken (please provide details)	

Further comments on the measures taken to mitigate economic failures and distortions that lead to decisions that result in loss of forest biodiversity	
24. Is your country increasing public support and understanding of the value of forest biodiversity and its goods and services at all levels?	
a) no	
b) relevant programme under development	
c) yes, some programmes in place	
d) yes, comprehensive programmes in place	

### Programme Element 3: Knowledge, Assessment and Monitoring

25. Has your country reviewed and adopted a minimum forest classification system, based on harmonized and accepted forest definitions and addressing key forest biodiversity elements?	
a)no	
b) review under way	
c) review completed	
d) a forest classification system adopted	
26. Has your country developed national forest ecosystem classification systems and maps that use agreed international standards and protocols?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) yes, classification systems in place	
27. Has your country developed specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity?	
a) no	
b) under consideration	
c) relevant surveys being planned	
d) relevant surveys completed (please provide details)	
e) results of relevant surveys available (please provide details)	
Further comments on the surveys of specific forest ecosystems in priority areas for conservation and sustainable use of forest biodiversity	
28. Is your country advancing 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?	

a) no	
b) relevant programme under development	
c) some criteria and indicators developed (please provide details)	
d) comprehensive indicators developed (please provide details)	
Further comments on the development and implementation of criteria and indicators	
29. Has your country conducted key research programmes on the role of forest biodiversity and ecosystem functioning?	
a) no	
b) research programs under development	
c) yes, some research programs conducted	
d) yes, comprehensive research programs conducted	

30. Is your country enhancing and improving the technical capacity at the national level to monitor forest biodiversity, benefiting from the opportunities offered through the Clearing House Mechanism of CBD?	
a) no	
b) capacity building programme under development	
c) yes, some programmes in place (please provide details)	
d) yes, comprehensive programmes in place (please provide details)	
Further comments on the programmes to enhance and improve the technical capacity at the national level to monitor forest biodiversity	