



Draft Planted Forest Code

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THE PLANTED FORESTS CODE

The role of planted forests as sustainable and environmentally sound sources of renewable energy and industrial raw material should be recognized, enhanced and promoted. Their contribution to the maintenance of ecological processes, to offsetting pressure on primary and old-growth forest and to providing regional employment and development with the adequate involvement of local inhabitants should be recognised and enhanced (The Forest Principles, UNCED, 1992).

A Background

1 Introduction

Forests, including planted forests, supply wood, fibre, fuelwood and non-wood forest products for industrial and non-industrial uses. Planted forests, if managed in a sound manner, can also contribute positively towards provision of environmental services (soil and water protection, rehabilitation of degraded lands, restoration of landscapes and carbon sequestration) and provision of social services and livelihood support (income generation, employment and recreation). The wood productivity of planted forests for forest products supply is substantially greater than in natural forests. The added benefits of wood products over competing products, is that they are renewable, energy efficient and environmentally friendly.

The classification of naturally regenerating and planted forests is described in Annex 3. According to FRA 2005, planted forests are estimated to account for about seven percent of global forest cover. The planted component of semi-natural forests accounts for three percent and the forest plantation component, about four percent. In 2000 plantation forests provided 35 percent of the global, industrial roundwood supply, thus planted forests could already account for about 50% of the global industrial roundwood supply. This is projected to increase substantially in the foreseeable future.

Recognizing the economic, social, cultural and environmental importance of planted forests, Governments and other stakeholders requested FAO, with collaborating partners, to prepare a Code to describe the guiding framework of Principles necessary to support the policy, legal, regulatory and technical enabling conditions for planted forests development. The Code should help to ensure that cultural, social, environmental and economic dimensions were considered and incorporated into programmes in a balanced manner.

This Planted Forest Code ('the Code') describes the guiding Principles (Section C) and highlights selected key issues for consideration for the development of planted forests (Section D) with a view to promoting sound investment and achieving effective development by balancing trade offs in the flow of sustainable benefits.

Acceptance and implementation of the Code is voluntary and non-binding.

2 Scope of the Code

The Code applies to planted forests defined in the Forest Resources Assessment of 2005 as "forest in which trees have been established through planting or seeding" with an explanatory note that the definition "includes all stands established through planting or seeding of both native and introduced species" (FAO 2004). Planted forests include the planted component of semi-natural forests and the subset of forest plantations. A classification of the

relationships between primary, modified natural, semi-natural and planted forests is in Annex 3.

The scope of the Code is global; it may be adopted and applied to planted forests in all eco-geographical zones and to countries in all stages of economic development.

The Code brings together Principles that apply to planted forests grown to fulfil productive functions for provision of wood, fibre and non-wood forest products or protective functions for provision of environmental and/or social services. The Code covers all aspects of planted forests, from policy development and planning, through technical considerations of plantation management and supply chain links to marketing, industry and trade.

Adherence to the Principles of the Code in formulation of policies, laws, regulations and strategic and management plans will help to improve the enabling conditions and build capacity and capability in planted forest development. The Code will complement and supplement forest certification schemes which establish procedures and monitor that technical standards are achieved in planted forest management practices implemented in the field. This code recognizes that where planted forests are certified by recognized and credible certification schemes, then implementation standards of this code are likely to have been satisfied.

The capacity building required to implement this Code will also contribute to meeting national implementation and reporting requirements to various international Conventions, some of which are described in Section B.

3 Objectives

The objectives of the Code are to:

- Promote the positive contribution that planted forests can make to meeting people's livelihood needs, including food security, the production of wood, and safeguarding environmental values.
- Codify generally-accepted Principles for strengthening the policy, legal and institutional enabling framework for the sound management of planted forests, including the economic, cultural, social and environmental dimensions of management.
- Contribute to increasing consensus in the formulation and implementation of national and international agreements concerning planted forests.
- Promote investment in the development and sustainable management of planted forests.

The aim has been to make the Code practical and, in particular, to propose practices which may be incentives to planted forest development and management, in particular to owners of small forest areas.

4 Users

The primary users of the Code will be policy, legal, regulatory and planning decision-makers in Governments, investors, forest managers including stakeholders in communally-owned forests and other stakeholders.

5 Review and Updating

Based on feedback from users, FAO may take the initiative to review the implementation of the Code and to periodically revise and update it.

6 Special Requirements of Developing Countries

The Code applies to countries in all stages of economic development. It is, however, recognised that developing countries may require additional support in institutional strengthening and capacity building to implement all of the recommendations of the Code. Nevertheless, the Principles should be considered by these countries in policy-making and planning, and in promoting and guiding private investment in planted forests.

B Framework of the Code

Section B places the Code in an international context and describes links with national and sub-national stakeholders.

1 The International Context

The Code has been interpreted and should be applied in conformity with the relevant international agreements and conventions related to planted forest development, including:

- The Millennium Declaration (UN General Assembly, 2000) upholds human dignity, equity, poverty eradication, protection of the common environment, human rights, democracy, gender equality, good governance and the formation of a global partnership for development. If soundly planned and managed planted forests will contribute positively towards achieving these fundamental human values and goals.
- The *Forest Principles* (UNCED, “Agenda 21”, 1992), the *non-legally binding authoritative statement of Principles* for the sustainable management of forests worldwide, recognised the important role of planted forests and stated that they applied to *...all types of forests, both natural and planted,...* The socio-economic and environmental Principles described in the Forest Principles underlie the whole of this Code.
- The *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (UNFCCC) provides that industrialized countries may offset some of their greenhouse gas emissions by sequestering CO₂ in carbon “sinks” through afforestation, reforestation and forest management activities. Besides creating financial incentives for these carbon offsets, it also contains a general mandate for developed countries to promote afforestation and reforestation and sustainable forest management practices. The Kyoto Protocol may thus be one of the most important drivers for planted forest programmes in future. The Clean Development Mechanism (CDM), one of the two project-based flexible mechanisms of the Kyoto Protocol is designed to make it easier and cheaper for industrialised countries to meet the greenhouse gas emission reduction targets that they agreed to under the Kyoto Protocol. The CDM is also mandated to assist developing countries in achieving sustainable development and may become an important catalyst for afforestation and reforestation.
- The objectives of the *Convention on Biological Diversity* (CBD) are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Its provisions thus relate to the conservation of ecosystems and of genetic resources in planted forest development. The CBD promotes the rehabilitation of degraded lands by planted forests.

- The *Convention to Combat Desertification* (CCD) addresses the delicate balance to achieve sustainable livelihoods and sustainable natural resources management in fragile arid and semi-arid ecosystems through integrated land-use approaches with major multi-stakeholders. The mechanism to achieve this is through National Action Programmes, in which natural and planted forests make a significant contribution in rehabilitation of degraded lands and combating desertification
- The *International Plant Protection Convention* (1991) has the objective of securing action to prevent the introduction and spread of pests and diseases of plants and plant products across national borders and to promote measures for their control.
- The *Declaration on Fundamental Principles and Rights at Work* (ILO 1998) is an expression of commitment by governments, employers' and workers' organizations to uphold basic human values that are vital to our social and economic lives.
- The *Indigenous and Tribal Peoples Convention* (1989) aims to protect indigenous and tribal populations in independent countries against abuses. It applies to tribal peoples whose social, cultural and economic conditions distinguish them from other sections of the national community and peoples in independent countries who are regarded as indigenous on account of their descent.

Many Governments have already entered into commitments to the international agreements described above. Nothing in this Code prejudices the rights, jurisdiction and duties of Governments under international agreements or their sovereign rights over their forest resources. The important conventions, agreements and declarations, including the Millenium Development Goals (MDGs) are listed in Annex 4.

International meetings related to enhancing the role of planted forests in sustainable forest management, include:

- The *International Expert Consultation on the Role of Planted Forests in Sustainable Forest Management* (1999, Santiago, Chile) was held to assist the Intergovernmental Forum on Forests (IFF) in recognising and enhancing the role of planted forests as an important element of sustainable forest management. The meeting addressed the underlying causes of deforestation, needs and requirements of countries with low forest cover, future supply and demand for wood and non-wood products, rehabilitation of degraded lands and other relevant issues
- The *Intersessional Expert Meeting of the UNFF on the Role of Planted Forests in Sustainable Forest Management* (2003, Wellington, New Zealand) recommended *inter alia* that planted forests play an increasingly important role in the provision of a range of goods and environmental, social and cultural services, be considered as a mechanism for the alleviation of poverty, and that sustainable management of planted forests be achieved through the promotion and implementation of good governance frameworks and mechanisms.

Two notable references to the sustainable management of planted forests have been published.

- The *Guidelines for the Establishment and Sustainable Management of Planted Tropical Forests* (ITTO, 1993) present fundamental concepts, expressed as Principles and recommended actions, that constitute an international reference standard for the development of specific national guidelines, for the sustainable establishment and management of planted tropical forests for timber production and other purposes.

- The *C&I for Sustainable Development of Industrial Tropical Plantations (with Links to a Code of Practice)* (CIFOR, 2001) expresses criteria and indicators for sustainable forest plantation development.

2 The National and Sub-national Context

The adoption of this Code and its incorporation into national and sub-national policy-making and planning by national and local governments, policy and decision makers, investors and managers is voluntary and non-binding. However, stakeholders will be encouraged to adopt and abide by the Principles of this Code to improve the contribution of planted forest development. The Code may be used to integrate planted forests at the landscape level, into land use policies, for the engagement of local communities and for promoting investment in planted forests.

C Guiding Principles

Section C describes guiding Principles for the development, sustainable management and utilisation of planted forests as well as the specific attributes of each of the Principles. Although the Principles are grouped according to Institutional, Economic, Environmental and Social and Cultural, they are closely interlinked. Some attributes are listed under more than one principle to reinforce these linkages. *Any planted forest development needs to embrace these Principles and their attributes in a holistic approach.*

Related references detailed in Annex 5, are noted at the end of each set of Principles.

1 ***Institutional Principles***

Principle 1: Good Governance

Taking into consideration the timeframe and risks related to the establishment, management and utilization of planted forests, governments must ensure stable conditions to encourage long term investments, sustainable land-use practices and socio-economic stability.

Attributes of the principle include but are not limited to¹:

- Transparency and recognition of the roles of non-Government stakeholders in decision-making without coercion;
- Adoption of a precautionary approach to conservation and sustainable management using scientific evidence currently available;
- Formulation of current, consistent and clear policies, laws, regulations, plans and guidelines;
- Monitoring of compliance and enforcement procedures to minimize unsustainable and illegal practices;
- Recognition of rights of land and crop tenure and access for the investor (both corporate and smallholder), traditional owners, indigenous peoples, local communities and ethnic minorities;
- Equitable distribution of benefits to all stakeholders, including women and the disadvantaged; and
- Recognition of the rights of workers to organise and to reasonable salaries and livelihoods.

References: **(to add reference numbers from Bibliography when complete)**

¹ This is not an exhaustive list but indicates the type of attributes under each principle from which planted forest policy makers, decision-makers and managers, can adopt an approach of continuously improving their policies and management from the experiences from which they increase their rigour by learning.

Principle 2: Integrated Decision-making and Multi-stakeholder Approaches

Taking into account the multi-faceted interfaces of planted forests with communities and agricultural, livestock, natural forest and agroforestry landuses on the landscape, policy makers must encourage integrated decision-making that encourage stakeholders to participate in planning, managing and utilizing planted forests.

Attributes of the principle include but are not limited to:

- Integration of policies, planning and management decision-making related to planted forests in inter-sectoral and multi-disciplinary approaches to reflect their role in the wider landscape;
- Encouragement of participation in a spirit of free, prior and informed consent by stakeholders, including investors (corporate and smallholder), Government and non-Government organizations, private sector associations (including smallholders), indigenous peoples, local community groups (including women and ethnic minorities) in decision-making to better understand their respective needs, aspirations and priorities; and
- Resolution of conflicts through conflict management mechanisms involving the major stakeholders.

References: (to add reference numbers from Bibliography when complete)

Principle 3: Enhanced Organizational Capacity

Government, private sector and other organizations must tailor and strengthen their capacity and capability to more effectively and efficiently deliver the prerequisite knowledge, technology and other support services necessary for sound planted forest development, at all levels.

Attributes of the principle include but are not limited to:

- Decentralization to local levels, and, when applicable, the devolution of responsibility for decision-making;
- Provision of investment funds and continued access to financing mechanisms;
- Understanding of, and response to, priority needs and aspirations of the major stakeholders;
- Motivation of educated and trained staff at all levels in planning, management and technical and extension support services;
- Strengthening of research capability to apply science in policy, management and monitoring of planted forest development;
- Continued learning from science, traditional knowledge and experience;
- Sharing of knowledge, technology and data through an established knowledge management system, including networking where possible; and
- Provision of support services tailored to the needs of the corporate (large scale) and the smallholder (small scale) investors.

References: (to add reference numbers from Bibliography when complete)

2 Economic Principles

Principle 4: Recognition of Value of Goods and Services

Planted forests, whether productive or protective, must be recognized for their provision of both market and non-market benefits including wood and non-wood forest products and social, cultural and environmental services.

Attributes of the principle include but are not limited to:

- Balance of the trade offs between returns on investment to the planted forest investor, sustainable livelihoods, sustainable land-use and sustainable forest management (including natural forests);
- Improvement of the financial and economic valuation methods to improve the recognition and full *valuation* of goods and services from planted forests;
- Application of the full value of planted forests goods and services in planning, management, monitoring and reporting;
- More equitable sharing of benefits between stakeholders involved in planted forest development
- Recognition of the full value of planted forests in justification for investments by Government and private sector investors (both corporate and smallholder); and
- Recognition of the full value of planted forests goods and services, particularly by Governments and local authorities in setting land-use priorities.

References: **(to add reference numbers from Bibliography when complete)**

Principle 5: Promotion of Investment

Governments must create the enabling conditions to encourage corporate, medium and small investors to invest long-term in planted forests and yield a favourable return on investment.

Attributes of the principle include but are not limited to:

- Provision of stable and clear investment policies and laws to provide investors confidence to invest long term in planted forest development;
- Provision of direct or indirect incentives to encourage long-term investment in planted forest development, that may be justified where society as a whole will benefit;
- Avoidance of perverse incentives with adverse trade, social or environmental impacts, noting that such perverse incentives may originate in other sectors;
- Revision of incentives at periodic intervals to reflect the evolution in planted forest development;
- Avoidance of economic distortions that reduce the value of planted forests or limit the opportunities for smallholder investors; and
- Promotion of equity between competing land-uses in policies and priority setting.

References: **(to add reference numbers from Bibliography when complete)**

Principle 6: Recognition of the Role of the Market

To improve the probability of achieving acceptable returns on investment, investors in planted forests, particularly those grown for productive functions, must design their planning and management to respond to signals from current markets and trends in future market development. Establishment and management of planted forests should be market-driven rather than production-driven.

Attributes of the principle include but are not limited to:

- Provision of access to market information and signals in a transparent manner;
- Monitoring of market intelligence information on current markets and trends for future market developments, changes in the utilization of forest products or in consumer behaviour;
- Creation of policies, regulations, guidelines and practices that provide for a stable investment climate, fair competition and acceptable rates of returns for investors, workers and local economies;
- Recognition of the emerging carbon trade markets and increasing understanding of the role of afforestation and reforestation in providing carbon sinks to mitigate climate change, whether planted forests are for productive or protective functions; and
- Recognition that the market place may not account for all values that society may enjoy in planted forests.

References: **(to add reference numbers from Bibliography when complete)**

3 Social and Cultural Principles

Principle 7: Recognition of Social and Cultural Values

A vast range of social and cultural values must be taken into consideration in planning, managing and utilizing of planted forests, including the welfare and empowerment of adjacent communities, workers and other stakeholders.

Attributes of the principle include but are not limited to:

- Recognition of the customary rights, traditional values and tenure of indigenous peoples and ethnic minorities in areas targeted for planted forest development;
- Strengthening of indigenous peoples, ethnic minorities, local communities (including women and marginal groups) and smallholder investor capacity to benefit from being granted rights in planning, management and utilization of planted forests;
- Recognition of the diverse multiple use contribution of smallholder investors (including outgrowers) in planted forests and trees and their unique needs for support with respect to tenurial rights, training, extension, research, fiscal relief and benefit sharing;
- Provision of employment, adequate training and equipment for health and safety, and acceptable mechanisms for standard setting, especially in neighbouring communities; and
- Recognition of, collaboration in, and implementation of actions to strengthen education, health and other social services in areas adjoining planted forest development.

References: **(to add reference numbers from Bibliography when complete)**

Principle 8: Maintenance of Social and Cultural Services

As balancing trade offs between competing objectives in planted forest development cause social and cultural changes, it is necessary to adopt planning, management, utilization and monitoring mechanisms that avoid adverse impacts.

Attributes of the principle include but are not limited to:

- Introduction of socio-economic baselines and impact assessments prior to planted forest development and monitoring system to measure changes periodically thereafter;
- Establishment of clear conflict resolution mechanisms to address conflicts over tenurial rights, access and other rights that arise between major stakeholder groups;
- Provision of a safe and healthy working environment and conditions, in compliance with national or international standards and laws;
- Protection of sites of archaeological, cultural, spiritual or other scientific significance;
- Recognition of community ancestral rights e.g. hunting or non - wood forest products collection, when planted forests are not put at risk ; and
- Discouragement of displacement or resettlement of communities without free, prior and informed consent.

References: (to add reference numbers from Bibliography when complete)

4 Environmental Principles

Principle 9: Maintenance and Conservation of Environmental Services

Planted forest development will result in changes to the provision of ecosystem services such as air, water, soils and landscapes, thus planning, management, utilization and monitoring mechanisms must be adopted to encourage positive impacts.

Attributes of the principle include but are not limited to:

- Formulation of the policy, legal and planning frameworks encouraging maintenance, preservation and restoration of environmental functions in planted forests;
- Maintenance and conservation of integrated ecosystem functions;
- Adoption of integrated watershed management approaches and the protection of soil from erosion;
- Preparation of environmental impact assessments consistent with existing legal and policy requirements, to establish baselines and to monitor impacts of planted forest development on abiotic environmental services such as impacts on soil, water and air quantity and quality;
- Protection of forest crops from wind or other adverse weather conditions;
- Inclusion of carbon sequestration and provision of carbon sinks into the planning, management, utilization and monitoring of planted forest development;
- Adaptation of operational standards and field practices in establishment, management, harvesting and utilization of planted forests to minimize negative environmental impacts; and

- Recognition of the positive impact that planted forest can have in rehabilitation of degraded lands, restoration of landscapes, reclamation of sites and combating desertification.

References: (to add reference numbers from Bibliography when complete)

Principle 10: Conservation of Biological Diversity

Planners and managers must incorporate maintenance and conservation of biological diversity as fundamental in their planning, management, utilization and monitoring of planted forest development.

Attributes of the principle include but are not limited to:

- Adaptation of management operations to maintain or conserve the diversity of plants and animals and conserve genetic resources;
- Protection of wildlife habitat diversity and conservation of forest plants and animals (including aquatic) by implementing stand- and landscape level measures;
- Preparation of environmental impact assessments consistent with existing legal and policy requirements, to establish baselines and to monitor impacts of planted forest development on maintenance and conservation of diversity of plants and animals and conservation of genetic resources;
- Appropriate silvicultural systems, that are consistent with objectives for biodiversity conservation, will be selected for any harvesting in primary forests, ecologically significant secondary forests and other important ecosystems, for planted forest development;
- Avoidance of illegal hunting and entrapment of animals and foraging and harvesting of plants; and
- Selection of native species for planted forest developments if they are equal to or better than exotic species for the purpose intended.

References: (to add reference numbers from Bibliography when complete)

Principle 11: Maintenance of Forest Health and Productivity

In order to reduce the environmental risk, incidence and impact of abiotic and biotic damaging agents and to maintain and improve planted forest health and productivity, policy makers, planners, managers, scientists and academics must work together to derive appropriate and consistent policies, laws, plans, management practices, monitoring systems, response options, education, training and research.

Attributes of the principle include but are not limited to:

- Promotion of reforestation, soil conservation and other measures after harvest of planted forests;
- Reduction of risk to spread of invasive species through sound biosecurity measures including prediction, prevention, monitoring and rapid response to outbreaks;
- Adoption of integrated pest management approaches and use of biological control of insects and diseases when possible;
- Efforts be made for the reduction in the use of herbicides, pesticides, fungicides and other chemicals in planted forest development;

- Appropriate disposal of chemical materials, containers and waste materials;
- Adoption of sound policies, practices and monitoring in the use of biotechnology (including GMOs) in reproductive materials;
- Selection of species, provenance and reproductive materials made with the end use objective, site conditions and invasiveness in mind;
- Reduction of the incidence and impact of wildfires by prediction, prevention, monitoring and rapid response to extinguish them when they occur;
- Application of prescribed fire for wildfire hazard and fuel reduction, silvicultural purposes and habitat management;
- Avoidance of the application of fire for conversion of indigenous forest and other vegetation;
- Avoidance of the controlled use of fire in land clearing and preparation for establishment, where science indicates conditions that could be adversely affected by use of fire;
- Use of fertilizers based upon periodic soil and foliar analyses, tailored to specific nutrient requirements during the rotation of planted forests;
- Support of education, training, scientific research and networking in forest protection, forest health and sustainability of site and crop productivity; and
- Adoption of silvicultural management practices to balance the trade offs between maintaining planted forest health and productivity and reduction of the environmental risks, including on adjoining land-uses.

References: (to add reference numbers from Bibliography when complete)

Principle 12: A Landscape Approach

As planted forests interact and impact upon the local land-uses and environment, landscape approaches must be adopted to ensure that upstream and downstream impacts are planned, managed and monitored within acceptable environmental standards.

Attributes of the principle include but are not limited to:

- Retention of riparian reserves on permanent water courses, varying in width depending upon size of the water course;
- Reduction of negative visual impacts of harvesting and other forest operations;
- Designation of reserves of significant scientific and cultural value, within which planted forest management will be restricted;
- Designation of buffer zones adjoining communities to preserve their local environmental conditions;
- Designation of road locations, construction, stream crossings and maintenance to fit the landscape (social, cultural, environmental and economic);
- Monitoring of upstream and downstream water quality and quantity;
- Education of local communities and public through outreach programmes to understand the inter-relationships and potential complementarity between the management of planted forests, natural forests, conservation land, grasslands, croplands and other land uses;
- Design of planted forests to provide corridors between natural forest areas with high environmental conservation values where practicable; and

- Recognition of the continuum and respective roles of natural conservation and protection forests to planted forests grown for protective and productive functions – they all provide environmental services to varying degrees.

References: (to add reference numbers from Bibliography when complete)

D Selected Considerations in Implementation

Selected cross-cutting considerations for effective implementation of the Guiding Principles are:

- Institutional Roles;
- Strategic and Economic Planning;
- Stakeholder Relations;
- Learning and Research; and
- Operational Planning and Management.

An overriding consideration for the implementation and sustainable management of planted forest programmes is the long-term nature of planted forest investment.

No attempt is made to describe detailed technical guidelines or implementation standards for the planning, management and utilisation of planted forests as these are within the mandate of forest certification schemes.

1 *Institutional Roles*

Governments, private sector (corporate and smallholder companies and associations), non-governmental organizations, community-based organizations and other stakeholders have critical roles to play in good governance (Principle 1), integrated decision-making and multi-stakeholder approaches (Principle 2) and enhanced organizational capacity (Principle 3). The roles of the respective stakeholders are determined by the unique political, economic, social, cultural, environmental and geographic conditions prevailing.

Successful planted forest development requires Governments to formulate the policy, legal, regulatory and strategic planning frameworks that provide enabling conditions and integrated decision-making and multi-stakeholder approaches in planted forest investment, supported by provision of education and training, scientific research, sound technical knowledge, implementation guidelines, extension services and public awareness. Monitoring of compliance and law enforcement, assessment, monitoring and reporting of planted forest development for sub-national, national, regional and international purposes are also the role of Governments.

Governments can be investors and managers in planted forests, particularly those fulfilling protective functions such as rehabilitation of degraded lands, combating desertification, and protection of soil and water. Governments may also be investors and managers of planted forests for productive functions, however, this is decreasing trend as commercialization and privatization increase.

Private sector, both corporate and smallholders, could be the most active investors in planted forests as they can access both the necessary resources and expertise. Education, training, scientific research, technical support services, extension and public awareness are increasingly being provided by the private sector or their associations and/or non-governmental organizations. Private sector and smallholder associations can provide critical links with Government and can encourage their members to adopt sound policies, plans and practices in integrated decision-making, multi-stakeholder participation, setting operational standards, monitoring compliance and assessment, monitoring and reporting.

Trade unions, smallholder associations, community based organizations and other stakeholders have to engage with Government and private sector investors to ensure that

the needs and aspirations of workers, local communities, indigenous peoples, ethnic minorities, disadvantaged groups and gender issues are taken into consideration in planted forest developments.

Environmental non-governmental organizations, scientists, academics and other stakeholders have to engage with Government and private sector investors to ensure that matters such as water, biological diversity, use of chemicals, biotechnology, fire and invasive species are adequately addressed in planted forest development.

Providing a stable investment climate to provide investor confidence in planted forest development is a responsibility only partly within the forestry sector. Other Government sectors which impact upon enabling conditions for investment include departments of finance, planning, commerce, industries, agriculture, customs, labour and welfare, amongst others.

References: (to add reference numbers from Bibliography when complete)

2 Strategic and Economic Planning

Consideration of issues of strategic and economic planning relate to recognition of the value of goods and services (Principle 4), promotion of investment (Principle 5) and recognition of the role of the market (Principle 6). They also relate to integrated decision-making and multi-stakeholder approaches (Principle 2), recognition of social and cultural values (Principle 7), maintenance of social and cultural services (Principle 8) and landscape approach (Principle 12).

Strategic and economic planning should be applied to larger and medium scaled investments in planted forest development. However, even smallholders should also undertake a similar process in order to have the confidence that their investment will yield the intended goods and/or services.

In consideration of any planted forest investment it is necessary to evaluate the conditions for investment; the ecological zone and landscape conditions; undertake social/cultural and environmental baseline studies and impact assessments; evaluate status and trends in industries, markets, trade and consumers; survey labour markets, conditions, education and training; and ascertain Government policies and public opinion. Particularly with large-scale planted forest investments, if positive signals give the potential investor confidence, then financial and economic feasibility studies, long-term strategic plans and medium-term management plans need to be undertaken and approved. Although these procedures also apply to smallholders, more simple planning procedures are needed.

References: (to add reference numbers from Bibliography when complete)

3 Stakeholder Relations

Stakeholder relations considerations are of particular relevance in good governance (Principle 1), integrated decision-making and multi-stakeholder approaches (Principle 2), recognition of social and cultural values (Principle 7) and maintenance of social and cultural services (Principle 8).

Regardless of whether planted forest investment is for productive or protective functions, Government or private investor, large or small scale (corporate or smallholder investor), an open dialogue and participation by relevant stakeholders is fundamental for success. This

includes respect and facilitation of both “bottom up” and “top down” communication to better understand needs, aspirations and proposed development programmes, in an open and cooperative manner. The process should involve establishment of mechanisms of consultation which may result in cementing deeper and more trusting relationships, possibly to development of partnerships or joint management or investment between corporate and smallholder investors, even communities.

Where stakeholders are communities they may not always be in a position to communicate confidently with Government or with the corporate private sector which have superior education, knowledge and resources. In these instances, non-governmental organizations, community-based organizations or other organizations may strengthen their capacity and capability. As most benefits of planted forests occur towards maturity, regular communications outreach to stakeholders and the public are essential throughout the rotation period.

Social, cultural, environmental, economic and physical landscape conditions may impact upon planted forest development, and vice versa. As a long-term investment, planted forests require particular awareness and diligence at site preparation, establishment and silvicultural interventions to avoid negative impacts.

References: (to add reference numbers from Bibliography when complete)

4 Learning and Research

Consideration of issues of learning from experience and scientific research apply across all 12 Principles, but particularly to the Economic (Principles 4-6), to Social and Cultural (Principles 7-8) and to Environmental (Principles 9-12).

Adopting a learning culture, through a combination of scientific research, traditional knowledge, education and training and building upon past experience is essential. Planted forest management is not only about planting trees, but planning, managing, protecting, utilizing and monitoring the forest in the landscape over their full rotation. The accelerating emergence of smallholder investors in planted forest development requires unique technical support, extension and market access systems.

Scientific, social and market research priorities should be established in relevant institutions. Trends in planted forest development (whether productive or protective, large scale or smallholder, Government or private sector, long or short rotation, etc.) should be taken into consideration for review of curricula at education and training institutions (university, tertiary and artisan) and continuing staff development programmes through in-service training. Adequate and continued funding needs to be assured for education training and research.

Pilots, demonstrations and successful planted forest developments can be used as learning sites – where application of scientific and traditional knowledge can be viewed in action through study tours and field trips.

References: (to add reference numbers from Bibliography when complete)

5 Operational Planning and Management

Considerations of operational planning and management primarily concern issues relating to the Social, Cultural issues (Principles 7-8) and Environmental issues (Principles 9-12).

Defining the objectives for planted forest development – whether primarily for productive or protective functions, is fundamental. Translating chosen objectives into planted forest development within the context of the prevailing social, cultural, environmental and economic landscape involves interpreting market signals (whether goods or services); undertaking environmental, social and cultural baselines and impact assessments; determining the mechanisms for interaction and involvement with communities; deciding mechanisms for growing; undertaking infrastructure development; and selecting species, rotation, tending, silviculture, protection and harvesting specifications.

Selected major operational planning and management issues to be considered in planted forest establishment and management are highlighted and authoritative references outlined.

In this section topical issues considered include those relating primarily to the Environment (Principles 9-12) including genetically modified organisms (GMOs); herbicides, pesticides, fungicides and other chemicals; fertilisers; fires; spread of invasive species; maintenance and conservation of biological diversity; and water: Social and Cultural Issues (Principles 7-8) including the rights of indigenous people, and community customary rights; land tenure and usufruct; and employment; and Economic Principles (Principles 4-6) include incentives. These key considerations are not unique to planted forest development but are issues of significance in wider forestry and agricultural land-uses. This section highlights how these issues relate to planted forest development.

5.1. Biotechnology and Genetically Modified Organisms (GMOs)

The use of improved genetic material, even at provenance level, may prove to be fundamental for the success of planted forests. Most species present important intra-specific variability that has to be taken into consideration both from the productive, adaptation and conservation perspectives. The use of more advance breeding programmes has to take into consideration the need of well developed silvicultural techniques, genetic variability; and genotype x environment interactions. The use of biotechnology may return important benefits to planted forests, especially from the productive and sanitary points of view, but it must take into consideration limitations and possible risks.

GMO technology is still a relatively new tool in planted forest development that has potential benefits and drawbacks but it is not intrinsically good or bad. The genetic traits of commercially-important tree species most likely to be improved are insect resistance and wood quality, especially changes in the composition and amount of lignin. There is potential for new technology and knowledge in application of biotechnology, including GMOs, to ecological restoration and rehabilitation. Genetic modification may entail some risks of “genetic pollution” (gene transfer to breeding populations or wild relatives of a species, potentially leading to hybridization or introgression) and environmental impacts, including the displacement of native species. Thus GMO applications in planted forest development has become more than a technical issue; socio-cultural values and the multiple uses of forests need to be taken into account and public acceptance is necessary if genetically modified forest trees are to be deployed.

Reliable, tested and agreed protocols for evaluating risks associated with GMOs in planted forests are necessary.

References: (to add reference numbers from Bibliography when complete)

5.2 Herbicides, Pesticides, Fungicides and other Chemicals

Controlling weeds, insects, diseases and other pests is critical in maintaining planted forest health and productivity. Sound selection of species, provenances or hybrid reproductive materials with genetic traits resistant to these biotic agents, timely maintenance of mechanical and manual tending, silvicultural operations and comprehensive protection monitoring and management can substantially reduce the risk of insect, disease and other pest outbreaks. Thus, sound planning, management and monitoring of planted forest development is the key to maintaining acceptable levels of biosecurity.

Integrated Pest Management (IPM) programmes can improve the health, productivity and sustainability of planted forests but also improve the ecological sustainability and should be adopted where it is practicable to do so. IPM relies primarily on environmentally-benign processes including the use of pest resistant varieties, improved management practices, the actions of natural enemies and cultural control. IPM programmes are also economically sustainable as they reduce the planted forest manager's dependence on expensive procured inputs. Wherever possible IPM programmes should be adopted.

However, in instances where mechanical, manual or grazing control of weeds or mechanical or cultural control of insects and diseases are not viable, in major outbreaks in special conditions, or in some cases fundamental for the success of planted forest establishment and management, use of herbicides, pesticides, fungicides or other chemicals may be necessary. In such cases, appropriate procedures for the selection and application of herbicides or pesticides must be considered

References: (to add reference numbers from Bibliography when complete)

5.3 Fertilisers

Planted forests have generally been growing sufficiently long to establish a "nutrient cycle" from foliage to litter and thence back into the soil, and fertilisers are not always needed. Furthermore, the long rotations and deep rooting systems of trees mean that the weathering of minerals often contributes sufficient nutrients to compensate for losses in harvesting. However, fertilizers may be used in planted forests to provide healthy seedlings from nurseries, to replace soil nutrients removed in harvesting in short-rotation crops, or lost through litter removal; to increase forest productivity when land is limited for new forest development, to provide nutrients on poor soils for the establishment of tree cover in site rehabilitation, and to provide one or more nutrients or trace elements which may be lacking, or in forms that are unavailable for plant growth.

A significant environmental issue regarding fertilizers in nurseries or in forest planting is over-application, with subsequent nutrient leaching into streams and watercourses, contributing to the eutrophication of lakes or the accumulation of heavy metals. The decision to apply fertilizers, in the field or in the nursery, should thus be based on soil or foliar analysis, and only sufficient fertilizer should be applied to meet the need. Consideration should be given to the use of slow-release mineral fertilizers to minimise the risk of ground water contamination, or the use of organic fertilizers, especially in nurseries. Application of fertilizers should be synchronised with periods of fastest nutrient uptake.

The application of fertilizers is very expensive in the field and the predicted economic benefits should therefore be set against the costs. Some certification schemes may discourage use of fertilizers in planted forest development.

References: (to add reference numbers from Bibliography when complete)

5.4 Planted Forests and Fire

Fire can be a major threat to planted forests, particularly where dry litter builds up or an inflammable shrub layer develops. Fire may contribute to the loss of nutrients and to exposure of the soil to erosion. The smoke and other emissions from fires can be a serious health hazard. While the release of greenhouse gases from fire is a natural phenomenon, the net release of carbon by wildfires as a consequence of fire-induced site degradation and lowered carbon sequestration potential is contributing to the human-induced increase of the greenhouse effect and global warming.

Prescribed burning is therefore often used in planted forests to reduce the fuel load and avoid a catastrophic outbreak of wildfire. Although fire is also frequently used in land clearing before tree planting, the threats to the soil are recognised and alternative means of land preparation should be sought where feasible.

Fire management in planted forests needs to be based on the pillars of prediction, prevention and preparedness, supported by public awareness, monitoring, rapid response and community-based fire management. Fire weather prediction models have been developed, mainly in many countries. Access to global, regional and national systems are provided by the Wildland Fire Early Warning Portal of the Global Fire Monitoring Center (GFMC)².

References: (to add reference numbers from Bibliography when complete)

5.5 Invasive Species

Since many introduced or exotic species may adapt to their new environment and regenerate prolifically, great care is required to ensure that such species serve the purposes of the planted forests and do not get out of control to generate unanticipated negative effects impacts on native ecosystems or on agricultural lands. Introduction of new species must be based upon strict scientific testing and effective regulatory controls.

Planted forests must be managed in a way to reduce the possibilities of tree and shrub species becoming invasive, especially when they are well adapted and regenerate easily.

The use of pioneer species that have the potential to become invasive, may be considered for planted forests in combating desertification or for rehabilitating severely degraded lands. Their use should be based upon scientific testing and through the participation of stakeholders who should understand the possible impacts and risks in doing so.

References: (to add reference numbers from Bibliography when complete)

5.6 Maintenance and Conservation of Biological Diversity

Biological diversity refers to the diversity of flora, fauna, including micro-organisms, at the level of the ecosystem, the species or the gene. Planted forests may modify the diversity present on the site or may enhance biological diversity in rehabilitation of degraded lands, combating desertification or restoration of landscapes.

At the level of the ecosystem, planted forests must not cause the loss of primary forest or ecologically significant secondary forest or other important ecosystems. Examples of such

² <http://www.fire.uni-freiburg.de/fwf/fwf.htm>

ecosystems should be preserved and protected within plantation programmes, conserving at the same time their genetic diversity. Natural forest corridors should be protected, to link blocks of natural forest. Riparian reserves of natural forest should be reserved along water courses, the width being determined by the size of the water course.

Native species are to be preferred for planted forests if they are equal to or better than exotic species for the purpose for which they are to be planted. Exotic species should be selected in relation to specific management objectives and specific ecological site conditions.

Within the planted forest, management should aim to develop or enhance the development of diversity of plants and animals. The use of mixed-species in planted forests can promote diversity of plants and animals. Birds and populations of other fauna may be encouraged in planted forests through retention of riparian reserves and indigenous forest remnants and corridors.

References: (to add reference numbers from Bibliography when complete)

5.7 Planted Forests and Water

The economic value of water and watersheds need to be recognized. The reduction of water subsidies and giving water a value, rather than considering as a free good, provides an economic incentive to encourage more effective and rational water management (see Principle 4 related to the recognition of the value of planted forest services, Principle 9 related to the provision of environmental services, and the attribute of Principle 5 related to the avoidance of perverse incentives, including in sectors other than forestry).

Establishing planted forests in arid and semiarid areas requires a careful selection and evaluation of species in order to determine the possible effects on other land-uses on the landscape due to reducing water availability, both superficial or in the water tables. The challenges are a mixture of both policy and technology-related environmental and socio-economic issues and options for integrated watershed management.

On the other hand, planted forest may play an important role in regulating water flows, reducing the effects of floods, debris flows and landslides. Riparian reserves in planted forests contribute to water flow regulation and to enhancing water quality. Healthy planted forests can help to maintain low levels of sedimentation if integrated with other watershed management initiatives.

Planted forests may also play an important role in urban and peri-urban localities, particularly in arid and semiarid areas, as outlets for treated water (phyto-remediation) from cities or from industrial activities.

The effect of planted forest on water can not be generalized and must be considered on a case by case basis according to ecological conditions, species and forest management objectives. It is important in policy-making and planning to keep in mind the impact of planted forests on water supplies and on maintaining equity in the distribution of water in the landscape.

References: (to add reference numbers from Bibliography when complete)

5.8 Rights of indigenous people, and community customary rights

Land that is selected for planted forest development may be subject to the rights held by local people (including indigenous people) for grazing, fodder, collection of fruits or firewood and other uses. Even apparently degraded land may be of great importance for the survival

of the poorest, precisely because it is of no economic value for stronger members of the community. If planted forests are to contribute to socio-economic sustainability then local community rights, and privileges, must be taken into account (see Principle 7).

In development of planted forests it is important that the rights of ownership and possession over lands which have been traditionally occupied should be recognized and respected. The rights of indigenous peoples and local communities should be safeguarded, including the right of these peoples to participate in the use, management and conservation of these resources. Particular attention should be paid to the situation of nomadic peoples and shifting cultivators. Where the relocation of these peoples is considered necessary as an exceptional measure, such relocation shall take place only with their free and informed consent.

Socio-cultural-economic baselines and impact assessments should identify local community rights and assess their importance, paying particular attention to the rights of the poorest and of disadvantaged or marginalised sectors of the community, including women. Such rights should be formally recognised. Conflict resolution mechanisms should be established for the settling of disputed rights, or to determine compensation where the rights have to be temporarily or even permanently extinguished.

References: (to add reference numbers from Bibliography when complete)

5.9 Land tenure and usufruct

Clarity of land tenure is fundamentally important for effective, sustainable development of planted forest programmes in particular. Without secure tenure the sustainable management of planted forests is not possible because of the uncertainty, and the full benefit flows are not possible – whether wood production or the provision of environmental and socio-economic services, including poverty alleviation. Private investors, large or small, corporation or smallholder or community, require the security not only of good governance but also of legal tenure to the land and the crops they own or rent.

Planted forests may be developed under different ownership mechanisms, with increasing emergence of corporate-smallholder contracts or partnerships. Duration, assurance, robustness and excludability have been identified as being the main legal elements for secure tenure arrangements. While forest policy reforms may be introduced to encourage participation, the laws are often not changed, or are incompletely changed, to give clear, formal and long-term recognition of rights and responsibilities. Security of tenure may not be robust if all or certain rights are limited by time, or if decision-making power has not been fully devolved.

As with the issue of rights of access or use, the development of secure land tenure for planted forests will require consultation, conflict resolution and shared decision-making. The acknowledgement and recognition of customary rights may be necessary. Consultation will also be necessary with other land users, and the opportunity may have to be taken to develop a new land use policy and/or to resolve and harmonize conflicting land use legislation which may impact tenure. Even decentralization may lead to conflict in tenure, or marginalised groups being disadvantaged.

References: (to add reference numbers from Bibliography when complete)

5.10 Employment

The potential of planted forests to contribute to rural development, including poverty alleviation is well recognized, and is particularly important during times of economic depressions. The establishment, maintenance, tending, silviculture, protection and harvesting of planted forests very often involves the employment of unskilled and poorly paid, people, resulting in a high employment turnover. In many countries it has been associated with high accident rates, fatalities and serious health problems. It is often dominated by men, although women are often employed in forest nurseries. Contract labour may account for a large and growing share of the planted forest workforce in many countries. The contractors may not be covered by labour legislation and these workers may enjoy much less protection than workers in a formal working relationship. Under pressure to cut costs in a very competitive market, contractors may be forced to overextend themselves and their employees with a high pace of work and excessive working hours or resort to illegal practices. Working conditions should provide safe practices, basic shelter, nutrition and for social protection. A more equitable sharing of economic benefits with the forest workforce is required if local communities are to enjoy the benefits of economic development and poverty reduction.

One key element in breaking the cycle of low productivity, low wages, high turnover and unsafe work is the empowerment of the forest workforce, smallholders and contract labour. Assisting these groups to form associations and capacitating these associations helps to insure a more equitable distribution of benefits and more democratic governance. Vigorous enforcement of ILO core labor standards represent the minimum level of protections required to create an enabling environment for the empowerment of large groups of forest workers.

Adequate training is another key element in breaking the cycle cited above. Such training is most effective when designed and delivered by the major group (as defined in Agenda 21) for whom it is targeted. Provision should be made for on-the-job and vocational training for all forest workers, with particular emphasis on health and safety.

Planted forest programmes can offer opportunities to contribute to rural development through paid employment and through training. The effect of planted forest programmes on rural development as a multiplier of employment at secondary (processing) and tertiary (service) levels can be considerable especially when of significant portion of the wealth of such value-added activity remains in the local economy and among the forest-dependent workforce.

Wages, working time, work organization arrangements to adapt working life to the demands of life outside work, and working conditions are core elements of the employment relationship and of workers' protection.

References: **(to add reference numbers from Bibliography when complete)**

5.11 Incentives

Incentives can be subsidies to reduce costs or to increase returns, but can also be other forms of financial encouragement such as tax reductions and non-pecuniary support in the form of research and extension. The use of incentives needs to be rational and clearly justified in terms of forest or wider economic policies in order to avoid them encouraging the wrong outcomes – for example, perverse incentives may encourage the conversion of natural forest to planted forest.

The decision to establish any form of incentive for planted forest development should involve investigation to determine costs and returns for different investors – for example, corporations or small-holders may require quite different treatment - and to determine incentives that will cause the least distortion or scope for fraud. The administration of incentive schemes should be monitored, and care taken to ensure that incentives do not lead to planting that neglects maintenance or subsequent management.

There is a move away from direct towards indirect incentives. Rather than paying subsidies to correct distortions in other parts of the economy that discourage planted forest development, the emphasis is now on the elimination of those distortions and structural impediments and the creation of a climate that encourages enterprise. Tax system reform may be required, or the elimination of administrative barriers that discourage the marketing of wood or wood products.

A source of incentive of considerable potential for planted forest development may be the provisions of the Kyoto Protocol of the UNFCCC to promote forests as carbon sinks within the context of the Clean Development Mechanism and Emissions Trading (see Section B).

References: (to add reference numbers from Bibliography when complete)

Annex 1. Origin of the Code

There is wide recognition that forests have played a critical and positive role in sustainable forest management and in wood and fibre supply in recent years, and that planted forests provide multiple economic, social, cultural and environmental services and benefits. The area of planted forests has thus increased sharply in the past 15 years.

Although planted forests are becoming increasingly important at the global and regional levels and to the public and the private sectors, performance in the past has not always been successful. Furthermore, there have been some instances of adverse environmental, social and economic effects from public and private planted forest programmes, often related to badly-conceived policies, short-sighted planning or poor management practices, which have led to some negative perceptions of planted forests by some decision-makers and the general public.

There has been a recognized need for an authoritative Code to set the guiding framework of Principles to support preparation of enabling conditions (institutional and technical) for sound planted forest development.

The concept of a Code had emerged from the Expert Meeting on the Role of Planted Forests (New Zealand, 2003) and the Forty-fifth Session of the FAO Advisory Committee on Paper and Wood Products, in Australia, 2004. In line with its mandate and with requests from member countries³, FAO undertook to coordinate the process in preparation of a draft Code with collaborating partners and through a multi-stakeholder process. Core Group meetings were held in January and September 2005 and an expert consultation in December 2005 to agree on the scope, target users, the content, the guiding Principles and the process.

It was agreed that the objectives of the Code would be to:

- Provide the overarching framework of Principles;
- Balance the trade offs between the economic, cultural, social and environmental dimensions of planted forests in supply of wood, fibre, non-wood products and services; and
- Contribute positively to sustainable forest management, integrated land-use and livelihoods.

It was agreed that the scope of the Code would include the planted component of semi-natural forests and forest plantation (see Annex 3), and would include the full spectrum of planning, management and monitoring activities for both productive and protective functions.

It was further agreed that the Code be voluntary and non-binding, adapted primarily to the needs of Governments and investors (both public and private sector), policy makers, planners and managers. The Code would complement and supplement, without detracting from, the various forest certification schemes in existence. Thus, the core of the Code be on the guiding Principles and less on the technical guidelines for implementation practices.

It was agreed that the Code be authoritative, positive and prescriptive in style and language, but avoid detail.

³ For example, the Report of the 2005 Session of FAO's Committee on Forestry state (para. 54): *The Committee strongly supported the continued focus of FAO on technical advice, capacity-building and knowledge dissemination on best practices, including on such topics as planted forests...*

Annex 2. Glossary

Definitions marked * have been taken from the Global Forest Resources Assessment 2005 (FRA 2005). <http://www.fao.org/forestry/foris/webview/forestry2/index>. They in turn may have been taken from primary sources such as IUFRO or CBD, and these sources are given.

Afforestation*

Establishment of forest plantations on land that, until then, was not classified as forest. Implies a transformation from non-forest to forest.

Biodiversity* (also Biological Diversity)

The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

(from the Convention on Biological Diversity, art 2:

<http://www.biodiv.org/convention/articles.asp?lg=0&a=cbd-02>)

Carbon Sequestration

The uptake and storage of carbon. Forests, trees and plants absorb carbon dioxide, release the oxygen and store the carbon.

Carbon Sink

Forests and other ecosystems that absorb carbon, thereby removing it from the atmosphere and offsetting of CO₂ emissions. The Kyoto Protocol allows certain human-induced sinks activities undertaken since 1990 to be counted towards Annex I Parties' emission targets.

Clean Development Mechanism

The Clean Development Mechanism is one of the flexible mechanisms of the Kyoto Protocol designed to make it easier and cheaper for industrialised countries to meet the greenhouse gas emission reduction targets that they agreed to under the Protocol. Under the CDM, an industrialised country with a greenhouse gas reduction target can invest in a project in a developing country without a target, and claim credit for the emissions that the project achieves.

Deforestation*

The conversion of forest to another land use *or* the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.

Disturbances*, affecting forest health and vitality.

A disturbance is defined as *an environmental fluctuation and destructive event that disturb forest health, structure, and/or change resources or physical environment at any given spatial or temporal scale*. Disturbances that affect health and vitality include biotic agents such as insects and diseases and abiotic agents such as fire, pollution and extreme weather conditions. (White and Pickett, 1985).

<http://www.mcgregor.bc.ca/publications/InteractionsWithInsectsAndPathogens.pdf>)

Employment*

Any type of work performed or services rendered under a contract of hire, written or oral, in exchange for wage or salary, in cash or in kind.

(Based on definitions by ILO and the Employment Security Commission)

Employment may be related to the primary production of goods, or to the provision of services.

ILO Core Labour Standards include the following conventions:

- Convention 29 on Forced Labour, adopted in 1929 and Convention 105 on Abolition of Forced Labour, adopted in 1957
- Convention 87 on Protection of the Right to Organise, adopted in 1948
- Convention 98 on the Right to Organise and Collective Bargaining, adopted in 1949
- Convention 100 on Equal Remuneration, adopted in 1951, and Convention 111 on Discrimination (Employment en Occupation), adopted in 1958
- Convention 138 on Minimum Age, adopted in 1973, and Convention 182 on Worst Forms of Child Labour, adopted in 1999
- Convention 131 on Minimum Wage Fixing, adopted in 1970
- Convention 155 on Occupational Safety and Health, adopted in 1981, and Convention 161 on Occupational Health Services, adopted in 1985
- Convention 142 on Human Resources Development, adopted in 1975

Eutrophication is a process by which bodies of water become highly charged with nutrients leading to a massive growth in primary productivity, which may result in the growth of algae (“algal blooms”), leading to reductions in dissolved oxygen and the death of fish and other life.

Forest*

Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.

- Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters *in situ*. Areas under reforestation that have not yet reached but are expected to reach a canopy cover of 10 percent and a tree height of 5 m are included, as are temporarily unstocked areas, resulting from human intervention or natural causes, which are expected to regenerate.
- Includes areas with bamboo and palms provided that height and canopy cover criteria are met.
- Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific scientific, historical, cultural or spiritual interest.
- Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 ha and width of more than 20 m.
- Includes plantations primarily used for forestry or protection purposes, such as rubberwood plantations and cork oak stands.

- Excludes tree stands in agricultural production systems, for example in fruit plantations and agroforestry systems. The term also excludes trees in urban parks and gardens.

Forest management*

The processes of planning and implementing practices for the stewardship and use of forests and other wooded land aimed at achieving specific environmental, economic, social and /or cultural objectives. Includes management at all scales such as normative, strategic, tactical and operational level management.

Intensive forest management*

A regime of forest management, where silvicultural practices define the structure and composition of forest stands. A formal or informal forest management plan exists. A forest is not under intensive management, if mainly natural ecological processes define the structure and composition of stands.

Forest resources*

For the purposes of the global forest resources assessments, forest resources include those found in forests and other wooded land and as trees outside forests.

Function* The designated function refers to the purpose assigned to a piece of land either by legal prescriptions or by decision of the land owner/manager. It applies to land classified as “Forest” and as “Other wooded land”.

Primary function* A designated function is considered to be primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.

Secondary function* Other functions

Introduced species* - see Species

Managed Forest/Other wooded land*

Forest and other wooded land that is managed in accordance with a formal or an informal plan applied regularly over a sufficiently long period (five years or more).

Native species* - see Species

Natural forest*

A forest composed of indigenous trees and not classified as a forest plantation

Modified natural Forest/Other Wooded Land*

Forest/Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.

- Includes, but is not limited to: selectively logged-over areas, areas naturally regenerating following agricultural land use, areas recovering from human-induced fires, etc.
- Includes areas where it is not possible to distinguish whether the regeneration has been natural or assisted.

Primary Forest/Other wooded land*

Forest/Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.

- Includes areas where collection of non-wood forest products occurs, provided the human impact is small. Some trees may have been removed.

Semi-natural Forest/Other Wooded Land*

Forest/Other wooded land of native species, established through planting, seeding or assisted natural regeneration:

- Includes areas under intensive management where native species are used and deliberate efforts are made to increase/optimize the proportion of desirable species, thus leading to changes in the structure and composition of the forest.
- Naturally regenerated trees from other species than those planted/seeded may be present.
- May include areas with naturally regenerated trees of introduced species.
- Includes areas under intensive management where deliberate efforts, such as thinning or fertilizing, are made to improve or optimise desirable functions of the forest. These efforts may lead to changes in the structure and composition of the forest.

Non-Wood Forest Product (NWFP)*

A product of biological origin other than wood derived from forests, other wooded land and trees outside forests. (FAO, NWFP website: <http://www.fao.org/forestry/site/6388/en>)

Other wooded land*

Land not classified as Forest, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.

Plantation forest or Forest plantation/ other wooded land*

Forest/other wooded land of introduced species and in some cases native species, established through planting or seeding.

- Includes all stands of introduced species established through planting or seeding.
- May include areas of native species characterized by few species, even spacing and/or even-aged stands
- Plantation forest is a sub-set of planted forest.

Productive plantation* (in Forest/Other wooded land)

Forest/Other wooded land of introduced species and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.

- Includes all stands of introduced species established for production of wood or non-wood goods.
- May include areas of native species characterized by few species, straight tree lines and/or even-aged stands.

Protective plantation* (in Forest/Other wooded land)

Forest/Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

- Includes all stands of introduced species established for provision of environmental services, such as soil and water protection, pest control and conservation of habitats to biological diversity.
- Includes areas of native species characterized by few species, straight tree lines and even aged stands.

Planted forest / other wooded land*

Forest/other wooded land in which trees have been established through planting or seeding. Includes all stands established through planting or seeding of both native and introduced species.

Purpose:

Multiple purpose*

Forest/Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of socio-cultural services and where none of these alone can be considered as being significantly more important than the others.

Production*

Forest/Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.

Protection of soil and water*

Forest/Other wooded land designated for protection of soil and water.

Social services*

Forest/Other wooded land designated for the provision of social services. These services may include recreation, tourism, education and/or conservation of cultural/spiritual sites

Reforestation*

Establishment of forest plantations on temporarily unstocked lands that are considered as forest.

Regeneration

Artificial Regeneration

Forests established by artificial regeneration on land that carried forest within the previous 50 years or within living memory, and involved the renewal of what was essentially the same crop as before.

Natural regeneration (with assistance)

Forests established by natural regeneration, with deliberate silvicultural assistance from man including the provision of seed or vegetative reproductive material.

Natural regeneration (without assistance)

Forests established by natural regeneration without deliberate assistance from man. These included virgin forests and those regenerated by natural means.

Secondary forest*

Forest regenerated largely through natural processes after significant human or natural disturbance of the original forest vegetation.

- The disturbance may have occurred at a single point in time or over an extended period;
- The forest may display significant differences in structure and/or canopy species composition in relation to nearby primary forest on similar sites

Species

Introduced species*

A species introduced outside of its normal past and current distribution.

Note: Its synonyms are "alien species" and "exotic species".

Native species*

A native species is one which naturally exists at a given location or in a particular ecosystem, i.e. it has not been moved there by humans.

(CBD web site: <http://www.biodiv.org/programmes/areas/forest/definitions.asp>)

The term Native species is synonymous with Indigenous species.

Silviculture*

The art and science of controlling the establishment, growth, composition, health and quality of forest and woodlands to meet the targeted diverse needs and values of landowners and society on a sustainable basis. (web: <http://www.iufro.org/>)

Tree*

A woody perennial with a single main stem, or in the case of coppice with several stems, having a more or less definite crown. Includes bamboos, palms, and other woody plants meeting the above criteria.

Trees outside forests

Trees outside forests include all trees found outside forests and outside other wooded lands:

- stands smaller than 0.5 ha;
- tree cover in agricultural land, e.g. agroforestry systems, homegardens, orchards;
- trees in urban environments;
- along roads and scattered in the landscape.

(web: <http://www.fao.org/forestry/site/tof/en>)

Annex 3. Classification of Naturally Regenerating and Planted Forests and Trees Outside Forests

Primary	Modified Natural	Semi-Natural	Planted Forests Sub-Group			Trees Outside Forests
			Planted component	Plantation		
				Productive	Protective	
Forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed	Forest of naturally regenerated native species where there are clearly visible indications of human activities	Assisted natural regeneration through silvicultural practices for intensive management <ul style="list-style-type: none"> • Weeding • Fertilizing • Thinning • Selective logging 	Forest of native species, established through planting, seeding or coppice of planted trees	Forest of introduced species and in some cases native species, established through planting or seeding mainly for <u>production of wood or non-wood goods</u>	Forest of native or introduced species, established through planting or seeding mainly for <u>provision of services</u>	Stands smaller than 0.5 ha; tree cover in agricultural land (agroforestry systems, homegardens, orchards); trees in urban environments; and scattered along roads and in landscapes
			FOCUS OF PLANTED FOREST CODE			

Sources:

- 1 Del Lungo, A., Carle, J.B., 2005. **Global Planted Forest Thematic – Supplement to Forest Resources Assessment, FRA 2005**, Planted Forests Working Paper FP/35, FAO, Rome, Italy, April, 2005.
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Annex 4. Important Conventions, Agreements and Declarations

International Plant Protection Convention (IPPC). Established in 1951 to prevent the introduction and spread of pests and diseases of plants and plant products and to promote measures for their control;

Ramsar Convention on Wetlands (RAMSAR). Established in 1971 as an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources;

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Established in 1975 as international agreement between Governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival;

Rio Declaration on Environment and Development, and Agenda 21 adopted by the United Nations Conference on Environment and Development (UNCED, Rio, 1992), in particular Chapter 11 of Agenda 21 concerning combating deforestation;

International Labour Organization Convention No. 169 on Indigenous Peoples (ILO). Adopted in 1989, entered into force in 1991 to set comprehensive international standards for the rights of indigenous peoples;

United Nations Convention on Biological Diversity (CBD). Established in 1992 at the Rio Earth Summit, dedicated to promoting sustainable development by recognizing that biological diversity is about more than plants, animals and micro organisms and their ecosystems, but also about people and their need for food security, medicines, fresh air and water, shelter and a clean and healthy environment in which to live;

United Nations Framework Convention on Climate Change (UNFCCC). Established in 1992 to stabilize greenhouse gas emissions in the atmosphere, entered into force in 1994.

United Nations Convention on Combating Desertification (UNCCD). The Convention was adopted in 1994 and entered into force in 1996; to promote effective action to combat desertification through innovative community level actions, integrated programmes and supportive international partnerships to achieve sustainable development in arid and semi-arid lands;

Kyoto Protocol, an instrument under the United Nations Framework Convention on Climate Change. Established in 1997, entered into force in February, 2005;

Intergovernmental Panel on Forests (IPF, 1995-97) and Intergovernmental Forum on Forests (IFF, 1997-2000) proposals for action and the United Nations Forum on Forests recommendations (UNFF, 2000 to present);

International Labour Organization Declaration on Fundamental Principles and Rights. Declaration adopted in 1998 as an expression of commitment by governments, employers' and workers' organizations to uphold basic human values - values that are vital to our social and economic lives;

World Summit on Sustainable Development Declaration (WSSD). Political declaration in 2002 as a commitment to sustainable development including protecting and managing the natural resource base of economic and social development and sustainable development for Africa;

Millennium Development Declaration and Millennium Development Goals (UN General Assembly, 2000) are related to values and Principles concerning poverty eradication, protecting our common environment, human rights, democracy, gender equality, good governance and developing a global partnership for development. A summary of goals and targets are:

Goal 1. Eradicate extreme poverty and hunger

Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.

Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Goal 2. Achieve universal primary education

Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Goal 3. Promote gender equality and empower women

Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015.

Goal 4. Reduce child mortality

Target 5. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Goal 5. Improve maternal health

Target 6. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.

Goal 6. Combat HIV/AIDS, malaria and other diseases

Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

Goal 7. Ensure environmental sustainability

Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the losses of environmental resources.

Target 10. Halve by 2015 the proportion of people without sustainable access to safe drinking water.

Target 11. By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

Goal 8. Develop a Global Partnership for Development

Target 12. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system

Target 13. Address the special needs of the least developed countries

Target 14. Address the special needs of landlocked countries and small island developing States.

Target 15. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term.

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