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Workshop on reducing emissions from deforestation in developing countries

30 August - 1 September 2006, Rome, Italy

BACKGROUND PAPER FOR THE WORKSHOP ON REDUCING EMISSIONS FROM DEFORESTATION IN DEVELOPING COUNTRIES

Part II

Policy approaches and positive incentives*

CONTENTS

* This paper has not been subjected to editing. This paper has been prepared for the purpose of providing background information and to facilitate discussions at the workshop. It contains information from various sources that do not necessarily reflect the views of the secretariat.

I. Introduction

A. Mandate

1. The SBSTA, at its twenty-fourth session, decided that the workshop on reducing emissions from deforestation in developing countries should provide an opportunity for Parties to share experiences and consider relevant aspects relating to reducing emissions from deforestation in developing countries. The specific topics to be discussed in the workshop will include:

(a) Scientific, socio-economic, technical, and methodological issues, including the role of forests, in particular tropical forests, in the global carbon cycle; definitional issues, including those relating to links between deforestation and degradation; data availability and quality; scale; rates and drivers of deforestation; estimation of changes in carbon stocks and forest cover; and related uncertainties;

(b) Policy approaches and positive incentives to reduce emissions from deforestation in developing countries, including causes; short- and long-term effectiveness with respect to emission reductions; the displacement of emissions; bilateral and multilateral cooperation; activities of other relevant international bodies; enhancing sustainable forest management; capacity-building; and financial mechanisms and other alternatives – basing discussions on experiences and lessons learned;

(c) Identification of possible links between relevant scientific, socio-economic, technical and methodological issues and policy approaches and positive incentives that may arise from the consideration of the topics in subparagraphs (a) and (b) above.[1]

2. The SBSTA also requested the secretariat to prepare for the workshop a background paper on the items contained in 1 (a) and (b) above.[2] This background paper on policy approaches and positive incentives elaborates on the topics in paragraph 1 (b) and includes relevant examples of country experiences.

B. Scope of the paper

3. This technical paper presents information on policy approaches and positive incentives to reduce emissions from deforestation in developing countries, including causes; short- and long-term effectiveness with respect to emission reductions; the displacement of emissions, bilateral and multilateral cooperation; activities of other relevant international bodies; enhancing sustainable forest management; capacity-building; and financial mechanisms and other alternatives. In order to provide a comprehensive analysis of these issues, it was decided to use information related to experiences and lessons learned taken from a combination of sources, including a broad range of literature (e.g. journal articles and books) and direct information extracted from the website of organisations involved in the issue of deforestation. Information on capacity building is discussed within the presentation of various organisations in section IV. Information on financial mechanisms is included within section III.C (on positive incentives) and section IV (on bilateral and multilateral cooperation).

4. Section II defines deforestation as well as elaborates on the causes of deforestation. It shows that deforestation is explained by a combination of factors at different levels, including direct and underlying causes, and predisposing conditions. The information included in this section compiles research from lead scientists undertaken during the last 20 years. This section complements the analysis on drivers of deforestation included in the paper entitled "Scientific, socio-economic, technical and methodological issues related to deforestation in developing countries"(see part I of the background paper). Some of the

[1] FCCC/SBSTA/2006/5, paragraphs 52 (a) to (c).
[2] FCCC/SBSTA/2006/5, para. 54.

information in that paper is reconsidered here with an aim to provide further clarity to the discussion on policies and positive incentives to reduce emissions from deforestation in developing countries.

5. Section III provides a review of policy approaches and positive incentives relating to the reduction of emissions from deforestation in developing countries. Information contained therein summarises analyses by policy experts, based lessons learned from experiences in several developing countries. Annex I presents examples of policies on sustainable forest management (SFM) in some developing countries, extracted from ITTO (2005). Annex II includes examples of positive incentives throughout the world, extracted from reports and the websites of governmental and non-governmental organisations involved in SFM and forest conservation activities.

6. Finally, section IV provides a summary of bilateral and multilateral cooperation, including activities from other international bodies, relevant to the reduction of emissions from deforestation in developing countries. It summarises information on their activities and objectives, including on enhancing SFM and capacity building. The information has been extracted directly from the websites of each organisation. Annex III includes examples of projects implemented by some international organisations. The selection is strictly intended to illustrate activities undertaken by these organisations as well as to cover different geographical regions and is not intended to highlight initiatives that have yielded the best results.

7. As, to date, no examples specific to the reduction of emissions from deforestation are available, information included in sections III and IV refers to efforts to reduce deforestation rates, in particular, those on sustainable forest management (SFM) and forest conservation. Likewise, no information is available on the short and long-term effectiveness of policy approaches and policy incentives with respect to emissions reductions. For this reason, information in sections III and IV refers to effectiveness relating to the reduction of deforestation rates or areas of forest protected, as available.

II. Defining deforestation and causes of deforestation in developing countries

A. Defining deforestation

8. Deforestation occurs when agents clear forested land and subsequently change its use to, for example, agriculture or grazing lands. The Food and Agriculture Organisation of the United Nations (FAO) defines deforestation as the "change of land cover with depletion of tree crown cover to less than 10 percent. Changes within the forest class (e.g. from closed to open forest) which negatively affect the stand or site and, in particular, lower the production capacity, are termed forest degradation" (FAO 2000). Most literature assumes that deforestation covers both temporary and permanent changes, however, this question is usually open to discussion (Sunderlin & Pradjna 1996).

9. Decision 16/CMP.1, which specifies definitions, rules, modalities and guidelines for land use, land-use change and forestry (LULUCF) under the Kyoto Protocol, defines deforestation as "the direct human-induced conversion of forested land to non forested land".[3] The definition implies a land use change from forest to non-forest and is, therefore, linked to a definition for forest.[4] The definition for deforestation only applies to Article 3 paragraph 3 of the Kyoto Protocol.

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[3] Paragraph 1(d), Annex to decision 16/CMP.1 (FCCC/KP/CMP/2005/8/Add.3).

[4] Paragraph 1(a), Annex to decision 16/CMP.1, defines forest as a "minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.

B. Causes of deforestation in developing countries

10. Deforestation is best explained by a combination of factors rather than by single causation. Tropical deforestation, in particular, is not a forestry problem but one of land use (Grainger 1993) as most causes originate outside the forestry sector. Recent literature has studied the link between deforestation and economic development indicating an inverse relationship. Decreasing deforestation with increasing wealth happens because, as economies develop, they tend to invest more in environmental quality. The literature refers to this process as "forest transitions", which are long-run processes in which economic development drives a pattern of forest loss followed by forest recovery (Ewers 2006; Rudel *et al.* 2005).

11. The act of clearing forested land and, subsequently, changing its use, is rooted in a set of complex social, economic cultural and environmental realities. The literature classifies causes (also referred to as factors, drivers or forces) of deforestation into three levels: indirect or underlying causes; direct, immediate or proximate causes; and predisposing conditions (also referred to as "other causes") (Geist and Lambin 2001; CFAN 1999; Kaimowitz and Angelsen 1998).

1. Direct, immediate or proximate causes

12. Geist and Lambin (2001) define proximate causes as those human activities that directly affect the environment. In other words, direct or proximate causes of deforestation are those activities that directly remove forest cover. These are:

13. Agriculture. Clearing forest land for the implementation of agricultural activities is the most important direct cause of deforestation. Available fertile land for agriculture in the tropics is scarce, primarily because most is privately own and already under cultivation. Thus, the forest frontier is perceived as a safety net that offers unemployed or displaced people the option to use this land. Agricultural activities include the establishment of permanent crops (primarily cassava and rice), shifting and encroaching cultivation,[5] cattle ranching, colonization and resettlements (Geist and Lambin 2001; Grainger 1993). Forest clearance to establish cattle ranching in particular to Latin America. Between 1966 and 1983, cattle ranching accounted for about three fifths of total deforestation in that part of the world (Grainger 1993).

14. Logging. Literature on deforestation indicates that logging alone does not lead to deforestation, particularly in the tropics where logging is selective. Moreover, only a few tropical tree species have a commercial value and, hence, between two to ten trees are felled and removed out of an average of 350 trees per hectare (Grainger 1993). However, logging is classified as a proximate cause because several practices, for example, clear cut logging for pulpwood, the opening of remote areas for agriculture or the increased risk of fire due to logging debris lead to an increase in deforestation rates (Geist and Lambin 2001). `

15. Infrastructure development like dams, market infrastructure and settlements generally cause a limited loss of forest cover, while the construction of roads and highways can indirectly lead to higher deforestation rates by facilitating colonization and opening remote areas of forests. Private infrastructure mining, oil exploration and the construction of industrial facilities also cause some deforestation. Geist and Lambin found that infrastructure development explain less than 16 percent of the analyzed cases. According to Geist and Lambin (2001), transport expansion was the major infrastructure development linked to deforestation throughout the world.

[5] Encroaching cultivation is also referred to as shifting cultivation by necessity, and is carried out by migrant landless people that gain access to forest land through infrastructure developments. They cultivate land until the fertility of the soil is depleted (Grainger 1993).

2. Underlying causes

16. Underlying causes of deforestation are broader economic, political, cultural, demographic, and technological forces that underpin proximate or direct causes (Kaimowitz and Angelsen 1998). They include macro-level variables and policy instruments that are beyond the control of deforestation agents. A straightforward analysis of these causes is presented by Geist and Lambin (2001) who divide them as follows:

17. Policy and institutional factors. Policies and institutions play a role in deforestation by directly or indirectly promoting economic activities that clear forested land. At the same time, weak policies and institutions that aim to protect forests and promote their sustainable management fail to curb deforestation rates. Repetto and Gillis (1988) argue that public policies have had negative effects on forest cover because the flow of benefits from forests has been traditionally undervalued and limited to wood; because environmental costs from forest exploitation have been ignored; because development planners have encouraged the exploitation of forests with little scientific information as background; and, finally, because national governments either lack, or are reluctant to, invest resources for the proper management and administration of forest resources. Specific policy factors include:

(a) *Public policies.* The literature presents a wide range of analysis on the linkage between public policies and deforestation (see for example Von Ambserg 1998; Repeto and Gillis 1998; Kaimowitz & Angelsen 1999; Wunder 2003). It stresses that policies outside the forest sector have been designed and implemented without taking into consideration the economic, social and environmental costs of deforestation. Examples include repeated currency devaluation as it makes agricultural expansion more profitable; drastic austerity adjustment packages that curtail the urban economy, as they drive people back to the agricultural frontier; policies that protect land-extensive and timber sectors from imported substitutes, as they pose more pressure on land development to meet local demand; gasoline and transport subsidies, as they facilitate remote timber extraction or land development; population resettlement and land colonization programs as well as programs that support the development of the agricultural frontier; and lack of family planning policies.

(b) *Institutional weakness and corruption* are also linked to deforestation. Weak and underfunded forest institutions are generally the reflection of the economic power base in countries where forests compete with other land uses that are considered important for development. As a consequence, legislation is either limited or lacks enforcement. On the other hand, corruption is linked to deforestation through the issuance for political convenience or personal interest of licences to log or permits to clear land. The World Bank (WB 2000) noted the need to address within its forest strategy country-specific governance issues, like poor governance, corruption, political alliances and limited enforcement.

(c) *Land tenure and property rights*. According to Amacher *et al.* (2004), exploitation of open access forests follows rent driven behaviour so land is converted to the most profitable use. Mendelsohn (1994) argues that poorly defined property rights usually lead to wasteful deforestation. His models indicate that the rental value of the land is dissipated when property rights must be defended; and that probability of eviction and/or confiscation encourages squatters to clear forest. Moreover, policies that promote land use to secure property rights are a major cause of deforestation in the tropical world. Kaimowitz (1996) cites the case of Central America, where property rights were given to those that could demonstrate that they have been living in government lands for more than a certain number of years. The special case for *latifundios*[6] in Latin America is

[6] Latifundio is a large land estate which is privately owned.

referred by Miller *et al.* (2001) as a major cause of deforestation in this region. On the one hand, *latifundios* converted forested land into agriculture or grazing lands. On the other, the concentration of arable land among a few landlords forces landless peasants to clear marginal land to undertake subsistence activities (IUCN/WWF 1996).

18. Economic factors. Global and national economic factors play a major role in triggering proximate causes of deforestation. They include wealth (e.g. GDP), market structures and market variables, and commercialization of agricultural, forest and other products (see Geist and Lambin 2001; Von Amsberg 1998; Kaimowitz and Angelsen 1999). The principal economic factor, as well as one of the main factors studied, is economic development. Wealth is inversely linked to deforestation, as poorest countries exhibit highest deforestation rates. This is explained, primarily, by the fact that less developed economies offer less employment opportunities and force people to convert forested land. Conversely, as the wealth of nations increases, high tech services draws people away from activities that clear land and, hence, usually forest cover increases (Ewers 2006).

19. Market structures and market variables can have an effect on deforestation if they make alternative uses of land economically attractive by raising their profitability. For example, rising demand and price for agricultural products as well as decreasing prices for inputs such as petrol, are likely to trigger agricultural productivity and, hence, lead to land clearance. Likewise, poverty, low wages and lack of off-farm employment lessen income and income opportunities to farmers and landless people, forcing them to clear marginal land for subsistence crops.

20. Technological factors. Technological developments can lead to deforestation by increasing the profitability of those activities that cause deforestation. Angelsen and Kaimowitz (2001) note that technologies that could increase deforestation rates include those that favour the extension of agricultural activities, those that save costs on production and those that facilitate the expansion of the agricultural frontier. It has been argued that technologies that promote the intensification of agriculture could lead to a decrease in deforestation rates, however, the link between technology and the decrease in deforestation rates is ambiguous.

21. Cultural factors. Geist and Lambin (2001) identify cultural factors that lead to deforestation at two different levels. First, those that relate to the public in general, such as lack of social concern with deforestation, lack of spiritual values toward forest ecosystems, low education and public awareness about the consequences of forest cover loss, attitudes toward modernization, and indifference with the wellbeing of future generations. These factors are a social force that discourages forest conservation and SFM. The second level refers to individual and household behaviours or, in other words, to moral values that affect an individual's decision to clear land or to promote land clearance through his/her behaviours (e.g. buying uncertified forest products). They include individual lack of concern about the environmental services from forests, the continuation of inherited practices (e.g. forest fires as a means to land clearing), aspirations regarding demand for specific products and others.

22. Demographic factors. Grainger (1993) argues that an increasing population raises demand for food, thus increasing agricultural activities. Moreover, increases of population at the local level, particularly in rural areas, lead to increases in subsistence farming which implies an expansion of the agricultural frontier. However, implications of population growth for deforestation are better explained in combination with other underlying causes given that its effects as a single factor are nil.

3. Predisposing conditions (other causes)

23. Predisposing conditions are not directly or indirectly linked to the act of clearing land. They belong to a category of generic social and geographic issues that determine whether land can be cleared or not. For example, environmental factors such as topography and soil fertility can prevent or allow land clearance; it is likely that people will not undertake agricultural or other activities in areas that have difficult access or with difficult topography (Geist and Lambin 2001). Other environmental conditions

that may prevent land clearance include the scarcity of water, high slopes, flooding conditions, land degradation and the presence of forest fires.

24. Likewise, social events could also allow or prevent deforestation, for example, civil wars or social unrest, abrupt population movements, economic crises and epidemic conditions.

4. Agents of deforestation

25. In addition to underlying and direct causes, and to predisposing conditions, the literature identifies the agents of deforestation to refer to those that clear forested lands (CFAN 1999; Kaimowitz and Angelsen 1998). Deforestation agents include individuals, corporations, government agencies or development projects that clear forests for their own interest. Main agents of deforestation include slash and burn farmers, commercial farmers, cattle ranchers, commercial tree planters, mining and petroleum industrialists, colonialists and land settlement planners and infrastructure developers.

26. Sunderlin and Pradjna (1996) argue that agents should include not only those that remove forest cover but also those that prevent subsequent regeneration. However, being an agent of deforestation should not be interpreted as being "responsible" for it. Responsibility implies that an alternative course of action is feasible, which is not the case of those who practice slash-and-burn agriculture as a subsistence activity.

C. Regional differences

27. Owing to different social, economic and environmental conditions, the causes and trends of deforestation vary throughout the world, including between and within regions. In general, deforestation in Africa is largely due to the expansion of small-scale farming and to the increasing pressure from the local population (Kaimowitz *et al.* 1998). Main agents of deforestation in West Africa are loggers and smallholders while shifting cultivators are in the eastern part (Rudel and Roper 1996) .

28. Second, deforestation in Latin America is primarily due to medium and large size operations, including large agricultural plantations, cattle ranching and hydroelectric dams (Kaimowitz *et al.* 1998). Rudel and Roper (1996) conclude that cattle ranchers are the main agents of deforestation in this region.

29. Finally, deforestation in Asia results from a combination of large scale operations and the advance of the agricultural frontier by small farmers (Kaimowitz *et al.* 1998). Main agents of deforestation are loggers and small farmers (Rudel and Roper 1996). Infrastructure developments and resettling schemes have played some role in triggering deforestation in Asia (Grainger 1993).

1. Regional differences in underlying and direct causes

30. Geist and Lambin (2001) undertook a statistical analysis of underlying and proximate causes of deforestation in the tropics and calculated regional differences for individual factors. Regarding economic factors as underlying causes, market growth explained more than 70 percent of the cases analyzed in Africa and Latin America. The Analysis on policy and institutional factors, indicated that formal policies largely contribute to deforestation in Asia, with a total of 84 percent of the cases explained by this factor, followed by Latin America (67 percent) and Africa (37 percent). Informal policies (corruption and others) are linked to deforestation in Asia (56 percent) and Latin America (41 percent) and less in Africa (5 percent). Finally, issues with land tenure and property rights played a greater role in Asia (60 percent) than in Latin America (37 percent) or Africa (26 percent).

31. Other underlying causes of deforestation played a lesser role than economic and policy factors. Technological factors were more important for Asia and less for Africa and Latin America; cultural factors were more important in Asia and much less in Africa; and, finally, demographic factors had, in general terms, low influence on deforestation with an exception of population growth in Africa (79 percent).

32. Regarding agricultural activities as direct causes, the analysis showed that permanent and shifting cultivation contribute similarly to deforestation in the three regions. Some authors argue that, per hectare, agriculture in Africa triggers more deforestation that in any other region due to the impacts of shifting cultivation (Kaimowitz and Angelsen 1998). Cattle ranching is, by far, a major cause of deforestation in Latin America while it plays a minor role in Asia.

33. The analysis on logging showed that commercial activities play a greater role for deforestation in Asia (78 percent) than in Latin America (40 percent) or Africa (26 percent). Fuelwood extraction played a greater role in Africa (53 percent) than in Asia (33 percent) or Latin America (18 percent), a pattern which also was followed by the production of charcoal.

34. Finally, transport expansion was the major infrastructure development linked to deforestation throughout the world. Geist and Lambin (2001) conclude that transport expansion explains 80 percent of the deforestation cases in Latin America, while 47 percent in Africa and Asia.

III. Policy approaches and positive incentives

A. Forest conservation and sustainable management

35. The need to reduce deforestation rates has been in the international agenda for some time. The international community has strived to address this problem through financial assistance, policy advice, technical cooperation, research and others. The approach to reducing deforestation rates has been focused on supporting conservation initiatives and sustainable forest management (SFM). While the first focuses on preserving forest ecosystems and limiting exploitation activities, the second acknowledges the need for communities to directly benefit from goods and services from these ecosystems in a way that it can be sustained into the future. Both approaches recognize the importance of forests for future generations. Other approaches, less common in tropical countries, concentrate on lessening the pressure on forests by activities outside forestry, for example, by promoting sustainable agriculture or requiring environmental assessments for infrastructure developments.

36. Policies and incentives for forest conservation and SFM are widely used in the world. The institutional framework of each country responds to its economic, social-political and environmental situation and, therefore, arrangements vary considerably country by country. Almost all countries have in place a mixture of policies and incentives for this purpose. Most frameworks are not limited to promote lands set aside for conservation purposes, but could include activities in which forest conservation or sustainable management are combined with agriculture, hunting, logging or others.

37. The International Tropical Timber Organisation (ITTO) estimates that about 36.4 million hectares (4.5 percent) of the total natural permanent forest state is considered to be under sustainable forest management (including 7.1 percent from production forests and 2.4 percent from protection forests). According to this organisation, the main constrains to SFM are, in first place, that this activity is in most cases less profitable to the various parties involved than alternative uses. The second one is land tenure, including the lack of long-term security of land title and the problems in the process of land allocation. The third constrain is illegal logging and trade which needs to be tackled through law enforcement in consumer and producer countries. Finally, institutional capacity is also a major constrain, further worsened by shortage in staff, equipment, vehicles, research facilities, training centres and others (ITTO 2005).

B. Policy approaches

38. The success of forest conservation and SFM activities is determined by institutional frameworks that recognize the multiple values and uses of forests, and take into account the longer term. Such vision also requires that economic sectors which have an impact on deforestation consider environmental costs from deforestation. Likewise, the implementability and effectiveness of such policies is determined by a set of framework conditions. The OECD states that these include information availability and access,

institutional capacity building and the public participation, including local and indigenous communities, in the policy process (OECD 1999a).

39. Grainger (1993) suggests that that policies to reduce deforestation rates applicable to developing countries include those to make agriculture and forestry more sustainable, to raise the political status of forest conservation, and to modify social and economic development policies. On the other hand, those applicable to developed countries include the recognition of national sovereignty, the provision of support to positive developments including more and better targeted funds, capacity building and others; and the avoidance of policies that encourage forest clearance. Finally, he suggests that policies applicable to international organisations include the improvement of environmental procedures to further include environmental considerations, to extend the scope of environmental accounting, to adopt consistent policies, to establish a continuous and harmonious system for the monitoring of tropical forests and to increase international cooperation.

40. The following sections provide a summary of policies that can directly or indirectly affect deforestation as well as available policies that have been used to prevent forest clearance through the promotion of conservation and SFM. They are classified into policy approaches following Kaimowitz *et al.* 1998. Practical experiences, as well as lessons learned, on actual SFM policies implemented in ITTO member countries are contained in Annex I.

1. Reducing prices and demand for tropical agriculture and forestry products

41. High prices and demand for agricultural products are major economic factors of deforestation and, hence, public policies that affect these variables could limit the rates of forests being converted to croplands and grazing lands. These policies target variables such as income, trade restrictions, production costs and consumer preferences. They are, however, blunt instruments that are not easy to target and whose outcome is highly uncertain. One of the main drawbacks is that they rely entirely in the market of products that do not set a value to environmental goods and, hence, effectiveness is questionable. Table 1 presents examples of such policies.

Table 1: Policies related to price and demand for agriculture and forestry products

Policy	Description	Effectiveness
Policies for economic growth	Economic growth and deforestation can be seen from two different perspectives. First, on the assumption that increases in income lead to increases in demand for agricultural products, policies to limit growth can be positive to reduce deforestation rates. Conversely, and given the link between poverty and deforestation, economic growth could lead to a decrease in deforestation rates as activities that convert forests are less attractive for the economy. It is highly unlikely that governments will pursue limits to growth to reduce deforestation rates; on the contrary, it is in their interest to ensure economic growth. Evidence suggests that economic growth policies that concentrate less on agriculture and forestry are more likely to be effective on reducing deforestation rates. However, this is the case only when economic growth is accompanied by an equitable distribution of wealth (Ewers 2006).	Moderate (Kaimowitz *et al.* 1998)
Policies to devaluate currency	They increase the relative price of tradable goods, thus making agriculture more profitable. Policies to control exchange rates could decrease deforestation rates if the export of agricultural goods is a major underlying cause of deforestation. Generally, currency exchange policies have objectives that go beyond deforestation and pursue economic development and, hence, governments are unlikely to adopt them as a means to control deforestation; however, considering the effects of macroeconomic policy making on	Moderate (Kaimowitz *et al.* 1998)

Policy	Description	Effectiveness
	deforestation rates could contribute to reduce relative deforestation rates.	
Policies that control the price of tropical goods	They apply to local production and consumption and include price ceilings and quotas, import restrictions and guaranteed minimum prices. A policy could, for example, prohibit imports of goods that cause deforestation. Regarding national production and consumption, quotas of goods can limit agricultural output, however, the effectiveness on deforestation deepens on whether such goods would have been produced in newly cleared lands; experiences in Central America show that price controls and other restrictions are likely to affect producers on lands that have already been converted and not to those on the agricultural frontier as these last have fewer alternatives to agriculture (Kaimowitz *et al.* 1998). The same situation applies to logging, with the addition that decrease in prices and demand for wood can have negative effects on sustainable forest management.	Ambiguous (Von Amsberg 1998) Moderate (Kaimowitz *et al.* 1998)
Policies that set export bans and taxes	They could be implemented with the intention of decreasing supply and demand of agricultural products by increasing prices. However, such policies are likely to have negative side effects as they would discourage sustainable production, increase national consumption and increase illegal activities in countries with low law enforcement.	Moderate in the short run (Kaimowitz *et al.* 1998)

2. Increasing the costs and risks associated with deforestation

42. This type of policies directly target the act clearing of land. In most cases, they include the partial or total elimination of measures to promote agriculture, logging or infrastructure development. Table 2 describes some related policies.

Table 2: Policies related to costs and risks of deforestation

Policy	Description	Effectiveness
Policies that reduce subsidies for certain agricultural inputs	Public policies that affect input prices have effects on output by triggering agricultural intensification or extensification, or increasing or reducing production. In an interest to promote agricultural activities, governments provide subsidies on fertilizers, pesticides and fuel, and credit for farming as well as for logging in the form of low stumpage prices and logging concessions. The literature has largely criticised these subsidies for the effects on forest cover. In general terms, market distortions that artificially make agricultural or logging activities more profitable have proven to be less economically efficient in the longer run as a consequence of ignored environmental costs (Grainger 1993; Kaimowitz and Angelsen 1998)	Moderate in the medium term. However, effectiveness is questionable (see examples from Brazil cited by Lele *et al.* 2000 and Faminow 1998)
Policies to reduce technical support for agricultural activities that deforest	They could decrease deforestation, however, they may be difficult to implement given the political difficulties of stopping technical support for agricultural development in general. Some countries have effectively implemented policies that target lands not belonging to the agricultural frontier, as well as labour intensive practices, natural resource management and intensification of agricultural production.	Low (Kaimowitz *et al.* 1998)

Policy	Description	Effectiveness
Incorporating deforestation concerns into road and transport policies	The development of new roads increases deforestation in many different ways, for example, by opening new areas of forests and by increasing the profitability of agriculture through eased transport. For this reason, analyzing the implications of road construction for forest cover should be an essential component of any transport policy. This does not necessarily imply that less roads should be developed but rather changing their location, type and nature.	Moderate in the medium term (Kaimowitz *et al.* 1998), while, the longer term is determined by underlying causes of deforestation
Establishing protected areas	They are seen by most authors as an effective way of reducing deforestation rates. However, success is entirely dependant on the state's capacity to manage and enforce law, as well as the on the level of involvement of local communities. Although there are examples of efficiently managed protected areas, a report by IUCN reveals the lack of sustainable funding and shortage of funds to effectively managing them. It concludes that current levels of funding are inadequate, thus requiring the identification of new sources (IUCN 2006). Kaimowitz *et al.* 1998 argue that deforestation has also been encouraged by restricting access to natural resources and by neglecting traditional management and protection of forested areas. For this reason, policies on land use zoning should provide for the involvement of local and indigenous communities.	Variable (Kaimowitz *et al.* 1998)
Policies to reduce support for colonization	Few countries still support the colonization of forested areas.	Generally moderate (Kaimowitz *et al.* 1998)

3. Addressing land tenure

43. As referred to in section II.B.2 on underlying causes, some countries have established land-titling policies that require farmers to demonstrate that lands are "productively owned" in order to secure tenure. Land clearance could also be promoted by policies which define the forest resource as public, despite the private ownership of land. FAO is initiating a study on land tenure, for which results from a pilot phase in Asia are already available (FAO 2006). They indicate that forest resources remain mostly public (86 percent of the total area) with the government directly controlling 79 percent of forested land. Devolution of forest management responsibilities involves no more than 10 percent of forests and short term agreements continue to prevail over long-term ones. These situations call for policies that decouple forest clearance from tenure security as described in Table 3.

Table 3: Policies related to land tenure

Policy	Description	Effectiveness
Changes in land titling	In Latin America, some countries deny land title to farmers that have undertaken undue deforestation. There are also policies in place which require that a portion of natural forest in newly acquired lands be preserved. For example, the Brazilian government requires that, in the Amazon, public lands that become private shall preserve at least 60 percent of the forest cover.	Low, or even negative, resulting from weak implementation (Kaimowitz *et al.* 1998)
Policies to establish common property regimes	They are applicable to indigenous and forest-dependent people and can have positive effects on deforestation as they transfer the management responsibility to a group of individuals that is in closer contact with the resource.	Moderate (Kaimowitz *et al.* 1998)
Taxes	They could be used to decrease deforestation by establishing tax concessions and exemptions on protected lands. Land taxes and capital gain taxes can discourage land speculation as they raise the cost of holding land as a mechanism to decrease inflationary risk. Related information is not available, however, Kaimowitz *et al.* 1998 suggest that negative tax mechanisms are difficult to implement and enforce due to the high information requirements as well as the potential for tax evasion or avoidance.	Variable/unknown (Kaimowitz *et al.* 1998)

4. Increasing the profitability of managing forests sustainably

44. Most policies to control deforestation focus on eliminating the negative aspects of activities outside the forest and environment sector. This lies in the fact that most deforestation is caused by activities outside forestry. Alternatively, other policies are aimed at increasing the benefits of preserving and sustainably managing the forests. As private benefits from land conversion are higher than those from preserving forest cover, not clearing land entails a cost to the landowner. Policies to increase the profitability of managing forest sustainably and lessening the environmental costs of forest clearance stand on the positive through promoting environmental investments or by decreasing the opportunity costs of not clearing land. Generally, they target revenues from timber, non-timber forest products and environmental services. Such types of policies are shown in Table 4.

Table 4: Policies related to managing forests sustainably

Policy	Description	Effectiveness
Policies to promote the marketing of forest products	They include forest certification and ecolabelling and use market forces to increase the profitability of SFM. In most cases, such programmes need government support because sustainable exploitation of forests would not pay for the opportunity costs of land. At the international level, forest certification has been promoted by ITTO and the Forest Stewardship Council. Certification through ITTO includes about 96.2 million hectares (27%) of "production" permanent forest estates (3.0%) and 1.77 million of plantations (3.9%).	Variable/moderate (Espach 2006)
Enhanced security of tenure	Such policies apply forest dwellers as well as to long term logging concessionaires as they can reduce perverse incentives to clear cut as well as create incentives for the implementation of SFM. Transferability of tenure could encourage positive practices in forests as licences for resources that are kept in better shape can be sold for higher prices in the future.	High, however, depends on political changes, length of concessions and transferability of licences. (Kaimowitz *et al.* 1998)
Payment of environmental services	See section 54–55	Variable (Kaimowitz *et al.* 1998)

5. Other policy approaches

45. Make agriculture more productive and sustainable. Agriculture will continue to be an important development activity supporting the basic needs of large numbers of people in the tropics. Increasing productivity through, for example, intensification, could lessen the pressure on the agricultural frontier. Von Ambserg (1998) shows that agricultural improvements will only have positive effects on deforestation if they do not increase the profitability of agricultural activities in newly cleared areas. Grainger (1993) argues that integrated national land use policies should be established to consistently manage land and acknowledge forest values across sectors. Such policies should consider the setting of institutions to help small farmers in managing their land better.

46. Increasing the political status of forest conservation and sustainable management. The successful implementation of policies to reduce deforestation rates largely depends on the robustness, strength and presence of the forest institutional structure (Grainger *et al.* 1993; Kaimowitz *et al.* 1998; Kaimowitz and Angelsen 1998; Geist and Lambin 2001). National forest institutions have the aim to monitor the state of forests as well as compliance with regulation, promote the expansion of environmentally responsible forest industries and support applied forestry research. Increasing the political status implies that forest institutions need to employ well-trained staff and receive enough funding to undertake their responsibilities. Second, the effectiveness of policies is also determined by the extent to which macroeconomic policy-making and policies for other sectors recognise the importance of avoiding forest cover loss and account the environmental costs of deforestation in the longer term.

47. Conservation. Finally, Grainger (1993) noted that the big gap to backing conservation Despite the efforts to date, deforestation continues unabated and conservation and conservation activities still face financial and other challenges (IUCN 2006). Enabling policies include the strengthening of the ministries for the environment, the establishment or improvement of systems for collecting, archiving, analysing and disseminating data on forest resources, promoting passive conservation (e.g. changes in the design and building of roads to avoid land clearance) and policies to identify and/or set new sources of funding.

C. Positive incentives

48. Incentives supplement policies and other regulatory instruments. Deforestation agents clear land because they perceive that they will receive a higher benefit from land use change. Incentives seek to affect this decision by either making the land conversion less profitable or, conversely, by increasing the profitability of keeping the forest. The Convention on Biological Diversity (CBD) defines positive incentive as "an economic, legal or institutional measure designed to encourage beneficial activities."[7] In contrast with negative incentives, which discourage activities through direct regulation and penalties, positive incentives seek to trigger a positive change in behaviour (for example, to protect a forest). The most commonly-used positive incentives are subsidies, funds, transfer payments, tax relieves, permit trading and the enhancement of property rights. Most positive incentives are financial in nature as they involve, in one or other way, a cash transaction.

49. Governments generally implement a package of policies and incentives rather than relying on a single one. A review of sources has shown that incentives are globally used, however, studies on their medium and long term effectiveness is scarce or non-existing at all. This scarcity is due to the complexity in assessing the individual effect of incentives and policies, to lack of data and to the fact that countries themselves, first, do not undertake periodic evaluations and, second, that these evaluations are not compatible nor comparable among countries (OECD 1999b). Following is a description of the most commonly used subsidies to control deforestation rates; practical experiences on the implementation of subsidies are included in Annex 2.

1. Subsidies

50. A subsidy can be defined as a financial aid given by the government to reduce the cost for producers or consumers of a good that is considered of public interest. Subsidies can be interpreted broadly as to include direct cash payments, indirect tax concessions, lack of measures to internalize negative costs or any other measure that directly, indirectly or implicitly reduces the cost of production or the price of a good or service. This section interprets subsidy in a narrow way as direct cash payments to reduce the price of a good or service.

51. Direct subsidies can be divided into (i) product subsidies[8], payable per unit of good or service produced (e.g. a subsidy per unit of protected unit of hectare) and (ii) subsidies on production, payable to support the costs of production (e.g. inputs, machinery or labour, for example, a refund costs entailed in protecting a hectare of forests). Kaimowitz *et al.* 1998 show that subsidies for the intensification of agriculture (e.g. credit, pesticides, fertilizers and transport) prevented forest clearance in Southeast Asia by making agriculture in remote and non-irrigated areas less profitable. Conversely, subsidies to promote the protection and sustainable use of forests are used by many countries in the world.

52. The treatment of subsidies to reduce deforestation has been generally approached from the negative side, that is, the removal of incentives that promote landclearing. They include direct payments to support agriculture, cattle ranching or logging, or indirect ones on inputs such as petrol and others (Kaimowitz *et al.* 1998; Grainger 1993; Geist and Lambin 2001). However, results from the removals of subsidies have been mixed as there are positive and negative examples throughout the tropics (Lele *et al.* (2000); Kaimowitz and Angelsen 1998; Faminow (1998).

2. Transfer payments

53. Transfer payments are compensations paid to individuals in exchange for a specific action. They are increasingly being used throughout the world as instruments for forest conservation; for example, a study on state government incentives for habitat conservation in the United States shows that about 75 percent of the incentives are a form of transfer payment (Defenders of Wildlife 2004). Experiences are relatively new and analysis of their effectiveness are only available for the medium term. Most available

[7] Source: http://www.biodiv.org/programmes/socio-eco/incentives/positive.asp
[8] See, for example, http://forum.europa.eu.int/

examples show that effectiveness is moderate while the schemes are in place and have sufficient financial resources. The following paragraphs present three examples of transfer payments.

54. Payment for environmental services (PES). They are schemes to support the conservation of forests and SFM through transferring a payment from a beneficiary of a specific environmental service (e.g. watershed protection or carbon storage) to the provider of that service. The basic principle of PES is that beneficiaries are compensating forest owners because protecting forests entails a cost. Wunder (2005) defines PES as a voluntary, conditional transaction with at least one seller, one buyer, and a well-defined environmental service. Most PES are found in developed countries, and the majority of these are state-run. Mayrand and Paquin (2004) indicate that, by 2004, more than 300 PES schemes had been implemented globally. Most of these were designed for watershed and water conservation purposes, followed by biodiversity and carbon.

55. Effectiveness of PES varies country to country, thus cannot be generalized. However, it entirely depends on whether a market for the environmental service exists; that is, whether there are consumers demanding the service and suppliers willing to sell it. Effectiveness of PES depends on whether stakeholders are organised and structured, have secure and well-defined property rights and are relatively wealthy or have access to resources. Additional conditions include the willingness to pay and sell, minimized transaction costs and a well-established legal framework that secures the functioning of the scheme (WWF 2006). Wunder *et al.* (2005) discuss current challenges for PES systems in the developing world which include security in land tenure; availability of sufficient funds; support for monitoring and compliance; easement in the payment mechanisms (e.g. direct payments present complications if compared with tax exemptions); law enforcement and effective institutions; and, transaction costs.

56. Debt for nature swaps involve the "purchasing foreign debt, converting that debt into local currency and using the proceeds to fund conservation activities" (Resor, 1997). They were established in the US under the Tropical Forest Conservation Act (TFCA)[9] of 1998 to allow nations to reduce their foreign debt burden in exchange for making local-currency investments. It is argued that the main successes of this instrument is its ability to influence conservation over the long term because they provide a long-term source of funding.

57. Funds are private, public or mixed reserves of money set aside for a specific purpose. These reserves are allocated as grants, loans, equity investments or co-funding to projects with specific objectives and characteristics. Some funds establish narrow criteria so that limited types of activities are financed, while others allocate funding on the basis of broader definitions. Depending on the nature and objectives, funds can be used to manage resources for other types of incentives, for example, PES schemes. They are easy to implement and target, however, challenges arise to secure sufficient and long-term availability of resources. Discussions within the United Nations Forum on Forests have included the possibility of establishing a "Global Forest Fund" to support developing countries in implementing SFM. While most Parties share the view that innovative and new sources of funding are needed, the establishment of the fund has faced controversy and is still unclear whether one will be established.

3. Tax relieves and concessions

58. This alternative entails the reduction or exemption of taxes to promote activities for the conservation and/or SFM. Tax relieves and concessions vary throughout the world and are case specific. The majority apply to property tax for those lands that are devoted to conservation. Other tax concessions include on imported goods that are environmentally friendly; on "green" or certified products; on gross income; and deductible donations. Some countries have established systems in which decentralized agencies can arrange own tax concessions with local landowners. The use of tax relieves can be effective in the medium term as financial resources are not needed; however, effectiveness on the medium and long term depend on land ownership and the opportunity costs of land relative to the tax gains.

[9] See http://www.state.gov/g/oes/rls/fs/2003/22973.htm

4. Permit trading

59. It consists of the allocation of tradable permits that give the holder a license to use a portion of a finite resource (for example, the capacity of a river to receive pollutants). The scheme is based on the establishment of a cap and trade system, that is, a maximum level (or cap) of resource usage is established and divided into quotas. These quotas are distributed among stakeholders following specific criteria while allowing trading. A stakeholder willing to use the resource above its allowance will need to acquire additional quotas from the market. In the specific case of deforestation, permit trading schemes operate as systems of trading permits for land conversion. For example, a limit to hectares of forest land that can be cleared is established and distributed as quotas. In some countries, permit trading schemes take place through the establishment of housing density limits (for example, in the French Alps and the US) or other type of density allowances. Effectiveness of this scheme is unknown as they are few examples throughout the world and these have not generated comparable information.

5. Enhancement of property rights

60. Short term concessions and uncertainty regarding land tenure usually lead to deforestation as agents will value opportunity costs of land in the shorter term. In contrast, clear property rights and secure land tenure are critical requirements for responsible land management practices and conservation of natural resources. For this reason, issuing secure land title to farmers and other agents under certain conditions could provide incentives to preserve the forest, directly by providing long –term security to the land owner and, indirectly, by providing certainty to other policy approaches and positive incentives whose effectiveness depends on land ownership. However, whether this provides or not incentives for forest protection largely depends on market structures, common practice and the interest of actors.

6. Awards

61. Awards are less formal incentives that reward specific achievements. An “environmental” award can be defined as a bonus for reaching a specific environmental goal which is set in accordance with the objectives of the private or public organisation offering the award. Participation in the award scheme is done through nomination and a subsequent competition of candidates.

IV. Bilateral and multilateral cooperation

62. A number of national, regional and global initiatives and organisations have been working on forestry issues for several decades. At the beginning, technical cooperation was focused at supporting the development of the forestry sector. Since the concept of sustainable development has gained recognition at the international level, international cooperation has taken a broader view by recognizing the importance of forests as providers of environmental goods and services important at the local, national and international levels.

63. International cooperation has been implemented through a series of activities which range from the mere provision of financial resources to the implementation of projects or programmes on the ground. The OECD classifies these activities as follows:

(a) Forest policy and administration, which includes forestry sector policy, planning and programmes; institution capacity building and advice; forest surveys; unspecified forestry and agro-forestry activities.

(b) Forestry development, which includes afforestation for industrial and rural consumption; exploitation and utilisation of forest resources; erosion and desertification control; and integrated forestry projects.

(c) Fuelwood/charcoal

(d) Forestry education and training

(e) Forestry research, including artificial regeneration, genetic improvement, production methods, fertilizer, harvesting.

(f) Environmental policy and administrative management, including environmental policy, laws, regulations and economic instruments; administrational institutions and practices; environmental and land use planning and decision-making procedures; seminars, meetings; miscellaneous conservation and protection measures.

(g) Biodiversity, including natural reserves and actions in the surrounding areas; other measures to protect endangered or vulnerable species and their habitats (e.g. wetlands preservation).

(h) Environmental education/training

(i) Environmental research, including establishment of databases, inventories/accounts of physical and natural resources; environmental profiles and impact studies if not sector specified.

(j) Rural development and integrated rural development projects which include regional development planning; promotion of decentralised and multi-sectorial competence for planning, co-ordination and management; implementation of regional development and measures (including natural reserve management); land management; land use planning; functional integration of rural and urban areas; geographical information systems.

A. Bilateral cooperation

64. International cooperation has been channelled through bilateral and multilateral arrangements. Most resources come as part of the Official Development Assistance (ODA), whose target has been agreed by the United Nations General Assembly to 0.7 percent of the gross domestic product from developed countries. Although this target has not been reached, estimates show that ODA increased 28 percent between the period 1990 – 1998[10] and 4.3 percent between the period 2002-2003 and 2003-2004[11]. Exact figures allocated to forest conservation and SFM are difficult to calculate as information is not readily available and because there are sectorial overlaps (for example, some resources for biodiversity conservation have been allocated to activities within forests). However, the literature points to a decline in the provision of ODA for conservation activities during the 1990s. Specifically for the forestry sector, PROFOR estimates that, from 1986 to 1997 ODA rose from US$784 million to US$ 1.270 million in 1997, decreasing from a peak in 1992[12]. Furthermore, the OECD[13] undertook an analysis of ODA trends for forests for the period 1973-1998. Their study shows that ODA flows to forestry only increased during the 1980s and that most ODA allocated to forests has been invested in forestry development (63 percent), as defined above, followed by policy and administration (20 percent). It concluded that aid to forestry is about US$500 million annually, representing about 1 percent of total ODA. This figure has been falling since the second half of the 1980s (OECD 2000).

65. All developed countries have established agencies or offices to administer and implement technical and financial cooperation with developing countries. These agencies and offices deal with a number of development issues specified according to national interests, relations with developing host countries and also in response to international processes. Technical cooperation on forests is present in all of them as part of their activities on natural resource management or environmental issues. FAO estimates that approximately 60 percent of total ODA is channelled through bilateral means and that

[10] CPF (2005) CPF sourcebook on funding SFM, http://www.fao.org/forestry/cpf
[11] Source: http://www.oecd.org
[12] Source: CPF sourcebook on funding SFM, http://www.fao.org/forestry/cpf
[13] OECD (2000). Official development assistance to forestry 1973-98. http://www.oecd.org/dataoecd/11/62/6877062.pdf

81 percent of this figure is allocated as grants. Some examples of technical and financial cooperation are given below.

(a) Australia, through AusAID,[14] addresses forestry issues in its environment and rural development aid themes. Activities aim to promote sustainable resource management in partner countries. Its environmental management programme has two approaches: first, to ensure that environmental impacts are considered within development aid activities and, second, the development of a portfolio of activities that targets environmental issues.

(b) Japan, through JICA, has largely supported development activities in the forestry sector, primarily with the objective to promote SFM in developing countries[15]. This objective has been supported through financial assistance, technology transfer and research. As of 2003, JICA has been implementing 20 technical cooperation projects in 13 countries on management of natural and planted forests, prevention of forest fires, and promotion of social forestry. It also launched the Asia Forest Partnership in an interest to foster regional activities.

(c) Germany, through GTZ,[16] addresses deforestation through its environment and infrastructure and rural development themes. Their activities focus on capacity building and cooperation for sustainable resource management, forest policy, forest certification and others. At the international level, the advisory project "International Forest Policy" (IWP German acronym for *Internationale Waldpolitik*) connects advisory services in partner countries with policy shaping at the international level.

B. Multilateral cooperation

66. The United Nations Environment Programme (UNEP) has several initiatives and activities relating to forest ecosystems. In addition to the secretariat of the Convention on Biological Diversity (see paragraph 78 below), it is worth mentioning the World Conservation Monitoring Centre (WCMC), whose mandate is to provide a range of biodiversity-related services to UNEP, the biodiversity-related conventions and other bodies. The strategic plan for 2006-2011 specifies as the main objective of WCMC to support the development of decisions and adoption of policies that will contribute to the conservation and sustainable use of biodiversity. The activities of WCMC include the assessment of parks and protected areas and the elaboration of biodiversity maps and atlases (for example, the Conservation Atlas of Tropical Rainforests). Three concrete activities from WCMC are of particular relevance which include Proteus (a tool to provide biodiversity information to decision makers); the Global biodiversity information facility; and Globio (a model of the impacts of global change in biodiversity).

67. The mission of the Food and Agriculture Organisation of the United Nations (FAO) in forestry is to “enhance human well-being through support to member countries in the sustainable management of the world's trees and forests”. FAO’s activities on forests include to strengthen the information and databases on forest resources; to strengthen national forest policies; to strengthen the technical foundation for forest resource conservation and development and forest product development and utilization; to improve or maintain the health and condition of forests; to strengthen countries' institutional, legal and financial frameworks for the forestry sector; to improve regional and international discussion and collaboration on forest policy and technical issues; to strengthen partnerships with other groups working in forestry; and, finally, to increase social and economic equity and improve human well-being through support to participatory forestry and sustainable management of forests and trees in marginal areas. At the global level, several activities by FAO have supported the process of policy making, for example, its database on global forest resources and information on country profiles, the periodic global Forest Resources

[14] Source : http://www.ausaid.gov.au/
[15] Source: http://www.mofa.go.jp/policy/environment/forest/coop0211.html
[16] Source: http://www.gtz.de

Assessment (FRA) and the annual state of the forest reports, the development of technologies and methodologies to support SFM and wildlife management, the support for afforestation activities, the development of technical material for bioenergy, wood harvesting and non timber forest products, support to the process of national forest programmes, and support to international processes, including the chairmanship of the Collaborative Partnership on Forests (CPF).

68. The World Bank adopted its new operational policy and strategy for forests in 2002, based on the pillars of economic development, poverty reduction, and protection of global forest values. The operational forest policy, which focuses broadly on forests, includes "all forests" and "all aspects of forest activities".[17] The new policy acknowledges the full range of goods and services from forests, including the need to encourage related markets and to target conservation. In practical terms, the role of the World Bank in addressing deforestation is stated in the objectives of the policy which are, first, to assist borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests; and, second, to assist borrowers with the establishment and sustainable management of environmentally appropriate, socially beneficial, and economically viable forest plantations to help meet growing demands for forest goods and services.

69. Regional development banks are also important institutions for financing SFM and forest conservation. First, the Inter-American Development Bank (IADB) reinforced sustainable development principles in 1990, having SFM as a priority. IADB has financed projects for soil conservation and reforestation of degraded areas, agroforestry, watershed management, SFM and conservation and protection of areas with special biodiversity characteristics. Second, the African Development Bank adopted an agriculture and environment policy in 1990, which considers the state of deterioration of African forest ecosystems. Based on this policy, the bank finances projects for institutional development, technical support for analysis and monitoring, sustainable management, traditional use, recovery of degraded areas, and other aspects. The allocation of resources takes from one to three years. Finally, the Asian Development Bank adopted its new forest ecosystems policy in 1995 under the prerogatives of protection, production and participation. This policy recognizes the multiple uses of forest ecosystems, and the need to capitalize on their renewable resource character and importance for biodiversity and climate change. Other development banks include the Caribbean Development Bank, the West and the East Africa Development Banks, and the Central American Bank for Economic Integration.

70. The Collaborative Partnership on Forests (CPF) is formed by 14 major forest-related international organisations, institutions and convention's secretariats. Its objectives are to support the activities of the United Nations Forum on Forests and to enhance cooperation and coordination on forests issues. Members of the CPF have supported the implementation of the IPF/IF proposals for action through the provision of technical assistance, the facilitation of regional and international initiatives, the identification of funding sources and the strengthening of political support for SFM. In practical terms, the CPF serves as a group of experts that develop ideas to facilitate the implementation of mandates from different international processes, for example, the development of the CPF sourcebook on funding for sustainable forest management, the CPF task force on streamlining forest-related reporting and the CPF initiative on forest related definitions.

71. The mission of the International Tropical Timber Organisation[18] (ITTO) is to facilitate "discussion, consultation and international co-operation on issues relating to the international trade and utilization of tropical timber and the sustainable management of its resource base". With 59 members, it covers about 80 percent of the global tropical forests and 90 percent of its trade. It works under the auspices of the International Tropical Timber Agreement and deals with trade and environmental issues relating to tropical woods. In 1990, ITTO members agreed to achieve that 100 percent of the trade in timber to come from sustainable sources by 2000. Although there has been lack of progress toward

[17] The World Bank. Sustaining Forests: a World Bank Strategy (2002).
[18] Source: http://www.itto.or.jp/live/index.jsp

achieving the "ITTO objective 2000", it still remains as a central goal of the organisation. In relation to SFM, ITTO has developed technical material and undertaken capacity building activities on issues such as planning, criteria and indicators, reduced impact logging, community forestry, biodiversity and transboudary conservation and others. Other activities include to provide assistance to tropical member countries to adapt such policies to local circumstances and to implement them in the field through projects. ITTO has funded more than 700 projects, pre-projects and activities valued at more than US$280 million.

72. The work of the World Conservation Union (IUCN) relating to deforestation lies primarily within its forest conservation programme. Its aim is to "maintain and, where necessary, restore forest ecosystems to promote conservation, sustainable management and equitable distribution of a wide range of forest goods and services."[19] This aim is supported by four objectives that include the sustainable management of forests, the establishment of networks of forest protected areas, the implementation of forest ecosystem restoration programmes and cross-sectorial activities. IUCN has played a major role in the definition and establishment of protected areas. It estimates that, according to its classification, around 12.4 percent of the world's forests (479 million ha) currently enjoy protected area status.

73. The Centre for International Forestry Research (CIFOR) forms part of the Consultative Group on International Agricultural Research (CGIAR). It is an international research and global knowledge institution committed to conserving forests and improving the livelihoods of people in the tropics. CIFORs objectives include to improve the scientific basis that underpins balanced management of forests and forest lands; to develop policies and technologies for sustainable use and management of forest goods and services; and to assist partner governments to improve their capacity to research and support the optimal use of forests and forestlands. The research activities of this centre are focused on three main areas that include environmental services from forests, forest governance and forests and livelihoods. CIFORs has widely contributed to understanding the causes of deforestation, as well as to analyse solutions at the policy level.

C. Activities of other relevant international bodies

74. Concern with decreasing forest cover has been on the international political agenda for some time now. The Tropical Forests Action Programme (TFAP) was a global major initiative to control deforestation which started in 1985 under the sponsorship of UNDP, the World Bank and FAO. It had the objectives of raising awareness and commitments to tackle deforestation; fostering multidisciplinary sectorial planning approaches at national level in order to formulate effective policies and programmes; and mobilising financial and technical national and international resources for the implementation of programmes for the conservation and sustainable use of forests. The momentum gained by the process started to decrease for several reasons, primarily, the fact that deforestation was not decreasing despite the amount of resources invested. Savenije (2000) argues that, aside from the specific political situation in each country, the process suffered as a result of the emphasis put on policy and planning rather than on actions. In addition, the emphasis on commercial forestry gave little attention to forest conservation and the role of local communities. The following paragraphs describe the main processes and initiatives to tackle deforestation at present.

75. Two elements from the United Nations Conference on Environment and Development are directly relevant to deforestation. First, agreement on the "non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests"[20], which is a set of 15 principles and their elements to guide international policy on the management, conservation and sustainable use of forests. Second, under programme B of Chapter 11 of agenda 21 national forestry programmes (NFPs) are being developed. NFPs are a globally adopted framework for forest policy, planning and implementation at the country level. A large number of countries is engaged into the development of these programmes to incorporate elements like a national

[19] Source : IUCN (2000). An introduction to the IUCN Forest Conservation Programme, IUCN.
[20] See United Nations General Assembly, document A/CONF.151/26 (Vol. III).

forest statement, a review of the sector, issues on legislative and policy reform, investment, capacity building, evaluation and monitoring, and participatory mechanisms. Lessons from the process have highlighted that successful programmes need to be broader by not limiting the scope to the forest or environmental sectors, that the ecosystem approach and multifunctionality of forests needs to be incorporated, that the programmes should promote decentralisation and that a realistic financial strategy should be designed. However, a survey by FAO[21], undertaken in 1999, indicated financial and capacity constrains.

76. The United Nations Forum on Forests (UNFF) is the result of more than ten years of discussions to address global institutional issues on forests, starting at the Intergovernmental Panel on Forests (IPF) and followed by the Intergovernmental Forum on Forests (IFF). These two processes agreed on 270 proposals for action that provide guidance on how to develop, implement and coordinate policies on sustainable forest management to governments, international organisations, the private sector and other groups[22]. Failure to agree on an international arrangement for forests resulted in the establishment of UNFF. The forum has identified as its roles, first, to facilitate implementation of forest-related agreements; second, to provide for continued policy development and dialogue among governments; third, to enhance cooperation as well as policy and programme coordination on forest-related issues; and, fourth, to strengthen political commitment to the management, conservation and sustainable development of all types of forests. A report by UNFF[23] notes progress in the implementation of the IPF/IFF proposals for action, however, stresses that deforestation continues, probably due to the lack of both proper policy frameworks and an effective implementation of the proposals. Although, to date, the international arrangement on forests continues unresolved, UNFF 5 agreed *ad refendum* on global goals for an International Agreement on Forests, including: to reverse the loss of forest cover worldwide, to enhance forest-based benefits, to increase significantly the area of protected forests and to reverse the decline in ODA for sustainable forest management (SFM).

77. The International Tropical Timber Agreement, is the main instrument to promote trade of timber from sustainable sources. ITTA provides a policy framework for consumer and producer countries of tropical timber to, among others, promote the expansion of trade of tropical timber and encourage the development of national policies for sustainable management of tropical forests. The first agreement entered into force in 1985 for a period of five years and was renewed twice. Its first successor entered into force in 1997 and was also renewed twice. A new agreement entered into force in 2006, with the objectives of promoting the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests and to promote the sustainable management of tropical timber producing forests. In addition to the national implementation of the agreement by member countries, a large number of activities to promote SFM and forest conservation are undertaken under the auspices of ITTA by ITTO (refer to paragraph 71).

78. 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. Forest and biodiversity issues are addressed within the expanded programme of work on forest biological diversity (annex to decision VI/22). The CBD has adopted a strategic plan for the conservation of biological diversity (decision VI/26), which is a political statement to strengthen the efforts to meet the objectives of the Convention. The 2010 biodiversity target (introduced by decision VII/30) is an important element to assess the effectiveness of the plan, and specifies, among others, that "at least 10 percent of each of the world's ecological regions effectively conserved". Moreover, the Convention, also adopted 16 outcome oriented targets in the

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[21] FAO maintains an update on national forestry programmes on its website. It can be reached at http://www.fao.org/forestry/site/nfp/en

[22] http://www.un.org/esa/forests/pdf/ipf-iff-proposalsforaction.pdf.

[23] United Nations Economic and Social Council (2001). Combating deforestation and forest degradation. United Nations Forum on Forests, report of the secretary general, document E/CN.18/2002/6.

context of the Global Strategy for Plant Conservation[24] (decision VI/9) which specifies desirable percentages of species and ecosystems to be conserved and/or managed. These targets will be incorporated into the work of each programme.

79. The objective of the United Nations Convention to Combat Desertification (UNCCD) is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa. The Convention is implemented through action programmes that address regional issues. The role of forest cover in soil protection and the link between the removal of trees and erosion and desertification has placed deforestation high on the agenda of UNCCD.

80. The World Heritage Convention[25] aims to protect, conserve and preserve cultural and natural heritage sites. Natural sites include "natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view", and "natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty". The Convention plays an important role in forest conservation as some forest sites belong to the heritage list. More specifically, as of 2005, a total of 52 sites of tropical forests have been registered, equivalent to 39 million hectares.

81. The G8 adopted its Programme Action on Forests in 1998. Through this programme, the G8 reiterated their commitment to support the implementation of the IPF/IFF proposals for action. The programme focuses on domestic action as well as "unique" contributions to developing countries, in particular, relating to monitoring and assessment, national forest programmes, protected areas, the role of the private sector and illegal logging. This last element originated the Forest Law Enforcement and Governance (FLEG) process, which is perhaps the most active element of the Programme Action on Forests. FLEG seeks to combat illegal logging and its trade by supporting and complementing regional and national actions. It was first a partnership between the World Bank and the governments of the United States and the United Kingdom. To date, 3 FLEG summits have been organised: for the East Asia Pacific region (EAP-FLEG), for Africa (AFLEG) and for Europe and North Asia (ENA-FLEG).

82. The programme on forests (PROFOR) is a "multi-donor partnership formed to pursue a shared goal of enhancing forests' contribution to poverty reduction, sustainable development and protection of environmental services". It is housed at the World Bank and it is aligned with its forest strategy. PROFOR works on four thematic areas that include forest governance, the contribution of forests to livelihoods, mitigation of cross sectorial impacts on forests and innovative approaches to financing sustainable forest management. Profor has a large portfolio of activities, which include the development of tools (for example, to reduce corruption on the forest sector), workshops on targeted topics and support for national and regional initiatives to reduce poverty through SFM.

83. The Alliance for Forest Conservation and Sustainable Use[26] is a partnership between the World Wildlife Fund and the World Bank. Between the period 1998 – 2005, the Alliance achieved more than 47 million hectares of new protected forest areas. More that 40 million hectares of the 70 million hectares that belong to the portfolio of the Alliance were set aside with effective forest management and 22 million hectares in World Bank client countries were certified. After the first phase, a new Memorandum of Understanding will be signed, focusing on consolidating protected area systems, accelerating progress towards SFM, securing forest ecosystem functions within landscapes and others. The new goal is to achieve a 10 percent reduction in deforestation by 2010 as a first step to reduce deforestation to zero by 2020 and an to increase in forest cover to the levels of 2000 by 2050. Specific targets for the second phase include 25 million hectares of new protected forest areas established and 75 million hectares of existing protected forest areas under demonstrable improving management.

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[24] See http://www.biodiv.org/programmes/cross-cutting/plant/targets.asp
[25] Source: http://whc.unesco.org/en/197/
[26] Source: http://www.worldwildlife.org/alliance/

84. The sustainable forest products global alliance is a "is a public/private partnership that seeks to make markets work for forests and people". [27] Its objectives are to encourage the responsible management of forest resources, reduce illegal logging and improve the well-being of local communities. It was initiated by USAID, WWF and Metafore. The alliance has been working to establish forest and trade networks (FTN) to facilitate the links between suppliers and buyers of certified forest products. According to WWF, participants to the Global FTN managed to commit nearly 15 million hectares of forest to certification.

85. Global, regional and local non-governmental organisations (NGOs) have played a major role in the efforts to combat deforestation. Some successful projects and initiatives have been initiated by these organisations, in particular, those that have been implemented through alliances with national governments, donors and local NGOs. Major global NGOs contributing to halting deforestation include the World Wildlife Fund, Conservation International and The Nature Conservancy. Some of their activities have already been referred to above.

86. Finally, several networks related to research as well as organisations have been established specifically to discuss issues on tropical forests. They include including the Sustainable Forest Management Network, the European Tropical Forest Research Network and Rainforest Action Network. One of the most prominent networks is the International Union of Forestry Research Organisations (IUFRO), which unites more than 15,000 scientists and 700 organisations in 110 countries. Its mission is to promote the coordination of and the international cooperation in scientific studies embracing the whole field of research related to forests and trees for the well-being of forests and the people that depend on them. Regarding its activities, its special programme for developing countries aims to foster research in these countries through workshops, training courses and the development of written material. In addition, the special project on "World Forests, Society and Environment" focuses on identifying, monitoring and critically analysing key issues and changing paradigms concerning global forests.

[27] Source: http://www.usaid.gov/our_work/environment/forestry/forest_initiatives.html

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Annex I

Examples of policy approaches for sustainable forest management

This annex includes examples of policies on sustainable forest management from around the world, extracted from ITTO (2005). The selection of countries is intended to illustrate different situations and not intended to show best or worst policies. The UNFCCC secretariat has not participated in these assessments of policy approaches for sustainable forest management and thus, the views expressed in this annex do not necessarily reflect those of the secretariat.

Africa

Republic of Congo

Forest tenure in Congo includes state and private forests. State forests can belong to the government, local councils and public bodies. Access is free and user rights are granted to local people in no-classified forests. Policies for SFM are contained in the Programme for Social and Economic Development (2000-2003) and the National Forestry Action Plan, with the objectives adopting of a master plan for forest management; creating and managing forests by appropriate silvicultural techniques; adopting agroforestry systems to provide sound soil and vegetation management; and adding value to wood and non-wood forest products. The main institution in charge of forests is the Ministry of Forestry which, trough a forest fund nurtured by taxes within the sector, implements SFM related policies. ITTO concludes that "there appears to be considerable political will to put in place an SFM regime, but the institutional capacity to follow through on this is still very weak". The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	21332	100%
Production PFE (natural)		
Total	18400	86%
With management plans	1300	6%
Certified	0	0%
Sustainably managed	1300	6%
Production PFE (planted)		
Total	72	less that 1%
With management plans	45	less that 1%
Certified	0	0%
Protection PFE		
Total	2860	13%
With management plans	380	2%
Sustainably managed	380	2%

Ghana

In 1970, all rights for the management and development of natural resources (not including land ownership) were transferred from tribal chiefs to the President. Ghana's forest policy was revised in 1992. Its objectives relating to SFM include the management of the permanent forest estate (PFE) for the conservation of soil, water and biodiversity; the development of viable and efficient forest-based industries; public awareness and the involvement of rural people in forestry and wildlife conservation; research-based and technology-led forestry and wildlife management; and the development of capacity in SFM. To date, this policy has been implemented most effectively within forest reserves. A Forestry Development Master Plan (1996–2020) was launched to guide the implementation of the Forest and Wildlife Policy. It is being implemented through the National Resources Management Programme which has four components: high forest, savannah, wildlife resource management and biodiversity conservation in the high-forest zone. The policy replaced the concession system with the "timber utilization contract", which requests contractors to use the "Manual of Procedures for Forest Management and Procedures Relating to Timber Operations" in Ghana. Logging plans are prepared by the contractor and licences vary from one to forty years. Timber resources are awarded by auctioning. ITTO concludes that the management of some forests is good, however, there is inadequate surveillance and data collection and

archiving. Land owners have shown low interest in SFM because they are usually not adequately compensated, because royalties are inequitably distributed and because illegal logging is widespread. The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	1600	100%
Production PFE (natural)		
Total	1150	72%
With management plans	1150	72%
Certified	0	0%
Sustainably managed	270	17%
Production PFE (planted)		
Total	97	6%
With management plans	97	6%
Certified	0	0%
Protection PFE		
Total	353	22%
With management plans	n.d.	n.d.
Sustainably managed	108	7%

Asia and the Pacific

Fiji

Communal groups own 89 percent of the forest resources in Fiji while the rest is owned by the state or private groups. The Native Land Trust Board (NTLB) deals with local resource management and administers all customary land. Fiji has recently undertaken a review of the Forest Policy and it is now subject to public consultations. The National Forestry Action Plan is supported by a strategic plan that has the objectives of providing an appropriate institutional and physical infrastructure to support the development of the forestry sector; ensuring the sustainable development and management of forest resources; promoting community-owned facilities based on indigenous forests and community owned plantations; and promoting the production and export of value-added timber products. About 40 percent of the total forest area has been allocated to concessions and long term licenses. To harvest timber on any land, 'forestry right licences' are required. These are of four kinds: timber concessions (10–30 years), long-term licences (ten years), annual licences and prepayment licences (usually for land-clearing). ITTO concludes that the pattern of land ownership has contributed to the degradation of the resource, and that constrains to SFM include a lack of awareness of the potential of the natural forest resource, the inability to control the standards of logging and inadequate product supply and market research. The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	354	100%
Production PFE (natural)		
Total	0	0%
With management plans	0	0%
Certified	0	0%
Sustainably managed	0	0%
Production PFE (planted)		
Total	113	32%
With management plans	90	25%
Certified	0	0%
Protection PFE		
Total	241	68%
With management plans	37	10%
Sustainably managed	55	16%

Indonesia

There are two types of forest tenure in Indonesia: titled, which is a forest located on land with a registered title, and government. In addition, Indonesian law also recongizes traditional forest resources. The forest Law is the primary source of authority and guidance on forest stewardship, ownership and management. The Forest Strategic Plan aims to improve the quality and productivity of the forest resource; to reduce the rate of forest resource degradation; to implement SFM; and to increase the contribution of the forest resource to the national economy and to community prosperity. Forest management is generally

implemented by the private sector, although state enterprises manage 12 percent of the country's forest resources. New laws have increased the role of provinces and districts. Responsibilities for these cover forest production, servicing of forestry business and forest and biodiversity protection. Forest concessions to harvest either wood or collecting forest products can be obtained by state and private companies (national and foreign), and cooperatives. For large concessions, they run for up to 55 years in natural forests and 100 for plantations. ITTO concludes that Indonesia's SFM needs urgent strengthening as forest concessions do not have clear boundaries and because fires, illegal logging and shifting cultivation is widespread. On the institutional side, Indonesia lacks effective governance, decentralization has increased confusion on concessions, and the capacity of the state to administer and control the resource is low. The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	71000	100%
Production PFE (natural)		
Total	46000	65%
With management plans	18400	26%
Certified	275	less than 1%
Sustainably managed	2940	4%
Production PFE (planted)		
Total	2500	4%
With management plans	2500	4%
Certified	0.152	less than 1%
Protection PFE		
Total	22500	32%
With management plans	5000	7%
Sustainably managed	1360	2%

Thailand

All forests in Thailand are owned by the state. There is an ongoing debate on the rights of traditional and other communities to access forests, however, these communities can collect non timber forest products for consumption and rural trade. While Thailand lacks a framework for SFM, several pieces of law regulate forest use and management. A draft Community Forestry Bill has been under discussions for more than a decade. The Forest Policy has changed through time according to political conditions by focusing on timber, on management of plantations and logging in natural forests, and, recently, on long term-sustainability of the resource. In 1989 interest in conservation lead to a logging ban. The latest forest plan seeks to increase forest cover but has faced institutional constrains. Decentralization has increased the role of local governments in managing forests through community buffer zone management, small-scale plantations and others. Logging of natural forests is banned, however, encroachment and illegal logging are major problems. ITTO concludes that forestry in Thailand faces several challenges, departing from a severely degraded resource and the persistence of illegal activities. However, government agencies remain well resourced. The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	10113	100%
Production PFE (natural)		
Total	0	0%
With management plans	0	0%
Certified	0	0%
Sustainably managed	0	0%
Production PFE (planted)		
Total	1870	18%
With management plans	250	2%
Certified	1	less than 1%
Protection PFE		
Total	8260	82%
With management plans	5000	49%
Sustainably managed	1360	13%

Latin America and the Caribbean

Colombia

Forest ownership in Colombia is public and private. The Constitution recognizes the rights of traditional communities to land. Private land is divided into private and collective, the latter including indigenous, Afro-Colombian and small farmer groups. The country has extensive regulation on SFM including guidelines for the elaboration of management plans. However, he degree of control exercised by regional corporations is not clear and there are differences in how management standards are applied, which is further exacerbated by the social situation in the country. The law allows only exports of round wood from plantations. The Forest Policy, currently being revised, aims to achieve the sustainable use of forests for their conservation; to consolidate the incorporation of the forest sector in the national economy; and to contribute to the improvement of the quality of life of the people. The main authority for environmental matters, including forests, is the Ministry for the Environment, Housing and Territorial Development. Colombia is one of the most decentralized countries in Latin America as 40percent of expenditure is managed locally. Colombian law differentiates between permits, authorizations and concessions for harvesting, however, no concession has been issued in the last 20 years. The present policy is "no-use" in natural forests. Permits to logging are widely used and require compensation measures, such as reforestation. ITTO concludes that forests are administered in the wider context of environmental management, however, the overall forest management situation is not clear. There is inadequate control of forest resources on the ground. The situation with SFM is summarised in the following table:

Type	*Total (1000 ha)*	*Percentage (of total PFE)*
Permanent forest estate (PFE)	14508	100%
Production PFE (natural)		
Total	5500	54%
With management plans	n.d.	n.d.
Certified	0	0%
Sustainably managed	200	1%
Production PFE (planted)		
Total	148	1%
With management plans	80	1%
Certified	58	less than 1%
Protection PFE		
Total	8860	61%
With management plans	n.d.	n.d.
Sustainably managed	n.d.	n.d.

Honduras

There are three types of forest ownership in Honduras, namely state, municipal and privately/community owned forests. However, several claims on state owned forests exist and, furthermore, large tracts of moist forests have no clear ownership. Although Plan de Accion Forestal (Forestry Action Plan) and Plan de Ordenamiento Territorial (Land Ordination Plan) establish the framework to address deforestation, both only cover PFE while there is a lack of control at the forest frontier. The Forest Law establishes the principles for SFM. In general, the legal provisions pertaining to forests are weak and perceived unfair by some communities. A new law, if enacted, will address conservation of forests and support the management of forests by local communities. Forest management plans are required for any use and span up to five years. Before the plan is approved, the owner must clear legal tenure. ITTO concludes that present management of forests is more about extracting the most valuable species than silvicultural management. SFM measures are often not followed, while illegal logging is persistent. The boundaries of protected areas are not clearly defined and several difficulties are encountered to protect these areas from deforestation and degradation. The situation with SFM is summarised in the following table:

Type	Total (1000 ha)	Percentage (of total PFE)
Permanent forest estate (PFE)	3283	100%
Production PFE (natural)		
Total	1590	48%
With management plans	671	20%
Certified	37	1%
Sustainably managed	187	6%
Production PFE (planted)		
Total	48	1%
With management plans	28	1%
Certified	58	2%
Protection PFE		
Total	1600	11%
With management plans	n.d.	n.d.
Sustainably managed	n.d.	n.d.

Trinidad and Tobago

Most forests in Trinidad and Tobago are owned by the state. The first policy for SFM was adopted in 1942 but, since then, amendments have not been adopted. There is an absence of an agreed strategy and policy for the forestry sector. The Forestry Division of the Ministry of Public Utilities and the Environment is the state's sole management authority for the sector, being responsible for forestry, watershed management, wildlife, parks, utilization, research and services in support of the private sector. There is not direct involvement of the civil society in forest management. Natural and planted forests are actively managed. Management plans were written and revised until 1980 and, subsequently, they have not been further revised. Harvesting is conducted in accordance with a block system in which areas are opened up for sale on a polycyclic basis. Because forest resources are limited, there are no forest concessions. Individually licensed loggers are allowed to cut a specified number of trees or volume. ITTO concludes that despite the tradition of forestry in the country, significant policy and institutional weaknesses exist. Natural and planted forests are affected by over harvesting, encroachment and fires. The situation with SFM is summarised in the following table:

Type	Total (1000 ha)	Percentage (of total PFE)
Permanent forest estate (PFE)	201.5	100%
Production PFE (natural)		
Total	127	63%
With management plans	75	37%
Certified	37	18%
Sustainably managed	15	7%
Production PFE (planted)		
Total	15.4	8%
With management plans	15.4	8%
Certified	0	0%
Protection PFE		
Total	59.1	29%
With management plans	12	6%
Sustainably managed	n.d.	n.d.

Annex II

Examples of positive incentives in various countries

Type of incentive	Country	Description	Reference source
Subsidy	Finland	Before the 1990s, subsidies were used to support silvicultural and forest management practices, including a wide range of family forestry activities with investments that usually spanned through more than one generation. For some time, awareness and government interest in the ecological sustainability of forests has increased and, hence, Finland's National Forest Programme 2010 will raise subsidies to Euro 4.2 million per year to compensate forest owners from financial loss incurred as a consequence of protection activities.	Finnland's National Forest Programme 2010. http://wwwb.mmm.fi/kmo/english/
Subsidy	Colombia	With an aim to ease the pressure on forest exploitation, the Colombian government has established the so called "Forest Incentive Certificate" (or CIF). A portion of CIF targets forest conservation as it offers landowners up to 75 percent of the costs for maintaining natural forest areas during the first five years of the contract. Benefits and effectiveness of the instrument have been assessed on the basis of the provision of environmental goods and services from forest conservation.	http://www.biodiv.org/programmes/socio-eco/incentives/case-study.aspx?id=4799
Subsidy	Sweden	Sweden has established payments in the context of the National Conservation Measures in the Agricultural sector (NOLA). Before 1990, the scheme consisted of direct payments from the government to landowners, but it was later changed into a compensatory scheme. Other subsidies in Sweden, cited for the period 1995 to 1999, include: for the conservation of open farm landscape, for the conservation of biodiversity and cultural heritage, for perennial ley farming, for ecological farming, for environmentally sensitive areas and others.	Statistics Sweden (2003). Environmental subsidies: A review of Subsidies in Sweden between 1993 and 2000
PES	Costa Rica	The system is primarily funded through a domestic tax on fossil fuels and has covered more than 300,000 hectares of forests with total payments exceeding US$80 million between 1997-2002. Compensation has been primarily given to large and medium size forest owners, with 70 percent of funding being allocated to forest protection. Since 2003, the system has been expanded to include indigenous communities and small-scale producers.	http://www.umass.edu/peri/pdfs/WP96.pdf
PES	Mexico	Payments are allocated to those lands that are important for water catchments. The programme pays 350 Mexican pesos per hectare (with a cap of 4,000 hectares). By 2004, the programme had included a total of 126,818 hectares. Future plans for the scheme include to incorporate carbon and biodiversity and to cover, by the end of 2006, a total of 600,000 hectares.	PROFOR, Vol. 1, Issue 2.

Type of incentive	Country	Description	Reference source
PES	Australia	Bush Tender is an Australian initiative by the Victorian Department of Sustainability and Environment that aims to provide incentives to biodiversity conservation in the Victorian Bush. It is "an auction-based approach to improving the management of native vegetation on private land". Private landowners compete for payment contracts to improve and manage the existing native vegetation within their lands. Australia has also in place a series of incentives based on PES that include EcoTender (based on Bush Tender but including carbon, water and biodiversity) and the Biodiversity Hotspots Programme.	http://www.dse.vic.gov.au/
PES	Vietnam	Vietnam presents two schemes of PES, namely Programme 327 and programme 661. The first run from 1993 to 1998. It provided outsource contractors with a fixed amount of VND 50,000 per hectare per year for forest protection. Programme 661 is a continuation of programme 327 that will run until 2010 with the objective of increasing the area of protected forests to 43 percent. Aside from a system of land allocation, the programme entails cash payments for protection and conservation activities. An assessment of the scheme by Wunder *et al.* (2005) concluded that the PES schemes have not yielded good results, mainly because of the socio-political conditions under which the system operates: few environmental services are paid, few users pay for them, there is no private ownership on protection lands, command and control by the state is strong and payments are too low.	Wunder *et al.* (2005)
Swaps	Colombia	US$10 million from the Colombian debt to the United States were earmarked for forest conservation in the Andes, the Caribbean region and the plains along the Orinoco river. The funds will be invested, starting in 2004, over a period of 12 years to protect 11 million acres of forest. Investments have included the establishment of natural reserves, funding environmental organisations working in the area, and the establishment of a heritage trust fund to ensure the sustainability of the resources during the life of the agreement.	http://www.worldwildlife.org/conservationfinance/swaps.cfm
Swaps	Belize	In 2001, Belize signed a debt for nature swap with the US for approximately US$5.5 million (e.g. one-half of the debt obligation of Belize to the US). The agreement had the objective to protect 23,000 acres of forest from the Maya Mountain Marine corridor. Investments included the purchase of 8,000 acres of vulnerable forest land by the Toledo Institute for Development and Environment (TIDE), and funds to manage approximately 11,000 acres of forestlands	http://www.worldwildlife.org/conservationfinance/swaps.cfm
Swaps	Philip-pines	In 2002, the Governments from the Philippines and the US concluded a debt for nature swap agreement of approximately US$8 million over a period of 14 years to invest in the conservation of coastal forests. The funds have been used in the form of small grants to fund conservation activities.	http://www.worldwildlife.org/conservationfinance/swaps.cfm

Type of incentive	Country	Description	Reference source
Swaps	Madagas-car	During 1989-1996, an equivalent of US$11.7 million were generated though debt for nature swaps to fund conservation activities, with resources coming primarily from the governments from the US and the Netherlands. Resources have been used to support an 8-year project involving the training foresters in Tsitongambarika, Tolongoina, Andravory, Antsiraka, Ankarahaka, Vondrozo. In 2003, the German government was added to the programme by agreeing to cancel Euro 23 million in debt which includes instalments until 2023. Resources are being invested through the Madagascar Foundation for Protected Areas and Biodiversity.	http://www.conservationfinance .org/WPC/WPC_documents/ Apps_11_Moye_Paddack_v2.pdf
Swaps	Bangla-desh	In 2000, the Arannyak Foundation received approximately $8.5 million to fund conservation activities. US$ 6 million of those resources correspond to a debt for nature swap from the US government, which will be invested over a period of 18 years.	http://www.worldwildlife.org/ conservationfinance/swaps.cfm
Funds	GEF	GEF is the main global source for funding environmental activities. It provides financial resources to cover the incremental costs of activities in developing countries that are expected to result in global benefit. GEF operates in the focal areas of climate change, biodiversity and land degradation, all of which are potentially connected to forest conservation and SFM.	http:// www.gefweb.org
Funds	Brazil	The Amazon Region Protected Area Programme (ARPA) is an initiative between the Brazilian Government, WWF and other NGOs. Funding for the programme is oversight by the World Bank, while the Brazilian Biodiversity Fund serves as the financial manager. The objectives of ARPA, among others, are to establish 283,000 km2 of new protected areas in the Amazon biome, to bring 125,000 km2 of parks into effective management and to establish a trust fund to ensure the financial viability of the park system in perpetuity. The trust fund was established in 2004 with an amount of US$500,000 and is operated and administered as an endowment. ARPA targets a total of US$220 million to ensure the perpetuity of this fund.	www.worldwildlife.org/forests/ projects/arpa.cfm
Funds	various countries	Several countries have established national forest funds. They vary according to their structure and governance, funding sources, objectives and actors. Forest funds generally focus on financing SFM. Examples include Guinea's *Fonds forestier,* Vanuatu's Forestry Fund and Cuba's *FONADEF*.	http://www.fao.org/DOCREP/ 003/X6821E/X6821E00.htm
Tax relieves	Australia	The Department of the Environment and Heritage of Australia has established arrangements for tax concessions which includes four elements, namely, allowance to claim environmental donations over $5,000 on tax returns; tax concessions on capital gains for those that place a conservation covenant on their land; tax income concessions for those who undertake conservation activities with an eligible organisation; and providing conservation organisations with deductible gift recipient status. Regarding conservation covenants, tax deduction is equal to the difference between the market value of the land before the covenant and its decreased market value after that time, as long as the decrease is attributable to the covenant.	http://www.deh.gov.au/tax/ index.html

Type of incentive	Country	Description	Reference source
Tax relieves	Panama	Panama has established a system of incentives to promote reforestation and forest sustainable management that includes tax concessions on forestry products and on property and on import of forestry technologies.	FAO 2004
Tax relieves	United States	The government of Alabama has established a system of conservation easements as income tax deductions. Section 170 of the Internal Revenue Code allows for income tax deductions for charitable contributions, of which "conservation" is eligible. A conservation contribution is defined as "a contribution of a qualified real property interest, to a qualified organization, exclusively for conservation purposes". Another example is found in Virginia , where Title 58.1 of the Code of Virginia adds localities including riparian buffers to be eligible for property tax exemptions or deductions. The concession is determined on a case by case basis through an ordinance.	http://www.dcr.virginia.gov/sw/ordinanc.htm#Wetlands
Tax relieves	Chile	Chile provides property tax exemptions to those landowners who own natural forests and agree to protect hem. The incentive was introduced by Article 13 of the tributarian law, D.L 710. Since its inception, the instrument has been widely used by landowners. Between 1999 and 2000, about 188,000 hectares were declared as permanent forest eligible for tax exemptions.	http://www.conaf.cl
Tax relieves	South Africa	The government offers tax concessions to the implementation of public benefit activities like conservation and animal welfare. They include income tax and property tax exemptions. In particular, income tax exemptions are specified by the Income Tax Act No. 58 of 1962 and amendments. In addition, the government has established a land tax exemption to lands devoted to conservation and expects to bring all conservation areas under government protection with an aim to increase the area of conservation from 6 percent to 10 percent.	http://www.sars.gov.za.
Permit trading	United States	Tradable (or transferable) Development Rights (TDR) have been used in the United States as a tool for land management. Under this scheme, development is totally or partially prohibited in specific sites, but property owners are allowed to transfer or sell their development rights to other sites. Programmes that have been implemented with some degree of success include that in the Montgomery County, which has promoted the protection of more than 40,000 acres of farmland since its inception in 1980; and the New Jersey Pinelands, which has provided incentives for the protection of more than 19,000 acres since 1981.	http://mainegov-images.informe.org/spo/landuse/docs/tdrintro.pdf
Permit trading	Brazil	The Forest Code requires that at least 20 percent of the native vegetation be preserved as Legal Forest reserve; furthermore, in some areas of Amazonia, the percentage can be as high as 80 percent. Land owners that do not want to preserve that percentage need to buy an equivalent amount of land in the neighbourhood.	IUCN (2004) Biodiversity offsets views, experience and the business case. IUCN, Geneva.

Type of incentive	Country	Description	Reference source
Permit trading	Paraguay	The country is implementing a project funded by the World Bank with the objective of protecting the Upper Parana Atlantic Forest by providing incentives for farmers and land owners to participate in conservation. The project will establish a system of tradable rights to turn forested lands into assets that increase in value as producers meet conservation objectives. Landowners that are in violation of conservation laws not willing to reforest their own lands, could avoid prosecution by opting to invest in or reforest "critical conservation corridors."	World Bank, Project #5372
Property rights	Guatema-la	With the support of the World Bank, the Government of Guatemala granted concessions to local communities as incentives for the sustainable management of forests in the multi-use zone of el Peten. Two concessions, Carmelita" and "Pasadita" account for more than 60,000 hectares and are the biggest concessions in Central America. Although they were established successfully, several challenges remain as the community lacks resources to control illegal logging and to implement SFM practices.	http://srdis.ciesin.columbia.edu/cases/guatemala-006.html
Property rights	Kenya	A programme with three tools has been implemented to promote the conservation of Mount Kenya forests: enhancement of property rights, development of alternative products and markets and provision of funding. A study suggest that these incentives has promoted conservation by local communities, however, limitations arise as major causes of deforestation are not local but derive from major underlying causes, primarily economic factors.	https://www.biodiv.org/programmes/socio-eco/incentives/positive.asp
Property rights	Australia	A revolving fund for biodiversity conservation in Australia is administered by the Trust for Nature (Victoria). It purchases land with conservation significance and resells it to individuals interested in conservation. No assessment of its effectiveness has been undertaken, however, it has been fundamental in providing incentives for people that are interested in conservation by transferring a legal title.	http://www.biodiv.org/programmes/socio-eco/incentives/case-study.aspx?id=5302

Annex III

Examples of projects and activities from international organisations

Institution	Country	Description
WCMC	Global	Proteus is a public-private partnership that has the goal to provide accessible, relevant and reliable biodiversity information for practitioners and decision-makers. It focuses on developing decentralized knowledge management systems to support, among others, policy making for the conservation of biodiversity. It has four components: biodiversity knowledge base development, information technology infrastructure development, partnership building and project management and governance.
WCMC	Global	The global methodology for mapping human impacts on the biosphere (Globio) is a consortium that aims to develop a global model for exploring the impact of environmental change on biodiversity. GLOBIO3 will provide an analytical framework for bringing together biodiversity and environmental change data on land use, infrastructure, climate change, invasive species and pollution among other pressures. Globio has established several activities and topics in the five continents, targeting specific threats to biodiversity in each.
The World Bank	Georgia	The project has the objective of establishing sound forest management systems to maximize the contribution of forests to economic development and rural poverty reduction. The project has three components: first, improving forest sector governance; second, improving forest planning and management in the Central Caucasus pilot area; and, third supporting forest protection and reforestation in selected priority areas.
The World Bank	Gabon	Natural resources management development policy in Gabon, which is a loan to improve the efficiency of natural resources management in that country, to increase its impact on poverty alleviation, to protect the environment, and to reduce the country's dependence on declining oil resources. The loan will support the process for reforming the agenda on natural resources.
The World Bank	Mexico	It seeks to facilitate decentralization of environmental management and increase public participation. The project strengthen and expand the national Payments for Hydrological Environmental Services Program (PSAH) and the Program to Develop Environmental Services Markets for Carbon Capture and Biodiversity.
The World Bank	India	The Andhra Pradesh community forest management project has the objective of reducing rural poverty through improved forest management. The components of the project include, first the establishment of an enabling environment for community forest management; second, forest management, focused on improving the productivity of designated lands; and, third, community development, to improve village infrastructure and livelihoods.

Institution	Country	Description
ITTO	Guyana	The Sustainable Forest Management Programme of the Iwokrama International Centre" has objective to "address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization in the Iwokrama Forest". It aims to manage forests in order to maximize net revenue from the sustainable production of forest goods and services, and to demonstrate, through effective monitoring, the delivery of ecological, economic and social benefits to local, national and international communities.
ITTO	Philippines	"Adoption and Implementation of the Forestry Information System (FIS)" has the objective of developing a data management system to support the monitoring of all projects, programmes and activities relating to forestry within the Philippines. The system will be managed by the Forest Management Bureau.
ITTO	Ghana	"Women and Tropical Forestry Development Program" was implemented in 1995 with the objective of enabling women to establish and sustainably manage nurseries for NTFPs, timber and fruit trees. An evaluation of the project stated that, despite some problems in the design, results are positive in motivating women to implement the objectives of the project.
IUCN	Poland	The project "Promoting the environmental protection and sustainable development of Poland's forests" had the objectives of establishing forest owner associations, enabling the development of community associations, and strengthening local NGO's. The project achieved the creation of forest owner association and raised awareness on the importance of protecting forests as habitats for biodiversity.
IUCN	Bangladesh	The Global Forest Governance Project aims to enable and actively implement forest governance arrangements that facilitate and promote sustainable and equitable forest conservation and management in three continents. Activities of the project include supporting the translation of regional resolutions, promoting the assessment of the impacts of national policies and supporting cross-regional sharing and dissemination of information.
IUCN	Vietnam	The project “Creating Protected Areas for Resource Conservation using Landscape Ecology” (PARC) was an Integrated Conservation and Development Project that run from 1999 to 2004 and piloted a landscape ecology approach for conserving Viet Nam’s biological heritage. Four activities were implemented within the project, including capacity building for each: conservation management, resource planning and forestry, community development and environmental awareness.
CIFOR	several countries	The Multidisciplinary Landscape Assessment (MLA) aim is to answer the question What needs to be saved and how?". The approach taken by this initiative broadens the scope of conservation beyond global needs, by including the views and interests of local communities. Activities are being implemented in Indonesia, Mozambique, Bolivia, Cameroon, Gabon and the Philippines.
CIFOR	Indonesia	Illegal forest activities in Berau and East Kutai districts: impacts on economy, environment and society. The study documents the biological, economic, trade, and social impacts of the illegal logging activities in the Berau and East Kutai areas of East Kalimantan.