Submission by the Food and Agriculture Organization of the United Nations

REDUCING EMISSIONS FROM DEFORESTATION IN DEVELOPING COUNTRIES

1 Introduction

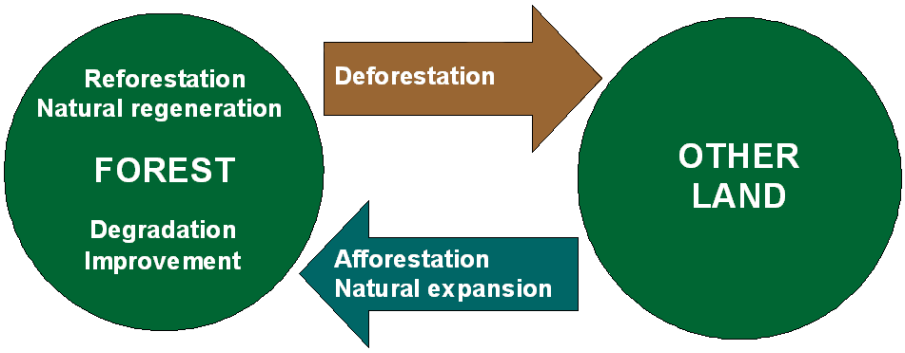
At its 11th session, the Conference of Parties to the UNFCCC invited parties and accredited observers to (i) submit views on issues related to reducing emissions from deforestation in developing countries, focusing on relevant scientific, technical and methodological issues and the exchange of relevant information and experiences, including policy approaches and positive incentives and (ii) to make recommendations on any further process to consider these issues (decision FCCC/CP/2005/L.2).

As a response to this invitation, FAO wishes to share information and experiences related to this subject and highlight the main issues that need to be considered in the further process.

FAO has, since 1948, regularly assessed global forest area and area changes as a part of its efforts to contribute to a better and sustainable use of the world's forests for a variety of products and services and to assist Member Countries in reducing food insecurity and rural poverty[1]. In addition, FAO maintains a vast record of statistics, and is the official UN source for global statistics on agriculture, forestry, fisheries and land use, some of which are used as indicators for the Millennium Development Goals.

2 Forest changes – concepts and definitions

The following figure illustrates the processes leading to forest changes and potentially to emissions and removals of greenhouse gases:



The processes that define changes in forest area over time are: *deforestation* that changes forest to another land use, either through human-induced conversion (mainly to agriculture and settlements), or through natural disasters, such as volcanic eruptions, earthquakes or flooding; and *afforestation* and *natural expansion* that convert areas under other land use to forest. The *net change of forest area* is the net effect of these three change processes. It may differ considerably from deforestation. Removal of trees as part of a forest management scheme or through disturbance is not considered to be deforestation, unless the land is also converted to another land use or regeneration of the forest is not possible.

[1] Article I of FAO's constitution states: The Organization shall collect, analyze, interpret and disseminate information relating to nutrition, food and agriculture. In this Constitution, the term agriculture and its derivatives include fisheries, marine products, forestry and primary forest products.

Within the forest area, other change processes take place. *Reforestation* and *natural regeneration* bring new trees into the forest life cycle, while *forest degradation* refers to changes within the forest which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services. The capacity of the forest to supply products and/or services can also be *improved* – either through active management or natural recovery. Degradation and improvement must be related to a specific attribute in order to become meaningful. A forest that is degraded in terms of biomass-carrying capacity might be improved in terms of biodiversity and vice versa.

Appendix 1 contains relevant forest related definitions as used by FAO. Appendix 2 offers the results of FAO assessments of forest area and area change since 1948.

3 Comments on selected issues

3.1 Defining the scope

In establishing an instrument aimed at reducing emissions from deforestation, scope must be carefully defined. Main issues to consider are:

- Which of the change processes depicted above should be included? The decision should, inter alia, consider the link between these processes and the goal of reduced emissions, the causality of the changes (e.g. natural disasters), the availability and quality of existing information and the marginal cost of collecting additional data for establishing baselines and for monitoring and verification;

- What land use categories should be covered? Only *forest*, or should *other wooded land* and possibly also *other land with tree cover* (e.g. fruit orchards) be included? The latter is a considerable carbon sink in many developing countries; however data are weak.

3.2 Deforestation - a complex issue

The Global Forest Resources Assessment 2000 (FRA 2000) showed that agricultural expansion and shifting cultivation are the major direct causes of deforestation, although the picture varies between regions, and usually a multiplicity of causes is jointly at work. Behind the direct causes, there is a complex set of underlying causes (economic, policy and institutional, technological, environmental, demographic, cultural and socio-political factors) that need to be addressed to reduce deforestation. Policies and measures will be most effective if based on accurate and timely data about states and trends from comprehensive forest assessments. They should form an integrated, holistic, bottom-up approach not restricted to a payment scheme. National Forest Programmes might be considered as a wide-spread and proven framework.

3.3 Deforestation – linkage to greenhouse gas emissions

A desire to reduce greenhouse gas emissions from forest ecosystems is the point of departure for considering "avoided deforestation" under the climate change agreements. Unfortunately, actual emissions relate weakly to loss of forest area - a consequence of the natural variability of forest ecosystems, past human interventions, and the fate of wood removals, some of which are used in products with a long life span. The problem caused by gradual decay of wood products could be reduced by assuming, for accounting purposes and in accordance with applicable IPCC procedures, that emissions occur instantaneously after removal from the forest. Only changes in the main carbon pools, biomass and soil organic matter, would need to be assessed precisely. Still, considerable uncertainty will remain, mainly caused by the weakness in current estimates of carbon stock changes for many pools at country level.

3.4 Leakage

The decision CP/2005/L.2 does not directly address emissions that may occur from all forest change processes. Fellings, disturbances or degradation may reduce stocking within forests without exceeding the threshold for deforestation as defined. In an extreme case, a country could reap incentives for reducing emissions from deforestation, while contributing on a much larger scale to emissions by using and/or degrading its remaining forests. Addressing this type of leakage calls for monitoring of changes in stocking and degradation. To illustrate, gross emissions from degradation through unsustainable selective logging on 3-8 ha would correspond roughly to long-term carbon emissions from 1 ha of deforestation. Carbon sequestration in above-ground biomass growth of more mature natural forests to offset such losses amounts to only 0.5- 2 t / ha yr^{-1}.

In another form of leakage, reduction of deforestation in one country leads to an increased deforestation or degradation in other countries. The occurrence of such leakage depends to a large extent on the type of land use conversion that takes place. Conversion to shifting cultivation and small scale subsistence agriculture is not likely to generate much cross-border leakage, as people or demand for land, timber or other forest products are unlikely to be displaced to other countries. However, if the current deforestation/ degradation pattern is dominated by commercial extraction or conversion of forest to large scale agriculture that will provide international markets with timber or agricultural products, demand or people might move to another country where land is more readily available for clearing.

3.5 Data availability and reliability

Existing information and processes for collecting data are essential for cost-effective monitoring of emissions from forest changes. These can be complemented with additional methods to increase the spatial and temporal intensity of data and collect a broader spectrum of information.

The established process to obtain forest and forestry information for the national level is through field-based forest inventories and remote sensing that generate information to policy and decision making levels. In developed countries, this practice is well established. However, many developing countries lack resources and institutional capacity. Technical support to developing countries to implement national forest inventories and assessments therefore continues to be an essential tool to strengthen national forest programmes, (see e.g. **www.fao.org/forestry/site/24672/en)**. Such inventories and assessments are designed to supply information and knowledge for a wide range of parameters, including social, economic, environmental and cross-sectoral issues.

Satellite remote sensing offers a means of monitoring changes in forest cover as well as other events but it must be validated with ground-based observations. The involvement of national expertise and building capacities in developing countries is crucial to (a) ensure the technologies are applied appropriately and produce relevant and accurate results, (b) provide feedback to national policy processes.

3.6 Baseline establishment

Establishing the baseline requires knowledge of past deforestation or changes in forest area and a forecast of the most likely scenario without new policies and incentives ("business as usual").

The FRA 2005 dataset can be used for establishing a baseline for net change of forest area (but not for deforestation) provided that the data reported by the countries are considered to be reliable enough for that purpose. The other option is to make a new and independent ex post assessment of deforestation and forest area change for countries that wish to get incentives from this new instrument. A new

assessment for baseline establishment will increase the up-front costs, particularly if forest degradation is included in the scope for the baseline.

Baselines could be based on the current rate of deforestation expressed in absolute terms (hectares per year) or as a percentage annual change. The forecasting of the baseline scenario could involve a more or less complex modelling of future deforestation or it could be defined through a negotiation process.

3.7 Monitoring and verification

In order to implement a mechanism to reduce emissions from deforestation, efficient monitoring and verification will be needed. Since data collection and processing is demanding, expensive and time consuming, existing global forest information frameworks might be used as a basis.

Many technical options are available, ranging from remote sensing, combinations of remote sensing and ground observations, to extensive field inventories. Each method should be used to exploit its strengths to the fullest and minimize its weaknesses in an overall, concerted, optimal effort. Ample experiences regarding assessment of forests have been accumulated.

3.8 The Poverty nexus

An important issue to include in feasibility studies is the potential contribution to sustainable development that could be made by payments for avoided deforestation. Recent work by FAO indicates that such payments could have significant poverty reduction and food security benefits. An FAO study on the potential supply response of the poor to payments for avoided deforestation found that payments may be more beneficial to the poor than the wealthy, since the poor are more likely to be located in or near forest areas (http://www.fao.org/es/esa/en/pubs_pov04.htm). To the extent that the poor would actually be the recipients of payments for avoided deforestation, (e.g. that they are recognized as the landowners and that payments actually reach them) payments for avoided deforestation could also provide a significant poverty reduction function which would be an important contribution to the UNFCCC's objective of sustainable development.

FAO work has also indicated that transaction costs of payments for carbon sequestration from land use change are high, and potentially greater than the potential benefits from participation (http://www.fao.org/es/esa/en/pubs_pov03 (papers 03-06; 03-13)). However, a large part of these costs are fixed, one time costs, which may decrease as the rules of carbon exchange become more clearly defined and institutionalized, or with community-based schemes. Studies suggest that the benefits of pursuing a programme of incentives for avoiding deforestation should be considered within a broad context of sustainable development, and further work on quantifying the full set of both potential benefits and costs of avoided deforestation programmes is important. This is also an area in which FAO is continuing to work.

3.9 Assessing feasibility ex ante

Where earlier efforts to curb deforestation seem to have failed, will novel payments for avoided emissions of greenhouse gases under the international climate change agreements provide sufficient incentives to reduce deforestation? Can legal and institutional frameworks be crafted that channel incentives to where they bridle the most active primary and underlying causes of deforestation? Are the costs of negotiating and establishing a functional regime, setting baselines, monitoring and verification prohibitive when compared to potential new revenues created for developing countries? Can numerous ancillary benefits of reducing deforestation be quantified and considered? The current rate of deforestation is 13 Mha per year and average long-term emissions caused by deforestation are 110 t C/ ha. If the initiative succeeds in reducing deforestation by 5%, approximately 70 Mt of carbon emissions would need to be compensated annually at agreed or market prices. Before entering into detailed technical issues on how to design a global mechanism, a feasibility analysis should establish the fundamentals for future negotiations.

Appendix 3 lists selected FAO references related to forest assessment and monitoring, deforestation and climate change. Data from FRA 2005 are available online at www.fao.org/forestry/fra2005 .

4 Some FAO experiences with monitoring and reporting on forests

4.1 Processes for global monitoring and assessment

Over nearly six decades, the FRA process has produced some experiences that are relevant to the current attempts to reduce deforestation under the international agreements on climate change:

- close collaboration with all countries produces highly relevant data, transparency, and feedback to countries that has been shown to be vital for many questions of national forest policy, including policies to tackle deforestation and its causes;
- by using sustainable forest management as a reporting framework, scope and reporting detail are relevant to international arrangements and agreements related to forests and to development , e.g. the Millennium Development Goals;
- biomass and carbon changes are being reported for most of the world's forests;
- coordination and harmonization with other international reporting processes within the Collaborative Partnership on Forests, e.g. UNFCCC, CBD, UNECE, ITTO, and the regional processes on Criteria and Indicators for Sustainable Forest Management is feasible;
- terminology and definitions are chosen by common consent and used by all parties to the process;
- the history and long-term involvement of countries and stakeholders in the FRA process provides a solid base and a framework, that has a track record of being able to incorporate new developments and requirements.

FAO has led the process (which it considers essential) of harmonizing definitions between different international reporting processes. Several international expert consultations have been held within the Collaborative Partnership on Forests. The organization also coordinates global monitoring and assessment of forest products and trade, forest policies and institutions, as well as data on agriculture, fisheries, land use and food security with concomitant synergies.

4.2 Meeting future international needs for forest information

Organizing, implementing and analyzing assessments of the world's forests is costly. However, efforts and expense can be justified by wide use of data for multiple purposes, minimizing the marginal costs for any single purpose. Creating a stand-alone effort for the sole purpose of measuring deforestation and related greenhouse gas emissions would come at a high total cost and may not produce additional, essential information needed for crafting an effective policy to reduce deforestation and manage forests sustainably in the national context. Established partnerships, functioning networks and the honed procedures of the FRA process, together with the GTOS activities hosted by FAO and FAO's in-house remote sensing capacity, might offer a solid basis and many synergies to integrate at a reasonable marginal cost additional information on forest changes related to emission of greenhouse gases. Further, the close proximity and feedback to national policies and programmes is likely to be positive for integrating climate change issues in forestry.

Efforts that are already well underway to define scope and methods for FRA 2010, consider:

- complementing and substantiating national reporting with a sample-based global survey to (a) collect data by region and biome, (b) provide data for all forest change processes as defined

above, including deforestation, degradation and fragmentation, (c) establish a link to national monitoring systems;
- supplementing national reporting to better cover aspects relevant to biodiversity, climate change and desertification;
- harmonizing reporting at national and international levels to minimize replicate and/or incompatible datasets
- providing data that are more applicable to NAI, i.e., country reporting on GHG emissions and removals from their forests in National Communications under the UNFCCC.

UNFCCC, IPCC and other international Conventions are official parties to the ongoing preparatory process for FRA 2010 (Kotka process); in addition many participants contribute to several international processes, thus effectively linking and harmonizing these processes.

4.3 Capacity building

Capacity building, which would need to be an integral part of any system for assessing reduced GHG emissions from avoided deforestation, is already an integral and major part of the FRA process with the goal of improving the long-term quality of national assessments and their applicability for sustainable forest management, conservation and development. To that end, FAO has created and already successfully implemented in many countries a programme of financial and technical support to National Forest Assessments, which could incorporate elements relevant to reducing emissions from deforestation with relative ease and at modest marginal cost (see **www.fao.org/forestry/site/24672/en**).

Appendix 1: Relevant forest related definitions used by FAO

Definitions related to forest area and land use

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters (m) in situ. Areas under reforestation that have not yet reached but are expected to reach a canopy cover of 10 percent and tree height of 5 m are included, as are temporarily unstocked areas, resulting from human intervention or natural causes, which are expected to regenerate. Includes: areas with bamboo and palms provided that height and canopy cover criteria are met; forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific scientific, historical, cultural or spiritual interest; windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 ha and width of more than 20 m; plantations primarily used for forestry or protective purposes, such as rubber-wood plantations and cork oak stands. Excludes: tree stands in agricultural production systems, for example in fruit plantations and agroforestry systems. The term also excludes trees in urban parks and gardens.
Other wooded Land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 m and a canopy cover of 5-10 percent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as forest or other wooded land. Includes: agricultural land, meadows and pastures, built-up areas, barren land, etc; areas classified under the subcategory ‘other land with tree cover’.
Other land with tree cover	Land classified as other land, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. Includes: groups of trees and scattered trees in agricultural landscapes, parks, gardens and around buildings, provided that the area, height and canopy cover criteria is met; tree plantations established mainly for other purposes than wood, such as fruit orchards and palm plantations

Source: FAO 2006. Global Forest Resources Assessment 2005. Progress towards sustainable forest management

Definitions related to forest changes

Category	Definition
Deforestation	The conversion of forest to another land use *or* the long-term reduction of the tree canopy cover below the minimum 10 percent threshold (see definition of forest and the following explanatory note). Explanatory note: Deforestation implies the long-term or permanent loss of forest cover and implies transformation into another land use. Such a loss can only be caused and maintained by a continued human-induced or natural perturbation. Deforestation includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas. The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures. Unless logging is followed by the clearing of the remaining logged-over forest for the introduction of alternative land uses, or the maintenance of the clearings through continued disturbance, forests commonly regenerate, although often to a different, secondary condition. In areas of shifting agriculture, forest, forest fallow and agricultural lands appear in a dynamic pattern where deforestation and the return of forest occur frequently in small patches. To simplify reporting of such areas, the net change over a larger area is typically used. Deforestation also includes areas where, for example, the impact of disturbance, over-utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a tree cover above the 10 percent threshold.
Afforestation	Establishment of forest plantations on land that, until then, was not classified as forest. Implies a transformation from non-forest to forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture). Implies a transformation from non-forest to forest.
Reforestation	Establishment of forest plantations on temporarily unstocked lands that are considered as forest.
Natural regeneration on forest lands	Natural succession of forest on temporarily unstocked lands that are considered as forest.
Forest degradation	Changes within the forest which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services.
Forest improvement	Changes within the forest which positively affect the structure or function of the stand or site, and thereby increase the capacity to supply products and/or services.

Source: FAO 2001. Global Forest Resources Assessment 2000. Main Report

APPENDIX 2: FAO-FRA assessments of forest area and area change.

Since 1948 FAO has assessed the world's forest resources on a regular basis, and since the 1980s, it has specifically addressed the issue of deforestation and net change of forest area in the global assessments.

The table below summarizes FAO's assessments of forest area and forest area change.

	Year of forest area estimate	Forest area (global)	Period for change estimate	Deforestation		Net change of forest area	
				(global)	(tropics)	(global)	(tropics)
		(10^9 ha)		(10^6 ha/year)	(10^6 ha/year)	(10^6 ha/year)	(10^6 ha/year)
FAO, 1948	1947	4.0		-			
FAO, 1955	1953	3.8					
FAO, 1960	1958	4.4					
FAO, 1966	1963	4.1					
FAO, 1982 (FRA 1980)	1980	-	1981-1985		-11.3		-10.2
FAO, 1988 (Interim assessment)	1980	3.6	1981-1985		-11.4		
FAO, 1993 (FRA 1990)	1990	3.4	1960-1990		-15		
FAO, 1993 (FRA 1990)			1980-1990	-16.3	-15.4	-13.1	-12.6
FAO, 1996 (Interim assessment)			1990-1995	-13.7	-12.9	-11.3	-12.6
FAO, 2001 (FRA 2000)	1990	4.0					
FAO, 2001 (FRA 2000)	2000	3.9	1990-2000	-14.6	-14.2	-9.4	-12.3
FAO, 2006 (FRA 2005)	1990	4.1					
FAO, 2006 (FRA 2005)	2000	4.0	1990-2000	-13		-8.9	
FAO, 2006 (FRA 2005)	2005	4.0	2000-2005	-13		-7.3	

The figures from different assessment do not represent changes precisely. Country data have improved and the definition of forest has changed over time. Assessments are based on data provided by countries using a standardized and agreed questionnaire. FRA 1990 and FRA 2000 complemented and substantiated the country reporting with independent remote sensing surveys of the tropics. The most recent assessment, FRA 2005, gathered information on forest area from all countries and for three points in time – 1990, 2000 and 2005. It is based on the best available information in each country and is the most comprehensive global dataset available containing country information on forest area and area changes, as well as other information related to climate-change and this initiative.

Appendix 3: Selected FAO references related to forest assessment and monitoring, deforestation and climate change

FAO. 1948. *Forest resources of the world*. *Unasylva*, 2 (4). Washington, DC.

FAO. 1955. *World forest inventory 1953*. Rome.

FAO. 1960. *World forest inventory 1958*. Rome.

FAO. 1966. *World forest inventory 1963*. Rome.

FAO. 1976. *Appraisal of forest resources of the Latin American Region*. Presented at the 12th session of the Latin American Forestry Commission, Havana, Cuba, February 1976. FO:LACF/76.

FAO. 1976. *Forest resources in the European Region*. Rome.

FAO. 1976. *Forest resources in the Asia and Far East Region*. Rome.

FAO. 1981. *Forest resources of tropical Asia.* Rome.

FAO. 1981. *Los recursos forestales de la America tropical.* Rome.

FAO. 1981. *Forest resources of tropical Africa.* Rome.

FAO. 1982. *Tropical forest resources,* by J.P. Lanly. FAO Forestry Paper No. 30. Rome.

FAO. 1988. *Interim report on the state of forest resources in the developing countries*. Rome.

FAO. 1993. *Forest resources assessment 1990*. Rome.

FAO. 1995. *Forest resources assessment 1990 – global synthesis*. FAO Forestry Paper No. 124. Rome.

FAO. 1995. *Climate change, forests and forest management – an overview*. FAO Forestry Paper No. 126. Rome.

FAO. 1997. *Estimating biomass and biomass change of tropical forests: a primer*, by Sandra Brown. FAO Forestry Paper No. 134. Rome.

FAO. 1997. *State of the World's Forests 1997*. Rome.

FAO. 2001. *Global forest resources assessment 2000 – main report*. FAO Forestry Paper No. 140. Rome (also available at www.fao.org/forestry/site/7949/en).

FAO. 2002. *Final report – Kotka IV expert consultation on Global Forest Resources Assessments – Linking National and International Efforts*. Rome (also available at www.fao.org/forestry/site/4180/en).

FAO. 2002. *Forest assessment and monitoring. Unasylva* 210 (also available at www.fao.org/documents/docrep/005/y4001e/y4001e00.htm).

FAO. 2003. *Information framework for global monitoring of forests, land use and the environment*. Informal meeting, 22–23 January 2003. FAO Forest Resources Assessment Working Paper 65. Rome.

FAO. 2004. *Climate change and the forest sector – Possible national and sub-national legislation*. FAO Forestry Paper No. 144. Rome.

FAO. 2004. *Global forest resources assessment 2005 – specification of national reporting tables for FRA 2005*. FAO Forest Resources Assessment Working Paper 81. Rome.

FAO. 2004. *Global forest resources assessment 2005 – guidelines for country reporting to FRA 2005*. FAO Forest Resources Assessment Working Paper 82. Rome.

FAO. 2004. *Global forest resources assessment 2005 – terms and definitions*. FAO Forest Resources Assessment Working Paper 83. Rome.

FAO. 2005. *Support to national forest assessments*. FAO Forestry Department website (available at: www.fao.org/forestry/site/24673/en).

FAO. 2006. *Global Forest Resources Assessment 2005. Progress towards sustainable forest management.* FAO Forestry Paper No. 147. Rome

FAO. 2006. *FRA 2000 and FRA 2005: comparing estimates of forest area and forest area change.* Forest Resources Assessment Working Paper 102. Rome. In press.

FAO & UNEP. 1981. *Proyecto de Evaluación de los Recursos Forestales Tropicales: los recursos forestales de la America tropical*. Rome, FAO, UNEP.

FAO & UNEP. 1981. *Tropical Forest Resources Assessment Project: forest resources of tropical Africa.* Part II. *Country briefs.* Rome.

FAO & UNEP. 1981. *Tropical Forest Resources Assessment Project: forest resources of tropical Asia.* Rome.

Holmgren, P. & Persson, R. 2002. Evolution and prospects of global forest assessments. *Unasylva* 210: 3–9 (also available at: www.fao.org/documents/docrep/005/y4001e/y4001e00.htm).

Lanly, J.P. 1983. Assessment of forest resources of the tropics. *Commonwealth Forestry Review,* 44(6): 287–318.

Lanly, J.P. 1988. *An interim report on the state of the forest resources in the developing countries.* FO:Misc/88/7. Rome, FAO.

Luhtala, A. & Varjo, J., eds. 2003. *Proc. FAO expert consultation on Global Forest Resources Assessment 2002, Kotka, Finland, 1–5 July 2002*. Research Paper 889. Helsinki, Finnish Forest Research Institute.

Mayaux, P., Holmgren, P., Achard, F., Hugh, E., Stibig, H-J. & Branthomme, A. 2005. Tropical forest cover change in the 1990s and options for future monitoring, pp. 373-384. *Royal Society, Philosophical Transactions: Biological Sciences*, 360(1454).

Persson, R. 1974. *World forest resources – review of the world's forest resources in the early 1970s*. Department of Forest Survey, Reports and Dissertations No. 17. Stockholm, Royal College of Forestry.

Persson, R. 1975. *Forest resources of Africa – an approach to international forest resource appraisals*. Part I. *Country appraisals*. Department of Forest Survey, Reports and Dissertations No. 18. Stockholm, Royal College of Forestry.

Persson, R. 1977. *Forest resources of Africa – an approach to international forest resource appraisals*. Part II. *Regional analyses.* Department of Forest Survey, Reports and Dissertations No. 22. Stockholm, Royal College of Forestry.

UNECE & FAO. 1985. *Forest resources of the ECE region (Europe, the USSR, North America)*. Geneva, UNECE.

UNECE & FAO. 2000. *Forest resources of Europe, CIS, North America, Australia, Japan and New Zealand.* Geneva Timber and Forest Study Paper No. 17 (ECE/TIM/SP/17). New York and Geneva, UNECE.

Forest Resources Assessment Working Papers.

In addition to the publications above, a number of working papers related to forest resources assessment and monitoring have been prepared as part of the FRA Programme of FAO. Currently, 94 FRA working papers are available on the FAO Website at the following address: http://www.fao.org/forestry/site/2560/en

Forests and climate change working papers

A number of working papers related to forests and climate change are available on the FAO Website at the following address: http://www.fao.org/forestry/site/30947/en

FRA 2005 country reports.

For the Global Forest Resources Assessment 2005, all countries were requested to submit a report with detailed information on the country's forest resources. In total, 229 country reports were prepared and submitted to FAO, They are available on the FAO Website at: http://www.fao.org/forestry/site/28701/en

Collaborative Partnership on Forests – Process to harmonize forest-related definitions

FAO. 2002. Proceedings from the 1st Expert Meeting on Harmonizing Forest-Related Definitions 22-25 January 2002, Rome. http://www.fao.org/forestry/fop/fopw/Climate/doc/Y3431E.pdf

FAO. 2002. Proceedings from the 2nd Expert Meeting on Harmonizing Forest-Related Definitions 11-13 September 2002, Rome. http://www.fao.org/DOCREP/005/Y4171E/Y4171E00.HTM

FAO. 2005. Proceedings from The Third Expert Meeting on Harmonizing Forest-related Definitions for Use by Various Stakeholders. 17-19 January 2005, Rome ftp://ftp.fao.org/docrep/fao/008/j4959e/j4959e.pdf