



**Forestry Department**

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES  
ASSESSMENT 2005**

**FRA 2005: LESSONS LEARNED  
AND RECOMMENDATIONS FOR  
FRA 2010**

ROME, 2006



## The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions which are important at the global, national and local scales and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. The Global Forest Resources Assessment 2005 (FRA 2005) is the most comprehensive assessment to date. More than 800 people have been involved, including 172 National Correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site ([www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)).

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# 1 Background

## 1.1 Introduction

At the request of its member countries, FAO has been carrying out global forest resources assessments (FRA) since 1947, in collaboration with countries and other partners, notably the United Nations Environment Programme (UNEP) and the United Nations Economic Commission for Europe (UNECE). The global FRA reports on the worldwide status and trends of forest resources, their management and uses. It is based on nationally validated data from national forest inventories and assessments. The FRA reports also include analytical assessments (trends and valuations) of goods, services and stock of forests.

## 1.2 Forest Resource Assessment principles

The core of FRA 2005 is a set of fifteen national reporting tables, from which conclusions on global and regional trends can be drawn. The tables have common terms and definitions for use by all countries and are related to the common thematic areas of sustainable forest management. The sets of variables, which are global, regional, national and complementary in scope, are used to review sustainability at different levels and scales, where the global variables are common across countries. The process used for identification of the sets of variables is thus not a one time activity but an iterative one that progressively improves in offering a basis for assessing progress towards Sustainable Forest Management. FRA is characterised by the following principles which have been endorsed by the Committee on Forestry:

- Strengthening participation of countries in the assessments through the involvement of National Correspondents. Encouraging countries to link their national information to the FRA to provide a transparent country-based global assessment.
- Continued core partnership between FAO, UNECE and UNEP in implementing the FRA.
- Joint capacity-building activities with UNFCCC, for example training of National Correspondents in FRA methodologies.
- FRA takes into consideration the outcome of the forest-related definitions process in the design of the global assessment.
- FRA contributes to the UN-wide indicators related to the Millennium Development Goals (MDGs).

FRA has met most of the above principles but lags behind in collecting information that can fully inform the UN-indicators related to the MDGs. The concluding section of this review gives some pointers regarding some future adjustments that can enable FRA reports more fully to meet MDG and related requirements.

### **1.3 The purpose of the Working Paper**

The purpose of this working paper is to evaluate the FRA 2005 activities with the aim of improving FRA 2010. The working paper will also be used as a background paper for the meeting in Kotka in 2007, which will prepare for the next global FRA. Lessons and experience have been drawn from the FRA Secretariat, Regional Forest Officers and National Correspondents. Three key areas have been evaluated: 1) organisation and resources, 2) the process of implementing FRA activities and 3) the FRA report format. The report concludes by summarising key lessons from FRA 2005 and areas to be considered for improvement in preparing for the next global FRA.

## 2 The FRA 2005 Objectives

The main objectives of the FRA 2005 assessment were to:

- Provide consistent, precise, accurate and high-quality information on the status and trends of forest resources worldwide, to facilitate improved policies related to forests and forest management.
- Help countries view their forest sector within regional and global environmental and socio-economic contexts.
- Provide some of the validated and harmonized data required for monitoring and assessment by international processes.
- Provide data that can be used in technical studies and in support of investment decisions and private-sector development.
- Present relevant information on forests to wider communities, including other sectors, non-governmental organizations (NGOs) and the public in general.

As for earlier FRA exercises, FRA 2005 took place against the backdrop of significant reporting challenges facing member countries: many have to reconcile their reporting obligations to international organisations with related responsibilities at the national and regional levels. For example, in most cases, forest departments have a legal obligation to report on the state of the forestry in the country, to contribute towards the state of the environment and possibly also to human rights commissions and social and security departments amongst others. They also have information collected by various national agencies that are usually poorly coordinated and whose data collection processes, to meet the various national reporting obligations, are in most cases, *ad hoc*, and dependent on the needs of the funding agency. The FRA process plays a role in facilitating data collection at national and international levels because: 1) its mandate has been defined by member countries, 2) it has the framework for data collection in place, 3) the reporting period has been defined and 4) it has Regional Forest Officers and a network of National Correspondents (NCs) to link with national departments.

### 2.1 Fulfilment of FRA 2005 objectives

#### 2.1.1 Building capacity in member countries

The prevalence of countries with limited capacity to monitor forest size and condition was mentioned earlier. For this reason, FRA has traditionally given some attention to capacity building; the FRA 2005 continued this tradition but, as in the past, had access to only modest resources. Despite this, it may be noted that:

- Financial and technical support to countries with serious reporting problems provided an enabling environment for these countries to submit country reports in time. Visits to larger countries such as China, Indonesia and Brazil were well received. Support extended to Congo and to three countries in the Pacific under the Technical Cooperation among Developing Countries modality (TCDC) went very well.

- Through a series of workshops, NCs were informed of the possibility of accessing FAO technical assistance programme resources to support their National Forest Resource Assessment Programmes. Those which did so benefited by building improved information bases in their countries. There was a great demand and support for this programme by countries.
- The interest to work and collaborate with sub-regions was strengthened and highlighted, including technical cooperation with countries which have the capacity to develop an information base.

### **2.1.2 Quality of information**

Taking into account the diversity among countries and the significant capacity shortfalls in many of them, the results meet reasonably well what should be expected in quality (consistency, precision, accuracy). Better use of formally nominated National Correspondents who worked closely with FAO to prepare country submissions for global statistical tables using agreed global terms and definitions, helped to ensure that results were thoroughly documented, based on official national sources, and widely accepted as the most accurate global estimates available.

### **2.1.3 Provision of a Criteria and Indicators framework to place country data in context**

Internationally-agreed Criteria and Indicators (C&I) for SFM were used as a framework to collect data because:

- The C&I framework is regarded as part of a multiple-goal management or planning tool, making it possible to organize information along standard strategic and operational functions.
- The framework according to C&I assists policy-makers in many countries to formulate realistic scenarios based on strategic assessment/monitoring and to set realistic market conditions in management plans.
- The C&I is an innovative approach which allows accommodation of developing-regions processes.
- The FRA framework connects C&I, National Forest Programmes (nfp) and certification at the national level and thereby raises the interest of countries to develop monitoring and assessment systems that support national policy processes.
- FRA places strong emphasis on the country-level implementation of C&I as a tool for policy development (as opposed to C&I as an international monitoring tool).

### **2.1.4 Validated and harmonised data for international processes**

The final global tables were sent to all the member countries for validation.

### **2.1.5 Data for use in technical, investment and related studies**

The analysis of data supplied by countries provides the world with a clear perspective of the state of monitoring and assessment of forests throughout the world. It further shows that countries with the largest forest areas in each region have not been monitored for over 15 years. This gloomy situation calls for private sector involvement in forest development and for donor agencies to assist these countries to monitor the state of their forest resources.

### **2.1.6 Presenting information on forests to a range of audiences**

FRA has archived as working papers the individual country reports submitted, which contain important documentation and background data supporting the estimates and which are for future reference by any interest groups.

Upon establishing the principles and objectives within which FRA 2005 shall operate, the FRA Secretariat organized resources to set the scene for implementation of FRA, initiated the implementation process, ensured that the country reports were submitted in a fixed framework, reviewed and analysed the results based upon the country reports, sent the drafts to countries for validation and disseminated information to member countries.



### **3 Organisation and Resource Management**

#### **3.1 *Setting the scene for the implementation of FRA 2005***

The foundation for the FRA process was laid at several meetings attended by experts and Heads of forestry departments at Kotka (IV) and COFO (3) in 2002 and 2003 respectively. An Advisory Group was established which met several times to oversee the implementation of the FRA 2005 activities.

##### **3.1.1 Kotka (IV) meeting**

In July 2002, an expert consultation meeting was held in Finland to review the global forest resources assessment process. This consultation meeting is referred to as Kotka IV, being the fourth of its kind held in the Finnish town of Kotka and with the support of the Finnish Government. Fifty-seven experts participated, representing all regions and several international organizations. The Kotka IV consultation agreed upon the publication of the next assessment report in 2005. It also emphasised the need for national forest assessments and links to international reporting and the multi-faceted role of global forest resources assessments, including serving as a source of information for forest-related international processes. The consultation meeting also recommended that:

- countries should seek support, e.g. from FAO, to fill information gaps;
- all functions and benefits of forests and use criteria for sustainable forest management should be addressed by the Global Forest Resources assessment as a framework for the assessment process and reporting;
- the network of National Correspondents be reinforced and countries should directly participate in the global assessments;
- an Advisory Group be established in support of global forest resources assessments.

##### **3.1.2 Committee on Forestry (COFO3) meeting**

The Committee on Forestry (COFO) endorsed the recommendations from Kotka IV in March 2003 and countries attending formally asked FAO to develop a broadened update of FRA for 2005. The Committee:

- Recommended that FAO continue to give high priority to forest resources assessments emphasizing the importance of strengthening national capacities to collect and analyze information about forests and improve linkages between national and international assessments;
- Endorsed the major recommendations of an international expert consultation on forest resources assessments (Kotka IV), including the establishment of an Advisory Group on global forest resources assessments; the importance of linking assessments with criteria for sustainable forest management and the need for an updated global FRA report in 2005;

- Stressed the importance of timely, accurate and comprehensive information about forests. It encouraged FAO to continue collaborating with other organizations to streamline reporting and strengthen national capacities in this regard;
- Commended FAO for its active role in harmonizing forest-related definitions in collaboration with other organizations and recommended that the process be continued in order to address critical issues that are not yet resolved.

### 3.1.3 The Advisory Group (AG) meetings

As reported earlier, the expert consultation held at Kotka, Finland, in July 2002 ([www.fao.org/forestry/fra-Kotka4](http://www.fao.org/forestry/fra-Kotka4)) recommended the creation of an Advisory Group (AG) to Global Forest Resource Assessment (GFRA); this was duly established in October 2002. The group is tasked to review and make recommendations aimed at strengthening existing institutional networks, to make future forest resources assessments increasingly user-oriented and demand-driven and to more closely link them with other international processes. Although informal in nature, the group has been acknowledged and endorsed by the statutory bodies of FAO such as the Committee on Forestry (COFO). The group is a long-term arrangement and is constituted by about twenty persons selected to represent important forestry institutions and all regions. Four meetings of the Advisory Group were organized between October 2002 and January 2005:

- The first meeting of the AG to GFRA was jointly organized and hosted by FAO and UNEP in Nairobi from 16 to 18 October 2002. The meeting objectives were to provide advice on draft/technical specifications for the next global report on forest resources and to develop terms of reference and operational procedures for the AG as well as National Correspondents to the FRA process. The meeting also had the implicit purpose of developing a proposal for approval by COFO relating to the establishment of the AG and defining its role and mandate with respect to the FRA process.
- The second meeting of the AG was organized in Rome from 13 to 15 March 2003. The objective of the second meeting was to continue its review of the proposed methods and variables and the contents of the next global forest assessment and to make proposals and recommendations, taking into account recommendations from COFO 2003 and progress made since the October 2002 meeting. The AG was specifically planned to consider, review and advise on the following seven agenda items during its second meeting: 1) Institutionalization of National Correspondents to FRA, 2) Thematic assessment of forests and plot assessments (Australia and India), 3) Technical specification of global variables, 4) Information framework and independent remote sensing survey, 5) Mandate given by past and the latest COFO, 6) Revised time schedule and work plan for FRA 2005, and 7) Alternative funding possibilities for global forest resource assessment.
- The third meeting was organized at FAO in Rome on 22 November back to back with “Training of National Correspondents” (from 17 to 21 November 2003). Many of the AG members were present during the training of NCs as participants or as observers and had ample opportunity to interact with NCs to FRA 2005 on various technical issues of interest. This meeting was to draw on expected feedback from the NCs training meeting of 17-21 November at FAO in Rome, the objective of which was to: (a) develop a plan to follow up the developments and suggestions at the NCs training and (b) finalize the country reporting procedure and format for reporting for FRA 2005.

- The fourth meeting was held from 14 to 15 January 2005 in Rome. The main objectives of the meeting were to: 1) review progress of FRA 2005, 2) provide guidance on issues related to the launch of the FRA 2005 report and 3) provide guidance on post FRA 2005 activities.

Main recommendations from the AG were that:

- National Correspondents (NCs), as an existing living mechanism, needed continuous organization, monitoring and human resource development and that FAO should consider development of a website exclusively for NCs to discuss proposals or to exchange messages.
- National governments be requested to renew or update the particulars of the National Correspondents. Furthermore, that regional/global meetings of NCs should be organized to expose them to the proposed process and to seek their suggestions for improvement;
- The proposed NCs network be utilized to get feedback on technical processes and that “interviews” of major “stakeholders” be conducted to check whether FRA was proceeding in the right direction and to make any timely modifications, if necessary. A questionnaire for these efforts was proposed to have two parts: one relating to the past process (FRA 2000) and the other focusing on the proposed process for FRA 2005.

### **3.1.4 FAO Collaboration with other international reporting agencies**

Within the United Nations Forum on Forests (UNFF), countries have requested that the reporting burden related to forestry should be reduced and that synergies and harmonization between processes should be sought.

### **3.1.5 Establishing links with Member Countries**

In line with the recommendations of the preparatory meetings, FAO was to request countries to nominate National Correspondents and to appoint regional focal points.

Given that national level information and analyses continue to be the backbone of the global assessment, FRA sought official nominations of National Correspondents (NCs) for global FRA from all member countries. For this purpose, the network of NCs to FRA was reinforced. Considerable interaction with and participation by the NCs in the assessment was planned for FRA 2005. The terms of reference for NCs was to produce country reports to be used as input to the global report. FRA appointed regional focal points for each region with their tasks being:

- During 2003, to support national pilot assessments designed to test the approach and methods of FRA 2005 for consideration in the National Correspondents’ meeting of November 2003, including the drafting of a FRA Working Paper to document the findings;
- To assist in the preparation of the National Correspondents meeting, including drafting of background documents and participation in the meeting;

- Following the National Correspondents meeting, to actively support countries in their preparations of country reports for the FRA 2005, at HQ and in regional meetings.

### **3.2 Organizational and resource management achievements**

The recommendations from Kotka IV, as endorsed by COFO3, provided FRA with a mandate which FRA achieved particularly well with regard to the following:

- Linked national forest assessments to international reporting;
- Filled information gaps and updated information housed at FAO. For example a discrepancy of the UNFAO land area with country land area for some countries was identified and addressed. Several weaknesses experienced with respect to other variables collected by other FAO divisions were also noted;
- Provided a framework that addressed all the functions and benefits of forests and use criteria for sustainable forest management as a framework for the assessment process and reporting;
- Reinforced the network of National Correspondents and the direct participation of countries in the global assessments.

Recommendations from the Advisory Group provided further guidance to the FRA process which led to the following areas of success:

- Pilot studies: five countries, namely South Africa, Sweden, India, Guatemala and India, carried these out in cooperation with FRA to test the feasibility of the proposed methods, provide necessary feed back for modification and help in improvement of detailed guidelines for implementation. These pilot studies were also used as tools for training, both at the meeting in November 2003 and at regional workshops;
- Capacity building: an element of this was introduced by FRA based on national demand. Such capacity will be indispensable for future assessment processes needed to monitor progress towards sustainability of forest resources;
- Partnership: FRA was sensitive and respected the role of different international agencies and developed synergies by developing joint working arrangements with them. This was also helpful in terms of harmonizing definitions. A good example is the closer ties maintained with UNEP, especially in the field on Remote Sensing (DEWA) and biodiversity assessment (WCMC).

#### **3.2.1 Lessons learned regarding the organisation of work and management of human resources**

##### Partnership with National Correspondents

- **Delays in nominating National Correspondents or replacing those who withdrew caused some difficulties, of which the following can be highlighted:**
  - A significant number of countries, especially developing countries, failed to nominate NCs in time for the global training workshop in Rome so that extra workshops had to

- be organized at regional levels for those nominated late. Nomination delays also sometimes caused delayed submission of first draft reports;
- Some countries changed officially nominated NCs during the process of data collection, and the new officially nominated NC had no capacity to adequately prepare the country report;
  - Some NCs left the national organisation cooperating in FRA work, leading to an inexperienced NC being nominated late in the process or to non-replacement of the NC.
  - Appointment of regional focal points in the FRA Secretariat in Rome to interact regularly with NCs proved effective for several reasons including: a) regions had someone at the Head office in Rome to identify with; b) focal points acted as back-up when NCs changed, c) continuous interaction between focal points and NCs created the sense of a networked regional team, thus facilitating compilation of the reports.

#### FAO collaboration with related international agencies

- **The readiness of FAO to practice partnership was well received, examples being:**
  - Cooperation between FAO and the Collaborative Partnership on Forests was central to achieving a timely agreement on the global tables, on harmonized terms and definitions, and on linkage to other forestry processes. Among the key processes are those which use the FRA information, such as national forest programmes, forest outlook studies, CPF information services and reports to other intergovernmental processes;
  - The partnership mode of work helped to make FRA results better known for use by key processes, examples being Criteria and Indicator processes (e.g. under the Ministerial Conference for the Protection of Forests in Europe) and input to the UN-wide Millennium Development Goals process. In this connection, by developing indicator environment data, FRA will be well placed to serve a wide range of UN agencies, contributing information on the overall progress of human development.

#### FAO partnership with national reporting agencies

- **There were several shortcomings to working exclusively with the national forest departments, given the following considerations:**
  - FRA fails to capture other key variables that sit with different agencies, or accessing such data becomes ineffective and more costly, especially where definitions and methods remain unharmonised;
  - Related information submitted to different international agencies may differ from that coming to FRA due to lack of consultation/coordination among national agencies and focal points. Accordingly, validation of data becomes very difficult, something that is also worsened by poor coordination among some international agencies with related reporting obligations;

- Investment in country capacity building is made difficult, resources are wasted, effort duplicated and methodologies are not always compatible.
- **Two other problems came to light:**
  - FRA does not communicate a clear data collection strategy and various national agencies also lack their own;
  - Inadequacy of FRA to provide financial resources for national activities that can feed information to meet their needs imposes extra financial burdens on national departments that in some countries are already unable to carry out routine periodic assessments; this may have negative implications for FRA in the future.

## 4 Preparing for implementation

Successful implementation is possible only if there is thorough preparation. This calls for attention to training key correspondents, providing guidelines and other documentation, arranging reporting lines and procedures, etc. Matters related to the documentation (including guidelines) and training of correspondents are highlighted below.

### 4.1 Documentation and the launching of FRA 2005

The following documentation was prepared and disseminated to the NCs, some of which was also used in meetings and for compilation of the FRA 2005 report:

- Background technical material – prepared in close collaboration with the FRA Advisory Group and distributed to participants three months in advance of the first training Rome meeting in November 2003;
- Documentation on pilot studies for five countries (Guatemala, India, Italy, South Africa and Sweden) to serve as examples for country reporting to FRA 2005;
- Posting of three background documents on the FRA 2005 website (“Terms and Definitions”, “Guidelines for Country Reporting” and “Specification of National Reporting Tables”) to facilitate access by users, with the additional benefit of enhancing credibility through openness and transparency.

### 4.2 National Correspondents training meeting

FAO, in collaboration with the International Tropical Timber Organisation (ITTO), organised a training meeting in November 2003 in Rome to implement the directives given by COFO. All officially nominated National Correspondents (NCs) were invited to participate in this process. FAO requested the members of the Advisory Group to get direct feedback from the NCs before finalizing the three basic documents and schedule of reporting. FAO staff related directly or indirectly with FRA work, either by making presentations or working as Chair or Co-Chair in the sessions, so that NCs could feel closer to them and interact with them as and when needed.

The training workshop was designed to set the scene for the FRA 2005 implementation process. A summary of the objectives of the meeting, its organisation and main recommendations are in Appendix 1. Some of the main benefits from the Rome training meeting are outlined below.

- **Meetings provided the FRA Secretariat with an opportunity to interact with the National Correspondents, regional and other international processes.**

The training workshop for NCs provided member countries with an opportunity to discuss the process and content and to finalise the design of FRA 2005. Through collaboration with its main partners, FRA provided a reporting framework that is acceptable to all the relevant partners and is considered broad enough to cover aspects of reporting by other

international bodies, including reporting of forest related activities at a national level. This initiative has a potential to provide incentives for countries to establish an information base to meet their national and international reporting obligations. The process may even reduce further the reporting burden.

- **NCs were exposed to the process of compiling the report and the contents at a very early stage**

This process secured a common understanding of the methodologies to compile country reports, thus anticipating future problems. It also provided NCs with time enough, even though very short, to identify data sources and gather as much information as possible.

- **Guidelines for country reporting were revised**

FRA revised the guidelines to make them more detailed with examples to understand and implement the methods correctly. A more detailed description of the reclassification steps with necessary examples for better understanding was included in the guidelines.



## 5 FRA 2005 implementation process

The following comments are based on the experience gained during the process of interacting with the regional focal points, regional forest officers and interaction with NCs at regional workshops.

### 5.1 Data collection

#### 5.1.1 Objectives of regional workshops

The data collection process started immediately after the November 2003 training meeting. According to the country work plans, which were developed at the training workshops, the first draft country reports were supposed to be reviewed at the regional workshops. The objectives of the workshops were to:

- help in country capacity building of forests resources assessment and reporting;
- review country draft reports for FRA 2005;
- address problems that countries were experiencing with respect to compiling country reports according to the FRA 2005 guidelines for reporting;
- identify information gaps;
- draft a timetable for the final submission of the country reports; and
- formulate conclusions and recommendations for future FRA activities.

The regional workshops were organised in two different forms, depending on the needs of the region: a) regional training workshops for countries with NCs who could not attend the training meeting, b) regional workshops to review the first draft country reports and to further build capacity on the revised guidelines for country reporting. There were nine regional workshops in all, as seen in Table 1.

*Table 1. Timing of training workshops*

Dates	Workshop	Venue
21-22 May 2004	Near East	Beirut , Lebanon
26-28 May 2004	East Asia	Japan
20-23 July 2004	Francophone workshop (Africa)	Dakar, Senegal
27-30 July 2004	Anglophone workshop (Africa)	Accra, Ghana
6-10 September 2004	Latin America	Guatemala
26-29 October 2004	South and South-East Europe	Budapest, Hungary
November 2004	Asia Pacific	Bangladesh,
7-11 December	Russian speaking countries	Wyszków/Warsaw, Poland
24-28 February 2005	English speaking Caribbean countries	Kingston, Jamaica
29 March-1 April 2005	Brazil	Brasilia, Brazil

### 5.1.2 Lessons learned from the data collection process

Several problems were experienced during the data collection process. For example, the availability of data for most of the tables was non-existent, there was institutional weakness and the accessibility of data was costly and time consuming:

- **Most countries did not have information and the quality of the available information for some countries was very poor**
  - Overall, countries did not have complete data coverage for Tables T1-T15 at their disposal.
  - In many cases, the only authoritative data sources in countries from Africa were based on FAO reports, which are circular in origin.
  - Many of the tabular reporting requirements were impossible to perform at a reasonable cost and given the capacity limitation e.g. NWFP.
  - There was a lack of coordination/integration between FRA and Africover.
  - From Africa's perspective, there is a perception that many tables reflect the best practice in developed countries.
  - Many of the standard reporting tables (e.g. forest areas) could only be completed by reference to and/or extrapolation of previous assessments.
  - There were some tables for which data was not routinely generated owing to a lack of national priority (e.g. NWFPs or areas of other wooded land). It was recognised that the data quality on NWFPs and employment is poor or non-existent in most of the participating countries information in the forest sector.
- **Data accessibility from related institutions was costly**
  - Information on some variables was held by other sector ministries, but access to such data was difficult because the NCs do not have formal mandates to request intersectoral collaboration (Anglophones).
  - Information, in other instances, was held by stakeholder groups outside the government. Accessing this information required financial resources.
  - Necessity to integrate forest resources data with land use and socio-economic data.
- **There was an institutional weakness in some countries**
  - FRA activities are seen as additional burdens on Ministries' normal work programmes, thus causing conflicts for staff time, logistics and resources.
  - Problems of civil strife and institutional breakdown have meant no activity and loss of data in a number of countries.
  - Several countries changed nominations of their NCs, thus causing those individuals to be inadequately prepared to produce the country reports.
- **NCs experienced difficulties in collecting information for various FRA variables**
  - Problems that were experienced during the collection of data for compilation of the report are listed in Table 2.

Table 2: Selection of lessons learned and significant problems faced by NCs during data collection for FRA 2005

National reporting table	Lessons learned by the NCs during the data collection process <sup>3</sup>
1. Extent of forest <sup>1</sup>	<ol style="list-style-type: none"> <li>1. Using partial up-to-date information as opposed to complete but older data.</li> <li>2. Other land with tree cover: how to draw the line in terms of land use (e.g. silvi pastoral systems)?</li> <li>3. The information/data are available only for the forest and OWL areas under forest authority and no data for OWL of the country as a whole.</li> <li>4. Lacking information in some important areas of the country due to political and security reasons.</li> <li>5. Fragmented information collected using different methodologies makes information incomparable.</li> <li>6. Difficulties in classifying secondary forests when they are young and those areas that have been temporarily abandoned as part of migratory agriculture practices.</li> <li>7. National definitions are not clear making reclassification very difficult.</li> </ol>
2. Forest <sup>1</sup> ownership	<ol style="list-style-type: none"> <li>1. Generally lacking/weak information on this table.</li> <li>2. Overlap between public and private lands.</li> </ol>
3. Designated functions of forest <sup>1</sup>	<ol style="list-style-type: none"> <li>1. Interpretation of the function “social services” differed between countries, with some countries including community forests in this category.</li> </ol>
4. Forest <sup>1</sup> characteristics	<ol style="list-style-type: none"> <li>1. Inconsistencies in classifying forest plantations of native species were noted in some countries. Some countries classified these as semi-natural forests, while other countries classified them as plantations without an obvious difference in their characteristics (one or two species at time of establishment, more or less even-spaced and even-aged). Most countries reclassified forest as modified natural and productive plantations.</li> <li>2. Fine line between semi natural forests and plantations.</li> </ol>
5. Growing stock	<ol style="list-style-type: none"> <li>1. Difficult to find information for T5-T7 as there is no inventory.</li> <li>2. How to handle the difference in minimum diameters for different forest types and tree species for estimating commercial growing stock?</li> <li>3. Some countries had only the estimates of “total growing stock” and were unable to report on Commercial Growing stock due to insufficient data collected.</li> <li>4. Existing forest inventories are out-dated and partial.</li> </ol>
6. Biomass stock	<ol style="list-style-type: none"> <li>1. Many countries did not have national factors to convert biomass stock into carbon stock and the IPCC regional conversion factors are very “broad”.</li> <li>2. Many countries were also concerned about the possible differences in reporting on Carbon Stock to FAO, UNFCCC, and the IPCC.</li> </ol>
7. Carbon stock	<ol style="list-style-type: none"> <li>1. Methods for calculating carbon for FRA and IPCC should be the same, and data should also be the same.</li> </ol>
8. Disturbances affecting health and vitality	<ol style="list-style-type: none"> <li>1. Only information on plantation areas available.</li> <li>2. How to define the disturbance area when the developments (disturbances) are going on (e.g. insects, diseases) and area is constantly changing?</li> <li>3. Is the illegal logging to be reported as a type of “other disturbances”?</li> <li>4. How to reflect the area in this FRA reporting when some forest fires are considered a part of natural forest dynamics (Russia)?</li> <li>5. Information on fires very weak in Africa.</li> <li>6. Countries noted that not all the areas affected by fires and insects can be classified as “disturbed”.</li> <li>7. Should over-exploitation be regarded as part of the disturbances?</li> </ol>
9. Diversity of tree species	<ol style="list-style-type: none"> <li>1. IUCN list is not compatible with national list.</li> <li>2. The IUCN in some cases is applied to regions/groups of countries but these species are not included in the national list.</li> </ol>
10. Growing stock composition	<ol style="list-style-type: none"> <li>1. Little information.</li> <li>2. Due to high number of species, it is difficult to report individual species. In this case, should a country report by group.</li> </ol>

11. Wood removal	<ol style="list-style-type: none"> <li>1. Many countries were concerned that the estimates of wood and wood fuel products are likely to be underestimated due to unrecorded or illegal removals of timber and fuelwood.</li> <li>2. There are countries where, according to FAO forests products, data are not the same as those reported by FAO/ITTO/EUROSTAT figures.</li> </ol>
12. Value of wood removal	<ol style="list-style-type: none"> <li>1. Some countries have the value of fuelwood linked to the species.</li> <li>2. Fuelwood value is difficult to report on since in most cases it is harvested for subsistence.</li> </ol>
13. NWFP <sup>2</sup> removal	<ol style="list-style-type: none"> <li>1. Generally difficult to find/estimate quantities as they are, in most cases, part of the informal economy.</li> <li>2. Data available only for a few variables.</li> <li>3. Once the NWFP leaves forests, it is difficult to distinguish between NWFP coming from forest areas and that coming from outside forest areas.</li> <li>4. The only information is on where these are located but none on how much is collected.</li> <li>5. Where information is available, it is mostly housed by different institutions and different units which may have been employed making it difficult to compare.</li> </ol>
14. Value of NWFP <sup>2</sup> removal	<ol style="list-style-type: none"> <li>1. How to handle licence fees and taxes in calculation of values.</li> <li>2. Difficulty in finding or estimating values.</li> <li>3. How to interpret the term “bush meat”?</li> </ol>
15. Employment in forestry	<ol style="list-style-type: none"> <li>1. Difficult to break down national data into the FRA categories.</li> <li>2. Privatization or outsourcing in forestry leading to rapid changes in private sector and very little or no data are available for the private sector.</li> <li>3. How to report the employment of temporary forest workers.</li> <li>4. Employment may be seriously underestimated since self-employment and the informal sectors are excluded.</li> <li>5. The information on forest employment is included in agriculture statistics and is difficult to disaggregate.</li> <li>6. It is not clear on how to report on sawmills located inside the forests areas and those that are portable.</li> <li>7. Sawmills may be integrated in primary forest activities and the same personnel working in the forest results double counting.</li> </ol>

<sup>1)</sup> forest and other wooded land

<sup>2)</sup> non-wood forest products

<sup>3)</sup> Information obtained from regional workshops

- **There were problems with respect to the methodologies**

- Difference between FAO official figures (inland water area) and “national” data.
- Difficulty in conceptually understanding the difference between primary and total area with function.
- Poor clarity between management authority, ownership and tenure.
- Interpretation of the function “social services” differed between countries, with some countries including community forests in this category.

- **Countries requested FRA to include socio-economic variables**

- Countries from developing regions suggested that FAO should develop methodologies and processes to capture the non-formal sector, e.g. traditional healers rely on the forests for their source of raw materials, as do people involved in basketry crafting and pottery making. For FRA 2010, therefore, a table on socio-economic issues should be considered and included in the list of tables.

- The issue of livelihoods and informal employment in the forestry sector: Table 15, dealing with employment in forestry, was limited to the formal sector. Countries therefore agreed to request FAO to formulate proposals for obtaining informal employment data as early as possible.
  - Some countries have good information which relates to visitors in protected areas, ecotourism, wildlife, botanic information, forest management, etc. Where it is relevant for, their national economy countries can provide this information in the section of thematic reports.
  - Some countries were concerned about the appropriate level at which the designation is to be reported, especially when there is a difference in designation at the sub-national or national level and at the local level. For example, at the national level, a government may establish an overall policy that all forests should be managed for multiple purposes, but at the local level the management plan designates a specific primary purpose.
- **Countries had more requests for FRA. For example:**
    - Forest information data base to facilitate reporting.
    - FAO was asked to help (organisationally/financially) with the publication of the final FRA 2005 country reports at the national level, as a tool to raise the profile of forestry and SFM in a country, also in the country state languages (Booklets, Internet, CDs...).
    - Some countries requested guidelines to be translated into their language (e.g. Russian and Arabic). For example, the FRA 2005 Reporting Template was not available in Russian and this caused problems in providing the required information in full compliance with the established procedures. Also some countries were in a position to supply FRA 2005 country reports in Russian only.
    - Also, some guidelines (in “Guidelines...” or “Specification of NRTs...”) are “ambiguous”, and might be interpreted differently, especially when translated into Russian..., e.g. the paragraph in “Guidelines...” (section 4.11, p.33, 2nd para from the bottom of the page) hints at the “priority” of “national red lists”, while in fact the information is required (predominantly) according to the “IUCN red list”.
  - **Countries did not submit the thematic reports**
    - Countries were offered an opportunity to report on variables that they found important for policy-making but which were left out at the international level (FRA variables) – most such variables are of a socio-economic nature. Only one country reported on this important thematic area. For developing countries, the explanation for non-submission was financial constraints and lack of capacity and know-how on methodologies to ascertain data on socio-economic variables. If countries wish to have this information/help to inform policy-making for Sustainable Forest Management and sustainable livelihoods, they may need to obtain such information probably by fostering linkages with other agencies specialising in forestry livelihoods, both at national and international levels.

## **5.2 Information notes**

National Correspondents and the Regional Offices were continuously updated through information notes about the FRA related activities. Twelve information notes were sent out in English, French and Spanish between the period leading to the November training meeting in 2003 and the report of the main results.

## **5.3 Discussion Forum**

A discussion forum was proposed and developed. The forum is primarily aimed at all parties that are interested in FRA activities. The FRA 2005 topics are split into:

- General aspects of FRA 2005 process;
- National reporting tables and related guidelines;
- Reporting template and compilation of country reports;
- Thematic country reports; and
- Frequently asked questions about FRA 2005.

## **5.4 Technical support/assistance**

Technical support was offered to countries through direct correspondence between National Correspondents and regional focal points at the FRA Secretariat. Visits were made to some larger countries such as China, Indonesia and Brazil.

## **5.5 Review of country reports**

A rigorous review of the country reports was made by the FRA Secretariat. There was an initial review by regional focal points followed by a review by the FRA coordinators.

### **Phase 1: Review by focal points**

Table 1 (extent of forest and other wooded lands) was extremely important to the FRA process. It was therefore crucial for the review process to ensure that the methodology (definitions, data sources, reference year, calibration, estimation, forecasting and the reclassification process) to generate the final reporting table was followed correctly by the National Correspondents. For example, upon receipt of country reports, the focal point checked that the vegetation classes and definitions for the relevant data series were in order. This was followed by verifying that the data sources were consistent with the data submitted in the report and that the reference year for the data was correct.

### **Phase 2: Review by FRA coordinators**

Following the first phase of the review, the country reports were referred to the next stage, which was more rigorous than the first phase. The reports were referred to and fro among the reviewers, focal points and the NCs. Time was heavily invested in this process to ensure that the quality of the data received was good and consistent and could be traced back to the original source, so laying a good foundation for the next FRA process.

Following this vigorous quality control process, data was entered into a spreadsheet for a consistency check.

### 5.5.1 Lessons learned from the country report review

- **The review process took longer than expected**

- a) Several challenges were experienced with respect to T1: For example**

- The *reference year* was poorly understood in some cases. For example, there was poor understanding of whether the reference year should be the year in which the data were collected or when the data were revised using the latest technology or the year in which field verification was done. This step was very crucial because it bore an influence on estimation and forecasting.
- The problem of *calibration*. In some cases, the difference between the country inland water and official FAO/UN inland water areas was very big, as a different calibration method was used which was not initially explained in the guidelines for the country report. This changed the data in the final tables slightly and the National Correspondents could not understand why this was the case. At times, countries were reluctant to align the country land area with official FAO/UN figures for political reasons. An interactive communication between the focal point and the National Correspondent went on until agreement was reached. Where possible, the NC was requested to inform the FAO/UN statistics about the correct land area.
- The guidelines were also silent on the *flexibility of the methodology*: for example, there were cases where reclassification had to be done before forecasting and estimation because of the different vegetation classes used for each reference year.
- The *reclassification* process was very challenging. In most cases, national definitions were vague and focal points interpreted the reclassification of national classes into global variables differently. Added to this, the Africover used different vegetation class and definition systems, which have been adopted by member countries but interpreted differently by the FRA team. Generally, more time was invested in the process of securing agreements on the transformation of national classes into global classes, as this was regarded as important in tracing data back to national classes and formed a solid foundation for the FRA 2010 forest cover change.

- b) Table 2 (ownership of forest and OWL) had the following problems:**

- Most countries had information on land ownership and not forest ownership;
- Ownership was not divided between forest and other wooded land;
- A thin line existed between forest management authority and forest ownership;
- Where information was not available, proxies had to be used.

**c) Table 3 shows some observations made with respect to the rest of the tables**

*Table 3: State of information received for T3-T15 and finalisation actions taken*

<b>FRA 2005 Table</b>	<b>Experiences by regional focal points</b>
Table 3. Designated functions of Forest and Other wooded land	1. Variables were not easy to capture for Africa because legally, most forests in Africa are multipurpose. 2. The only information that was available was on protected areas. 3. Assumptions were used to complete the Table.
Table 4. Characteristics of Forest and Other wooded land	Productive plantation area is generally available. The rest of the variables were based on assumptions.
Table 5. Growing stock	Very few countries in developing regions had this information. T6 was used as input in most cases.
Table 6. Biomass stock	Availability of information varies from country to country and the quality of information is not very reliable.
Table 7. Carbon stock	50% conversion factor was used.
Table 8. Disturbances affecting health and vitality	Plantation disturbances were captured annually by some countries; however, for native species this information was generally not available. Also most of the available information was on fire, information for other variables was weak or non existent.
Table 9. Diversity of tree species	NCs generally did not fill this table using the IUCN list. They, instead, preferred to use their national list which in most cases was different from the IUCN list.
Table 10. Growing stock composition	Few countries had the information.
Table 11. Wood removal	FAO data was very weak. However, in the absence of fuelwood data from countries, this information was generally used.
Table 12. Value of wood removal	Extreme currency fluctuations between 1990 and 2000 made it impossible to report data for 1990.
Table 13. Non-wood forest products removal	Generally no information.
Table 14. Value of non-wood forest products removal	Generally no information.
Table 15. Employment in forestry	Countries included secondary processing data and self employment in other cases.

- **The presentation of numbers in tables was not consistent**

- A general problem of the use of zeros, NDA, blanks, which were not applied consistently, further complicated data analysis.



- **Discrepancy of data housed by different agencies and within FAO was discovered**
  - Difference between national data and UNSTAT/FAOSTAT official figures on country area, land area and thereof derived inland water areas led to problems with calibration.
  - The national list of endangered species was in some cases different from the IUCN Red list.
  - In the case of Africa, the Africover definition was different from the FRA definitions, thus sending conflicting messages to countries about the extent of forest cover at the national level.

## **5.6 Analysis, validation of country reports and release of FRA results**

All the 228 reports were finalised and letters sent out to the Head of Forestry of each country for the official validation of the reports and the tables that were going to be included in the FRA 2005 Main Report. The deadline for comments was set at one month after the date on the individual letter. To speed up the validation process, the report and the tables were posted on a secure internet site and each person was given a username and password to access the information on his/her country and dependent territories. At the same time of the validation process, global tables were analyzed with the help of 12 subject specialists in-house and of their immediate colleagues. Release of the main results of FRA 2005 was scheduled for towards the end of 2005, with the thematic studies to be published in late 2005 and early 2006.

### **5.6.1 General lessons learned from analysis of the data**

- **Data quality in African countries is very poor**

Generally, most of the countries had information on T1; however, information in almost all the African countries was obsolete. For example, of the total forest area of 636 million hectares in Africa, 69% (439 million hectares) of this is found in only 10 countries (Democratic Republic of Congo, Sudan, Angola, Zambia, Tanzania, Central African Republic, Congo, Gabon, Cameroon and Ethiopia). Of the 69%, only Sudan (Africover 2000) and Cameroon (field survey/mapping 2005) have recently updated information on the forest cover. The Democratic Republic of Congo, Angola, and Zambia which constitute 21%, 9% and 7% respectively, did their last remote sensing more than 20 years ago. This suggests that almost 350 million hectares (55%) (minus Cameroon and Sudan) of the total forest area in Africa has not been monitored and assessed for more than 20 years. Considering that almost all the top 10 countries with the largest forest cover have been affected by some form of conflict (wars, forest invasions by refugees, illegal logging) makes the status of forest cover in these countries very questionable. This scenario of lack of forest monitoring and assessment in Africa compares poorly with the rest of the world whose last remote sensing was done over the last five years.

Table 4 provides a comparative analysis of countries with the largest forest cover area in each region and the year in which the last remote sensing was done:

*Table 4: Countries with the greatest forest cover - by region*

Country	Area in 2005 (000 ha)	Share of total forest area in the region (%)	Year in which remote sensing was done
Democratic Republic of the Congo	133 610	21	1989
Sudan	67 546	11	2000
Angola	59,104	9	1970
Zambia	42 452	7	1974
United Republic of Tanzania	35 257	6	1995
<b>Africa</b>	<b>337 969</b>	<b>53</b>	
China	197 290	35	2001
Indonesia	88 495	16	2000
India	67 701	12	2001
Myanmar	32 222	6	2000
Japan	23 770	4	2002
<b>Asia</b>	<b>409 478</b>	<b>72</b>	
Russian Federation	808 790	81	2003
Sweden	27 528	3	2000
Finland	22 500	2	1999
<b>Europe</b>	<b>858 818</b>	<b>86</b>	
Canada	310 134	46	2001
United States of America	303 089	45	2002
Mexico	64 238	9	2002
<b>North America</b>	<b>677 461</b>	<b>100</b>	
Australia	163 678	79	2002
Papua New Guinea	29 437	14	1996
New Zealand	8 309	4	2002
<b>Oceania</b>	<b>201 424</b>	<b>98</b>	-

- **The majority of countries completed most of the tables**

The total number of countries that submitted reports was 230; Table 5 gives an indication of the status of the number of countries reporting for each variable.

Table 5: Number of countries providing information for FRA 2005 tables

<b>National reporting table</b>	<b>Number of countries that reported</b>
Table 1. Extent of forest <sup>1</sup>	204
Table 2. Forest <sup>1</sup> ownership	153
Table 3. Designated functions of forest <sup>1</sup>	163
Table 4. Forest <sup>1</sup> characteristics	153
Table 5. Growing stock	146
Table 6. Biomass stock	135
Table 7. Carbon stock	132
Table 8. Disturbances affecting health and vitality	118
Table 9. Diversity of tree species	155
Table 10. Growing stock composition	94
Table 11. Wood removal	147
Table 12. Value of wood removal	114
Table 13. NWFP <sup>2</sup> removal	89
Table 14. Value of NWFP <sup>2</sup> removal	78
Table 15. Employment in forestry	119

<sup>1</sup>) including other wooded land    <sup>2</sup>) non-wood forest products

## 6 Content of the report

### 6.1 The format of country reports

The FRA country reports were structured according to common thematic areas of sustainable forest management used as a framework for FRA 2005. FRA 2005 constitutes a set of fifteen national reporting tables from which conclusions on global and regional trends could be drawn. The tables have common terms and definitions for use by all countries and are related to the common thematic areas of sustainable forest management. In all of the fifteen tables the focus is on trends, as opposed to status, in most cases including data for the time series 1990-2000-2005. This provides an opportunity to update the previously reported data for 1990 and 2000 and also to extend the time series to determine possible shifts in the trends. The following were common thematic areas that were used:

1. Extent of forest resources
2. Forest health and vitality
3. Biological diversity
4. Productive functions of forest resources
5. Protective functions of forest resources
6. Socio-economic functions.

Table 6 below shows the fifteen national reporting tables and the associated thematic areas of sustainable forest management.

Table 6: The fifteen standard national reporting tables in FRA 2005

FRA 2005 national reporting table	Thematic areas (cf list above)					
	1	2	3	4	5	6
Table No. 1. Extent of forest <sup>1</sup>	✓		✓	✓		
Table No. 2. Forest <sup>1</sup> ownership	✓					✓
Table No. 3. Designated functions of forest <sup>1</sup>			✓	✓	✓	✓
Table No. 4. Forest <sup>1</sup> characteristics	✓	✓	✓		✓	✓
Table No. 5. Growing stock	✓		✓	✓		✓
Table No. 6. Biomass stock	✓		✓	✓		✓
Table No. 7. Carbon stock	✓			✓		✓
Table No. 8. Disturbances affecting health and vitality	✓	✓		✓	✓	✓
Table No. 9. Diversity of tree species	✓		✓	✓		✓
Table No. 10. Growing stock composition	✓		✓	✓		✓
Table No. 11. Wood removal	✓			✓		✓
Table No. 12. Value of wood removal				✓		✓
Table No. 13. NWFP <sup>2</sup> removal	✓		✓	✓		✓
Table No. 14. Value of NWFP <sup>2</sup> removal				✓		✓
Table No. 15. Employment in forestry						✓

<sup>1)</sup> including other wooded land <sup>2)</sup> non-wood forest products

The approach ensured that the global forest resources assessment results are mainstreamed and relevant to international processes related to forests. However, FRA acknowledges that while the fifteen standard tables make country results directly useful for global and regional summaries, some tradeoffs and simplifications are necessary at the national level because of the varying ecological, social and economic situations in different regions. FRA furthermore, recognises that the fifteen tables are not sufficient to describe the forestry situation and trends at the national level. For this reason, an optional national report (thematic reporting) was included, whereby countries were encouraged to summarize pertinent additional information related to each of the common thematic areas of Sustainable Forest Management. Many countries already provide such reports through their national processes, however, for a range of developing countries an opportunity was provided to work on a broader national report on forest resources within the framework of the global assessment. In addition to the main report and country reports, FRA 2005 includes a series of thematic studies. The deadline for the submission of the first draft report with thematic optional reporting was on 31 December 2005.

### **6.1.1 Lessons learned from analysing the content of the report**

- **More clarity on the national reporting tables is needed. For example:**

#### **T1: Extent of forest resources**

##### Forest area and area change

Forest area is an easily understood variable which provides the first indication of the relative importance of forests in a country or region. In addition, it provides the baseline for comparisons of a number of other variables, which provide additional information when calculated as values per hectare of forest.

#### **T2: Ownership of forests and other wooded land**

The analysis reveals that more work is needed to define the ownership and tenure-related data to be collected and to ensure that such data will be gathered at the global level. In particular, the real nature of forest tenure trends and possible variations among continents, as well as issues related to those trends, have not been assessed carefully, but are still quite general and linked to a static description of forest ownership (public/private), which, even if useful, is no longer sufficient to describe the complex situation of tenure and management systems.

#### **T3: Designated function of Forest and Other wooded land**

##### Area of forest set aside for biodiversity conservation

Of the two measures of the area of forest set aside for biodiversity conservation that are used in FRA 2005, the total area designated for conservation has the greater potential to add value to existing data on protected areas. This measure could therefore be of considerable interest to the forest conservation community, but its potential value is diminished by the low level of reporting in Africa and Oceania.

### Area of forests designated for social services

The definition of “Social services” for FRA 2005 leaves space for individual interpretation by the countries, such as in the case of Brazil.

### **T4: Forest characteristics**

The use of five classes is a new feature and there are still some inconsistencies in the interpretation of these – particularly with regard to the classification of planted forests of native species. Not all countries keep records of the regeneration method used and there are no clear indications on how to treat areas where natural regeneration is supplemented through enrichment planting.

### **T5: Growing stock**

Data reliability is still a problem for some of the variables, such as growing stock and removal of wood and non-wood forest products.

### **T8: Forest health and vitality**

For countries to be able to manage their fires in an ecologically acceptable way there is a need to improve the national and global monitoring of fires as well as to increase the scientific understanding of fires. Additional information is needed on the ecological dynamics of fires, preferred long-term ecosystem conditions and on the underlying causes of fire. This will require the classification of fires into different classes, initially into three categories:

- Forest fires
- Wildland fires (i.e. all vegetation fires for Kyoto signatory countries)
- Prescribed burning (or fires used for managing the environment or for reducing fuel loads).

### **T11: Wood removal**

Illegal removal and informal woodfuel gathering are not reported. Taking this into consideration, the figures for removal might be much higher than reported, weakening the value of them as a tool for a monitoring process.

### **T12 and T14: Value of removal of wood and non-wood forest products**

A number of countries did not provide information for the year 2005 (e.g. wood removals in Canada and non-wood forest product removals in China) but many of these countries did provide information for earlier years. It seems likely that more countries could provide this information if given time to do so. It was noted that the unit values of removals (total value divided by total volume) varied significantly from country to country. This was, for example, because some countries calculated wood removal values on the basis of royalty or stumpage rates, while others based their calculations on felled or roadside sale values. Similar problems were encountered in the information for non-wood forest products.

Currently, the value statistics contain a mixture of stumpage prices, roadside prices, export prices and “prices” based on licence fees. In addition, it would be more useful to report value-added than the gross value of production (particularly in the case of industrial roundwood removals).

### **T15: Employment**

An inconsistency of definitions prevented FRA 2005 from using existing information on employment that is collected regularly by national statistical agencies. This can also hamper comparability between data sources and data series. Currently, the International Standard Industrial Classification is being revised to include more clarity and a greater level of detail for many economic activities (including forestry).

- **FRA requirements embraced most of the national information requirement**

Information that generally existed at the national level and housed within forest departments was on T1 (Extent of forests), T2 (Forest ownership) and protected forest for T3 (Designated functions of forests) in the case of developing countries. Furthermore, information on T6 (Biomass stock) was generally available and was generally funded by donor projects for energy planning. With respect to T8 (Disturbances affecting health and vitality), fire data is not captured for native species. There were generally discrepancies between the IUCN and the national list. T11 (Wood removal) and T12 (Value of wood removal) was important at the national level to understand the contribution of forestry to Gross Domestic Product (GDP); however, fuelwood data was missing. T13 (NWFP removal) and T14 (Value of NWFP removal) was hardly available, even though national forestry departments and FRA acknowledges that the availability of this information is critical if FRA is to integrate food security issues within the forest programmes in the endeavour to meet the Millennium goals. All parties, however, recognise that this information is difficult to capture. For T15 (Employment in forestry), countries wanted information from the informal sector to be included as well. Generally there was convergence between FRA requirements and country needs, however the difference was mostly in terms of emphasis.

## **7 Key recommendations and possible areas for improvement in future FRA exercises**

### **7.1 Key recommendations**

FRA 2005 yielded many lessons and these are communicated in its working papers and the main report. Some lessons are also reflected in revisions made to operational guidelines. Readers should consult the rich documentation of FRA 2005 for detailed recommendations on any one region or theme. In this review report, the focus is on a few recommendations that deserve general highlighting under the headings covered in the assessment above.

#### **7.1.1 Recommendations for improving organisation and resource management for 2010**

- **Organising resources at the national level has the potential to improve access to information and minimize the cost of data collection and duplication of efforts**

Countries collect forestry information largely for their own needs. But the FRA Secretariat needs to cooperate more systematically to encourage the alignment of national with international reporting, including content and periodicity. A significant one-off investment may be needed but can yield returns because it will avoid the disruption of setting-up processes each time for FRA exercises. The FRA Secretariat also needs to be given adequate resources to enable it to assist all countries to install compatible reporting systems covering all key variables of FRA information in all countries. It will be important to identify specific information which even the weakest countries should be enabled to report on. Countries can then, in the future, update their information directly in the system.

FRA linkages with national institutions outside the forest departments were not implemented due to financial constraints. Consequently, countries with serious reporting problems missed the opportunity to consult with relevant agencies that could have added to the national capacity to compile the report. With a view to correcting deficiencies, FRA may in the future need to find ways to support partnerships among these national agencies that keep forestry-relevant information, so as to minimise duplication of efforts in data collection, improve access to information, promote broader awareness of FRA activities at a national level and build capacity among more people at a national level. Specific initiatives could include:

- Establishing national Task Forces of key stakeholders to cooperate with the international FRA process. Workshops, seminars or meetings can be organised under the umbrella of such Task Forces for purposes of briefing, identifying sources of information, training, discussion, awareness-raising, etc. FRA Secretariat Focal Points would use the national Task Forces as primary points of contact.
- Through Task Force-based partnership, agreement on data collection coordination and cost sharing at a national level can be discussed. In this connection, the sustainability of capacity building and continuity of National Correspondents can be secured.



### 7.1.2 Recommendations for improving the continuity of the National Correspondents system

Building upon the recommended establishment of national multi-stakeholder Task Forces, future FRA processes can better ensure the following arrangements for the continuity of focal point functions:

- Having every officially nominated NC supported by an alternate, with both to be trained. An affordable training arrangement would be to have National Trainers in order to avoid reliance on an overstretched international FRA Secretariat.
- Organising both pre-FRA and post-FRA workshops for each FRA round as an integral part of the FRA process to guide and to provide a feedback loop for member countries and the Secretariat.

### 7.1.3 Recommendations for improving the contents of the report

#### *General*

More clarification is required on the guidelines for reporting. In some cases the guidelines were poorly understood by some National Correspondents, particular examples being Table 3 (designation of Forest and OWL) and Table 4 (Forest characteristics). The following appear to need further clarification:

- Clarification of definitions: A major process has made good progress on definitions. The challenge for the next FRA should be to get progressively more consistent use of these agreed definitions in the countries. However, the reality of diversity in forests cannot be straight-jacketed completely, since forest types range from rich tropical to simpler temperate ecosystems and from open to closed forest cover. Therefore, progress will also be necessary on how best to complement harmonized global definitions with local ones thus allowing countries to continue to have the local specifics they may need.
- Completeness of scope: For some countries, it is currently possible to underestimate, wrongly determine or report in a confusing manner the total forest area because of:
  - focus only on areas formally and/or legally designated as forest land and/or forests under public ownership/management;
  - not taking into account “Other wooded land” and “Other Land with Tree Cover” in forest inventories;
  - not having available separate data (so as to allow separation of classes) for “Forest” and “Other wooded land”;
  - Some inconsistency in the way countries treat information related to tree crops, such as rubber plantations. Agreement is needed on what tree crops should be considered as “forests” and/or should be included under “OWL”.

### ***Recommendations for specific FRA tables***

Table 1 (Extent of forest resources)

- More work is needed on clearer guidance for making the distinction between Forests and Other Wooded Land - particularly in the drier regions - and it might be worth exploring the feasibility of re-introducing the distinction between open and closed forests to enhance compatibility with Global Land Cover maps and other land cover/land use classifications.
- In addition, work is needed on methodologies for assessing the extent and value of trees outside forests.
- Future FRA should take more into consideration some particular characteristics of the LFCCs, such as land with multiple land uses and the importance of trees outside forests.

Table 2: Ownership of Forests and Other Wooded Land

There is growing belief that tenure is an important determinant of sustainable management. For this reason some experts propose that FRA should contain greater detail on this aspect. Detailed recommendations offered for FRA 2010, can be drawn from a thematic pilot study by the Forestry Department on forest ownership, control or access in 20 countries in Asia.<sup>1</sup> These recommendations call for considerably more detail than many countries can provide, especially in regions where even broad assessments or remote sensing cover is lacking; to seek very heavy detail is to be unrealistic, except for limited areas to be highlighted only for the purpose of giving an example. Where capacity allows it, however, the following recommendations developed in the Asia study could be considered:

- FRA 2010 should focus on more than ownership in dealing with forest tenure by also including tenancy and other arrangements for the use of the forests.
- It is important that the assessment focuses on the ownership of forestry resources more than the ownership of the land, but without completely disregarding the ownership of land.
- Public and private forests should be split into subcategories (central and local governments, individuals and industries, etc.) to reflect the level of decentralised control over forest resources. Special mention should be made of indigenous land and land under dispute.
- Where possible, information on the type of management arrangement occurring mainly on public forests should be included (joint management, concessions, leases, etc.).
- Future assessments should re-examine the classification of ownership to provide clearer definitions of the different types and structures of ownership and ask for a more detailed set of statistics. In addition, it would be useful to ask about different types of forest tenure (in addition to formal ownership), particularly with respect to public forests.

<sup>1</sup> Brunei, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Korea D.P.R., Lao P.D.R., Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Timor Leste, Vietnam.

Table 3: Designated function of Forests and Other Wooded Land

- Area of forests set aside for biodiversity conservation: it is worth investing time in refining and above all simplifying the calculation of this measure.
- Area of forests designated for social services: for future FRA exercises, the definition of what should be considered as social services should be made clearer to reduce space for individual interpretation by countries, with more examples of what should be included and excluded.

Table 4: Forest characteristics

- Planted forests: in the future, FRA may need to arrange for better handling of information for plantations in general. FRA 2010, for example, could include a planted forest thematic study containing a more detailed analysis of planted forests and plantations. FRA needs more stable definitions and reporting formats to facilitate the interpretation of data in successive assessments, specifically:
  - more consistent, reliable, transparent and timely data;
  - classification of the planted component of semi-natural forests according to productive and protective purposes (so as to ensure that the full planted forest and plantation forest resources are clearly understood and the data reported to account for the forest products and services available from these forests); and
- Modified natural forests: it might be worth exploring whether it would be possible to further subdivide this class which spans primary forests, which have been selectively logged once and have still kept most of their structure and species composition intact, to severely degraded forests resulting from overexploitation or natural disasters (but information availability and quality is an issue).

Table 8: Forest health and vitality

- Forest fires: to enable improvements in the monitoring and assessment of fire disturbances in forests and other wooded lands, a process of consultation with appropriate groups is required to improve inputs. Additional information is needed on the ecological dynamics of the fires, preferable long-term ecosystem conditions and the underlying causes of the fires.
- Insects, diseases and disturbances: where feasible, it is recommended that efforts be increased to collect country-specific information, such as on the causative agent/s and the tree species affected (even a preliminary classification into broadleaf or conifer would provide more information). Attention should be given to both indigenous and exotic insect pests and diseases and should include the area of disturbance and economic losses where possible. Again where feasible, consideration should be given to greater information on forest disturbances (e.g. storms, natural disasters, animal damage, etc.) as well as to initial separation of data into abiotic and biotic disturbances.

Table 11: Wood removals

- There is a need to harmonize the reporting by countries and international institutions on estimates of removal of wood products (see also Table 13).
- Improving the quality of fuelwood data needs far more attention.

Tables 12 and Table 14: Value of removal of wood and non-wood forest products

- The estimates and forecasts as well as unit values of removal should be calculated in a way that is more comparable. The way to use the latest base-year data for this should be clarified.

Table 13: NWFP removal

- Where feasible, it is important to obtain more accurate and more specific information, such as data for commercially and non-commercially produced NWFPs, for different categories of products (see also Table 11).

Table 15: Employment

- With appropriate attention to standard ILO practices, it is recommended that the definition of forestry employment should be refined (especially in countries that have the greatest share), with a view to increasing comparability between data sources and making full use of existing national employment statistics. A greater effort should also be made to harmonise the classifications, definitions and measurement units with those already used in other economic statistics (e.g. by using the International Standard Industrial Classification).

**7.1.4 Recommendations for improving the data collection process**

It is a sad fact that, despite decades having passed, in some countries FRA continues to rely on data that is not based on recent field assessments, such as inventories, remote sensing or aerial coverage. This reflects poor investment in FRA-type work at the country level and can only be corrected if a greater amount of the budget is allocated to FRA and related activities. Low-income countries can only do this if they are assisted, since they have other pressing claims on their own limited budgets. The following can be highlighted:

- Prioritisation: Only a few countries contribute the major part of global forest cover. Therefore, to achieve accuracy, FRA needs to prioritise the leading forest countries. At a minimum, continuous partnership and operational visits by FRA Secretariat experts should be promoted.
- Avoiding *ad-hoc* approaches: Make data collection for FRA activities at the national level a process and not an *ad hoc* activity. Collecting this information on an *ad hoc* basis is not sustainable and encourages NCs to supply information of poor quality which has not been verified or validated by those responsible, especially as the process tends to get rushed.

## **7.2 Possible areas for future improvement**

The Global Forest Resources Assessment (FRA) is part of a long series, intended to provide the international community with information that is important for assessing progress towards sustainable forest management (SFM). Achieving SFM is a key element of progress towards satisfying expectations under the Millennium Development Goals (MDGs). Forests have a critical role to play regarding environment-relevant MDGs but equally important is to provide information allowing member countries to appreciate the potential of forests to contribute to combating poverty and hunger. This cannot be achieved without taking into consideration the environmental, economic and social functions of forests and by placing man at the centre, as called for by the 1992 Rio Summit.

From the adoption of the UNCED Agenda 21, of post-Rio Forest Principles, and of forest-related conventions (biodiversity, Kyoto and others), international dialogue on forests has called for a growing range of information, FRA continues to cope with the demands and this review of the FRA 2005 exercise shows to what extent all data that are called for can be supplied by member countries. Clearly, the poorest countries continue to have difficulties. For them, reliably providing even minimal statistics (e.g. on total forest cover) poses a challenge.

FRA is dynamic and embodies a culture of learning. Progressively, satisfying the post-Rio ideals of the international community will call for a FRA that provides information not on forests for themselves but on how they can be central to the needs of human development. Some FRA information can already be used to assess to what extent information is relevant to the betterment of people. At present, however, FRA does not provide enough beyond the extent, quality and distribution of forests to also cover data on the ease with which one can gain access and interact with the forests both positively and negatively. Nor does FRA provide much on ways in which the development of the forest sector contributes to national well-being. In this way, even as the demands of FRA to date increase, there is probably a diminishing proportion that many developing countries can supply and how much of it is really critical (and therefore of interest) to them for development planning and policy-making. The challenge will be to make as large a part of what concerns and interests the international system as well as also being seen as important for the individual developing countries. Creating incentives for individual countries to fulfil an increased share of FRA data demands will require a compromise between what international countries need and at the same time the needs of individual countries.

The process of FRA information collection at present does not differentiate the level of effort between resources that are easily accessible and impacted by human activities and those that are far off, nor does it differentiate among forests according to their capacity to support livelihoods. One could speculate what could move FRA in the future towards a more man-centred information content. It could seek to:

- pay greater attention to forests that are in close proximity to human activity;
- differentiate the level of effort in looking at forests that have greater utilisation value because of being more accessible (including trees outside forests and plantations) as opposed to lesser. Aspects such as growing stock, if linked to where human presence is (e.g. near human settlements, along forest margins, along transport routes, etc.) could be of immediate interest to developing member country governments;

- achieve greater differentiation in the emphasis of the FRA process according to the function of the forest, i.e. adapting the emphasis of FRA data collection to themes of interest, such as industrial use as opposed to livelihood use or perhaps environmental conservation; and
- add an outlook element to the FRA process, including the implications of resource trends to livelihoods.

## **Appendix 1: Selected details from the National Correspondents training meeting, Rome, November 2003**

### **Objectives :**

1. Formally institutionalise and reinforce the network of its National Correspondents, as they continue to form the backbone of the global FRA programme.
2. Initiate efforts to build their capacities in Global Forest Resource Assessment to respond to immediate and long-term needs of the FRA programme.
3. Formally launch FRA 2005.
4. Develop national and regional work plans for implementation of FRA 2005 and receive feed back from NCs on the basic three documents (Guidelines for Country Reporting, National Reporting Tables for Country Reporting and Terms and Definitions) for making changes if considered necessary.

### **Organisation:**

In order to meet the objectives of the workshop, three different working groups were established during the training meeting: the first group was dedicated to discussing the content of the report; the second group the thematic reporting and the third the developed FRA 2005 work plans:

a) The Working Group that dealt with the contents of the report

The group task was to draw comments and conclusions with respect to the scope and relevance of the national reporting tables of FRA 2005 for countries and international reporting needs; comment and provide recommendations on the reporting format (classification and definitions) used; assess the availability of information and time series for reporting and propose other relevant issues, suggestions (e.g. reporting capacity, need for additional resources, etc).

b) Working Group dealing with thematic reporting in FRA and its linkages with Criteria and Indicator Processes

The group task was to review step 2 (thematic reporting) for national reporting with respect to its relevance and constraints, examine existing/potential linkages between FRA and the relevant Criteria and Indicator process, examine feasibility of respective countries to provide information on national variables (in addition to global variables) for thematic reporting and the reasons for which some countries may have opted not to go for thematic reporting.

c) Working Group dealing with the development of regional and national work plans for FRA 2005 implementation

The group's task was to examine the process to generate information to be provided to FRA 2005 including detailed time plan for submission of country reports, to discuss how regional offices can coordinate and facilitate the process of country reporting including regional workshop, etc.; to discuss what resources, capacities and mechanisms are needed

by each country to supply data to FRA 2005 during the year 2004 and to examine the need, if any, to modify or expand the current contents of their National Forest Assessments in relation to long-term needs of FRA and forest related international processes.

### **Proposals and recommendations of the Working Groups:**

The following recommendations were made by Group 1 focusing on the content of the report:

1. Although there was general agreement among countries on the approach to reporting, documentation, transformation and classification for national data, some countries expressed the need for more detailed guidelines of national reporting tables and examples in order to understand and implement the method correctly.
2. Required information may be scattered between different agencies and therefore will need financial support and other support for NCs to retrieve and report the information.
3. Many countries spoke about the need for “clear” national definitions in their countries that will enable them to provide good reports.
4. Many countries requested that FAO should provide a more detailed description of the reclassification steps with necessary examples for better understanding and national reporting.

The following recommendations were made by Group 2 focusing on Criteria and Indicators for each region:

1. Countries belonging to processes other than the Montreal and Pan European processes indicated their willingness to report on the thematic section, however, they needed help to revive their respective C&I processes and to build their national capacities to satisfy the information needs.
2. Countries belonging to the Montreal process have more or less identified their information gaps and are adjusting their inventory systems to better fulfil the requirements of the Montreal process. The participants were of the view that they will not be able to report more than what they have recently reported to the Montreal Process.
3. The following nine roles were recommended to FAO to facilitate national thematic reporting:
  - build country capacity to generate information and the development of unified reporting system;
  - interface between Country and International Processes;
  - enable synergy between National Correspondents for FRA and focal points of other international processes such as CBD, IPCC, CCD and C&I, because they encourage harmonisation of international reporting and standardise request for information;
  - promote coordination between various national institutions and agencies;
  - provide stability (terms, variables, definitions and framework) over time;
  - give political and technical support to National Correspondents;
  - establish and maintain electronic resource “Help Line”;



- enhance coordination between NCs and FRA Secretariat; and
- increase interaction between processes, conventions and agencies at a regional level.

The following recommendations were made by Group 3 focusing on regional plans:

Countries proposed the following to facilitate submission of FRA 2005 country reports:

1. Development of a National Task Force of experts to oversee the production of the country reports.
2. Organization of meetings and workshops at national and regional levels.
3. Establishment of electronic networking among NCs.
4. Enhancement of the role of regional offices in facilitating country reporting to FRA 2005.
5. Many participants requested that FAO should provide, as early as possible, technical and financial support and build national capacities necessary to implement FRA 2005 in time.
6. There was a call for addressing unique conditions and needs of small island countries.
7. UNECE and RAPO raised the question of training the National Correspondents of countries not present at the meeting, whose number may be bigger than those present here and suggested an early regional workshop to fill this gap.
8. Enhancement of the role of regional offices in the C&I process and convergence between information requests of FRA and C&I, including building national capacities to generate quality and timely information.