

# **Open Working Group on Sustainable Development Goals (OWG)**

## **Statistical Note for the Issue Brief on:**

### **Forests**

**UPDATED DRAFT AS OF 14 FEBRUARY 2014**

#### **Main policy issues, potential goals and targets**

1. Forests are crucial for sustainable development and provide a range of benefits. Forests contribute to poverty alleviation by providing communities and households with livelihoods and access to resources such as firewood and non-wood forest products (e.g. fruits, wild game and medicinal plants) that contribute to food security.
2. Forests contribute to economic development and environmental sustainability. Commercial timber products provide opportunities for employment and income. Non-timber benefits of forests (such as non-wood forest products and forest ecosystem services) are vital to a number of ecological functions including watershed protection, providing habitat for biodiversity and ecosystem integrity, and act as carbon sinks for the mitigation of climate change. Forests also provide cultural benefits to native and indigenous communities living in or surrounding forest areas, as well as scenic and cultural heritage benefits to all peoples.
3. The current Millennium Development Goals (MDG) indicators<sup>1</sup> relating to forests are:
  - 7.1: *Proportion of land area covered by forest.*
  - 7.6: *Proportion of terrestrial and marine areas protected.*
  - 7.7: *Proportion of species threatened with extinction.*
4. The current MDG framework uses a compartmentalized approach to environmental indicators that is the environmental information is not necessarily integrated with social or economic information. This is also apparent in information currently available internationally. The post-2015 agenda is aimed towards integrated environmental and socio-economic development where indicators monitor the intersection between development outcomes.<sup>2</sup>
5. Available forestry datasets address statistics and indicators that focus on traditional forestry issues (such as the area covered by forests, the type of forests and volumes of forest products), with relatively comparable data available for most countries. There is potential for the currently available forest information to be expanded to include further data relating to environmental management practices and the social, economic and cultural domains.

#### **Conceptual and methodological tools**

6. The System of Environmental-Economic Accounting (SEEA) Central Framework adopted as an international statistical standard by the United Nations Statistical Commission in 2012<sup>3</sup> and the SEEA Experimental Ecosystem Accounting welcomed by the Statistical Commission as “an important first step in the development of a statistical framework for ecosystem accounting”<sup>4</sup>, represent important statistical

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<sup>1</sup> UN Millennium Development Goals and Indicators-  
<http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm>

<sup>2</sup> Statistics and Indicators for the Post-2015 Development Agenda, Indicators Overview-  
[http://www.un.org/en/development/desa/policy/untaskteam\\_undf/Statistics%20and%20indicators\\_Overview.pdf](http://www.un.org/en/development/desa/policy/untaskteam_undf/Statistics%20and%20indicators_Overview.pdf)

<sup>3</sup> Statistical Commission – Report on the forty-third session (28 February-2 March 2012)

<sup>4</sup> Statistical Commission – Report on the forty-fourth session (26 February-1 March 2013)  
<http://unstats.un.org/unsd/statcom/doc13/2013-Report-E.pdf>

frameworks to support the measurement of a wide range of indicators related to forests. They provide the conceptual framework for integrating the environmental and economic information systems. By organising environmental and economic information into an accounting framework there is the capacity to improve basic statistics, and develop indicators that are consistent, comparable and interlinked.<sup>5</sup>

7. The UN Framework for the Development of Environment Statistics (FDES 2013) and its Basic and Core Sets of Environment Statistics, adopted by the Statistical Commission as the framework for strengthening environment statistics programmes in countries, provide an organizing structure for statistics on the environmental, economic and social aspects of forests<sup>6</sup>.
8. Forest concepts, methodologies and statistics have a long tradition of development within the forestry/agricultural authorities with very little involvement of the NSOs. Historically forest data and terminology has focused on wood supply and information on the socio-economic and environmental aspects of forests have only been developed recently. This has resulted in concepts relating to forests being defined differently (i.e. according to the focus of the institution collecting the data), although international organizations and countries are increasingly using the internationally agreed definition of forest and related terminology from the longest running and most complete global forest data collection activity by the Food and Agriculture Organisation (FAO).
9. The Global Forest Resources Assessment (FRA) has been produced every 5-10 years by the FAO since 1946. The FRA is sent to countries (usually agricultural or forest authorities) who report information back to the FAO. The most recent dataset for 2010 includes 90 data items from 233 countries.<sup>7</sup> The definition of forest in the FRA is used for the numerator of MDG indicator 7.1<sup>8</sup> and by most international agencies working on forest statistics and indicators. The FRA also has data that covers forested land formally protected and some limited economic data. The FRA is conducted at 5-yearly intervals via a country survey with a standardised format in order to conciliate and reduce discrepancies between country reporting.<sup>4</sup> The current FRA could be used as a source of statistics to monitor a number of post-2015 goals, specifically those relating to forest cover change.
10. Inventories, surveys (of forest size, type and product) and remote sensing including satellite imaging are the predominant techniques currently used to collect primary forest-related data. Surveys can collect data on a range of forest topics; however consistent definitions and measurements are essential to inter-country comparability. Aerial photography and satellite imaging is used to measure vegetation cover, particularly in areas where other surveying is not available (e.g. remote regions). Whilst this improves forest coverage data, it is limited in that it does not measure other attributes and variables that are relevant in forest statistics. In the future, remote sensing technologies and methods have the potential to address some information needs, such as forest health and soil quality.
11. Remote sensing is a tool which can be used to assess forest cover and changes in forest cover. The Remote Sensing Survey (RSS) has been conducted for the first time in 2010 by the FAO. It aims to obtain globally consistent information on forest cover and land use change. The RSS is also used to verify information collected in the FRA and where necessary to complete information. Information from the RSS could also be used by countries to meet a number of other international reporting obligations for forests and sustainable development.<sup>9</sup>

## **Existing and new indicators**

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<sup>5</sup> UNSD, SEEA- <http://unstats.un.org/unsd/envaccounting/seea.asp>

<sup>6</sup> UNSD, FDES 2013 - <http://unstats.un.org/unsd/statcom/doc13/BG-FDES-Environment.pdf>

<sup>7</sup> UN FAO, Global Forest Resources Assessment, 2010- <http://www.fao.org/forestry/fra/fra2010/en/>

<sup>8</sup> UN Millennium Development Goals and Indicators, Metadata for Indicator 7.1 -

<http://mdgs.un.org/unsd/mdg/Metadata.aspx>

<sup>9</sup> UN FAO, Global Remote Sensing Survey- <http://www.fao.org/forestry/fra/remotesensingsurvey/en/>

12. A range of forest indicators have been developed for the specific needs of particular regions or organisations (see Appendix).
13. Indicators currently available as part of the FRA relate to forest coverage, type and quality. There are also a limited number of forest economic indicators. Forest products (e.g. timber, non-wood forest products) are available for production data (both monetary and volume) for the majority of countries. There is a limited amount of information relating to trade of forest products between countries.
14. Indicators on the area covered by forest and the production of forest products are important, but not sufficient to understand the environmental and social aspects associated with the economic activities. For example, the type of forest (natural, planted), its possible substitution from natural to planted forest and its quality measured by different parameters is important when assessing ecosystem, biodiversity and sustainability. The type of forest is usually reported to the FAO FRA by countries so this is available for most countries with forests.
15. With respect of forest management and certification, the Forest Stewardship Council (FSC) currently produce global statistics about the amount, area and type of certificates, regional distribution and by type of forest ownership<sup>10</sup>. They are also currently working on a Generic International Indicators Framework.<sup>11</sup> The Ministerial Conference on the Protection of Forests in Europe (Forests Europe) has developed a number of indicators for Sustainable Forest Management (SFM).<sup>12</sup> SFM is defined as “the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems”. SFM aims to address issues around deforestation and degradation and covers seven broad thematic areas: extent of forest resources; forest biological diversity; forest health and vitality; productive functions of forest resources; protective functions of forest resources; socio-economic functions of forest; and legal, policy and institutional framework. Social indicators that have not traditionally been monitored as part of forest statistics, such as cultural and recreational use, are addressed in SFM.
16. There are a number of regional and country initiatives that attempt to monitor the breadth of the SFM however, the data available is for a limited number of indicators and only for a few countries. There is potential for the SFM to be used at a global level but it is not clear how long it would take national and international data collection mechanisms to populate the SFM.<sup>8</sup>
17. The United Nations Forum on Forests (UNFF) adopted the landmark Non-Legally Binding Instrument on All Types of Forests on 28 April 2007, by which member States have agreed to an international instrument for sustainable forest management. The monitoring of the implementation of the Instrument for sustainable forest management and the subsequent data production also constitutes a data source upon which statistics and indicators can be constructed at the international level.
18. The SEEA Central Framework currently bridges the FRA definition of forests with national accounts concepts of forests. By combining a range of physical information on forests with other environmental and economic information, the SEEA could produce a wide range of indicators, such as industry value added per hectare of forest used for production (whether the production is of timber, non-forest products, water, etc.). The SEEA is based on the System of National Accounts being compiled by all countries to derive economic indicators. Although only a very limited number of countries compile environmental accounts on a regular basis, the number is increasing as a result of the SEEA Central Framework’s adoption as an international statistical standard and the implementation strategy that followed.
19. The SEEA Experimental Ecosystem Accounting takes the ecosystem perspective providing an accounting framework of the conditions of forest ecosystems and the services provided by these ecosystems, not only

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<sup>10</sup> <https://ic.fsc.org/facts-figures.19.htm>

<sup>11</sup> <https://ic.fsc.org/international-generic-indicators.472.htm>

<sup>12</sup> Ministerial Conference on the Protection of Forest in Europe, Sustainable Forest Management Criteria & Indicators-  
[http://www.forestseurope.org/sfm\\_criteria](http://www.forestseurope.org/sfm_criteria)

provisioning (e.g. timber and non-timber products) but also regulating (e.g. carbon sequestration, flood protection, habitat for biodiversity, etc.) and cultural services. The methodology to populate the SEEA Experimental Ecosystem Accounting is currently being tested in several countries, including the possibility of developing baseline indicators for 2015.

### **Data requirements, challenges and limitations**

20. Current data sources are able to meet a variety of indicators relating to physical extent and types of forests and how they are used. The FRA is designed so that information between countries is consistent and comparable, and it remains the leading existing data source on forests. Developing countries with forests are the ones facing the most important challenges to measure and monitor key forest variables. This goes beyond the traditional forest coverage and production indicators. Where relevant, indigenous peoples and communities that live in or by the forest need their countries' statistical systems to be able to progressively produce information and statistics that are relevant to their livelihoods, cultural and ecological heritage and sustainability of development around their forests as eco and cultural systems.
21. However, the FAO FRA focuses on traditional forestry data, with limited coverage on socio-economic data and on areas relating to development. New indicators and data sources are required to address a broader suite of forestry and livelihoods questions.

### **Conclusions**

22. The data currently available about forests is largely drawn from the FAO FRA. The FRA provides statistics for a range of traditional indicators. They are well established and comparison between countries and over time can be made with confidence.
23. Various systems and frameworks have emerged and have the potential to monitor development issues around forests. Some frameworks, whilst established theoretically, are not yet used by large numbers of countries or have not been sufficiently developed to comprise all of the forests' complexity in interaction with the economic production and social and cultural aspects. The SEEA Central Framework and the SEEA Experimental Ecosystem Accounting systems have the potential to monitor development issues related to forests and in particular would support SFM. These systems are in the process of being adopted and implemented in several countries. Because they take an integrated approach to environmental, economic and – partly – social issues, indicators drawn from these systems would provide the basis for improved indicators. International agencies working with countries to implement these information systems should in time see the emergence of data that can populate these frameworks. The potential should at least be recognised in the setting of new indicators post 2015.

### **Preparation of note**

This note was prepared by the Australian Bureau of Statistics Centre of Environment Statistics and edited by UNSD. Comments were received from the UK Forestry Commission and the UK Department for International Development (DFID).

## Appendix: Table comparing existing forest indicators and sources

Organisation	Indicator / Data	Description	Sources
<u>Millennium Development Goals</u> 2000	7.1: Proportion of land area covered by forest 7.5: Proportion of total water resources used 7.6: Proportion of terrestrial and marine areas protected 7.7: Proportion of species threatened with extinction	7.1: The proportion of forest area to total land area and expressed as a percentage. 7.5: The proportion of total renewable water resources withdrawn. The total volume of groundwater and surface water withdrawn from their sources for human use (in the agricultural, municipal and industrial sectors), expressed as a percentage of the total actual renewable water resources. 7.6: The proportion of a country's terrestrial protected areas as well as marine protected areas in territorial waters (up to 12 nautical miles from the coast). 7.7: An index of the change in threat status of species in their natural habitat, based on population and range size and trends. The proportion of species expected to remain living in the near future in the absence of any conservation action.	7.1: FAO FRA 7.5: FAO AQUASTAT 7.6: UNEP-WCMC aggregates the global and regional figures for this indicator from the national figures calculated through GIS analysis 7.7: The proportion of species in each IUCN Red List Category, and changes in this proportion over time resulting from genuine improvement or deterioration in the status of individual species.
<u>Food and Agriculture Organisation of the United Nations – FRA</u> (5 yearly)	1. Vegetation coverage and type (proportion and volume) 2. Annual Change of forest cover (planted and primary) 3. Forest ownership 4. Forest designated function 5. Forest in protected areas 6. Growing stock 7. Carbon stock 8. Area affected by disturbances 9. Wood Products (type, volume, value) 10. Employment 11. Forest education	Comprehensive and comparable data for most countries. 1: Hectares and percentage of cover by forest, other wooded land and land with other tree cover 2. Hectares by year and percentage rate of change in forest cover 3. Percentage of forests owned by various types of institutions 4. Percentage of forests for specific primary functions (production, soil/water protection, biodiversity conservation, social services) 5. Hectares and percentage of forest in protected or permanent areas. 6. Type of forest and the volume of all living trees. 7. Carbon stock in living forest biomass (in tonnes) and annual change- both total and per hectare. 8. Hectares affected by fire, insects, disease and other factors. 9. Volumes of industrial roundwood and wood fuel removed and the value of removals in USD. 10. Full time equivalent jobs in forestry industry (production and protected area management). Gender split for public forest institution employment 11. Professionals employed in forest research and Number of graduates in forest-related study (by gender and level of qualification).	FAO Forest Resources Assessment FAO Remote Sensing Survey
<u>World Bank</u> (annual)	1. Forest Area 2. Forest Rents 3. Terrestrial protected areas	1. Forest Area as a percentage of total area and in square kilometres. FAO definition of forest is used. 2. Forest rents are roundwood harvest times the product of average prices and a region-specific rental rate. Published as a percentage of GDP. 3. Terrestrial protected areas are totally or partially protected areas of at least 1,000 hectares that are designated by national authorities as scientific reserves with limited public access, national parks, natural monuments, nature reserves or wildlife sanctuaries, protected landscapes, and areas managed mainly for sustainable use.	1. FAO FRA 2. World Bank and FAO data sources, World Bank methodology. 3. UNEP-WCMC, compiled by the World Resources Institute, based on data from national authorities, national legislation and international agreements.

<u>Organisation for Economic Co-operation and Development</u> (annual)	<ol style="list-style-type: none"> <li>1. Fellings</li> <li>2. Natural Losses</li> <li>3. Gross Increment</li> <li>4. Net Change</li> <li>5. Intensity of Use of Forest Resources</li> </ol>	<p>Information is only available for selected OECD countries.</p> <ol style="list-style-type: none"> <li>1. Both net fellings and volumes salvaged. Average annual standing volume of all trees, living or dead, measured overbark to a minimum diameter that are felled during the given reference period. Includes the volume of trees or part of trees that are not removed from the forest, other wooded land or other felling site.</li> <li>2. Average annual losses to the growing stock during the given reference period, measured to a minimum diameter, due to mortality from causes other than cutting by man, e.g. natural mortality, diseases, insect attacks, fire, windthrow or other physical damage.</li> <li>3. Average annual volume of increment over the reference period of all trees, measured to a minimum diameter. Includes the increment on trees which have been felled or die during the reference period.</li> <li>4. Net change = Gross Increment - Net fellings - Natural losses</li> <li>5. Actual fellings to annual productive capacity (i.e. gross increment).</li> </ol>	<p>OECD country survey. Definition and terminology can differ between countries.</p>
<u>Forest Europe</u> (annual)	<p>52 specific indicators relating to Sustainable Forest Management (SFM)</p>	<p>Indicators have been developed to address the following broader SFM topics:</p> <ol style="list-style-type: none"> <li>1: Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to Global Carbon Cycles</li> <li>2: Forests Ecosystems Health and Vitality</li> <li>3: Maintenance and Encouragement of Productive Functions of Forests (Wood and Non-Wood), including: <ul style="list-style-type: none"> <li>• Productive Functions of Forests</li> <li>• Socioeconomic functions</li> </ul> </li> <li>4: Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems</li> <li>5: Overall policies, institutions and instruments for sustainable forest management</li> </ol>	<p>Country reporting was done through two questionnaires: one on quantitative indicators for Sustainable Forest Management, and the other on qualitative indicators for Sustainable Forest Management</p>
<u>Eurostat</u> (annual)	<ol style="list-style-type: none"> <li>1. Production and trade in roundwood and wood products, including primary and secondary products.</li> <li>2. Economic data on forestry and logging, including employment data.</li> <li>3. Sustainable forest management, comprising forest resources (assets) and environmental data.</li> </ol>	<ol style="list-style-type: none"> <li>1. The main types of primary forest products include: roundwood, sawnwood, wood-based panels, pulp, and paper and paperboard. Secondary products include further processed wood and paper products.</li> <li>2. Includes output, intermediate consumption, gross value added, fixed capital consumption, gross fixed capital formation and different measures of income of forestry and logging.</li> <li>3. Includes forest area, wood volume, defoliation on sample plots, fires and areas with protective functions</li> </ol>	<ol style="list-style-type: none"> <li>1. Joint Forest Sector Questionnaire</li> <li>2. Integrated environmental and economic accounting for forests (IEEAF)</li> <li>3. Collected by FAO, UNECE, Forest Europe, the European Commission's departments for Environment and the Joint Research Centre</li> </ol>