Expert Workshop on Strengthening the Global Core Set of Forest Indicators to support the implementation of the 2030 Agenda and the UN Strategic Plan for Forests 2030, October 22-24 2019
FAO, Rome

Working Group 5
Indicator 12 "Employment related to the forest sector"

Draft discussion paper

28 February 2020
Indicator 12 "Employment related to the forest sector"

Summary

This is a working group proposal paper for Global Core Set (GCS) Indicator 12 ‘Employment related to the forest sector’. It provides an assessment of the current indicator specifications and provides recommendations to improve data availability for the indicator. The paper has been prepared for the Food and Agriculture Organization of the United Nations (FAO)’s Expert Workshop in support of the Collaborative Partnership on Forests (CPF) Joint Initiative on Streamlining Forest-related Reporting: Further improving the GCS of Forest Indicators to support the implementation of the 2030 Agenda and the UN Strategic Plan for Forests 2030.

The paper proposes a number of recommendations, the most fundamental of which is to suggest revisiting the core concept underlying the current specifications of ‘employment in the forest sector’, namely to consider shifting from a measure of labour input (full-time equivalents) to a measure of employment in compliance with international standard definitions and guidelines. The paper argues that such a shift would also present a more streamlined and harmonised approach to data collection and reporting, ultimately: i) reducing the reporting burden; ii) improving the quality of data collected; and iii) presenting greater opportunities for disaggregation and analysis. Finally, the paper concludes with a proposal on the re-classification of Tier status of this indicator from Tier-2 to Tier-1 within the context of GCS indicators given the existence of international guidelines for the definition and measurement of employment and the availability of harmonized data in a number of countries.

Background to the expert workshop

The UN Strategic Plan for Forests (UNSPF) 2017-2030 provides a global framework for actions at all levels to sustainably manage all types of forests and trees outside forests and halt deforestation and forest degradation. Agreed upon at a special session of the UN Forum on Forests (UNFF) in 2017, the Strategic Plan contains six Global Forest Goals (GFGs) and 26 associated targets to be achieved by 2030, which are voluntary and universal.

These six GFGs support the objectives of the International Arrangement on Forests and aim to contribute to progress on the Sustainable Development Goals (SDGs), the Aichi Biodiversity Targets, the Paris Agreement adopted under the UN Framework Convention on Climate Change (UNFCCC) and other international forest-related instruments, processes, commitments and goals. To streamline action and reduce the reporting burden on countries, the Collaborative Partnership on Forests (CPF) has developed a Global Core Set (GCS) of 21 forest related Indicators. These indicators address topics identified in high level political commitments on forests and forest related aspects of SDG indicators, in particular SDG 15: “Life on Land”.

On 22-24 October 2019, an Expert Group Meeting (EGM) will be held at FAO, Rome, Italy to review progress on the GCS and develop recommendations for further improving methodologies and data availability of selected indicators. In particular, a session on Indicator 12: ‘Employment related to the forest sector’, will be held on 23rd October to discuss challenges and opportunities in data availability, share case studies and lessons-learned from invited country representatives, and develop recommendations for addressing data
availability issues, national approaches for data collection/generation through existing structures and mechanisms, data generation through analytical tools; and possible pilot studies.

Background to indicator readiness

A Tier 1, 2, 3 system is used to classify the GCS indicators in terms of indicator readiness. Indicator 12: ‘Employment related to the forest sector’ qualifies as a Tier 2 indicator, that is, an indicator that “may require additional efforts but are manageable through various data sources.” In this regard, the FAO Committee on Forestry (COFO), has requested FAO to continue working with the CPF on further development of Tier 2, Tier 3 and ‘candidate’ indicators of the GCS and continue to report on progress, including at the UNFF.

Further, the 14th Session of the UNFF Chair’s summary specified an expert meeting on improving indicators of the core set as part of plans for intersessional activities on the road to the 15th UNFF, to be held in 2020. It is against this backdrop that this background paper serves to assess Indicator 12 in terms of methodological appropriateness and data availability, particularly to propose recommendations for improving the indicator to Tier 1.

Structure of proposal paper

Section 1 of the paper provides an overview of the current specifications for Indicator 12, using a standard metadata format prescribed for this workshop, which is aligned with a common structure used for Sustainable Development Goal (SDGs) indicators, covering concepts and definitions, methodological approach, data sources and data compilers/providers. Section 2 provides recommendations for Indicator 12, following the same metadata format. Conclusions, recommendations and next steps are provided at the end of the paper.
Section 1. Current specifications

Institutional information

Organization:
Food and Agriculture Organization of the United Nations (FAO)

Concepts and definitions

Note: The specifications below have been compiled by the author of this paper using the specified unit of measurement (number of full-time equivalents) and the proposed underlying source (Global Forest Resource Assessments (FRA)) to outline inferred concepts and definitions.

Unit of measurement: Number of Full-time Equivalents (FTE)

According to FRA Terms and Definitions Guide (FAO, 2012), employment in forestry should be reported as FTE that is defined as “A measurement equal to one person working full-time during a specified reference period” in which, “one full-time employee counts as one FTE, and two half-time employees also count as one FTE.”

Concepts: Based on this definition, there are two concepts as part of this indicator: i) employment and ii) forest sector.

i. Employment: No explanation of employment is provided as part of the FRA Terms and Definitions Guide (FAO, 2018a). From the unit of measurement, however, it can be inferred that the concept refers to employees only, working full-time or part-time;

ii. Forest sector: According to FAO (2018a) “activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).”¹ (See Annex I for a breakdown of ISIC Rev 4/NACE Rev. 2 codes for ‘forestry and logging’). Notably, the forest sector under this definition does not include forest-based manufacturing (i.e. ISIC Rev. 4 codes 16 and 17) which are included in definitions of the forestry sector used elsewhere, such as the and Pan-European indicators for sustainable forest management (Forest Europe, 2015a).

Rationale: FTE is a measure of labour input. It is most commonly used in the measurement of productivity in national accounts data.²

Comments and limitations:

FTE is a measure of labour input, and when coupled with other economic indicators, particularly production volume, it can be an informative indicator. For instance, SDG 2.3.1: ‘Volume of production per labour unit

¹ It should be noted that the correct classifications are ISIC Rev. 4 and NACE Rev. 2. See comparisons at: https://ec.europa.eu/eurostat/ramon/relations/index.cfm?TargetUrl=LST_LINK&strNomRelCode=NACE%20REV.%202%20-%20ISIC%20REV.%204&StrLanguageCode=EN
² See discussion of use of FTE in the system of national accounts in UNDESA (2008a).
by classes of farming / pastoral / forestry enterprise size’ requires data for labour input in the forestry sector, however, to use alongside production volume to calculate productivity.

Limitations and considerations of FTE as it is specified above include: i) suboptimal measurement (see section on Methodology), in which it uses part-time and full-time units as the basis of measurement, rather than actual hours worked; ii) the definition suggests it focuses on employees only, thereby ignoring all other forms of employment (most notably self-employed); and iii) the ISIC specifications suggested only includes ‘forestry and logging’ production (ISIC Rev. 4 code 02) and does not consider the manufacturing of wood and products of wood and cork (ISIC Rev. 4 code 16) and the manufacture of paper and paper products (ISIC Rev. 4 code 17).

Methodology

Computation Method:

One full-time employee counts as one FTE, and two half-time employees also count as one FTE (FAO, 2012). One FTE corresponds to one person working full time during a reference period (FAO, 2018). In the case of FRA, the reference period is the reporting year (Ibid.).

Further, FAO (2018) specifies that the reported figures should be based on averages for three-year periods (1989-1990-1991) for 1990, (1999-2000-2001) for 2000, (2009-2010-2011) for 2010 and (2014-2015-2016) for 2015. If data are not available to produce three-year average, this should be documented along with information on how the value for the reporting year(s) was reached. It could be the actual value for the reference year, if available, but preferably it should be an average value of two or more years.

Regional totals are based on a summation of those countries that have data availability for applicable years.

Disaggregation:

Data is requested by sex in the FRA questionnaires. No further disaggregation is feasible.

Treatment of missing values:

- At country level
  There is no treatment for missing data at the country level.
- At regional and global levels
  By summation, however, summation is only applied to countries per region with data availability for applicable years.

Regional aggregates:

As detailed above, regional and global estimates can be produced by summation.
Sources of discrepancies:

In some cases FTE is treated synonymously with employment data, and therefore data for employment from labour force surveys are imputed directly, with no adjustment into FTE. Further, FTE itself is not standardised as the notion of what constitutes full-time equivalent work (or part-time equivalent) can vary by country. In one country it may constitute 8 hours a day for 5 days a week, in another it may be 7 hours a day or be 6 days a week. Further, treatment of paid leave can also lead to discrepancies, even for a country over time as a legislation change. Finally, the guidelines for FTE specify to make the basis upon full-time or part-time, yet there are additional means of measuring employment, including by actual hours worked (the preferred method according to the System of National Accounts (UNDESA, 2008)). As data can be provided from national accounts who can use a range of approaches in their own calculations, this can lead to further reasons for incomparability and discrepancy.

Methods and guidance available to countries for the compilation of the data at the national level:

Specific methods for compilation of FTE at the national level are not specified, however the two main sources of guidance available to countries for compilation of data at the national level are: i) FRA Terms and Definitions (FAO, 2018a) and ii) FRA Guidelines and Specifications (FAO, 2018b).

Quality assurance:

Country reporters are asked to make a note of the data source and methodologies used. However, due to the range of methodological approaches available and used, as well as the range of data sources, it is difficult to apply quality assurance.

Data Sources

Data collection for the FRAs are led by the FAO and based on Country Reports prepared by officially nominated network of National Correspondents that currently cover 186 countries and territories. Elsewhere, Forest Commissions and other national counterparts also provide data to regional bodies such as Eurostat via the European Forest Accounts questionnaire.

Data collection for the FRAs is drawn from a range of different sources: FTE can be made available in national accounts, provided by respective national statistics offices, extracted from labour force surveys, establishment/ business surveys and administrative surveys and drawn from population censuses.

In terms of data from labour force surveys, the ILO Department of Statistics harmonises labour force survey data in the ILO Microdata Repository, according to a set of common indicators, including actual hours worked in the forestry sector (ILO, 2018a), which can be used calculate FTE via the actual hours worked approach, assuming a common threshold or common metric is applied.

Alternative sources of data

A number of data sources collect information – or are being developed to collect information – on FTE in agriculture and specifically the forestry sector, these include the 50x2030 Initiative to Close the Agricultural Data Gap (50x2030) and FAO’s Agricultural Integrated Surveys Programme (AGRIS).
50x2030\textsuperscript{3}: The 50x2030 Initiative to Close the Agricultural Data Gap aims to empower and support fifty low and lower-middle income countries (L/LMICs) to build strong national data systems that produce and use high-quality, timely agricultural survey data. It uses the 50x2030 Integrated Agricultural and Rural Survey Program combines an Agricultural Income, Labour, and Productivity (ILP-AG) questionnaire and the Non-Farm Income and Living Standards Household (ILS-HH) questionnaire. The ILP-AG is administered every three years to agricultural households as well as holdings in the non-household sector. Labour inputs, including for the forestry sector, are collected in detail in the ILP-AG questionnaire, expressed as time and cost, and collected for three main worker categories: household members (age/sex disaggregated), free/exchange labourers and hired workers. This labour input data contributes to the denominator of the SDG indicator 2.3.1 Productivity of small-scale food producers, which focuses on the value of production per time unit of labour. A limitation of 50x2030 is that it is only focused on a selection of countries.

AGRIS\textsuperscript{4}: FAO’s Agricultural Integrated Surveys Programme (AGRIS) was developed under the framework of the Global Strategy to Improve Agricultural and Rural Statistics in 2016-2017. It is a farm-based modular survey that operates over a ten-year cycle. The survey includes a core module collected every year and rotating modules collected periodically throughout the ten-year cycle. AGRIS has a rotating Module on Labour measures (implemented in years 2 and 6), collecting information on: (i) the volume of labour input in the agricultural holding provided by household members, external workers and contractors - and (ii) the organization of labour on the holding. Notably AGRIS collects information on employment status and treats separately to labour input.

Data Availability

Description:

Data is available for countries with at least one data point in recent years, for 142 countries out of 234 countries and territories. As detailed by region below:

**Table 1: Number of countries with at least one data point (FTE data reported in FRA 2015)**

<table>
<thead>
<tr>
<th>Region</th>
<th>Subregion</th>
<th>Total countries and territories per region</th>
<th>Countries or territories with FTE data (FRA)</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Northern Africa</td>
<td>7</td>
<td>5</td>
<td>71.4</td>
</tr>
<tr>
<td></td>
<td>Sub-Saharan Africa</td>
<td>50</td>
<td>38</td>
<td>76.0</td>
</tr>
<tr>
<td>Americas</td>
<td>Latin America and the Caribbean</td>
<td>47</td>
<td>23</td>
<td>48.9</td>
</tr>
<tr>
<td></td>
<td>Northern America</td>
<td>5</td>
<td>2</td>
<td>40.0</td>
</tr>
<tr>
<td>Arab States</td>
<td>Arab States</td>
<td>12</td>
<td>4</td>
<td>33.3</td>
</tr>
<tr>
<td>Asia and the Pacific</td>
<td>Eastern Asia</td>
<td>8</td>
<td>4</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>South-Eastern Asia and the Pacific</td>
<td>35</td>
<td>13</td>
<td>37.1</td>
</tr>
<tr>
<td></td>
<td>Southern Asia</td>
<td>9</td>
<td>7</td>
<td>77.8</td>
</tr>
</tbody>
</table>

\textsuperscript{3} Information on 50x2030 was drawn from the forthcoming publication: “A guide to the 50x2030 Data Collection Approach: Questionnaire Design”.

\textsuperscript{4} Information on AGRIS was drawn from the Handbook on the Agricultural Integrated Survey (AGRIS).
Expert Workshop on Strengthening the Global Core Set of Forest Indicators to support the implementation of the 2030 Agenda and the UN Strategic Plan for Forests 2030, October 22-24 2019, FAO, Rome

<table>
<thead>
<tr>
<th>Region and Central Asia</th>
<th>Central and Western Asia</th>
<th>11</th>
<th>11</th>
<th>100.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Europe</td>
<td></td>
<td>10</td>
<td>10</td>
<td>100.0</td>
</tr>
<tr>
<td>Northern, Southern and Western Europe</td>
<td>40</td>
<td>25</td>
<td>62.5</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>234</td>
<td>142</td>
<td>60.7</td>
</tr>
</tbody>
</table>

Source: FRA 2015

Note: Coverage on basis of at least one data point in either the 1990, 2000, 2005 or 2010 FRE reporting periods. It does not however imply that the data provided is comparable for all these countries.

**Time series:**

An overview of the coverage for countries with FTE data reported in FRA Country Reports is provided below:

**Table 2: Number of countries with at least one data point per period (FTE data reported in FRA)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Northern Africa</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-Saharan Africa</td>
<td>24</td>
<td>32</td>
<td>31</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Americas</td>
<td>Latin America and the Caribbean</td>
<td>10</td>
<td>16</td>
<td>21</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Northern America</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arab States</td>
<td>Arab States</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia and the Pacific</td>
<td>Eastern Asia</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>South-Eastern Asia and the Pacific</td>
<td>8</td>
<td>11</td>
<td>10</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Southern Asia</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>Central and Western Asia</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eastern Europe</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Northern, Southern and Western Europe</td>
<td>27</td>
<td>30</td>
<td>30</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>105</td>
<td>132</td>
<td>136</td>
<td>127</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: FRA 2015

Note: Coverage on basis of at least one data point in each group of years. It does not however imply that the data provided is comparable for all these countries. Further, the difference in totals between the Table 1 and Table 2 is due to different countries per period having data availability for those respective years.

* forthcoming in FRA 2020
Calendar

**Data collection:**
Data collection is compiled for inclusion in FRA Country Reports, and has been conducted every 5 years (ranging from every 5-10 years since 1946).

**Data release:**
Data is collected for inclusion in FRA Country Reports that are released every 5-years. The latest FRA is 2015 and the next will be FRA 2020.

**Data compilers**

FRA is the specified data compiler of FTE for this indicator. FAO compiles the information from Country Reports provided by National Correspondents and produce summary findings and tabulations and also provide the data for download. While FRA is a convenient data source, there are challenges in terms of comparability and consistency in methodological approaches used per country. For instance, FAO (2014) cites that “not all the numbers provided for FRA in country reports were used in this study because of limited quality and comparability of some figures.” This is also apparent from review of Country Reports, where employment and FTE data can be used intermittently.

Other data compilers include regional bodies, such as Eurostat, who publish Annual Work Unit (a variation of FTE) from the European Forest Account (EFA) questionnaire (Eurostat, no date).

Additional data compilers that often use data from other FRA and/or Eurostat include the State of Europe’s Forests Reports (e.g. Forest Europe, 2015) and the State of the World’s Forests (SOFO) series – a flagship FAO series that reports on the status of forests, recent major policy and institutional developments and key issues concerning the forest sector. The SOFO has been conducted every two years since 1995.

**Related indicators**

Aligns with Target 2.4 of the United Nations Strategic Plan for Forests (UNSPF), 2017-2030: “2.4: The contribution of forest industry, other forest-based enterprises and forest ecosystem services to social, economic and environmental development, among others, is significantly increased.”

It is also related to SDG 2.3: Indicator 2.3.1 - Volume of production per labour unit by classes of farming / pastoral / forestry enterprise size.
Section 2. Recommended specifications

Institutional information

Organizations:
Food and Agriculture Organization of the United Nations (FAO);
International Labour Organization (ILO)

Concepts and definitions

Unit: Employment in the forestry sector as a share of total employment (%)

Concepts:

The two relevant concepts that require explanation of the definitions are: i) employment and ii) the forestry sector.

Employment:\(^5\)

International guidelines for the definition and measurement of employment are agreed upon at the international Conference of Labour Statisticians (ICLS). The latest international recommendations on the measurement of employment are contained in the Resolution concerning statistics of work, employment and labour underutilization adopted by the 19th ICLS in 2013 (ILO, 2013). This resolution recognizes employment as the form of work that serves as basis to produce labour market statistics. It provides reference concepts, operational definitions and guidelines to support countries in establishing their national programmes on work and labour market statistics.

Accordingly, persons in employment or the employed population comprise all those of working age who, in a short reference period, were engaged in any activity to produce goods or provide services for pay or profit.

The notion of pay or profit refers to work carried out in exchange for remuneration payable in cash or in kind. It includes remuneration in the form of wages or salaries for time worked or for work done or in the form of profits derived from the goods and services produced for sale or barter. In accordance with the international guidelines on employment-related income, this includes remuneration, whether actually received or not, payable directly to the person performing the work or indirectly to a household or family member.

The employed population is measured in relation to a short reference period of one week or seven days, so as to produce a snap-shot picture of employment at a given point in time. When statistics on the

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employed population are collected at frequent intervals, these can serve to monitor changes over time in the levels, structure and characteristics of employment in countries.

The employed population comprises two main groups:

- Persons employed, at work — i.e. who worked for at least one hour for pay or profit in the short reference period.
- Persons employed, not at work — i.e. who had a job but did not work in the short reference period due to temporary absence from the job, for example due to sick leave, annual leave, maternity leave, etcetera, or due the nature of their working time arrangement, such as shift work, compensatory leave for over time, flexitime.

For operational reasons, to identify persons employed, at work in the short reference period, a criterion of “one hour” of work for pay or profit is used. This “one-hour criterion” ensures that all types of jobs, including part-time, temporary or casual, are taken into account in employment statistics so as to support the monitoring of working conditions of all employed persons. It is also essential in order to fully measure the contribution of employment to production, and thus to national accounts. Likewise, it enables employment and unemployment statistics to refer to mutually exclusive groups of the population, which when added together comprise the labour force.

Further, employment can be disaggregated into the following groups according to status of employment: i) employees; ii) employers; iii) own-account workers; iv) members of producers’ cooperatives; v) contributing family workers; and vi) workers not classifiable by status. The guidelines for these mutually exclusive categories are provided in the Resolution concerning the International Classification of Status in Employment (ICSE), known as ICSE-93, adopted at the 15th ICLS (ILO, 1993)\(^6\).

Total employment is the total number of employed in a country. Employment in the forestry sector is then presented as a per cent of total employment in a country.

**Forestry sector**

Those working in the forestry sector are identified using the International Standard Industry Classification of All Economic Activities (ISIC), which classifies economic activities to a detailed level (4-digit level, classes) and aggregated to 3-digit (groups), 2-digit (divisions) and 1-digit levels (sections) (UNDESA, 2008). ‘Forestry and logging’ is identified at the 2-digit level (see Annex I). Forest processing activities are allocated in manufacturing in a separate section (D), in divisions: 16 “Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials; and 17 “Manufacture of paper and paper products”. The latest Standards are ISIC Rev. 4, which is consistent with NACE Rev. 2 – the European Classification of Economic Activities. See Annex I for details of ‘02 Forestry and logging’ of ISIC Rev. 4.

Where ISIC Rev. 4 is unavailable, the previous ISIC revision is typically used (ISIC Rev 3.1) and onwards. However, there are some differences in the coding with each revision. Attention should also be made

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where alternative industry classifications are used, e.g. Statistical classification of economic activities in the European Community (NACE) Rev. 2 which, for forestry, is in line with ISIC Rev. 4.

**Rationale:**

Employment in the forestry sector as a share of total employment would capture all those working in the forestry sector, including both employees and the self-employed (the FTE definition specifies employees only). Employment defined in terms of whether or not a person has a job and in line with international recommendations means that it is consistent and comparable with employment as used in the SDGs framework.

Presenting data in terms of proportions (%) of total employment provides a comparable relative measure for across different countries, as opposed to employment in absolute numbers. It also helps gauge the relative importance of the forestry sector as a source of employment and livelihoods. Nonetheless, the absolute number is still of value, both for calculating aggregates and also for different types of analysis and therefore should be provided in reporting, as part of the methodological details.

**Comments and limitations:**

**Suitability and relevance:**

These concepts and definitions of employment are consistent with the notion of employment used by Eurostat, which, in data collection on the forestry sector, clearly distinguish employment from labour input. In this regard, the above concept is more in line with the Indicator name “Employment related to the forest sector”. Applying the ICLS standards further helps harmonise the definition.

In the absence of a wider suite of economic data, including production volumes, employment as defined above, has more value as a standalone statistic than labour input, which is typically coupled with other economic indicators, all of which are not included in the GCS of indicators.

**Other comments:**

Employment is defined according to the ICLS guidelines in order to maintain comparability between countries and ensure consistency over time. The ICLS guidelines are designed primarily for labour force surveys, but can be applied to other forms of household survey (e.g. Household Income and Expenditure Survey or Living Standard Surveys), However, as a number of questions are required in order to obtain the definitions in line with ICLS guidelines and that these other surveys are focused on a wider or different type of information, it should be checked and verified as to whether employment is defined and measured in a manner consistent with ICLS guidelines if using these alternative sources.

It should be noted that even though the 19th ICLS resolution provides the latest guidelines to define work, employment (excluding own-use production workers) and labour underutilization, the degree of implementation varies by country. The share of countries that report information on the measurement of employment using the 19th ICLS definition is still considerably lower than those who are still reporting information using the 13th ICLS definition (i.e. including own-use production workers). Due consideration would need to be made to the definitions, particularly if the incidence of own-use production workers in the forestry sector is significant.
One limitation is that the reference period for data that complies with the ICLS standards is a reference week. Further that ISIC classification is made on the main job. This may underestimate the numbers of people employed in the forestry sector. The risk is partially mitigated by the inclusion of those who are temporarily not working, including seasonal workers. However, as labour force surveys capture a range of data including ‘usual’ employment in addition to ‘current’ employment, as well as data on second jobs, additional research could be conducted into the relationship between the two to ascertain whether or not statistics for those employed in the forestry sector adequately captures the full extent of employment or systematically underestimates. While this would be outside the scope of reporting on this indicator, as supplementary research it would be valuable for verifying the quality of data.

Methodology

Computation Method:

\[(\text{Employment in the forestry sector in a country / Total employment in the country}) \times 100\]

A weighted average for a specific region or globally can be calculated by using aggregate employment in the forestry sector across all countries in a specific region or globally, divided by total employment in a specific region or globally, multiplied by 100. An unweighted average (i.e. the mean of percentages per country) should be avoided.

Disaggregation:

The information should be provided by sex. Further disaggregation is also recommended including by urban/rural areas, hours of work, informality, age-groups, level of education, occupation, status in employment, and more.

Treatment of missing values:

- **At country level**

  Labour force survey data with employment at the 2-digit ISIC level (i.e. to identify forestry sector) is available for most countries (see Data Availability below), however, where missing, alternative sources (such as household income and expenditure surveys) can be used. Compilers of data (see Data Compilers below), namely ILOSTAT, already endeavour to fill gaps in data by using next best sources (household surveys, censuses) to produce comparable data. Gaps that persist after ILOSTAT have attempted to find suitable alternative sources should be considered only be due caution as the likelihood is that if the data has not passed through ILOSTAT’s quality assurance, it will not be comparable or reliable. Particular caution should be considered where FTE data is available for the forestry sector, but data for employment is not.

- **At regional and global levels**

  By weighted average (see computation method above). It should be provided with a footnote of what countries are including and excluded in a given aggregation by specific region or globally. However,
as noted in ‘Data Availability’ below, data is not available for all countries, and for countries for which there is data, it is not available for all years. As such, aggregation may require some extrapolation of the latest available data and mentioning this in a methodological note. An option is to extrapolate based on time series estimates used by the ILO Department of Statistics, namely the ILO Trends Econometric Models, which estimates and forecasts key labour market variables, factoring in population growth and economic growth, amongst other considerations.

Regional aggregates:

As detailed above, regional and global estimates can be produced by summation.

Sources of discrepancies:

There can be some discrepancies between data published by official national sources, such as national statistics offices and the same data published by ILOSTAT (see Data Compilers below). The source of these discrepancies is usually that official data may apply their own definitions of employment which may marginally differ from the ICLS definitions. For consistency and comparability between countries, data from ILOSTAT should be used (see Quality Assurance below).

Methods and guidance available to countries for the compilation of the data at the national level:

Labour force surveys are typically conducted by national statistics offices in collaboration with ministries of labour. The International Labour Organization (ILO) is also available to provide technical assistance to countries in the design, implementation and analysis of labour force surveys, particularly to ensure compliance with ICLS guidelines and to ensure data quality.

Labour force survey data is typically cleaned and analysed by the national bodies and a labour force survey report is published, usually including detailed methodological notes. Microdata is usually provided to ILOSTAT for processing as part of the ILOSTAT Microdata Repository.

While technical assistance is available from the ILO, detailed guidance is also available via the LFS Resources webpage (part of the ILO Department of Statistics) which includes model questionnaires and a range of supporting materials: [https://ilo.org/lfsresources/](https://ilo.org/lfsresources/)

Quality assurance:

ILOSTAT receives the microdata for almost all countries that have conducted a labour force survey, sometimes even if these countries have not made this microdata available to the public. This data is stored in the ILOSTAT Microdata Repository and is processed to produce anonymized household survey microdata. ILOSTAT codes each dataset according to ICLS guidelines to ensure standardization across datasets and ensure correct use of definitions and methodologies as well as internal consistency. Some discrepancies can subsequently exist as a result of minor differences between national definitions of employment used in official data and the ICLS definitions (see Data Discrepancies above). Data for employment at the 2-digit level is then provided on the ILOSTAT website, and can be downloaded at the global, regional, sub-regional and country level.
Data Sources

Labour force surveys

The main underlying data sources for employment in the forestry sector in alignment with ICLS guidelines are labour force surveys which are specifically designed to capture labour statistics. Questionnaires are shaped around labour-related topics with sufficient probing questions to ensure accuracy of results. Nonetheless, employment can also be captured from other sources, including Population Censuses and other types of household survey, such as Household Income and Expenditure Surveys, Living Standards Surveys or Time-use Surveys, provided these include labour modules that include sufficient questions to identify employment.

Labour force surveys (or other household surveys with sufficient labour modules) are representative surveys, usually adopting a sampling frame drawn from the most recent Population Census. A common sampling process is multi-stage clustering sampling, by which a country is separated into Enumerator Areas (first stage), which can be regions for example, in alignment with the Population Census; then segments (second stage) which breaks up each Enumerator Area; then households (third stage); and finally individuals (fourth stage). Probabilities of different characteristics (e.g. sex distribution) drawn from the Population Census are used to create weights that are applied to different population characteristics (e.g. sex distribution) in the survey sample. Data is collected at the household level by trained enumerators who fill in a standard questionnaire (or labour modules of other household surveys). This data is then adjusted with the population weights to get a representative sample of labour market characteristics.

The process is not flawless and is subject to both non-sampling and sampling error. Non-sampling error has been reduced with the shift from paper-based surveys to tablet-based surveys. However, the main challenge comes from sampling errors, both in terms of identification of households, and often from the weighting process. Population Censuses are resource intensive and costly and often implemented every 10-years. The population in a catchment area can change substantially over this period, meaning that the probabilities and weighting can be out of date. Data is entered into a database, undergoes a cleaning and quality assurance process by statisticians before the data is used to draft a labour force survey and to publish key statistics, including the unemployment rate and total employment.

Data Availability

Description:

Data from LFS or other similar type of surveys is currently available for 116 countries (with at least one data point) out of 234 countries and territories (compares to 142 countries in with FTE data from FRA). As detailed by region below:
Table 3: Number of countries with at least one data point for employment at 2-digit ISIC

<table>
<thead>
<tr>
<th>Region</th>
<th>Subregion</th>
<th>Total countries and territories per region</th>
<th>Countries or territories with employment data at 2-digit ISIC</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Northern Africa</td>
<td>7</td>
<td>2</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Sub-Saharan Africa</td>
<td>50</td>
<td>24</td>
<td>48.0</td>
</tr>
<tr>
<td>Americas</td>
<td>Latin America and the Caribbean</td>
<td>47</td>
<td>17</td>
<td>36.2</td>
</tr>
<tr>
<td></td>
<td>Northern America</td>
<td>5</td>
<td>1</td>
<td>20.0</td>
</tr>
<tr>
<td>Arab States</td>
<td>Arab States</td>
<td>12</td>
<td>3</td>
<td>25.0</td>
</tr>
<tr>
<td>Asia and the Pacific</td>
<td>Eastern Asia</td>
<td>8</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>South-Eastern Asia and the Pacific</td>
<td>35</td>
<td>20</td>
<td>57.1</td>
</tr>
<tr>
<td></td>
<td>Southern Asia</td>
<td>9</td>
<td>6</td>
<td>66.7</td>
</tr>
<tr>
<td>Europe and Central Asia and the Pacific</td>
<td>Central and Western Asia</td>
<td>11</td>
<td>6</td>
<td>54.5</td>
</tr>
<tr>
<td></td>
<td>Eastern Europe</td>
<td>10</td>
<td>6</td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td>Northern, Southern and Western Europe</td>
<td>40</td>
<td>30</td>
<td>75.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>234</strong></td>
<td><strong>116</strong></td>
<td></td>
<td><strong>49.6</strong></td>
</tr>
</tbody>
</table>

Source: ILOSTAT, bulk download. Accessed 20/09/2019

Note: Coverage on basis of at least one data point between 1995 and 2018. Includes ISIC Rev. 3.1 and ISIC Rev. 4. ISIC 2-digit level means availability of all data at this level, including categories 02, 16 and 17.

It should be noted that coverage is calculated based on numbers of countries for which data is available\(^7\), it is an unweighted count that does not take into consideration population size of the respective countries. Preliminary weighted estimates suggests that employment at the 2-digit level would account for closer to 58 per cent of total employment worldwide.

Time series:

Data are only available for years in which data collection took place. An overview of the coverage for countries with employment data at the 2-digit level is provided below:

Table 4: Number of countries with at least one data point per period (employment at 2-digit ISIC)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Northern Africa</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sub-Saharan Africa</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Americas</td>
<td>Latin America and the Caribbean</td>
<td>0</td>
<td>6</td>
<td>9</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Northern America</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Arab States</td>
<td>Arab States</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

\(^7\) Refers to data available and ready for public dissemination. The ILO Microdata Repository receives new data on a regular basis, hence there can be a lag before adding these to the ILOSTAT database. Further not all data is permitted to be published at the 2-digit level.
<table>
<thead>
<tr>
<th>Region</th>
<th>Eastern Asia</th>
<th>South-Eastern Asia and the Pacific</th>
<th>Southern Asia</th>
<th>Europe and Central Asia</th>
<th>Central and Western Asia</th>
<th>Eastern Europe</th>
<th>Northern, Southern and Western Europe</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia and the Pacific</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South-Eastern Asia and the Pacific</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>14</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southern Asia</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Western Asia</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern, Southern and Western Europe</td>
<td>22</td>
<td>24</td>
<td>28</td>
<td>30</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>43</td>
<td>66</td>
<td>96</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ILOSTAT, bulk download. Accessed 20/09/2019

Note: Coverage on basis of at least one data point in each group of years. Includes both ISIC Rev. 3.1 and ISIC Rev. 4. ISIC 2-digit level means availability of all data at this level, including categories 02, 16 and 17.

### Calendar

**Data collection:**
Data collection varies by country, with a subsequent time lag as data is provided to ILO and then processed for the ILO Microdata Repository.

**Data release:**
After data collection, data is typically released by ministries of labour or national statistics offices, firstly with a labour force survey report (with or without public access to microdata). However, data is typically not published in the report at the 2-digit level, instead, it is necessary to wait for the ILO Microdata Repository to process the data and publish employment at the 2-digit level thereafter.

### Data compilers

**ILOSTAT.** This is hosted by the ILO Department of Statistics who are the focal point to the United Nations for labour statistics. Employment data at the 2-digit level can be downloaded from the ILOSTAT bulk download facility on the ILOSTAT website, some additional cross-tabulations are available in this regard. Additional and customised cross-tabulations can be requested from the ILO Microdata Repository. A full list of variables are available in ILO (2018).

Data providers are usually ministries of labour or national statistics offices who publish labour force survey reports and headline numbers with or without the associated microdata. It is worth noting that labour force survey reports are unlikely to provide employment data at the 2-digit level, and instead only at the more aggregated 1-digit level, thereby not allowing for identification of the forestry sector. Instead, it is necessary to use data compiled by ILOSTAT using the microdata to publish employment data at the 2-digit level.

‘Contribution of the Forestry Sector to National Economies’ is not strictly a data compiler however, the set of reports sharing the “Contribution of the Forestry Sector to National Economies” title and covering the period 1990-2000 (FAO, 2004); 1990-2006 (FAO, 2008); and 1990-2011 (FAO, 2014) are crucial and
often-cited sources of data for employment in the forest sector. Notably, the reports consider the forestry sector to include both ISIC Rev.4, Category 2: “Forestry and logging” as well as manufacturing categories 16 and 17 for manufacture of wood products and similar. They also argue that Manufacture of wooden furniture should be included into the definition of forestry sector (however ISIC Rev.4 does not have further breakdown for Div. 31 Manufacture of furniture). Data used in the most recent report (FAO, 2014) was extracted from international organizations’ data (including Eurostat, FAO, ILO, UN Statistics Division, UNIDO and the World Bank) and national statistics reports, however it notes that employment data was primarily extracted from national statistical reports or reports about the forestry sector commissioned by FAO.

Conclusions and key recommendations

The first part of the paper has outlined the current specifications for Indicator 12 ‘Employment related to the forest sector’. In doing so it has cited some of the challenges of the current specifications, particularly around conceptual, definition and methodological issues. The second part of the paper has presented a recommended approach, which is to consider shifting to a measure of employment (vis-à-vis labour input). Shifting to employment would entail changing to a concept that better reflects the indicator title, has a data source that is harmonised and consistent and reduces the reporting burden on countries. Keeping FTE (as measure of labour input) would entail changing the title of the indicator to ‘labour input related to the forest sector’ and also adding other economic indicators in order for labour input to have analytical value. This would not resolve the issues of the current unit of measurement being consistent with a Tier 2 indicator and would present additional considerations for new indicators to be added. Specific key findings and recommendations are as followed:

Concepts and definitions:

FTE is a valuable metric for labour input, but all measures of labour input have limited analytical value when provided outside of the context of a wider suite of economic indicators. In the FRA indicators for instance, the indicator for ‘employment in forestry’ is accompanied by an indicator for ‘gross value added from forestry (at basic prices)’, thereby providing the basis for productivity calculations. In the State of Europe’s Forests 2015 Report (Forest Europe, 2015), analysis of labour in the forestry sector is provided in terms of: i) total employment, and ii) productivity, in which labour input provides the basis of productivity calculations. If FTE is to remain a unit of measurement for a GCS indicator, then it would need to be accompanied by additional economic variables, including production volume.

FTE is a measure of labour input and not employment. FTE is not synonymous with employment as defined and outlined in International guidelines for the definition and measurement of employment, agreed upon at the international Conference of Labour Statisticians (ICLS). An employed person may have one or several jobs and may work full or part-time. While FTE is considered an economic indicator, employment is considered more of a social indicator. For instance, Eurostat uses Annual Work Units (a variation of FTE) as labour input within its economic data (collected from the European Forests Accounts questionnaire) and is distinguished from employment data (collected from labour force survey data). If FTE is to remain a unit of measurement for a GCS indicator, then it would be more appropriate to use the title ‘Indicator 12: Labour

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8 E.g. a recent ILO (2019) paper entitled “Promoting decent work and safety and health in forestry”.
input related to the forest sector’. **Labour input and employment should be treated as separate concepts, however collecting both would heighten the reporting burden.**

Shifting to employment would entail shifting to a concept that better reflects the indicator title, has a data source that is harmonised and consistent and reduces the reporting burden on countries. **The optimal approach would be to use a definition of employment that is consistent with international guidelines, namely ICLS recommendations.** Eurostat, for example, collects data on employment (as well as labour input) and is consistent with the ICLS recommendations.

**Methodological issues:**

Labour input in the forestry sector is a required sub-indicator for SDG Indicator 2.3.1: ‘Volume of production per labour unit by classes of farming / pastoral / forestry enterprise size’, in which, it is advised to measure labour input in units of actual hours worked (FAO, 2019). Use of the full-time (1-unit) and part-time (0.5-unit) approach is fraught with challenges that undermine the comparability and rigour of the approach. AGRIS, 50x2030 and ILOSTAT each allow for calculation of FTE on the basis of actual hours worked, which is a more rigorous standard approach for measurement of FTE.

The current FTE specification is also focused on employees only and disregards other forms of worker, particularly the self-employed. AGRIS and 50x2030 collect data on labour input according to different types of worker, including household contributors, thereby recognising the range of employment in the sector. To focus on employees only is to understate labour input in the sector. **FTE measures should be adjusted to collect for all types of worker and not just employees.**

Shifting to employment would allow for standard procedures for measuring employment. The main approach through labour force surveys typically receives technical support and guidance from the ILO that ensures rigour, consistency and comparability. **Labour force surveys (and household surveys with comparable labour modules) would allow for consistent and rigorous data collection on employment.** Consideration of any alternative sources to what is provided by ILOSTAT would need to be examined for consistency with ICLS recommendations.

Further, **shifting to employment would allow for breakdowns according to a range of other employment variables, including status in employment, informal/formal employment, occupation and other decent work indicators.** It would also provide comparable denominators for occupational safety and health indicators, such as accidents and fatalities per 100,000 workers and number of labour inspections per 100,000 workers.

Regardless of whether FTE or employment is used as the concept, **the definition of the forest sector needs clarification.** The current specifications from FRA suggest only using the category of ‘forestry and logging’ – ISIC Rev. 4 division 02 – however, other data collection on forestry also considers the manufacturing of forest-products (ISIC Rev. 4 divisions 16 and 17).

**Data sources:**

While FRA – the current specified data source for FTE in indicator 12 – is a comprehensive and renowned data source for the forestry sector, using FTE as measure of employment may not be optimal, in part, to the complexities of measuring FTE and the range of data sources available. A more standardised and
A harmonised approach is feasible, however, there are considerable technical and resource requirements. Identification of a single harmonised data source (or data compiler) would reduce the reporting burden on countries.

**ILOSTAT** provides a readily available, comparable and standardised source of data on employment in the forestry sector that reduces the reporting burden on countries and maintains data quality. ILOSTAT also allows for a range of additional breakdowns, including by urban/rural locality, occupation, status in employment, informal employment and others. These can be requested from the ILO if not already provided in the public domain on the ILOSTAT website.

**Key next steps**

The recommended course of action is to shift to a concept of employment. The following are next steps associated with this shift:

**Establish formal partnership between FAO and ILO on data provision for Indicator 12.** It would be beneficial to establish an official partnership between the FAO and the ILO given the ILO Department of Statistics’ role as data compilers, quality assurance and holders of microdata necessary for customised cross-tabulation and analysis. Further, more formal working relations would allow for up to date schedules of data availability, namely country data awaiting processing and new data arrivals from country sources.

**Conduct a stock-check of data availability from ILOSTAT and consider comparable sector-level data from alternative sector-specific sources.** There are limited options for expanding country coverage beyond what is available in ILOSTAT’s Microdata Repository, namely as the ILO Department of Statistics explores alternative data sources (i.e. other household surveys) where gaps exist. The existence of gaps therefore signifies that no comparable nationwide data is available for respective countries, but there may still be alternative and comparable sector-specific data sources for the forestry sector. Hence, the first approach would be to map data gaps per country and then to consider whether reliable sources can fill any gaps.

**Consider time-series extrapolation options to allow for aggregation without gaps.** The challenge for aggregation with labour force survey data is that data is not available for every year. Data collection frequency varies largely by country. As a result, it is suggested that aggregation be based on the latest year of data availability per series of years, for instance, 5-year increments. Further, aggregation should be weighted and not unweighted (see notes on aggregation above). The suggested way forward is to extrapolate whatever data is available and adjust over time according to the ILO Trends Econometric Models’ forecasts employment growth in the agricultural sector (for ISIC 02) and manufacturing (for ISIC 16 and 17, if used).

**Commission additional research to contribute to data quality verification:** The ILO’s processing of microdata should be considered as a quality assurance process. Reporting should only provide information at the 2-digit level, e.g. ‘02 Forestry and logging’, yet caution should still be applied to analysing the data for countries with low sample observations at this 2-digit level. Where there can be concerns about seasonality and potential undercounting of those working in the forestry sector, Indicator 12 would benefit from verification and validation from additional research. Such additional research could be commissioned to examine the incidence of undercounting from seasonality not captured in the questionnaire, prevalence of employment in the forestry sector for second job as well as other areas.
The planned activities described above aim to extend the readily available and comparable data on employment in the forest sector with a harmonized data source. Given the existence of international guidelines for the definition and measurement of employment and the availability of harmonized data in a total of 116 countries with at least one data point for the employment in the forestry sector (at the moment of the preparation of this metadata sheet), the Tier status of this indicator is proposed to be considered as tier-1 indicator.
References


-- no date. ILO Microdata Repository: https://www.ilo.org/surveydata/

-- no date. ILOSTAT landing page: https://ilostat.ilo.org

-- no date. LFS Resources homepage: https://ilo.org/lfsresources/


Annex I: ISIC Rev. 4: Codes 02, 16 and 17

02 Forestry and logging
This division includes the production of roundwood for the forest-based manufacturing industries (ISIC divisions 16 and 17) as well as the extraction and gathering of wild growing non-wood forest products. Besides the production of timber, forestry activities result in products that undergo little processing, such as firewood, charcoal, wood chips and roundwood used in an unprocessed form (e.g. pit-props, pulpwood etc.). These activities can be carried out in natural or planted forests.

021 Silviculture and other forestry activities
See class 0210.

0210 Silviculture and other forestry activities
This class includes— growing of standing timber: planting, replanting, transplanting, thinning and conserving of forests and timber tracts
— growing of coppice, pulpwood and fire wood
— operation of forest tree nurseries
These activities can be carried out in natural or planted forests.
This class excludes:
— growing of Christmas trees, see 0129
— operation of tree nurseries, see 0130
— gathering of wild growing non-wood forest products, see 0230 — production of wood chips and particles, see 1610

022 Logging
See class 0220.

0220 Logging
This class includes:
— production of roundwood for forest-based manufacturing industries
— production of roundwood used in an unprocessed form such as pit-props, fence posts and utility poles
— gathering and production of fire wood
— production of charcoal in the forest (using traditional methods)
  o The output of this activity can take the form of logs, chips or fire wood.
This class excludes:
— growing of Christmas trees, see 0129
— growing of standing timber: planting, replanting, transplanting, thinning and conserving of forests and timber tracts, see 0210
— gathering of wild growing non-wood forest products, see 0230
— production of wood chips and particles, not associated with logging, see 1610
— production of charcoal through distillation of wood, see 2011

023 Gathering of non-wood forest products
See class 0230.

0230 Gathering of non-wood forest products
This class includes the gathering of non-wood forest products and other plants growing in the wild.

This class includes:

— gathering of wild growing materials: mushrooms, truffles, berries, nuts, balata and other rubber-like gums ™ cork, lac and resins, balsams, vegetable hair, eelgrass, acorns, horse chestnuts ™ mosses and lichens

This class excludes:

— managed production of any of these products (except growing of cork trees), see division 01
— growing of mushrooms or truffes, see 0113 — growing of berries or nuts, see 0125
— gathering of fire wood, see 0220

024 Support services to forestry

See class 0240.

0240 Support services to forestry

This class includes carrying out part of the forestry operation on a fee or contract basis.

This class includes:

— forestry service activities: forestry inventories, forest management consulting services ™ timber evaluation, forest fire fighting and protection, forest pest control
— logging service activities: transport of logs within the forest

This class excludes:

— operation of forest tree nurseries, see 0210

16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials.

This division includes the manufacture of wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, and prefabricated wood buildings. The production processes include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that may then be cut further, or shaped by lathes or other shaping tools. The lumber or other trans-formed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers.

With the exception of sawmilling, this division is subdivided mainly based on the specific products manufactured. This division does not include the manufacture of furniture (3100), or the installation of wooden fittings and the like (4330).

161 Sawmilling and planing of wood

See class 1610.

1610 Sawmilling and planing of wood

This class includes:

— sawing, planing and machining of wood
— slicing, peeling or chipping logs
— manufacture of wooden railway sleepers
— manufacture of unassembled wooden flooring
— manufacture of wood wool, wood flour, chips, particles

This class also includes:
— drying of wood
— impregnation or chemical treatment of wood with preservatives or other materials

This class excludes:
— logging and production of wood in the rough, see 0220
— manufacture of veneer sheets thin enough for use in plywood, boards and panels, see 1621
— manufacture of shingles and shakes, beadings and mouldings, see 1622

162 Manufacture of products of wood, cork, straw and plaiting materials

This group includes the manufacture of products of wood, cork, straw or plaiting materials, including basic shapes as well as assembled products.

1621 Manufacture of veneer sheets and wood-based panels

This class includes:
— manufacture of veneer sheets thin enough to be used for veneering, making plywood or other purposes: smoothed, dyed, coated, impregnated, reinforced (with paper or fabric backing) made in the form of motifs
— manufacture of plywood, veneer panels and similar laminated wood boards and sheets
— manufacture of particle board and fibreboard
— manufacture of densified wood
— manufacture of glue laminated wood, laminated veneer wood

1622 Manufacture of builders’ carpentry and joinery

This class includes:
— manufacture of wooden goods intended to be used primarily in the construction industry: beams, rafters, roof struts; glue-laminated or metal connected prefabricated wooden roof trusses; doors, windows, shutters and their frames, whether or not containing metal fittings, such as hinges, locks etc.; stairs, railings; wooden beadings and mouldings, shingles and shakes “parquet floor blocks, strips etc., assembled into panels
— manufacture of prefabricated buildings, or elements thereof, predominantly of wood
— manufacture of mobile homes
— manufacture of wood partitions (except free standing)

This class excludes:
— manufacture of unassembled wooden flooring, see 1610
— manufacture of kitchen cabinets, bookcases, wardrobes etc., see 3100 — manufacture of wood partitions, free standing, see 3100

1623 Manufacture of wooden containers

This class includes:
— manufacture of packing cases, boxes, crates, drums and similar packings of wood — manufacture of pallets, box pallets and other load boards of wood
— manufacture of barrels, vats, tubs and other cooper’s products of wood
— manufacture of wooden cable-drums
This class excludes:
— manufacture of luggage, see 1512
— manufacture of cases of plaiting material, see 1629

1629 Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
This class includes:
— manufacture of various wood products: wooden handles and bodies for tools, brooms, brushes; wooden boot or shoe parts (e.g. heels); wooden boot or shoe lasts and trees; wooden mirror and picture frames; wooden frames for artists’ canvases; household utensils and kitchenware of wood; wooden statuettes and ornaments, wood marquetry, inlaid wood; wooden cases for jewellery, cutlery and similar articles; wooden spools, cops, bobbins, sewing thread reels and similar articles of turned wood; wooden handles for umbrellas, canes and similar; wooden blocks for the manufacture of smoking pipes™ other articles of wood
— natural cork processing, manufacture of agglomerated cork
— manufacture of articles of natural or agglomerated cork, including floor coverings
— manufacture of plaits and products of plaiting materials: mats, matting, screens, cases etc.
— manufacture of basket-ware and wickerwork
— manufacture of fire logs, made of pressed wood or substitute materials like coffee or soybean grounds
This class excludes:
— manufacture of mats or matting of textile materials, see 1392
— manufacture of luggage, see 1512
— manufacture of wooden footwear, see 1520 — manufacture of matches, see 2029
— manufacture of clock cases, see 2652
— manufacture of wooden spools and bobbins that are part of textile machinery, see 2826 — manufacture of furniture, see 3100
— manufacture of wooden toys, see 3240
— manufacture of cork life preservers, see 3290
— manufacture of brushes and brooms, see 3290 — manufacture of caskets, see 3290

17 Manufacture of paper and paper products
This division includes the manufacture of pulp, paper and converted paper products. The manufacture of these products is grouped together because they constitute a series of vertically connected processes. More than one activity is often carried out in a single unit. There are essentially three activities: The manufacture of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacture of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques, including coating and laminating activities. The paper articles may be printed (e.g. wallpaper, gift wrap etc.), as long as the printing of information is not the main purpose.
The production of pulp, paper and paperboard in bulk is included in class 1701, while the remaining classes include the production of further-processed paper and paper products.

170 Manufacture of paper and paper products
See division 17.

1701 Manufacture of pulp, paper and paperboard
This class includes:
— manufacture of bleached, semi-bleached or unbleached paper pulp by mechanical, chemical (dissolving or non-dissolving) or semi-chemical processes
— manufacture of cotton-linters pulp
— removal of ink and manufacture of pulp from waste paper
— manufacture of paper and paperboard intended for further industrial processing
This class also includes:
— further processing of paper and paperboard: coating, covering and impregnating of paper and paperboard; manufacture of crêped or crinkled paper; manufacture of laminates and foils, if laminated with paper or paperboard
— manufacture of handmade paper
— manufacture of newsprint and other printing or writing paper
— manufacture of cellulose wadding and webs of cellulose fibres
— manufacture of carbon paper or stencil paper in rolls or large sheets
This class excludes:
— manufacture of corrugated paper and paperboard, see 1702
— manufacture of further-processed articles of paper, paperboard or pulp, see 1709
— manufacture of coated or impregnated paper, where the coating or impregnant is the main ingredient, see class in which the manufacture of the coating or impregnant is classified
— manufacture of abrasive paper, see 2399

1702 Manufacture of corrugated paper and paperboard and of containers of paper and paperboard
This class includes:
— manufacture of corrugated paper and paperboard
— manufacture of containers of corrugated paper or paperboard — manufacture of folding paperboard containers
— manufacture of containers of solid board
— manufacture of other containers of paper and paperboard
— manufacture of sacks and bags of paper
This class excludes:
— manufacture of envelopes, see 1709
— manufacture of moulded or pressed articles of paper pulp (e.g. boxes for packing eggs, moulded pulp paper plates), see 1709

1709 Manufacture of other articles of paper and paperboard
This class includes:
— manufacture of household and personal hygiene paper and cellulose wadding products: cleansing tissues; handkerchiefs, towels, serviettes; toilet paper;
sanitary towels and tampons, napkins and napkin liners for babies’™ cups, dishes and trays
— manufacture of textile wadding and articles of wadding: sanitary towels, tampons etc. — manufacture of printing and writing paper ready for use
— manufacture of computer printout paper ready for use
— manufacture of self-copy paper ready for use
— manufacture of duplicator stencils and carbon paper ready for use
— manufacture of gummed or adhesive paper ready for use
— manufacture of envelopes and letter-cards
— manufacture of registers, accounting books, binders, albums and similar educational and commercial stationery
— manufacture of boxes, pouches, wallets and writing compendiums containing an assortment of paper stationery
— manufacture of wallpaper and similar wall coverings, including vinyl-coated and textile wallpaper
— manufacture of labels
— manufacture of filter paper and paperboard
— manufacture of paper and paperboard bobbins, spools, cops etc.
— manufacture of egg trays and other moulded pulp packaging products etc.
— manufacture of paper novelties
This class excludes:
— manufacture of paper or paperboard in bulk, see 1701
— printing on paper products, see 1811
— manufacture of playing cards, see 3240
— manufacture of games and toys of paper or paperboard, see 3240