

Forests accounts standard tables

Combining definitions, classifications and categories from

- SEEA asset classification related to forests
- SNA 2008 on cultivated/non cultivated biological resources, natural resources and produced/non-produces assets
- FAO Global Forests Resources Assessment (FRA)
- IPCC on forest land

SEEA 2003 assets related to forests

EA.1 Natural resources

EA.12 Soil resources

EA.122 Non-agricultural

EA.14 Biological resources

EA.141 Timber resources

EA.1411 Cultivated (Pof AN.1221)

EA.1412 Non-cultivated (Pof.AN213)

EA.142 Crop and plant resources, other than timber

EA.144 Animal resources, other than aquatic

EA.2 Land and surface water

EA.23 Wooded land (Pof.AN.2112,2113,2119)

EA.231 Forested land

EA.2311 Available for wood supply

EA.2312 Not available for wood supply

EA.232 Other wooded land

EA.3 Ecosystems

EA.313 Forest ecosystems

Some SNA 2008 definitions on...

- **Cultivated biological resources**
 - 10.89 In general, when the production of fixed assets takes a long time to complete, those assets whose production is not yet completed at the end of the accounting period are recorded as work-in-progress. ...also apply to the production of cultivated assets such as animals or trees that may take a long time to reach maturity....
 - 10.95 ... Trees grown for timber that yield a finished product once only when they are ultimately felled are not fixed assets...
- **Non-cultivated biological resources**
 - 10.182 Non-cultivated biological resources consist of... and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth or regeneration is not under the direct control, responsibility and management of institutional units. Examples are virgin forests...
- Natural resources
 - **The asset boundary**
 - 10.167... there may be others that cannot be treated as economic assets because they do not actually belong to any particular units... including uncultivated forests, that... remain so remote or inaccessible that, in practice, they are not under the effective control of any units.
 - 10.169 Naturally occurring assets in the form of biota (trees...) are renewable. The growth and regeneration of trees... may take place under the direct control, responsibility and management of institutional units. In this situation, the assets are cultivated,...growth of uncultivated vegetation in forests, is not an economic process of production so that the resulting assets cannot be classed as produced assets. Nevertheless, when the forests... are actually owned by institutional units and are a source of benefit to their owners, they constitute economic assets. ...forests or other vegetation growing in locations such that no institutional unit is able to exercise effective ownership rights over them fall outside the asset boundary... are not counted as economic assets.

FRA 2010 categories primary to the SEEA

T1 'land'	T4 'characteristics'	T3 'designation'
<ul style="list-style-type: none">- Forest- Other wooded land- Other land with tree cover	<ul style="list-style-type: none">- Primary Forest- Other naturally regenerated forests- Planted forest	<ul style="list-style-type: none">- Production- Protection of soil and water- Conservation of biodiversity- Social services- Multiple use- Other or Unknown

Definitions in the FRA

T1 Extent of forest and other wooded land

Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land - Other land with tree cover (sub-category)	All land that is not classified as “Forest” or “Other wooded land”. Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

Definitions in the FRA

T 4 Forest characteristics

Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
- of introduced species (sub-category)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
- of introduced species	Planted/seeded trees are predominantly of introduced species.

Primary forest

1. Some key characteristics of primary forests are:

-they show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes;

-the area is large enough to maintain its natural characteristics;

-there has been no known significant human intervention or the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.

Other naturally regenerated forest

1. Includes selectively logged-over areas, areas regenerating following agricultural land use, areas recovering from human-induced fires, etc

2. Includes forests where it is not possible to distinguish whether planted or naturally regenerated.

3. Includes forests with a mix of naturally regenerated trees and planted/seeded trees, and where the naturally regenerated trees are expected to constitute more than 50% of the growing stock at stand maturity.

FAO forest characteristics 2/2

Other naturally regenerated forest of introduced species (sub-category)

1. In this context, predominantly means that the trees of introduced species are expected to constitute more than 50% of the growing stock at maturity.

Planted forest

1. In this context, predominantly means that the planted/seeded trees are expected to constitute more than 50% of the growing stock at maturity.

2. Includes coppice from trees that were originally planted or seeded.

3. Excludes self-sown trees of introduced species.

Planted forest of introduced species (sub-category)

1. In this context, predominantly means that the planted/seeded trees of introduced species are expected to constitute more than 50% of the growing stock at maturity.

Definitions in the FRA

T3 Primary designated functions

Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.

Definitions in the FRA

T 6 Growing stock

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

T 11 Wood removals and value of removals

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

SEEA timber assets and the FRA

EA.141 Timber resources

EA.1411 Cultivated

Timber in Other naturally regenerated forest

Timber in Planted forest

EA.1422 Non-Cultivated

Timber in Primary forest

OR

EA.141 Timber resources

EA.1411 Cultivated

Timber in Planted forest

EA.1422 Non-Cultivated

Timber in Primary forest

Timber in Other naturally regenerated forest

SEEA assets for Wooded land and the FRA

EA.23 Wooded land and associated surface water
(FRA categories Forests and Other wooded land)

EA.231 Forested land (FRA category Forest)

EA.2311 Designated primarily for production of forest products or multiple use
(‘Primarily for production and multiple use’)

EA.2312 Designated primarily for protection, conservation and social services (‘Primarily for services’)

EA.232 Other wooded land (FRA category Other wooded land)

SEEA forest ecosystem assets and the FRA

EA.313 Forest ecosystems

Primary forest

Other naturally regenerated forest

Planted forest

Crop and plant resources, other than timber SEEA EA.142
Animal resources, other than aquatic SEEA EA.144
From FRA Non-wood forest products removals

FRA Non-wood forest products removals and value of removals

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.
NWFP categories	Plant products / raw material Animal products / raw material

FRA as a data source for the SEEA, an example

SEEA EA.231 Forested land

FRA as a data source

SEEA EA.231 Forested land	FRA as a data source
Opening stocks	T1 Forest area, T3 Forest designation and management
<i>Additions to stock</i>	
Afforestation	T5 Forest establishment and reforestation; Afforestation
Natural expansion	T5 Forest establishment...; Natural expansion of forests
Reclassifications / reappraisals	
<i>Deductions from stock</i>	
Deforestation	T1 Forest area (net changes during accounting period)
Natural regression	T9 Forest fires, T10 Other disturbances
Reclassifications / reappraisals	
<i>Other changes in stock</i>	
Catastrophic losses and uncompensated seizures	T9 Forest fires, T10 Other disturbances
Change in classifications and structure	T1 Forest area, T3 Forest designation and management
Closing stocks	T1 Forest area, T3 Forest designation and management

Proposed standard tables for Volume 1

- Forest ecosystem asset account, physical
- Wooded land asset account, physical
- Timber resources asset account, physical
- Timber resources asset account, monetary
- Flow account for non-wood products of forests, physical and monetary

SEEA Asset Account - EA.313 Forest ecosystems, 1000 hectares

	Primary forests	Other naturally regenerated forests	Planted forest	Total
Opening stocks				
<i>Additions to stock</i>				
Afforestation	-			
Natural expansion				
Reclassifications / reappraisals				
<i>Deductions from stock</i>				
Deforestation				
Natural regression				
Reclassifications / reappraisals				
<i>Other changes in stock</i>				
Catastrophic losses and uncompensated seizures				
Change in classifications and structure				
Closing stocks				



	Production and multiple use	Protection, conservation and social services	Total
Opening stocks			
<i>Additions to stock</i>			
Afforestation			
Natural expansion			
Reclassifications / reappraisals			
<i>Deductions from stock</i>			
Deforestation			
Natural regression			
Reclassifications / reappraisals			
<i>Other changes in stock</i>			
Catastrophic losses and uncompensated seizures			
Change in classifications and structure			
Closing stocks			



Statistics Finland

SEEA Asset Account - EA.141 Timber resources, 1000 cubic metres over bark

SEEA Asset Account - EA.1411 Cultivated Timber resources, Monetary unit

	Cultivated		Non-Cultivated		Total	
	Forest	Other wooded land	Forest	Other wooded land	Forest	Other wooded land
Opening stocks						
<i>Changes due to transactions</i>						
Changes in inventories						
Acquisitions less disposals of non-produced assets						
<i>Additions to stock</i>						
Natural growth						
Reclassifications / reappraisals						
<i>Deductions from stock</i>						
Extraction of natural resources						
Felling of timber						
Removals						
Industrial roundwood						
Woodfuel						
Timber left in the forest						
Reclassifications / reappraisals						
Environmental degradation of non-produced assets						
<i>Other changes in stock</i>						
Catastrophic losses and uncompensated seizures						
Change in classifications and structure						
Closing stocks						

Flows / Removals / Decrease in stock

- Burning of forest (and timber) illegally for agricultural or other purposes:
Not extraction, not catastrophic losses, may be uncompensated seizures, but anyway deduction from stock

- Deduction from stocks as Extraction of natural resources:
Fellings of timber
= Removals + **Felling residues** (Timber left in the forest)

- Felling residues:
 - Flow inside the environment (not residual, not waste)
 - Flow from Growing stock to dead biomass and from CO₂ sink to source (GHG reporting)
 - Unused extraction (MFA)
 - Losses in extraction process?



FRA table T12: Non-wood forest products removals and value of removals

The information on removals and value of non-wood forest products (NWFP) demonstrates the potential of forests to provide NWFP, both as important commodities for national and international markets, and for the livelihood of local and indigenous people dependent on them. This information is important to show that NWFP will often deserve a higher priority in the development of national policies and forest management strategies.

Often, a multitude of NWFP are produced and consumed in the countries both for subsistence and commercial use. Quantitative data on production and value of all NWFP are difficult to obtain, therefore information in this table focus on the most important NWFP in terms of total value of removals.

This reporting table is focused on listing the ten most important non-wood forest products in order of importance. The importance should be based on the value (or estimated value) of the removals. Countries should list the products regardless of whether they have data on quantity and value of the removals. If data are missing, countries are requested to provide expert estimates.

Area to which reported figures refer Area classified as Forest in table T1



Statistics Finland

SEEA Account for non-wood products of forests

EA.142 and EA.144

	Removals		
	Unit	Quantity	Value
Plant products / raw material			
1. Food			
2. Fodder			
3. Raw material for medicine and aromatic products			
4. Raw material for colorants and dyes			
5. Raw material for utensils, handicrafts & construction			
6. Ornamental plants			
7. Exudates			
8. Other plant products			
Animal products / raw material			
9. Living animals			
10. Hides, skins and trophies			
11. Wild honey and bee-wax			
12. Wild meat			
13. Raw material for medicine			
14. Raw material for colorants			
15. Other edible animal products			
16. Other non-edible animal products			
Total			

Some problems

- Accounting period
 - in SNA one year
 - in FRA from five to ten years for stocks, for flows an average per one year
 - in SEEA one year; how to calculate from the FRA data
- If standard tables should be presented at more detailed level, (e.g. by owner groups, forest types, tree species), how to find a solution globally suitable?
- Data availability varies a lot between countries.
- In standard monetary timber asset accounts, value of timber refers to timber as raw material for industrial and other use and as fuel wood.
- Valuation of timber: methods for stocks.
- More standard tables needed?