

Classification of forests

‘how current definitions, classifications and categories used in the FAO Global Forests Resources Assessment (FRA) fit with SEEA asset classification related to forests’

‘how the FRA definitions and categories could be linked to SEEA standard for asset accounts on forests’

SEEA assets related to forests

EA.1 Natural resources

EA.12 Soil resources (m³, tons)

EA.122 Non-agricultural

EA.14 Biological resources

EA.141 Timber resources (m³)

EA.1411 Cultivated (Pof AN.1221)

EA.1412 Non-cultivated (Pof.AN213)

EA.2 Land and surface water (ha)

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

EA.231 Forested land

EA.2311 Available for wood supply

EA.2312 Not available for w. s.

EA.232 Other wooded land

EA.3 Ecosystems

EA.31 Terrestrial ecosystems

EA.313 Forest ecosystems

FRA 2010 format of 17 reporting tables

- T 1 **Extent of forest and other wooded land**
- T 2 Forest ownership and management rights
- T 3 **Forest designation and management**
- T 4 **Forest characteristics**
- T 5 **Forest establishment and reforestation**
- T 6 **Growing stock**
- T 7 **Biomass stock**
- T 8 **Carbon stock**
- T 9 **Forest fires**
- T 10 **Other disturbances affecting forest health and vitality**
- T 11 **Wood removals and value of removals**
- T 12 **Non-wood forest products removals and value of removals**
- T 13 Employment
- T 14 Policy and legal framework
- T 15 Institutional framework
- T 16 Education and research
- T 17 Public revenue collection and expenditure

FRA 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. |

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 assets and the FRA

EA.141 Timber resources

EA.1411 Cultivated

Timber in Other naturally regenerated forest

Timber in Planted forest

Timber in forest designated for Production

Timber in forest designated for Multiple use

EA.1422 Non-Cultivated

Timber in Primary forests

Timber in forest designated for Protection...

Timber in forest designated for Conservation...

Timber in forest designated for Social services...

SEEA assets and the FRA

EA.23 Wooded land and associated surface water

EA.231 Forested land (FRA category Forest)

EA.2311 Available for wood supply

Forest designated for Production

Forest designated for Multiple use

Primary forest

Other naturally regenerated forest

Planted forest

EA.2312 Not Available for wood supply

Forest designated for Protection...

Forest designated for Conservation...

Forest designated for Social services...

Primary forest

Other naturally regenerated forest

Planted forest (for Prot., Cons., Social categories.)

EA.232 Other wooded land (FRA 'Owl')

SEEA assets and the FRA

EA.313 Forest ecosystems

Forest

(Other wooded land)

Forest designated for Production

Forest designated for Multiple use

Forest designated for Protection

Forest designated for Conservation...

Forest designated for Social services...

Primary forest

Other naturally regenerated forest

(Planted forest)

FRA as a data source for the SEEA

| SEEA asset account for forested land | FRA as a data source |
|--|---|
| <p>Opening stock levels</p> <p>Increases in stock</p> <ul style="list-style-type: none"> Due to economic activity Due to regular natural process <p>Decrease in stock</p> <ul style="list-style-type: none"> Due to economic activity Due to regular natural process Due to natural disaster (net decrease) <p>Changes due to economic classifications</p> <p>Closing stock levels</p> <p><i>Changes in environmental quality</i></p> <ul style="list-style-type: none"> <i>Due to natural processes</i> <i>Due to economic activity</i> | <p>T1 Forest area</p> <p>T5 Forest establishment and reforestation; Afforestation</p> <p>T5 Forest establishment...; Natural expansion of forests</p> <p>T1 Forest area</p> <p>(T9 Forest fires, T10 Other disturbances)</p> <p>(T9 Forest fires, T10 Other disturbances)</p> <p>T1 Forest area, T3 F. designation and management</p> <p>T1 Forest area</p> |

FRA as a data source for the SEEA

| SEEA asset account for timber | FRA as a data source |
|---|---|
| <p>Opening stock levels</p> <p>Increases in stock</p> <p> Due to economic activity</p> <p> Due to regular natural process</p> <p>Decrease in stock</p> <p> Due to economic activity</p> <p> Due to regular natural process</p> <p> Due to natural disaster (net decrease)</p> <p>Changes due to economic classifications</p> <p>Closing stock levels</p> <p> <i>Changes in environmental quality</i></p> <p> <i>Due to natural processes</i></p> <p> <i>Due to economic activity</i></p> | <p>T6 Growing stock</p> <p>T6 Growing stock, T4 F.characteristic (derived)</p> <p>T6 Growing stock, T4 F.characteristic (derived)</p> <p>T11 Removals of industrial roundwood and fuel wood</p> <p>T9 Forest fires, T10 Other disturbances</p> <p>T1 Forest area, T3 F. designation and management</p> <p>T6 Growing stock</p> <p>T9 Forest fires, T10 Other disturbances</p> |

Removals / Decrease in stock

- Decrease in Growing stock of timber due to economic activity
= Wood removal (FRA) + **Felling residues** (left in the forest)
- Felling residues:
 - Flow inside the environment (not waste)
 - Flow from Growing stock to dead biomass and from CO₂ sink to source (GHG reporting)
 - Unused extraction (MFA)
 - Losses in extraction process?



Some conclusions to be considered

- In the SEEA standard on physical asset accounts for forested land and timber, the total stocks and changes in stocks should, as far as possible, be disaggregated at adaptable level by the FRA categories 'designation' and 'characteristics'. (Production, Multiple use, Protection, Conservation, Social services, and Primary, Other naturally regenerated, Planted forests).
- Physical timber asset accounts should be presented in cubic meters of roundwood (as in the FRA). If needed, this can be expanded to total tree biomass stock or carbon stock.
- In standard monetary timber asset accounts, value of timber refers to timber as raw material for industrial and other use and as fuel wood, and not to its value in producing ecosystem services such as e.g. carbon binding.

Some conclusions to be considered

- The SEEA asset category **EA.231 Forested land** should be divided into:
 - EA.2311 Primarily for production of forest products or multiple use ('Primarily for production and multiple use'), and
 - EA.2312 Primarily for protection, conservation and social services ('Primarily for services').
- This would be in line with the FRA, where division according to availability for wood supply is not used anymore.