

Environmental assets outside the central framework (§20 - §22)

FAO comment: We note the exclusion of oceans from the central framework and support it. However, in order to be able to define the provision of space for fishery and aquaculture activities an additional term equivalent to “land” for the “coastal waters” is required. See the next point.

Land (§23 - §26)

FAO comment: §24 defines “*The primary role of land in the SEEA is its provision of space which, in turn, defines the locations within which economic activity and other activity is undertaken and within which assets are situated*”. In this context, the concept of “land” excludes the coastal water areas within the national Exclusive Economic Zone (EEZ). It is recommended that the SEEA provide an equivalent “*provision of space*” for the coastal waters in order to cover national environmental assets of minerals, energies and biological resources located within the national EEZ as well as harvesting activities on such resources. This would therefore be consistent with Law of the Sea. The coastal waters to be considered are the waters and sea-beds in the Exclusive Economic Zone defined in the United Nations Convention on the Law of the Sea (UNCLOS), Part V. Article 56 defines the “rights, jurisdiction and duties of the coastal State in the exclusive economic zone” and in its 1 - (a) indicate that the coastal State has “sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the sea-bed and of the sea-bed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds”.

Timber, fish and other biological resources (title, §27-32)

FAO comment: It is important to clarify in the early stage that the term “fish” indicate all aquatic biological resources. This may be a good place to insert footnote about the definition of “fish” in this framework.

COMMENTS ON THE STRUCTURE OF ASSETS ACCOUNTS (§42-68)

Table 5.3.1

FAO comment: We recommend that the term of extractions in fish resources from “Landings” be changed to “Harvest” in order to accommodate the terms utilized in both capture fishery and aquaculture.

Although the indication of asterisk is not really clear, please note that in the case of fish resources, change in appraisals, both upwards and downwards, are quite common and often quite substantial.

COMMENTS ON DEFINITION AND CLASSIFICATION OF LAND (§23-26)

LAND USE (§237-241, ANNEX A5.3)

§238.

"Agricultural, Forest and Aquacultural land"

FAO comment: We recommend this class not be included in the classification, as it is too aggregated and creates problem of balance and of comparability with the other classes such as "Built-up and related land", "Inland waters" and "Land not in use". Therefore, we recommend to replace the first level class "Agricultural, Forest and Aquacultural land" with the three classes "Agricultural land", "Forest and other wooded land", "Land with aquaculture facilities". Furthermore, to improve readability, it would be preferable that table 5.6.1 shows the complete classification (including second and third level), thus referring to the Annex only for definitions.

§240.

FAO comment: Please note that the ownerships, exclusive access right, and setting aside for conservation and environmental protection purpose are all applicable also to water bodies, both inland waters and coastal waters.

§241.

FAO comment: Land supporting multiple uses at different times may be closely linked to different land cover according to season, e.g. seasonally flooded area supporting fishery in wet season and agriculture production in dry season with equivalent importance. Further clarification would be needed to guide such cases.

Table 5.6.7.

FAO comment: We would like to propose to insert a column corresponding to Aquaculture (that may include both land and water bodies).

Annex A5.3 Land classifications

Definition A44, page 99

FAO comment: FAO will be holding further internal discussion to ensure that double counting of rubber and Christmas tree plantations is avoided. In ISIC Rev.4, Class 0129 covers growing of rubber trees and Christmas trees which are also included into Forest (consistently with FRA definition of Forest). The reason of this overlap is the adoption of different practices by concerned countries, which should have the possibility to decide in which class of the land use classification proposed it is more suitable for them to classify these products.

Definition B11, page 100

FAO comment: FAO discussed this issue further internally and revised the definition proposed to make it clearer and more easily linkable to table 5.8.2 (page 65). The newly proposed revised definition is as follows:

"B11. Naturally regenerated forest

Forest predominantly composed of trees established through natural regeneration. In this context, predominantly means that the trees established through natural regeneration are expected to constitute more than 50% of the growing stock at maturity.

Includes

Primary forest is naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. 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: i.e. forest where there are clearly visible indications of human activities. This includes:

- Selectively logged-over areas, areas regenerating following agricultural land use, areas recovering from human-induced fires, etc;
- Forests where it is not possible to distinguish whether planted or naturally regenerated;
- 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;
- Coppice from trees established through natural regeneration;
- Naturally regenerated trees of introduced species.”

COMMENTS ON LAND COVER CLASSIFICATION (§242-247)

§243.

“The UN Food and Agriculture Organisation (FAO) has developed an international standard classification system, the Land Cover Classification System, version 3 (LCCS 3)⁹, that can be used to systematically record the biophysical characteristics of all areas of land within the national territory.”

FAO comment: We recommend that the text is changed to “within any territory”. Please note that LCCS can be applied to any territory e.g. national, sub-national, regional etc. and not only to national.

“The LCCS 3 provides a basis for any basic objects within any area of land to be defined and classified on a consistent basis starting from a set of characteristics (eg grass, shrub, tree, mineral, water, etc); properties (tree-type, managed growth, etc) and spatial patterns that reflect the way these basic objects are arranged on the land..”

FAO comment: We recommend to revise the text. The central issue is the need to provide a classification based on a rigorous method, where classes are generated by

applying clear systematic criteria. This concept is missing in this paragraph (and next) and the way LCCS is explained is not correct. We therefore recommend that these concepts are included:

- The LCCS provides a basis for any piece of land to be defined and classified with a rigorous syntax and clear classification criteria, starting from a set of basic objects identified purely through physiognomic criteria, i.e. on the overall appearance (how they look).
- When the land is vegetated, the basic objects described are the plants (divided in trees, shrubs and herbaceous vegetation); when the land has a non-vegetal cover, or no cover at all, the basic objects can be water, ice and snow, the abiotic or artificial surface.
- Then, basic information in the LCCS can be *supplemented* with information on *properties* and *characteristics* of basic objects. Properties are further physiognomic characterization of basic objects, such as height and cover. Characteristics are descriptive elements of the basic objects not directly related to its physiognomic characterization which allow, for example, to distinguish whether the area is for agricultural purposes or natural.

§244.

“Even at this level of detail it is important to recognise some aspects of the property of the basic object such as whether a tree is cultivated or not. Thus at this basic level the classification is not strictly “pure” land cover.”

FAO comment: We recommend that this text be changed. Vegetation characteristics (such as natural or cultivated) *influence* land cover but are not inherent features of it. The clear and systematic description of the classes generated with the LCCS allows the land cover classification to be linkable to land use, while maintaining pure land cover criteria distinct from environmental or land use criteria, as the latter influences land cover but are not inherent features of it. For example, starting from a pure land cover class such as “herb covered area”, it is possible to apply the characteristics “cultivated” or “natural”. In this way, the class “herbaceous crop” is generated. On top of this class, it is possible to apply further characteristics, referring to spatial aspect (e.g. size) or cultural practices (e.g. irrigation) generating the classes “herbaceous crop – small size rainfed” and “herbaceous crop – medium to large size irrigated”. Therefore, we recommend that further explanation is provided to make the concept clearer and less likely for misinterpretation.

§245.

“There are of course an enormous number of different basic objects and thus for the purposes of organising the different basic objects a set of basic land cover types is defined as shown in Table 5.6.2. These different types are uniquely defined using the LCCS 3 structures and may be used to organise basic land cover information on a consistent basis across countries.”

FAO comment: We recommend that this text be rephrased as follow:
“There are an enormous number of *combinations* between different basic objects, properties and characteristics that characterize different land cover features. However for the purposes of standardization and harmonization across data sets a limited number

of aggregated classes is proposed in Tab. 5.6.2. These 13 classes provide a comprehensive set of land cover types, with clear class boundary definitions which are self exclusive, unambiguous, and independent from the scale and mean of observation. The number of classes is flexible; it can be increased in detail or reduced by creating aggregates. However, a clear formalization of the meaning of each class must be ensured, through the adoption of a systematic method and criteria.”

§246.

“The land cover types in Table 5.6.2 simply represent groupings of similar basic objects. They are not necessarily spatially related in a way that helps define a mappable area of land. For example it may be that within a given small area of land (such as a farm) there may be a combination of herbaceous crops, tree covered areas and inland water bodies.”

FAO comment: We do not agree with this text. The classification proposed in 5.6.2 is in fact scale independent. This means that it can be used at all scales allowing cross reference of local and regional maps with continental and global maps without loss of information. It provides a complete range of land cover features and can be adapted to fully describe the whole variety of land cover types through further break-down and by applying further characteristics and properties.

The concept of “mappability” and the reason why 5.6.2 is not mappable (while 5.6.3 is supposed to be), needs further elaboration. Classes in 5.6.2 are perfectly mappable and fully meet the needs of land cover statistics. They do not “simply represent groupings of similar basic objects” but are generated by applying properties and characteristics to basic objects as explained in 243.

We recommend that the term “mappability” be replaced by the term “functionality”, as it is currently referring solely to a map concept and do not include ecosystem related functions, thus causing misinterpretations.

§247.

“Therefore, to define areas of land for analytical purposes it is necessary to group together the different land cover types. While there are a number of ways in which this might be achieved, the set of mappable land cover classes shown in Table 5.6.3 has been developed. It is noted that in a number of cases there is fairly close correspondence between the land cover type and the mappable land cover class, for example for glaciers and perennial snow and artificial surfaces and associated areas. In other cases, there are varying degrees to which the use of the land, particularly agricultural use, is taken into account in defining the mappable areas.”

FAO comment: We cannot support the classification proposed in 5.6.3 as it is unclear and confusing. For example it is unclear which is the classification to be used for land cover, 5.6.2 or 5.6.3? In addition, what are the advantages of using 5.6.3 and the disadvantages of using 5.6.2, what is their relation? In particular:

- (1) 5.6.3 mixes different concepts and lacks in the application of systematic criteria. Some example: land cover (sparsely vegetated area), land use (pasture and perennial crop), crops growing cycle (perennial) habitat and ecosystem (forest, heathland), field size (medium to large), and agricultural practices (irrigation).

- (2) Definitions in 5.6.3 are missing and it is not possible to understand the real content of the classes from the title.
- (3) It is unclear why this classification should be more useful to analysis and mapping than 5.6.2, since, in most cases, there is a “one-to-one” relation between the two. When the relation is not straightforward, it is because of the ambiguity of 5.6.3 classes. Some examples: “Permanent crops, agriculture plantations” (permanent is not land cover concept); furthermore, where permanent herbaceous crops should be classified, in 02, 03 or 04? Where to classify small fields of herbaceous crops (since only medium to large are mentioned)? As stressed many times, the class “Agriculture associations and mosaics” should be avoided, as it is a mixed class whose concept is strictly related to the scale of observation (what is mosaic at a certain scale has a different meaning at another scale). Other terms we do not agree with are 01 “urban” (it should rather be “artificial”, of which urban is a sub-category), 05 “agriculture associations” (what does it mean?), 06 “pasture” (this is a land use concept), 08 “heathland” (it is a type of habitat, and not a land cover category, and has limited applicability –e.g. Mediterranean basin or Australia-).
- (4) In 5.6.2 it is possible to further characterize the class “Herbaceous crop” according to “irrigation” and “crop fields size” by adding the break-down:

A1	Small size fields rainfed (< 2 ha)
A2	Medium to large size fields rainfed
A3	Medium to large size fields irrigated

Therefore, this should not be the reason to develop a parallel classification as in 5.6.3

COMMENTS ON “PHYSICAL ASSET ACCOUNTS FOR FOREST AND OTHER WOODED LAND” (§255-267)

§257.

“[...] a mix of naturally regenerated trees and planted/seeded trees.”

FAO comment: We recommend that the text be changed to “a mix of naturally regenerated trees and planted/seeded trees where naturally regenerated trees are expected to constitute more than 50 percent of the growing stock at stand maturity.”

§264.

“renewal”

FAO comment: We recommend that the text be changed to “reforestation”

COMMENTS ON “DEFINITION OF TIMBER RESOURCES” (§306-312)

§307.

“national parks”

FAO comment: We recommend that the text be changed to “protected areas”

COMMENTS ON “PHYSICAL ASSET ACCOUNTS FOR TIMBER RESOURCES” (§313-327)

§319.

“Forest”, line 3

FAO comment: We recommend this term be clarified as it is not necessarily "forest", but it can also be from "other wooded land" or "other land with wood supply"

COMMENTS ON ASSET ACCOUNTS FOR FISH RESOURCES (§351-413)

FAO comment: The Code of Conduct of Responsible Fisheries (CCRF) and relating instruments have been a global basis and backbone in the area of fishery and aquaculture management. To make SEEA to be acceptable standard indicator applicable to fishery and aquaculture asset, a consistency and harmonization in concepts with the CCRF and other related instruments is vital. However, the current draft is not necessarily in line with the CCRF.

Major serious concerns includes:

- i) utilizing more of traditional stock management theory (e.g. promotion of single-species approach through directly and indirectly focusing and promoting single stock assessment approach) than more ecosystem focused management approach;
- ii) too much focus on micro components, and lack of view toward macro indicator of resource sustainability;
- iii) definition of ‘depletion’ corresponding to MSY (see the comments in Part II, Question 2);
- iv) the way of handling of resources located outside the national EEZs; and
- v) expansion of concepts to include those where no actual data and information are physically not obtainable even in ideal situation or not accessible due to large uncertainty due to natural impacts and fluctuation, or those knowledge and information are absent for any meaningful quantitative evaluation.

While describing the major issues here, please note that a proposal of modifications of specific texts will be provided in a separate file for this chapter.

5.9.1 Introduction (§351 - §354)

FAO comment: We consider it important to clearly define the boundary of asset account in the case of fish resources. Although all aquatic biological resources can be included into environmental asset, majority of quantitative information and knowledge available on

aquatic ecosystems are limited to those relating to economic activities, i.e. fishery and aquaculture. §370 indicate that the physical asset account should cover all species that are harvested. We propose to the boundary of asset accounts for fish resources in the central framework should be limited to those relating to fishery and aquaculture activity and that the remaining ecosystems and their services should be considered under the SEEA experimental ecosystem accounts (see also the comment in Part II Question 1). In this sense, the asset account include by-catch and discarded harvest by capture fishery but exclude feed fish never harvested, measurement of ecosystem services such as mangrove, coral reefs, sea glass areas, kelp beds etc other than delivery of products including supporting regeneration and regulation aquatic ecosystems themselves.

5.9.3 Physical asset accounts for fish resources – cultured fish resources (§373 - §376)

FAO comment: We would recommend to add a paragraph on “reclassification” of seed from cultured resource to wild fish resource.

5.9.3 Physical asset accounts for fish resources – wild fish resources (§377 - §392)

FAO comment:

1. There is confusion between measuring stock size and measuring changes in stock. In the case of aquatic biological resources, the latter is much easier to monitor and evaluate with reasonable reliability and we consider that the asset account should place more emphasis on this part. Continuous sequential recording on changes and the relative indicator of resource size would provide quite reliable indication on sustainability of resource use and asset status. Alternative proposed texts along this line would be provided in a separate file.
2. Regarding the different measures of wild harvest in §386, we strongly recommend to utilize the whole diagram developed by CWP.
3. Description in §387 is understandable as a concept but will not be applicable in actual situation. There is no quantitative information available on the physical damages of ecosystems caused by fishing operations and gears. This should be covered in the SEEA experimental ecosystem account but not in the central framework. Alternative proposed texts along this line would be provided in a separate file.

5.9.4 Monetary asset accounts for fish resources – valuing fish stocks using the NPV of future resource rents (§407 - §413)

FAO comment: We would like to repeat our previous comments that biological models are not as powerful and reliable in determining the degree of sustainable use of a fish resource as expected, and not the only way to do so.

All biological models more or less rely on and are tuned with the relative indicator of resource size, stock indicator, and its most common form is catch per unit effort (CPUE). Stock indicator cannot provide absolute estimate of resource abundance but is easy to monitor, relatively robust and reasonably sensitive to the changes of resource size. Although we will not oppose to include assessment results based on biological model into asset account, due to various limitation and problems, we strongly recommend to

incorporate the recording of relative stock indicator especially to monitor sustainability of fish resource in macro sense.

Alternative proposed texts along this line would be provided in a separate file