

The SEEA Chapter 5 (Asset Account) defines environmental assets as **“the naturally occurring living and non-living components of the Earth, together comprising the biophysical environment, that are used in production and that deliver ecosystem services to the benefit of current and future generations”**.

We suggest the definition should read:

“the naturally occurring living and non-living components of the Earth, together comprising the bio-physical environment, that are used in production *and/or* that deliver ecosystem services to the benefit of current and future generations”.

The opening and closing stocks are based on specific points in time, but observance of environmental phenomena can involve significant seasonal variability such that simple periodic estimates may completely miss key environmental or management signals. For example, acquisition of satellite imagery used to map land cover may take 2 years to acquire cloud free imagery over a large land area such as Australia for each period. This needs to be mentioned in this chapter and/or in chapter 2.

The section on linkages to ecosystem accounting fails to recognise that there are not necessarily one-to-one relationships and that land tenure, planning zones, land use and land management zones and practices need to be considered. For example, multiple use commercial forests; or grazing and maintenance of native pastures. (Note, further, that the five primary “landscape units” identified for ecosystem accounts: mountains; highlands; lowlands; coastal and river ecosystems are not appropriate for those ecosystems – such as Australia’s - which are generally driven by climate and nutrient availability, in addition to topography.)

The proposed land cover and land use classifications for land accounts are generally sound, however, given the long-term goal of developing ecosystem accounts, additional classifications relating to land tenure and ownership; land management and agro-ecological regionalisation needs to be considered. Also we have some specific concerns about the classifications presented, which are outlined more fully below.

We note that the ISO/DIS 19144 -2 Geographic information - Classification systems -- Part 2: Land Cover Meta Language (LCML) is presently under development. (We further note that Australia’s GA – ABARES Dynamic Landcover dataset conforms to this standard.) The ISO/DIS 19144 -2 system is highly relevant and needs to be mentioned in the central framework of the SEEA.

The chapter should note that in many cases land cover information involves a two stage process i.e. there are those classes/features that can reliably be mapped/estimated directly from remote sensing, and those which require ancillary information or integration. For example cadastral and planning zone information to assist with consistent mapping and monitoring of urban/peri-urban expansion. Quantifying up-take of sustainable farm practices such as stubble retention and maintenance of groundcover also relies on seasonal estimation of biophysical parameters such as fractional cover and leaf area (percentages of green and senescent vegetation, soil and water per unit area or pixel). Deriving land cover classifications through seasonal estimates of fractional cover will also allow integration of outputs from varying resolution satellite data and quantification of error. Use of time-series remote sensing provides the opportunity to quantify and integrate seasonal variations into

any periodic reporting. The Land Cover classification should in future therefore be further developed to provide explicit opportunities for integrating time-series fractional cover monitoring.

The current land use / land cover classification matrix assumes that only one use/asset class occurs within a spatial unit. It does not allow for multiple uses or ecosystem services from a single unit. For example, timber production and grazing on grassy woodlands. It also fails to provide the ability to identify cause and effect relationships. For example increases in cropping productivity which may be associated with land improvements, climate variability or depletions in forest cover or resource condition.

For Land Use, we strongly contend that land used for conservation should reflect this use – it is not “Land not in use”. For example, Australia’s National Parks are used for conservation purposes – but under the classification system currently being proposed their use would be split between ‘Forest and other wooded land’ and ‘Land not in use’, i.e. based on Land *cover* not Land use. We consider the categories under “B. Forest and other wooded land” to be types of land cover and not land use. (Further, since much of Australia’s forest area occurs as part of the agricultural landscape, the Land Use classification unnecessarily complicates the separate reporting of Agriculture (use) and Forests and Other Wooded Land (use/cover).)

Land use categories could reasonably commence with “Conservation and Natural Environments” (as the Australian ALUM classification does). This would substantially extinguish the “Land not in use category” presently used.

Table 5.6.3 – in a number of countries ‘forest’ is synonymous with ‘bushland’.

The use of ISIC for categorising the users of land should be specifically mentioned in the section on land use classification (para 237-241). Such categorisation provides a direct link of land use to data in the SNA and other environmental accounts (i.e. EPE, water and energy use).

We suggest that the total area of a country could in principle extend to its EEZ, and perhaps some clarification could be added about this matter. (i.e. the total area of country equals the land (terrestrial) area as defined in the chapter, plus the area of sea/ocean covered by the EEZ.)

While the use of terms ‘natural’ and ‘cultivated’ to describe certain environmental assets is accepted, physical scientists in particular will find this distinction somewhat arbitrary and not particularly useful. The importance of this distinction for national accounts (i.e. SNA) could be more fully explained, perhaps with a table or diagram.

Paragraph 440 would benefit from discussion of economic assets related to water access entitlements and their relationship to value of associated land.

First sentence of Paragraph 170 should end: “but generally cannot be renewed on any human time scale”.