

LG/12/12

**12th Meeting of the London Group on
Environmental Accounting
Rome, 17-19 December 2007**

**Classification of natural resources:
linking the 1993 SNA rev.1 and the revised seaa-2003**

Alessandra Alfieri and Ivo Havinga

CLASSIFICATION OF NATURAL RESOURCES: LINKING THE 1993 SNA REV.1 AND THE REVISED SEEA-2003

Issue paper

A. Alfieri and I. Havinga¹

A. Introduction

1. The update of the 1993 SNA considered, among many issues, the issue of classification and terminology of non-financial assets. The revised asset classification in the 1993 SNA Rev.1 has been greatly aligned, for what concerns the category “natural resources”, to the classification of assets presented in the SEEA-2003. A few differences remain and are discussed in detail below.

2. The objectives of this paper are: (a) to identify the remaining differences between the assets classification in the 1993 SNA Rev.1 and the SEEA-2003; and (b) to suggest ways to reconcile these differences in the revised SEEA-2003. In general, our approach has been to suggest reconciling the two classifications as much as possible, in order to avoid confusion.

3. The paper only addresses the classification of items in the balance sheet. It does not address the classification of flows, which will be the topic of a different paper.

4. The paper presents at the outset a brief description of the definition of an asset in the 1993 SNA, the 1993 SNA Rev.1 and in the SEEA-2003, which is the point of departure for developing the asset classification. At the end of the paper there is a list of questions to the London Group to guide the discussion.

5. An earlier version of this paper has been discussed at the London Group meeting in Johannesburg in May 2007.

B. Definition of assets

Definition of asset in the 1993 SNA

6. The 1993 SNA defines economic assets, the assets recorded in the balance sheets of the System, as entities:

- (a) Over which ownership rights are enforced by institutional units, individually or collectively; and
- (b) From which economic benefits may be derived by their owners by holding them, or using them, over a period of time. (1993SNA para 10.2)

¹ The paper represents the views of the authors and not those of the United Nations.

7. Assets do not necessarily have to be owned by individual units and may be owned collectively by groups of units or governments on behalf of the communities. In addition there may be others that cannot be treated as economic assets because they do not actually belong to any particular units. These include not only those whose existence is unknown but also those including uncultivated forests, that may be known to exist but remain so remote or inaccessible that in practice they are not under the effective control of any units. (1993SNA para.10.10)

8. In order to comply with the general definition of an economic asset, natural assets must not only be owned but capable of bringing economic benefits to their owners, given the technology, scientific knowledge, economic infrastructure, available resources and set of relative prices prevailing on the dates to which the balance sheet relates or expected in the near future. (1993SNA para.10.11)

Definition of asset in the 1993 SNA Rev.1

9. The 1993 SNA Rev.1 defines an asset as follows:

An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of transferring value from one accounting period to another. (1993SNA Rev.1, para 3.5).

10. Benefits are the means of acquiring goods and services for production, consumption or accumulation in the current period or in future periods. (1993 SNA Rev.1 para 3.18)

11. Two types of ownership can be distinguished, legal ownership and economic ownership.

The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities. (1993 SNA Rev.1 para 3.20)

The economic owner of an entity such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of entity in the course of an economic activity by virtue of accepting the associated risks. (1993 SNA Rev.1 para 3.25)

Natural resources

12. Only those naturally occurring assets over which ownership rights have been established and are effectively enforced can qualify as economic assets and be recorded in the balance sheets. They do not have to be owned by individual units or by

governments on behalf of entire communities. Certain naturally occurring assets however, may be such that it is not feasible to establish ownership over them: for example air and the oceans. In addition there may be others that cannot be treated as economic assets because they do not actually belong to any particular units. These include not only those whose existence is unknown but also those, including uncultivated forests, that may be known to exist but remain so remote of inaccessible that, in practice they are not under the effective control of any units (1993 SNA Rev.1 para.3).

13. The definition of an asset in the 1993 SNA Rev.1 did not change in substance from the definition of an asset in the 1993 SNA. In essence, an entity to be considered an asset has to be owned and provide benefits. The definition in the 1993 SNA Rev.1 clarifies what is intended with benefits. The definition of an asset in the SEEA-2003 follows closely from the definition in the 1993 SNA Rev.1 by extending the benefits that can be derived from the asset.

Definition of assets in SEEA-2003

14. The asset boundary in the SEEA-2003 applies to environmental assets, which are defined in terms of the provision of environmental functions. Environmental functions are the uses to which the physical surroundings are put for economic ends (SEEA-2003 para 7.31). These environmental functions yield benefits to the economy. Those benefits can be grouped into two categories use and non-use benefits (SEEA-2003 para 7.35). Economic benefits are a small portion of those benefits and are included in “direct use benefits”. The inclusion of benefits such as option and bequest benefits broadens the scope of the SEEA asset boundary to include all land and natural resources and ecosystems (SEEA-2003 para 7.35-7.39).

15. The definition of environmental assets in the SEEA-2003 is presented in terms of the description of the functions the assets provide. It runs over several paragraphs making it difficult to have a clear cut definition.

We recommend tightening the definition of assets in the SEEA-2003 by using the term benefits instead of functions and clarifying what the benefits are.

16. The SEEA-2003, in the asset accounts module, considers the environment as the system of reference. The environment is the holistic system which also includes the economy as part of it. The definition of assets in the SEEA-2003, which looks at use and non-use benefits that can be derived from the asset, is a direct consequence of this approach. This approach is not fully consistent with the approach taken in the modules on physical and hybrid accounts, which take the economy as reference and only look at the interactions between the environment and the economy. This approach is also not consistent with the 1993 SNA which takes the perspective of the economy and considers the environment only in-so-far as it is an input in the production process,

providing that the goods and services provided by the natural is scarce and thus carries a positive price.

17. This different perspective of the SEEA-2003 versus the SNA has implications in the asset classification in the SEEA-2003.

C. Classification of assets – some general remarks

18. The main changes in the classification of assets in 1993 SNA Rev.1, related to natural resources, are outlined in Table 1 below. They include the following:

- (a) Replacing the term “tangible non-produced assets” with “natural resources”;
- (b) Split the old category “intangible non-produced assets” into "Contracts, leases and licences" and "Goodwill and marketing assets". The first category is of relevance to the SEEA. The SEEA will have to be amended to follow the 1993 SNA Rev.1. The relevant text in the 1993 SNA Rev.1 may have to be elaborated to discuss the various cases for specific natural resources;
- (c) Within buildings and structures, a term is added for land improvements. This is a major change as compared to the 1993 SNA, where land improvements were recorded as capital formation to the non-produced asset “land”. The SEEA-2003 followed the 1993 SNA and should be updated accordingly;
- (d) The item "mineral exploration" has been modified to "mineral exploration and evaluation" to emphasize that the coverage (and probable data source) is that of the international accounting standards;
- (e) Treatment of cost of ownership transfer on non-produced assets. This is discussed in more details below.
- (f) Classification of natural resources. This is discussed in more details below.

1. Cost of ownership transfer on non-produced assets

19. The 1993 SNA Rev.1 has changed the treatment of the cost of ownership transfer on non-produced assets as opposed to the 1993 SNA. In the 1993 SNA Rev.1, the flow is treated as part of fixed capital formation, that is the acquisition of fixed assets. However, when stock levels are itemised, the value of these costs of ownership transfer are included with the non-produced assets to which they refer (1993 SNA Rev.1, draft Annex I).

20. The treatment of cost of ownership transfer recommended in the 1993 SNA Rev.1 amounts to recording additions (fixed capital formation) and reductions

(consumption of fixed capital during the period the asset is held) to the value of a non-produced asset in the capital accounts. Thus the cost of ownership transfer on non-produced assets, excluding land, is recorded as part of non-produced assets in the balance sheet.

21. In the case of land, in order to avoid this reclassification has led to the decision to treat in the 1993 SNA Rev.1 the costs of ownership transfers on all land (including natural land) as land improvements (1993 SNA Rev.1. para 10.78), that is they are treated as the creation of a new fixed asset and are not regarded as giving rise to an increase in value of the natural resource. (1993 SNA Rev.1 para 10.41).

22. This asymmetry in treatment of cost of ownership transfers between land and other non-produced assets does not seem to be justified.

We recommend that the cost of ownership transfers for all non-produced be treated in the same way as for land. This would imply that cost of ownership transfer would be treated as the creation of a new fixed asset.

D. Classification of natural resources

1. Definition of natural resources in 1993 SNA Rev.1 and SEEA-2003

23. The 1993 SNA Rev.1 defines natural resources as follows:

Natural resources consist of naturally occurring assets such as land and certain uncultivated forests and deposits of minerals. They do not include environmental assets which have no economic value. (1993 SNA Rev.1, para 10.12).

24. The SEEA-2003 defined natural resources as follows:

Natural resource assets are defined as those elements of the environment that provide use benefits through the provision of raw materials and energy used in economic activity (or that may provide such benefits one day) and that are subject primarily to quantitative depletion through human use. They are subdivided into four categories: mineral and energy resources, soil resources, water resources and biological resources. (SEEA 2003, para 7.42)

25. The definitions of natural resources are different between the 1993 SNA Rev.1 and the SEEA-2003, hence the difference in the hierarchy of classifications in the two systems. In the 1993 SNA Rev.1 only naturally occurring assets are considered natural resources, in the SEEA-2003 instead all raw materials and energy whether they are the result of a production or a natural process are included as part of natural resources. The question is whether the revised SEEA-2003 should maintain the difference with the 1993 SNA, which bears consequences on the presentation of the two classifications. It

seems relevant, also from an environmental perspective to maintain the difference between a produced and a non-produced asset. Below we discuss in detail the differences of the two classifications. The annex presents the items in the 1993 SNA Rev.1 asset classification which are relevant for the SEEA. It also includes the asset classification of the SEEA-2003 for ease of reference.

26. Our conclusion is the following:

It is important that the hierarchy of the classification of assets of the 1993 SNA Rev.1 and the revised SEEA-2003 be aligned. We therefore recommend aligning the definition of natural resources in the revised SEEA-2003 with that of the 1993 SNA Rev.1.

2. *Land*

27. The 1993 SNA Rev.1 introduces a major change with respect of the treatment of land. In principle, the value of land to be shown in the balance sheet is the value of land excluding the value of improvements, which are shown separately under fixed assets, and excluding the value of buildings on the land which are also to be shown separately under fixed assets (1993 SNA Rev.1 para13.47). If the value of the land improvements (which include site clearance and preparation for the erection of buildings or planting of crops) cannot be separated from the value of land in its natural state, the value of the land may be allocated to one category or the other depending on which is assumed to represent the greater part of the value. (1993 SNA Rev.1 para13.49)

28. De facto this implies that land is split into two: with one part recorded as land improvements under the category fixed asset and the other part as natural land recorded as a natural resources under non-produced assets.

We recommend aligning the treatment of land in the revised SEEA-2003 to that of the 1993 SNA Rev.1.

29. The 1993 SNA Rev.1 defines land as follows:

Land consists of the ground, including the soil covering and any associated surface waters, over which ownership rights are enforced and from which economic benefits can be derived by their owners by holding or using them. (1993 SNA Rev.1 para 10.163)

30. The 1993 SNA Rev.1 does not specify a disaggregation of land, but it recommends that if a disaggregation is required, it should be according to that used in the SEEA-2003 (1993 SNA Rev.1 – draft para 10.166):

Natural land under buildings and structures and associated surface water

Natural land under cultivation and associated surface water

Other natural land and associated surface water

Wooded land

Non-wooded land

There are some differences in terminology between the 1993 SNA Rev. 1 and the SEEA-2003

- (a) Natural land is used instead of land in the 1993 SNA Rev.1 to identify land in its natural state and distinguish it from land improvements;
- (b) The wording of the 1993 SNA and the SEEA-2003 are not fully harmonized:
 - i. Agricultural land in SEEA-2003 vs. Natural land under cultivation in the 1993 SNA Rev.1
 - ii. Other land and associated surface water in the 1993 SNA Rev.1 includes the following SEEA-2003 categories *Wooded land*, *Major water bodies* and *Other land* (namely, prairie and grassland, tundra, sparsely vegetated, barren land and permanent snow and ice). Non-wooded land thus includes *Major water bodies* and *Other land*. This terminology does not seem appropriate.

We recommend avoiding differences in terminology between the SEEA-2003 and the 1993 SNA Rev.1, unless a compelling reason to deviate exists. The 1993 SNA Rev.1 should align with the SEEA-2003 for disaggregation of classifications of natural resources. We should continue to monitor the final text of the 1993 SNA Rev.1

31. At the last London Group meeting in New York it was agreed to remove the category “*of which recreational land*” as a disaggregation of the land in the revised SEEA-2003.

3. *Soil resources*

32. The 1993 SNA Rev.1, explicitly mentions soil in the definition of land. The value of the soil is in fact intrinsic to the value of the land. In the SEEA-2003, soil resources are identified as a separate item.

Given the importance of soil resources, especially in some countries, we suggest maintaining the difference between the 1993 SNA Rev.1 and the revised SEEA-2003, that is maintaining soil as a separate category in the SEEA-2003.

4. *Mineral and energy resources.*

33. In the 1993 SNA Rev.1 definition of mineral and energy resources are defined as follows:

Mineral and energy reserves consist of proven reserves of mineral deposits and energy reserve located on or below the earth's surface that are economically exploitable, given current technology and relative prices. (1993 SNA Rev. 1 para10.167)

34. There are number of issues with the definition:

- (a) The term *reserves* is used instead of *resources*. This is not in line with all the other entries in the classification which are “resources” (e.g. non-cultivated biological resources, water resources, other natural resources).
- (b) The definition uses *proven reserves*. *Proven reserves* is not in line with the country practices and it is unnecessarily too restrictive as also probable reserves may be traded and have a market value. For what concerns the 1993 SNA Rev.1 what matters is that ownership is enforced and benefits can be derived for calling in order for something to be an asset and for recording it in the balance sheet. The current definition of the 1993 SNA Rev.1 seems to leave out parts of the resources that are assets according to the definition. Further, the terminology *proven reserves* is not in line with the current thinking of the United Nations Framework Convention. It is a term which will likely no longer exist.
- (c) The 1993 SNA does not recommend a disaggregation of the classification and it recommends to follow that in the SEEA, viz. (1993 SNA Rev.1 para 10.169):

Coal, oil and mineral gas reserves
Metallic mineral deposits
Non-metallic mineral deposits

The revised SEEA-2003 may consider changing *fossil fuels* to *coal oil and gas resources*.

35. Our conclusions are in most of the cases that the 1993 SNA Rev.1 should change as the current text seems to be inconsistent across natural resources and with what was defines earlier. In particular we recommend:

- (a) **To use the term *mineral and energy resources* rather than *reserves* in the 1993 SNA Rev.1**
- (b) **To simplify the 1993 SNA Rev.1 definition as follows:**

Mineral and energy resources are those resources on or below the earth's surface that have a market value.

- (c) **To use the term *coal oil and mineral gas reserves* instead of the terminology in the revised SEEA-2003 instead of *fossil fuels*.**
- (d) **To avoid using the term *deposits* but rather use resources in the 1993 SNA Rev.1: *Metallic mineral resources and Non-metallic mineral resources*.**

5. *Non-cultivated biological resources*

36. Non-cultivated biological resources are defined in the 1993 SNA Rev.1 as:

Non-cultivated biological resources consist of animals and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth and regeneration is not under the direct control, responsibility and management of institutional units. (1993 SNA Rev.1 para 10.170)

37. The 1993 SNA Rev.1 had aligned its classification with the SEEA-2003, including the coverage of aquatic resources that are in national waters, including the exclusive economic zone and those in the high seas.

We recommend simplifying the definition of non-cultivated biological resources and aligning it with the definition of other natural resources in the 1993 SNA Rev.1 to read:

Non-cultivated biological resources consist of animals and plants that yield both once-only and repeat products that have a market value but for which natural growth and regeneration is not under the direct control, responsibility and management of institutional units.

6. *Water resources*

38. They are defined in the 1993 SNA Rev.1 as:

Water resources consist of surface and groundwater resources to the extent that their scarcity leads to the enforcement of ownership and/or use rights, market valuation and some measure of economic control.

We recommend changing the definition in the 1993 SNA Rev.1 as follows:

Water resources consist of surface and groundwater resources that have a market value.

7. *Presentation of items in the classification of assets in 1993 SNA Rev.1 and SEEA-2003*

39. The presentations of the classification of assets related to the environment are presented differently in the 1993 SNA Rev.1 and the SEEA-2003. As discussed earlier, this difference is a consequence of the different definition of natural resources used in the two systems.

40. Cultivated biological resources are included in the 1993 SNA Rev.1 as part fixed assets or work-in-progress - part of inventories - according to whether they yield repeat products or once-only products respectively. The SEEA-2003 does not make explicit the distinction between fixed assets and inventories. Nevertheless, the various classification entries can be inferred (e.g. cultivated plants yielding repeat products are fixed assets and yielding one-time harvest are inventories, non-cultivated timber resources are non-produced assets).

41. Table 1 presents an example of the different presentation. The 1993 SNA groups the items according to whether they are the result of a production process or a natural process and according to whether they are used more than once in the production process. This also involves different valuations. The SEEA-2003 groups them according to the resource and further subdivides them on whether they are produced or non-produced.

Table 1. Presentation of cultivated and uncultivated biological resources in the 1993 SNA Rev.1 and the SEEA -2003

1993 SNA Rev.1	SEEA-2003
Produced assets	Biological resources
Fixed assets	Timber resources
Cultivated biological resources	Cultivated
Animal resources yielding repeat products	Non-cultivated
Tree, crop and plant resources yielding repeat products	Crop and plant resources other than timber
Inventories	Cultivated
Work in progress	Yielding repeat products
Work in progress on cultivated biological resources	Yielding one-time harvests
Non-produced assets	Non-cultivated
Natural resources	Aquatic resources
Non-cultivated biological resources	Cultivated
	Non cultivated
	Animal resources
	Cultivated
	Non cultivated

We suggest aligning the order of the items in the classification of assets in the revised SEEA-2003 with that of the 1993 SNA Rev.1. This conclusion follows from our recommendation of aligning the definition of natural resources.

E. Contracts, leases and licenses

42. The 1993 SNA Rev.1 has clarified the treatment of contracts leases and licenses. In particular, it includes under the category contracts, leases and licenses the entry *Permission to use natural resources* as part of third party property rights. The revised SEEA should be updated to reflect the changes. Further, text should be developed for specific resources to clarify the treatment of the permits to use the resources under the most common conditions under which those resources are exploited. This will be addressed in another paper.

F. Questions to the London Group

1. Does the London Group agree to tighten the definition of assets in the SEEA-2003, which now runs through several paragraphs?
2. Does the London Group agree with updating the SEEA-2003 to reflect the changes in the treatment of land in the 1993 SNA Rev.1 and to land as part of natural resources in the asset classification?
3. Does the London Group agree with treating the cost of ownership transfers for all non-produced assets in the same way as for land in the revised SEEA-2003?
4. Does the London Group agree with changing the definition of natural resources to align it with the 1993 SNA Rev.1?
5. Does the London Group agree that land be included in the classification of assets as part of natural resources in the revised SEEA-2003?
6. Does the London Group agree with maintaining soil as a separate item as part of the SEEA-2003 asset classification?
7. Does the London Group agree with the suggested terminology changes in the definition of mineral and energy resources in the 1993 SNA Rev.1?
8. Does the London Group agree with the suggested terminology changes in the definition of water resources in the 1993 SNA Rev.1?
9. Does the London Group agree to align the presentation of the revised SEEA-2003 classification of assets with that of the 1993 SNA Rev.1?
10. Does the London Group agree with updating the text of the revised SEEA-2003 to reflect the changes in the 1993 SNA Rev.1 with respect of contracts, leases and licenses?

ANNEX

1993 SNA Rev.1 Asset classification and comparison with the SEEA-2003²

1993 SNA Rev.1	Comments
<p>Non-financial assets</p> <p>Produced assets</p> <p>Fixed assets</p> <p>Other buildings and structures</p> <p>Land improvements</p> <p>Cultivated biological resources</p> <p>Animal resources yielding repeat products (including aquatic resources)</p> <p>Tree, crop and plants yielding repeat products</p> <p>Costs of ownership transfer on non-produced assets</p> <p>Intellectual property products</p> <p>Mineral exploration and evaluation</p> <p>Inventories</p> <p>Work-in-progress</p> <p>Work-in-progress on cultivated biological resources</p>	<p>No longer classified under the non-produced category “land”. SEEA should change</p> <p>Apply same treatment as for COT of land for COT of non-produced assets other than land (deviation from 1993SNA Rev.1</p> <p>Change in terminology from the 1993 SNA</p> <p>The term has been modified to emphasize that the coverage is that of international accounting standards SEEA should be modified accordingly.</p>
<p>Non-produced assets</p> <p>Natural resources</p> <p>Land</p> <p>Natural land under buildings and structures and associated surface water</p> <p>Natural land under cultivation and associated surface water</p> <p>Other natural land and associated surface water</p> <p>Wooded land</p> <p>Non-wooded land</p> <p>Mineral and energy reserves</p> <p>Coal, oil and natural gas reserves</p> <p>Metallic mineral deposits</p> <p>Non-metallic mineral deposits</p> <p>Non-cultivated biological resources <i>(includes animals and plants that yield both once-only and repeat products)</i></p> <p>Water resources</p> <p>Surface water</p> <p>Groundwater</p> <p>Other natural resources</p> <p>Radio spectra</p> <p>Other</p> <p>Contracts, leases and licenses</p>	<p>Change in terminology from the 1993 SNA not in line with SEEA-2003 in terms of coverage.</p> <p>Land improvements are classified under other building and structures.</p> <p>It includes not only land under cultivation but also pasture land appropriated by farmer</p> <p>LG agreed to remove recreational land from the asset classification.</p> <p>It includes major water bodies, prairies, tundra, etc.</p> <p>Change to resources</p> <p>SEEA: fossil fuels</p> <p>In line with SEEA-2003</p> <p>Change “timber” with tree resources in the SEEA-2003</p> <p>In line with SEEA and SEEAW</p>

² The items in bold are items whose terminology has changed from the 1993 SNA.

1993 SNA Rev.1	Comments
Permission to use natural resources	

SEEA asset classification

Asset category	Within SNA boundary	Outside SNA boundary
EA.1 Natural resources		
<p>EA.11 Mineral and energy resources</p> <p><i>EA.111 Fossil fuels (cubic metres, tons, tons of oil equivalent, joules)</i></p> <p><i>EA.112 Metallic minerals (tons)</i></p> <p><i>EA.113 Non-metallic minerals (tons)</i></p>	<p>(AN.212) [1]</p> <p>(AN.2121)</p> <p>(AN.2122)</p> <p>(AN.2123)</p>	<p>[2]</p>
<p>EA.12 Soil resources (cubic metres, tons)</p> <p><i>EA.121 Agricultural</i></p> <p><i>EA.122 Non-agricultural</i></p>	<p>Not applicable [3]</p>	
<p>EA.13 Water resources (cubic metres)</p> <p><i>EA.131 Surface water</i></p> <p style="padding-left: 20px;">EA.1311 Artificial reservoirs</p> <p style="padding-left: 20px;">EA.1312 Lakes</p> <p style="padding-left: 20px;">EA.1313 Rivers and streams</p> <p><i>EA.132 Groundwater</i></p>	<p>Not applicable [4]</p> <p style="background-color: yellow;">(AN.214)</p>	<p>[16]</p>
<p>EA.14 Biological resources</p> <p><i>EA.141 Timber resources (cubic metres)</i></p> <p style="padding-left: 20px;">EA.1411 Cultivated</p> <p style="padding-left: 20px;">EA.1412 Non-cultivated</p> <p><i>EA.142 Crop and plant resources, other than timber (cubic metres, tons, number)</i></p> <p style="padding-left: 20px;">EA.1421 Cultivated</p> <p style="padding-left: 40px;">EA.14211 Yielding repeat products (vineyards, orchards etc.)</p> <p style="padding-left: 40px;">EA.14212 Yielding one-time harvests (crops etc.)</p> <p style="padding-left: 20px;">EA.1422 Non-cultivated</p> <p><i>EA.143 Aquatic resources (tons, number)</i></p> <p style="padding-left: 20px;">EA.1431 Cultivated</p> <p style="padding-left: 20px;">EA.1432 Non-cultivated</p>	<p>(Part of AN.1221)</p> <p>(Part of AN.213) [5]</p> <p>(AN.11142)</p> <p>(Part of AN.1221)</p> <p>(Part of AN.213) [7]</p> <p>(Part of AN.213) [9]</p>	<p>Not applicable</p> <p style="background-color: green;">[6]</p> <p>Not applicable</p> <p style="background-color: green;">[8]</p> <p>Not applicable</p> <p style="background-color: green;">[10], [17]</p>

<i>EA.144 Animal resources, other than aquatic (number)</i>		
EA.1441 Cultivated		Not applicable
EA.14411 Livestock for breeding purposes	(Part of AN.11141)	
EA.14412 Livestock for slaughter	(Part of AN.1221)	
EA.1442 Non-cultivated	(Part of AN.213) [11]	[12]
EA.2 Land and surface water (hectares)	(AN.211)	Not applicable [13]
Of which, recreational land	(AN.2113)	
EA.21 Land underlying buildings and structures	(AN.2111)	
<i>EA.211 In urban areas</i>		
EA.2111 For dwellings		
EA.2112 For non-residential buildings		
EA.2113 For transportation and utilities		
<i>EA.212 Outside urban areas</i>		
EA.2121 For dwellings		
EA.21211 Farm		
EA.21212 Non-farm		
EA.2122 For non-residential buildings		
EA.21221 Farm		
EA.21222 Non-farm		
EA.2123 For transportation and utilities		
EA.21231 Roads		
EA.21232 Railways		
EA.21233 Electric power grids		
EA.21234 Pipelines		
EA.22 Agricultural land and associated surface water	(AN.2112)	
<i>EA.221 Cultivated land</i>		
EA.2211 For temporary crops		
Of which, drained		
Of which, irrigated		
EA.2212 For permanent plantations		
Of which, drained		
Of which, irrigated		
EA.2213 For kitchen gardens		
EA.2214 Temporarily fallow land		
<i>EA.222 Pasture land</i>		

EA.2221 Improved		
EA.2222 Natural		
EA.223 Other agricultural land		
EA.23 Wooded land and associated surface water	(Part of AN.2112, AN.2113 and AN.2119)	
EA.231 Forested land		
EA.2311 Available for wood supply		
EA.2312 Not available for wood supply		
EA.232 Other wooded land		
EA.24 Major water bodies	(Part of AN.2119)	
EA.241 Lakes		
EA.242 Rivers		
EA.243 Wetlands		
EA.244 Artificial reservoirs		
EA.25 Other land	(Part of AN.2119)	
EA.251 Prairie and grassland		
EA.252 Tundra		
EA.253 Sparsely vegetated/barren land		
EA.254 Permanent snow and ice		
EA.3 Ecosystems [14, 15]	Not applicable	
EA.31 Terrestrial ecosystems		
EA.311 Urban ecosystems		
EA.312 Agricultural ecosystems		
EA.313 Forest ecosystems		
EA.314 Prairie and grassland ecosystems		
EA.315 Tundra ecosystems		
EA.316 Dryland ecosystems		
EA.317 Other terrestrial ecosystems		
EA.32 Aquatic ecosystems		
EA.321 Marine ecosystems		
EA.322 Coastal ecosystems		
EA.323 Riverine ecosystems		
EA.324 Lacustrine ecosystems		
EA.325 Other aquatic ecosystems		

EA.33 Atmospheric systems		
EA.M Memorandum item: intangible environmental assets		
EA.M1 Mineral exploration	(AN.1121)	Not applicable
EA.M2 Transferable licences and concessions for the exploitation of natural resources	(Part of AN.222)	
EA.M3 Tradable permits allowing the emission of residuals	(Part of AN.222)	
EA.M4 Other intangible non-produced environmental assets	(Part of AN.222)	

Note: Light shading indicates that monetary valuation is normally possible; dark shading that, while physical valuation is possible, it may be doubtful that monetary valuation is possible.

- [1] The mineral and energy resource assets that fall within the SNA boundary are those that are defined as proven reserves. In practice, though, some countries may include a wider class of resources even within the SNA accounts.
- [2] The mineral and energy resource assets that fall outside the SNA boundary are those that are defined as probable, possible and speculative reserves.
- [3] The value of soil resources cannot be separated from the value of the land of which they form an integral part. Therefore, only the physical extent of soil resources is measured in the SEEA.
- [4] The value of surface water as a natural resource cannot be separated from its value as an integral component of the national territory. Therefore, only the physical extent of surface water resources (measured in volumetric terms) is included in the natural resource category of the asset classification.
- [5] The non-cultivated timber resources that fall within the SNA boundary are those that are capable of producing a merchantable stand within a reasonable period of time, are accessible for logging purposes, and are not protected from logging.
- [6] The non-cultivated timber resources that fall outside the SNA boundary are those that are not suitable for timber harvesting, because of low productivity, inaccessibility and/or protection from logging.
- [7] The non-cultivated crop and plant resources that fall within the SNA boundary are those that provide harvestable materials that may be traded in the market or used for subsistence purposes, that are accessible and that are not protected from harvesting.

- [8] The non-cultivated crop and plant resources that fall outside the SNA boundary are those that potentially provide harvestable materials, but that are not suitable for harvesting because of inaccessibility or protection from harvesting.
- [9] The non-cultivated aquatic resources that fall within the SNA boundary are those that are the target of commercial or subsistence fishers, are found within the exclusive economic zone (EEZ) of the nation, are close enough to existing markets to be profitably exploitable and are not protected from harvesting.
- [10] The non-cultivated aquatic resources that fall outside the SNA boundary are those that are potentially harvestable, but that are not currently the target of fishers because they are not of commercial or subsistence interest, are located in remote fishing zones or are protected from harvesting.
- [11] The non-cultivated animal resources that fall within the SNA boundary are those that are the target of commercial, subsistence or sport hunters, are accessible for hunting and are not protected from harvest.
- [12] The non-cultivated animal resources that fall outside the SNA boundary are those that are potentially harvestable, but that are not currently the target of hunters because they are not of commercial, subsistence or sport interest, are located in remote areas or are protected from harvesting.
- [13] In principle, the entire national territory is included within the SNA asset boundary. For small densely populated countries, this should almost certainly be so. For large, sparsely populated countries, especially those with large areas that are remote and climatically hostile to mankind, there may be areas of land that are not thought to have any economic value. These would be included in this SEEA heading together with any recreational land not covered elsewhere.
- [14] In principle, ecosystems can be measured in both monetary and physical terms. In practice, valuing these systems may be extremely difficult and physical measures may be all that is possible.
- [15] Depending on the aspect of the ecosystem being measured, many different units of measure may be appropriate for describing environmental systems in physical terms. For example, biodiversity might be measured in terms of number of species or in terms of the area of suitable habitat. Waste assimilation capacity might be described in terms of the concentration of some key pollutant in the system. Other aspects will call for other units of measure.
- [16] With the increasing establishment of property rights over water, valuation may in some cases be possible.
- [17] Fish that are located outside a country's EEZ but over which internationally agreed quotas exist, may also be included.