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System of
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Accounting

SEEA Central Framework update

Scoping note for issue D3: “Inclusion of accounts for physical produced assets”

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Note: This Scoping Note has been prepared in the context of the SEEA Central Framework update, mandated by the United Nations Statistical Commission in 2024. A set of [29 issues](#) was identified for the update process and endorsed by the United Nations Statistical Commission in 2025. As an initial step, Scoping Notes were developed for each issue to elaborate on its description and provide a common understanding of the work required to fully investigate and formulate recommendations for the updated SEEA Central Framework. Each Scoping Note was prepared by a lead author and discussed in the relevant Task Team. They were subsequently reviewed by the SEEA CF Technical Committee and the UNCEEA, and approved by the SEEA CF Technical Committee.

1 Context

1. The United Nations Statistical Commission has endorsed the update of the SEEA 2012 Central Framework and work is underway on the update process. An initial task is establishing a clear scope for the issues that have been identified to be the focus for the update. This scoping note provides a short description of **Issue D3 – Inclusion of accounts for physical produced assets** (in the SEEA Central Framework) to support a common understanding of the work that will be needed to fully investigate and articulate the alternative approaches and recommendations for change or addition to the SEEA Central Framework.
2. The short description of issue D3 “Inclusion of accounts for physical produced assets (in the SEEA Central Framework)” from October 2024 is:

A key characteristic of the SEEA is that it looks at physical stocks and flows. Yet, physical asset accounts for produced assets are not part of SEEA CF. There is an increasing interest in these kind of stocks in view of the circular economy and analysis of waste flows (e-waste, recycling potentials, etc.). Other types of accumulations could also be examined (e.g. accumulation of durable household goods).

3. Produced assets (capital) are non-financial assets that have come into existence as outputs from processes that fall within the production boundary of the SNA. Produced assets consist of fixed assets, inventories and valuables (SNA definition). Key examples of produced assets are: buildings, stocks and consumer durables. Produced assets can be in use but can also be hibernating. Examples of hibernating stock are obsolete mobile phones stashed in drawers or underground cable infrastructure no longer in use. Produced assets can eventually accumulate as waste in landfills.
4. This scoping note covers
 - a. The current accounting treatment for physical produced assets in the SEEA
 - b. The relevance and motivation for considering this issue
 - c. Specific research questions that should be considered in recommendations for change to the SEEA Central Framework
 - d. Links to other issues in the SEEA CF update process
 - e. Existing materials to be considered

2 Current accounting treatment

5. A key characteristic of SEEA is (also) accounting in physical units. This is a key extension to the SNA, that only focusses on accounting in monetary terms, and one of the reasons why the SEEA was developed more than thirty years ago.
6. The physical flow accounts The physical supply and use table include flows to gross capital formation (for example materials that are incorporated in fixed assets such as buildings or equipment) and also waste flows from produced fixed capital (demolition waste etc.).
7. The asset accounts in SEEA CF (chapter 2 and 5) focus on the accounting for natural resources including land. Physical asset accounts for produced assets and inventories are not included in the SEEA CF 2012.

8. There is a link with the carbon stock account that deals with accumulation in the economy (SEEA EA Fig 13.1). In short, the carbon stock accounts organizes data for an accounting period on the stocks of carbon (opening and closing stocks), additions to stock and reductions in stock

3 Motivation for the issue

9. Produced assets (capital) are non-financial assets that have come into existence as outputs from processes that fall within the production boundary of the SNA. Produced assets consist of fixed assets, inventories and valuables (SNA definition).
10. Produced assets can be described in both physical and the monetary terms. This link is determined by both the function of the produced assets in the economy as well as the potential value of materials the assets consist of.
11. Accounting for produced assets also in physical terms make the SEEA CF more comprehensive, i.e. filling the current gap with respect describing all relevant assets in physical terms.
12. Beside describing produced assets in monetary terms there is a key environmental-economic interest to also describe these assets in physical terms. In Circular Economy (CE) terms, produced assets can be referred to as the urban mine. Bringing back materials into the economy, i.e. 'extracting' them from produced assets present in the economy, reduces the need for virgin materials. This in general has two main advantages: 1) it reduces environmental impacts and 2) makes countries less dependent on resources from other countries.

4 Research questions

13. The topic may be considered from two different perspectives. The first perspective examines the build-up and change in the stocks of materials within the economy, in effect providing an accounting for the physical composition of the inventories and fixed assets. From this perspective the following questions might be considered:
 - a. What is the scope of produced assets to be included? Do we include both economic produced assets and produced assets that have been fully depreciated ? Potential candidates are:
 - i. - inventories of products or resources (companies)
 - ii. - stocks of waste (e.g. landfills)
 - iii. - fixed assets (companies, households and government)
 - iv. - consumer durables (households)
 - v. - consumer non-durable goods
 - vi. - hibernating stocks (households, companies and government)
 - b. What classification should be considered ? The SNA asset classification and/or waste classification? Is this the same as in the National accounts or are some specific disaggregation's to be considered?
 - c. What asset accounting structure should be considered for produced assets? Should the same structure apply to hibernation stocks?
 - d. How can we link to the monetary value of the national accounts (only assets with a monetary value). What is the relevance in doing this?

- e. Relevance of waste from produced assets like e-waste is in the valuable materials that can be retrieved. Should physical produced assets also focus on the material content (e.g. copper?) and if so can these accounts focus on measuring a single element/substance? Would this approach be similar to the carbon accounts? What is the link to the natural resource accounts for the same element/substance?
 - f. What (additional) links with the physical flow accounts should be considered? The differences with the material flow accounts should be made explicit. What relevant insights can the relation between the in- and outflows and the standing stock give?
14. The second perspective considers providing more detail on the physical characteristics of fixed assets in terms of, for example, the expected contribution to economic activity and their exposure to environmental factors such as climate change. From this perspective the following questions might be considered:
- a. Which fixed assets should be the focus of accounting (buildings, dwellings, infrastructure, machinery and equipment, others)?
 - b. What characteristics of fixed assets should be accounted for (e.g. age, location, height)?
 - c. Can these characteristics be linked to the characteristics of associated land areas?
 - d. What links can be made to accounting for these assets in monetary terms, for example in terms of the value of fixed assets in the balance sheets of the national accounts, measurement of depreciation?
 - e. Can links be made to categories of environmental expenditure including environmental protection and resource management activities?
 - f. How should information on physical characteristics be presented? Options may include an asset register, asset accounts for individual characteristics, and maps.
 - g. How do the two perspectives relate to each other, and do we indeed want to include these two perspectives in the SEEA CF.

5 Links to other SEEA CF update issues

15. In taking forward work on the physical produced assets, links should be made to the following SEEA CF update issues
- a. A9: Consistency with the 2025 SNA update issues
 - b. B1: Description of the SUTs: The accounting treatments concerning the physical stocks and flows must be aligned.
 - c. D: Assets accounts. The accounting treatment of other types of assets should be aligned and consistent, in particular D1 (carbon stock account).

6 Existing materials and relevant experts

16. Potential sources of material and expertise to be considered are:
 - 2025 SNA (white cover version adopted in March 2025).
 - Research papers on the estimation of the urban mine (Voet *et al.*, 2025)
 - Country examples of stocks of produced assets (e.g. Netherlands)

17. Relevant experts and stakeholders for the purposes of both drafting the content of the note and also ensuring appropriately wide consultation have not been identified at this stage.