DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
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System of Environmental Economic Accounting

SEEA Central Framework 2028 update

Scoping note for issue B2: "Further clarifying treatment of losses (e.g. energy, water) (in the SEEA Central Framework)"

Version for SEEA CF Technical Committee review, July 2025

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Prepared by: Julie L. Hass and Stephan Moll
After discussion in TT-B and sent in comments

Note: This note is prepared in the context of the SEEA Central Framework update, mandated by the United Nations Statistical Commission in 2024, expected to finish by 2028. There are 29 update issues, and the initial task is establishing a clear scope for all of the issues. This scoping note provides a short description of a specific issue with the aim of supporting 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. Scoping notes will be discussed by the relevant task team and inform on the further work related to the issue.

1 Background to the issue

1. The short description of issue B2: "Further clarifying treatment of losses (e.g. energy, water)" from the March 2025 final list of issues endorsed by the UN Statistical Commission (https://seea.un.org/sites/seea.un.org/files/documents/CF_update/seea_cf_issues_final_list_march_2025.xlsx) is:

   "There are a number of issues related to losses which are not fully described in the SEEA CF, particularly on energy and water losses but also in the context of circular economy. Some papers which were drafted during the preparation of the SEEA CF could be reviewed to see if we can clarify the terminology and conceptual issues. In addition, this could be looked at in the context of sub-national or regional accounts and links to ecosystem accounting."

2. Losses are introduced as part of the physical flow accounts in the SEEA-CF in Chapter 3, see especially §3.100 – 3.103 and Table 3.4. Here, 4 types of losses are described, losses during extraction, during distribution, during storage, and during transformation. Losses are also talked about being related to or part of residuals.

3. Although losses are also part of the asset accounts (SEEA-CF chapter 5) – see for example, items related to "Reductions of Stock" such as normal losses and catastrophic losses – these asset account losses are outside of the scope of the losses referred to in issue B2. The focus of issue B2 is physical flow accounts and not asset accounts.

2 Motivation for considering a change to the SEEA Central Framework

4. The recording of losses within the PSUTs for energy and water would benefit from some additional textual clarification in the SEEA-CF – checking that the treatments of the various types of losses are comprehensive, coherent and consistent over the different physical flow accounts such as water, materials, and energy. Although the most detailed information and examples about recording losses should be provided in compilation guides and not the main handbook.

5. The accounting principles and rules for recording losses do not appear to be clear or consistent in the SEEA-CF text. This needs to be examined in more detail and resolved by editing the text.

6. The issue of leakages into the environment, in particular for waste and different materials like plastics, textiles, etc., is also not sufficiently addressed in the SEEA-CF and is in a high demand from the environmental policy perspectives. These specific policy needs should be considered when editing the text.

3 Nature of the proposed change and research questions

7. The task is to improve the text with regards to the ***treatment*** of losses in the SEEA-CF; here the treatment means the accounting principles and rules of recording those physical flows that may be considered losses. This seems to require a clear understanding of what losses are, i.e., which physical flows are considered to constitute losses. The current treatment is not coherent, e.g. there is one description of 'losses during extraction' in §3.50 and a different one in §3.101.

8. It is proposed to start by evaluating if the concept of 'losses' is needed in the SEEA since there is already the concept of residual flows. Is it possible to only use residual flows? i.e. residual flows from extraction, residual flows from distribution, etc. and not use the term 'losses'? If the term 'losses' is needed, are losses simply another term for residual flows? If these terms refer to different concepts, then the differences between losses and residuals needs to be made clearer in the text.

9. How the 2012 SEEA-CF defines losses and recommends its recording:

10. On a conceptual level:
With regards to the three generic SEEA-types of physical flows (energy, water, and materials): §3.100 classifies losses as a sub-category of residuals. However, §3.103 explicitly excludes any flows of product flows to be regarded as losses. And losses from natural inputs do not seem to be covered adequately. These types of inconsistencies need further examination and clarification in the text.

11. One important thing to note is that the 2012 SEEA-CF seems to consider losses as a given concept defined outside the SEEA-CF. Further work is needed to check how losses are defined in other manuals, i.e., water accounts and energy accounts, and how losses and residuals are interrelated.

12. From a pragmatic perspective:
The issue could be that SEEA-type physical accounts use existing statistics, and it needs to be clarified how to place those in the physical supply and use scheme. Towards this, we may analyse energy statistics (IRES) and water statistics and see what types of losses they record and clearly assign them to the respective place in the PSUT.

13. From a quick examination we find that, §3.101 lists four types of losses according to the stage at which they occur through the production process and focuses on whether to record them or not. Towards this, a distinction is made between the following:

Loss Description	***Recording Recommendation***
(a) losses that may be necessary for maintaining safe operating conditions (§3.100)	No clear recommendation whether to record or not in §§3.100-3.103
(b) losses that are unwanted (§3.100) and avoidable in the interest of the related economic unit (§3.102)	Clear recommendation to record (§3.102)
(c) losses of no interest to the related economic unit (§3.102)	Recommendation not to record (§3.102) Notably: this also implies not to record those flows when they enter the economy in form of natural inputs.

But dissipative losses are not included in this table or in the description of losses. Exactly why dissipative losses is not included in this table is unclear.

14. Types of 'losses' not addressed in the SEEA-CF2012

When comparing full PSUTs to the more specific energy or water PSUTs, residual physical flows from the economy to the environment which are needed to balance the physical supply and use tables are typically treated differently or simply left out. For example:

- Material flows that are recorded as input flows into the economy (e.g. abstraction) and that actually exit the economy in form of, for example, evapotranspiration in the case of water incorporated in fruits or vegetables,
- Energy flows that leave the economy in form of dissipative heat in conjunction with end use of electricity or other energy products (e.g. diesel).

Here, a description/analysis is needed to see how far those balancing residuals overlap with losses recorded in existing energy and water statistics – and which are not (i.e. need to be estimated when preparing a full PSUT).

15. A careful and thorough examination of the treatment of losses and residuals is needed to be certain that the revised SEEA-CF text will be consistent and provide more clarity regarding the treatment of losses. This may mean that text in the sections on energy, water, and materials will also need to be revised, and not just in the introduction of Chapter 3.

4 Links to other SEEA CF update issues

16. Residuals in general and can be relevant to B6 Inclusion of residual flows to ecosystem type, i.e. pressure account.

17. Residuals can also be part of the revision of PSUTs in general – so can be relevant to B1 PSUTs.

5 Existing materials

18. Potential materials that may be considered in developing the Guidance note include (but are not limited to):

    a. International Recommendations for Energy Statistics (IRES)

    b. SEEA Energy

    c. International Recommendations for Water Statistics (IRWS)

    d. SEEA Water

    e. UNSD/UNEP Questionnaire on Environment Statistics (water section), which emphasize losses during transport (between point of abstraction and use). Refer to page 9 of 23: https://unstats.un.org/unsd/envstats/Questionnaires/2022/q2022_Water_English.pdf

19. In developing the Guidance note it will be necessary to identify the relevant experts and stakeholders for the purposes of both drafting the content of the note and also ensuring appropriately wide consultation. These experts and stakeholders have not been identified at this stage.