



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS



System of
Environmental
Economic
Accounting

SEEA Central Framework 2028 update

Scoping note for issue D8: “Treatment of the Atmosphere as an asset”

Version for SEEA CF Technical Committee review, July 2025

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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 D8 “Treatment of the Atmosphere as an asset” from October 2024 is:

“The SEEA CF does not currently include the atmosphere as an environmental asset, citing that their stocks are too large to be meaningful for analytical purposes. However, it was included in the SEEA-2003 as an asset and was considered for inclusion as an asset during the revision of the SEEA EA (in the end, the SEEA EA only includes the atmosphere directly above and within an ecosystem as an integral part of the ecosystem asset). Further work is needed to articulate how the atmosphere and its functions may be appropriately characterised in accounting terms. This work should consider how transactions related to the atmosphere, for example transactions related to reducing greenhouse gas emissions, are most appropriately recorded. Research on this topic must link to related work in the context of the SEEA EA and the SNA.”

2. The short description above provides a concise summary of the past discussion and current treatment of the atmosphere in the SEEA. The recent update of the SNA did not provide additional guidance on this issue but the topic is included in the research agenda noting the relevance of “measuring the value of depleting the atmosphere by using it as a sink”.
3. While the atmosphere is not treated as a distinct asset in the SEEA Central Framework (SEEA CF), flows to the atmosphere, in particular air emissions, are recorded in physical supply and use tables within the general category of flows to the environment. The discussion under this issue is therefore not a question of whether flows to and from the environment should be recorded, but rather whether the atmosphere should be treated, for accounting purposes, as a distinct asset.
4. Further on this point, the 2025 SNA records a range of entries that relate to the use of the atmosphere including payments by airline companies for rights to transit through a countries air space and payments for the use of the radio spectra. However, the atmosphere itself is not considered an economic asset.
5. In the SEEA Ecosystem Accounting (SEEA EA), while the atmosphere is not considered a distinct ecosystem asset, this possibility is being discussed by ecologists in the context of the IUCN Global Ecosystem Typology (the reference classification of ecosystem types used in the SEEA EA). That discussion would potentially see the atmosphere included as an additional realm alongside the terrestrial, freshwater and marine realms.

2 Motivation for considering a change to the SEEA Central Framework

6. For the SEEA to provide a comprehensive coverage of connections between the environment and the economy, a more complete treatment of the atmosphere in the accounts would appear to be required. This would include being able to provide a more granular recording of specific environmental stocks and flows in physical terms, including carbon and water.
7. Further, there are a range of policy issues, in particular the response to climate change, for which a more complete accounting for our connection to the atmosphere may be relevant. Other policy issues of possible relevance include management of air quality, management of air travel and management of radio spectra.

3 Nature of the proposed change and research questions

8. The broad topic that requires investigation concerns the potential ways in which the atmosphere might be described as an asset in accounting terms and, depending on the findings, the potential accounting entries that would be required to account for the atmosphere as a distinct asset type in the scope of environmental assets in the SEEA CF and any associated implications. Consideration of the implications will need to carefully distinguish between the implications for the SEEA CF and the potential implications for accounting in the context of the 2025 SNA and the SEEA EA.
9. A general starting point is that the atmosphere is a unique component of the environment and consequently a simple application of principles and measurement approaches established for other environmental assets may not apply. From that starting point, some specific issues that will need to be considered in assessing whether the atmosphere may be treated as an environmental asset in the SEEA CF include:
 - a. Whether the atmosphere should be described in terms of its physical components (gases, other substances, etc) or in terms of a three dimensional space (as for land being a two dimensional space in the SEEA CF).
 - b. Whether an appropriate boundary of the atmosphere can be determined in physical terms
 - i. Can the atmosphere be delineated in reference to national or jurisdictional boundaries?
 - ii. How should the atmosphere above areas beyond national jurisdiction (ABNJ) be treated?
 - iii. Can the atmosphere be delineated in reference to ecological boundaries (e.g. urban air sheds, atmospheric boundary layer, stratosphere, space)
 - c. Whether the atmosphere should be treated as a distinct type of ecosystem asset alongside other ecosystem realms (terrestrial, freshwater, marine) following the IUCN Global Ecosystem typology.
 - d. What range of functions or roles does the atmosphere undertake (e.g. as a sink for residuals) and what benefits may be considered as being provided by the atmosphere. Specific points here concern the relationship between the atmosphere and the climate system and the potential to identify flows of ecosystem services.
 - e. Whether the concept of economic ownership can be applied (noting that the definition of environmental assets in the SEEA CF does not require ownership).
 - f. Whether parallels can be found in accounting for oceans beyond national jurisdiction which are also currently outside the measurement boundary of the SEEA CF.
10. Collectively the findings from investigating these framing issues will support a discussion of potential accounting entries related to the atmosphere and any associated implications across the accounting system. Relevant topics in relation to accounting entries include:
 - a. How stocks and flows related to the atmosphere are currently treated in the SEEA CF and the SNA

- b. Whether the concept of liabilities might be used to account for degradation in the quality of the atmosphere
 - c. What unit of measurement could be used to quantify the atmosphere and how might changes in the quality of the atmosphere be quantified
 - d. Whether valuation of the atmosphere can be meaningfully considered
- 11. Overall, it is envisaged that this Guidance note will take the form of a framing paper on the general topic of accounting for the atmosphere. One outcome from the Guidance note may be that no change to the SEEA CF is required or recommended either on conceptual or practical grounds. This outcome should however, be supported by a clearer understanding among the SEEA community of the different ways in which the atmosphere may be accounted for. It is noted that there will be a link to be drawn to the Guidance note on the carbon stock account (Issue D1) and the associated proposal for a note to clarify the measurement boundary for environmental assets generally.

4 Links to other SEEA CF update issues

- 12. In taking forward work on the carbon stock account, links should be made to the following SEEA CF update issues
 - a. Issue A4 – How SEEA CF accounts can be made spatially explicit. Separating the atmosphere as a distinct type of location in the environment may support more detailed recording of physical flows. (Also related to Issue B1 and the description of PSUT and Issue B7 concerning a pressure account)
 - b. Issue B3 and D1 concerning recording carbon stocks and flows. Stocks of carbon are present in the atmosphere and there are flows of carbon to and from the atmosphere. Recording these stocks and flows should consider the links to the atmosphere.

5 Existing materials

- 13. Potential materials that may be considered in developing the Guidance note include the following but there is not a large amount of content to consider from a statistical perspective.
 - a. Discussion about the atmosphere in SEEA CF (chapter 2) and SEEA EA (chapter 3).
 - b. Discussion about the atmosphere in SEEA-2003
 - c. 2025 SNA concerning the treatment of radio spectra and other payments related to the atmosphere.
 - d. Material documenting carbon and water cycles and the role of the atmosphere
- 14. 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.

