

# The need for sustainability reference values in SEEA

---

Arkaitz Usubiaga-Liaño (BC3)  
London Group on Environmental Accounting, 30th Meeting  
01/10/2024

**bc<sup>3</sup>** | BASQUE CENTRE  
FOR CLIMATE CHANGE  
Klima Aldaketa Ikergai

 EXCELENCIA  
MARÍA  
DE MAEZTU  
2023 - 2027

# Background

- This research is part of “The ESGAP strong sustainability approach in Colombia and South Africa” project, funded by the French Development Agency: <https://www.afd.fr/en/carte-des-projets/measuring-environmental-sustainability-colombia-and-south-africa-application-esgap-framework>
- Its main goal is to promote strong sustainability (SS) thinking through the implementation of the Environmental Sustainability Gap (ESGAP) framework (Usubiaga-Liaño and Ekins 2021), which proposes indices of environmental sustainability that embed ‘science-based environmental-standards’.



# Introduction

- The ongoing widespread environmental degradation challenges the insights provided by weak sustainability metrics. Strong sustainability metrics are better suited to describe environmental sustainability in a planet with environmental limits.
- The literature on strong sustainability and natural capital accounting has evolved separately, but relevant overlaps exists, particularly in the context of the SEEA.
- Nonetheless, the uptake of SEEA results in policy decisions is still limited (Ruijs et al., 2019), suggesting SEEA needs to increase its policy relevance as well as adapt the supply of natural capital accounts to the users' needs.
- In view of a growing interest in strong sustainability indicator frameworks such as Planetary Boundaries and the Environmental Sustainability Gap (ESGAP) framework, we explore whether the SEEA accounting framework can provide insights on strong sustainability or whether it can reinforce this perspective.

## SS in the SEEA

- SEEA is not intended to support a particular paradigm of sustainability or its measurement. It can be used to value natural capital (weak sustainability), or to quantify critical natural capital and the costs of protecting its integrity (strong sustainability) (Dietz & Neumayer, 2007). In fact, SEEA documents do not contain any of these terms.
- Environmental sustainability requires to identify **what needs to be sustained** (critical natural capital) and **at which level** (reference levels).
- One reference to critical natural capital (SEEA-CF).
- Multiple reference to reference levels, especially in the condition accounts of SEEA-EA.
- **SEEA-EA is the entry point to assess SS in SEEA.**

# SS in the SEEA

- SEEA-EA
  - Extent accounts are more common than condition accounts (Lange et al., 2022)
  - In condition accounts, the use of reference levels is not a standard practice, although it is found often enough (Maes et al., 2020)
  - Different types of reference conditions and reference levels exist.
- Other SEEA manuals mention related concepts such as sustainable yields (SEEA-CF), sustainable harvesting (biodiversity chapter in SEEA-EA) or sustainable abstraction (SEEA-Water).

	Natural ecosystems		Anthropogenic ecosystems		
	Undisturbed or minimally-disturbed condition	Historical condition	Least-disturbed condition	Contemporary condition	Best-attainable condition
<b>Possible reference condition</b>					
<b>Methods for estimating the reference condition</b>					
1. Reference sites	x	x	x	x	
2. Modelled reference conditions	x	x	x		x
3. Statistical approaches based on ambient distributions			x		x
4. Historical observations and paleo-environmental data		x			
5. Contemporary data				x	
6. Prescribed levels					x
7. Expert opinion	x		x		x

Source: UN 2021



BASQUE CENTRE FOR CLIMATE CHANGE  
Klima Aldaketa Ikergai



# Integrating SS in the SEEA

- Use of reference levels is not exclusive to SEEA (e.g. Planetary Boundaries, ESGAP, Environmental Performance Index, Ecological Footprint or some Life Cycle Assessment).
- Before SEEA-EA, there was no guidance on how to establish reference levels for a diverse set of environmental issues in the context of the SEEA.
- SEEA-EA recommends using natural state (optimal condition) as reference condition. This better reflects the degree of ecosystem change and increases comparability, but has less policy relevance than sustainability condition.
- The studies that incorporate reference levels in condition accounts use a variety of approaches.
  - Some use natural state or minimally-disturbed condition as reference condition, others use contemporary conditions, while others use a combination of the two.
  - The assessments that take a multi-ecosystem perspective tend to rely on a combination of methods,.
  - Not all condition variables have reference levels.
  - Most studies used a variety of methods to establish reference levels, being prescribed levels the most favoured one.

# The role of the ESGAP framework in promoting SS in SEEA

- ESGAP uses a set of science-based environmental standards to monitor environmental sustainability across different topics associated with the environmental functions of natural capital.
- Environmental standards fall within the prescribed level category of reference levels. They are intended to represent sustainable conditions, which differ from optimal conditions.
- Arguably, the use of sustainable conditions increases policy applicability in that policy should seek to manage natural capital sustainably, at least in the long term.
- The series of environmental standards in ESGAP can be used for ecosystem condition assessments. There are already some overlaps with existing studies.
- Ecosystem condition assessments are still far from being consolidated and ESGAP can provide direct inputs. Focusing on sustainability rather than optimal condition leads to some limitations in comparability in exchange of increasing policy relevance.

# Conclusions

- There is a need to promote strong sustainability accounting to ensure that current trends of environmental degradation are adequately communicated to decision makers. SEEA is expected to play an increasingly important role in this context.
- SEEA does not weigh in whether the weak or strong sustainability propositions should be prioritised. Instead, it allows weak and strong sustainability metrics to be calculated. In SS, relevant metrics need to be able to reflect whether environmental sustainability conditions are met.
- Two main actions:
  - The production of condition accounts needs to increase.
  - Focusing on sustainability conditions can increase policy relevance.
- Bridges need to be built with other international initiatives such as the SDGs or the GBF, which would also benefit from further integrating environmental standards.
- Frameworks such as the Planetary Boundaries or ESGAP could be useful in guiding the integration of environmental standards in SEEA.



# References

- Dietz & Neumayer, 2007: Weak and strong sustainability in the SEEA: Concepts and measurement. *Ecological Economics*, 61(4), 617–626
- Lange et al., 2022: Progress on ecosystem accounting in Europe. *Ecosystem Services*, 57, 101473
- Maes et al., 2020: A review of ecosystem condition accounts: Lessons learned and options for further development
- Ruijs et al., 2019: Natural capital accounting for better policy. *Ambio*, 48(7), 714–725
- UN 2021: System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA EA). United Nations
- Usubiaga-Liaño and Ekins 2021: Monitoring the environmental sustainability of countries through the strong environmental sustainability index. *Ecological Indicators*, 132, 108281

Thank you  
Muchas gracias  
Eskerrik asko



BASQUE CENTRE  
FOR CLIMATE CHANGE  
Klima Aldaketa Ikergai



EXCELENCIA  
MARÍA  
DE MAEZTU  
2023 - 2027