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Guidelines for compiling SEEA-Related indicators of the Global Biodiversity Framework

32nd Meeting of the London Group on Environmental-Economic Accounting, Guatemala City, Guatemala

Steven King
United Nations Statistics Division

United Nations

Global Biodiversity Framework (GBF)

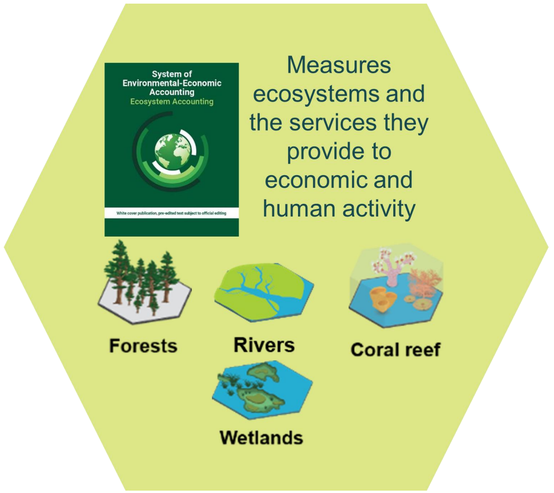
Kunming - Montreal

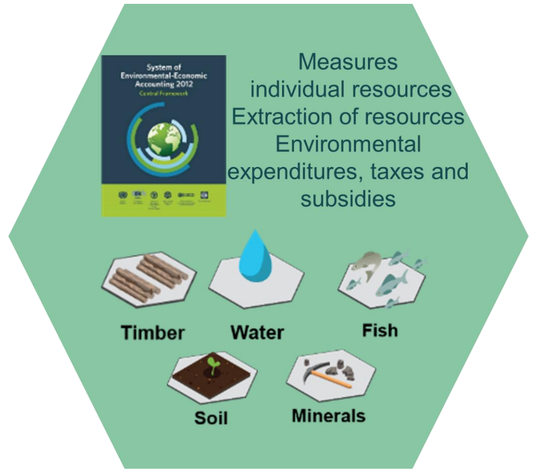
GLOBAL BIODIVERSITY FRAMEWORK

- The CBD Kunming-Montreal **Global Biodiversity Framework (GBF)** adopted at the 15th Conference of the Parties (COP15) in December 2022 in Montreal, Canada (decision 15/4):
- Vision of the GBF is a world living in harmony with nature by 2050.
- Mission of the GBF for the period to 2030 to take urgent actions towards the vision and the Article 1 objectives of the CBD.
- Supporting decisions:
  - GBF Monitoring Framework (indicators) (decision 15/5)
  - Mechanisms for planning, monitoring, reporting and review (decision 15/6)

GBF Monitoring Framework and the SEEA

- When initially adopting the monitoring framework, the Convention of Parties:
  - "Notes the value of aligning national monitoring with the United Nations **System of Environmental-Economic Accounting** statistical standard in order to mainstream biodiversity in national statistical systems and to strengthen national monitoring systems and reporting as appropriate and according to their national priorities and circumstances; "
- GBF indicators related to the SEEA:
  - **Extent of natural ecosystems (Goal A)**
  - **Provision of ecosystem service (Goal B and Target 11)**
  - International public funding (including ODA), domestic public funding, and private funding on conservation and sustainable use of biodiversity and ecosystems (Goal D and Target 19)
- Also key tool for *Integrating Biodiversity in Decision-Making* (Target 14)





SEEA

SEEA-related Indicators for the GBF Project

- Implemented by UNSD and funded by the European Union to support countries to report on GBF headline indicators A.2 and B.1 using the SEEA
- Developing guidelines to support countries compile headline indicators A.2 and B.1.
- Project countries: Colombia, Indonesia and Uganda
- Developing ecosystem services data in ARIES for SEEA
- Completion 31 July 2027

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https://seea.un.org/en/projects/seea-related-indicators-global-biodiversity-framework

Compilation Guidelines

- Headline Indicators A.2 (Extent of natural Ecosystems) and B.1 (Provision of Ecosystem Services.
- Advanced Drafts developed by UNSD as part of the EU funded SEEA-Related Indicators for the GBF project.
- Reviewed by Task Team convened to support development and the SEEA EA TC.
- Based on most recent versions of the metadata presented at CBD SBSTTA-28.
- Provides practical guidance to countries for compiling and reporting on GBF indicators.
- Arranged of two parts:
  - Part A: Context, Concepts, Classifications
  - Part B: Stepwise Approach for Compiling the Indicators

CBD/SBSTTA/28/INF/4

A.2 Extent of natural ecosystems

. Indicator name

A.2 Extent of natural ecosystems

2. Date of metadata update

March 20246

3. Goals and Targets addressed

3a. Goal

Headline Indicator for Goal A: The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050; Human induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels; The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding

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areas are under participatory integrated biodiversity
agement processes addressing land and sea use change, to
ortance, including ecosystems of high ecological integrity,
ts of indigenous peoples and local communities.

tion of biodiversity, providing the conditions necessary for
thrive. The conversion of natural ecosystems to intensively
lriven by human interventions such as urban development,
culture, and infrastructure development, is one of the main
cted in the reduction of the area of natural ecosystems.
s can result in increases in the area of natural ecosystems.

ctent of natural ecosystems as a proportion of overall area,
er time. This responds to the element of Goal A that refers
atural ecosystems by 2050". The indicator also responds to
ddressing land and sea use change", "*to bring the loss of*
ncluding ecosystems of high ecological integrity, close to
ended to be disaggregated into different natural ecosystem
abundance or scarcity of different natural ecosystem types
in over time.

i" refers broadly to ecosystems where the impact of
tructure and function are low compared to natural
). Natural ecosystem types in this broad sense can
n interventions but with natural compositional,

SEEA-related Indicators

for the Kunming-Montreal Global Biodiversity Framework

ADVANCED DRAFT Compilation Guidelines for GBF headline indicator A.2 Extent of natural ecosystems

This advanced draft of the Compilation Guidelines has been prepared for information for the twenty-eighth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-28) of the Convention on Biological Diversity (CBD). The Guidelines are being developed by the United Nations Statistics Division, with the support of an expert group convened under the auspices of the Technical Committee on SEEA Ecosystem Accounting of the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA). Their development has also been informed by an Expert Group Meeting on SEEA-related indicators for the Kunming–Montreal Global Biodiversity Framework (GBF), held in February 2026. Following a final Expert Group Meeting scheduled for November 2026, a revised version of the Guidelines will be made available for public consultation.

This document (Version 3.0) is an advanced draft circulated for information purposes only. It has not been finalized, endorsed, or released for public consultation.

DRAFT

Updated metadata for the headline indicators for the Kunming-Montreal Global Biodiversity Framework

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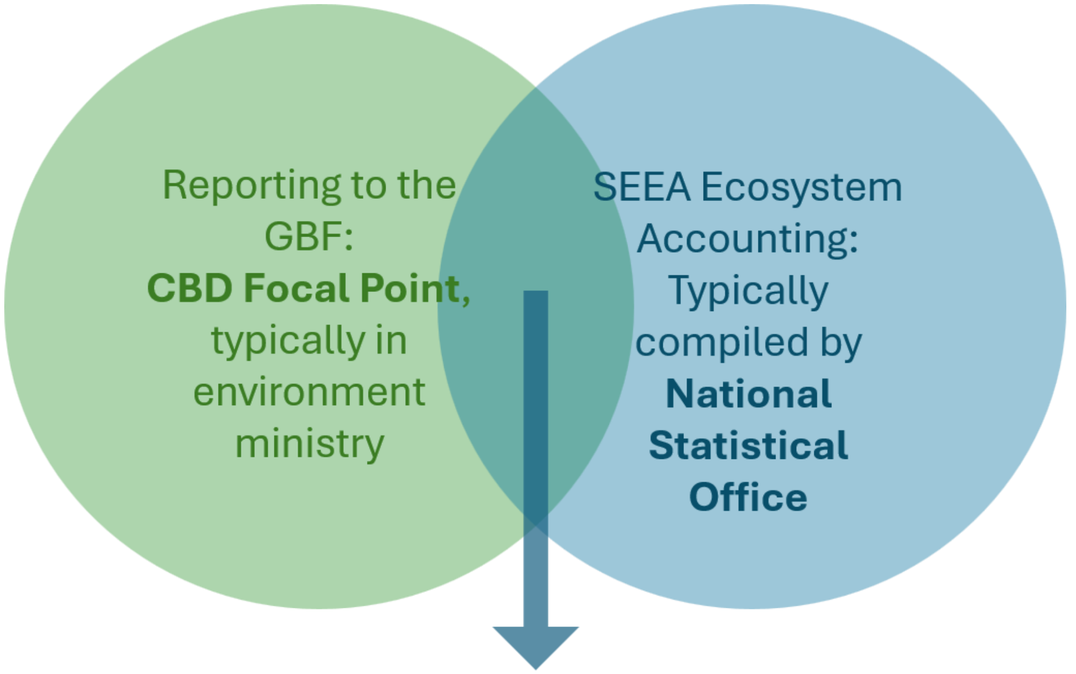
SEEA-related GBF indicators: Project progress | System of Environmental Economic Accounting

SEEA

Step 0: Preparation

- Convene key institutions and experts that will contribute to compilation of GBF Headline Indicators A.2 and B.1:
  - > CBD Focal Point responsible for national reporting
  - > Ecosystem scientists.
  - > Specialists in ecosystem classification, mapping and services
  - > Custodians of key datasets
  - > Environmental accounting experts
- National self-assessment to identify available datasets, capacity and gaps
- Identify any key datasets that will need to be developed or improved
- Establish the institutional arrangements and technical team



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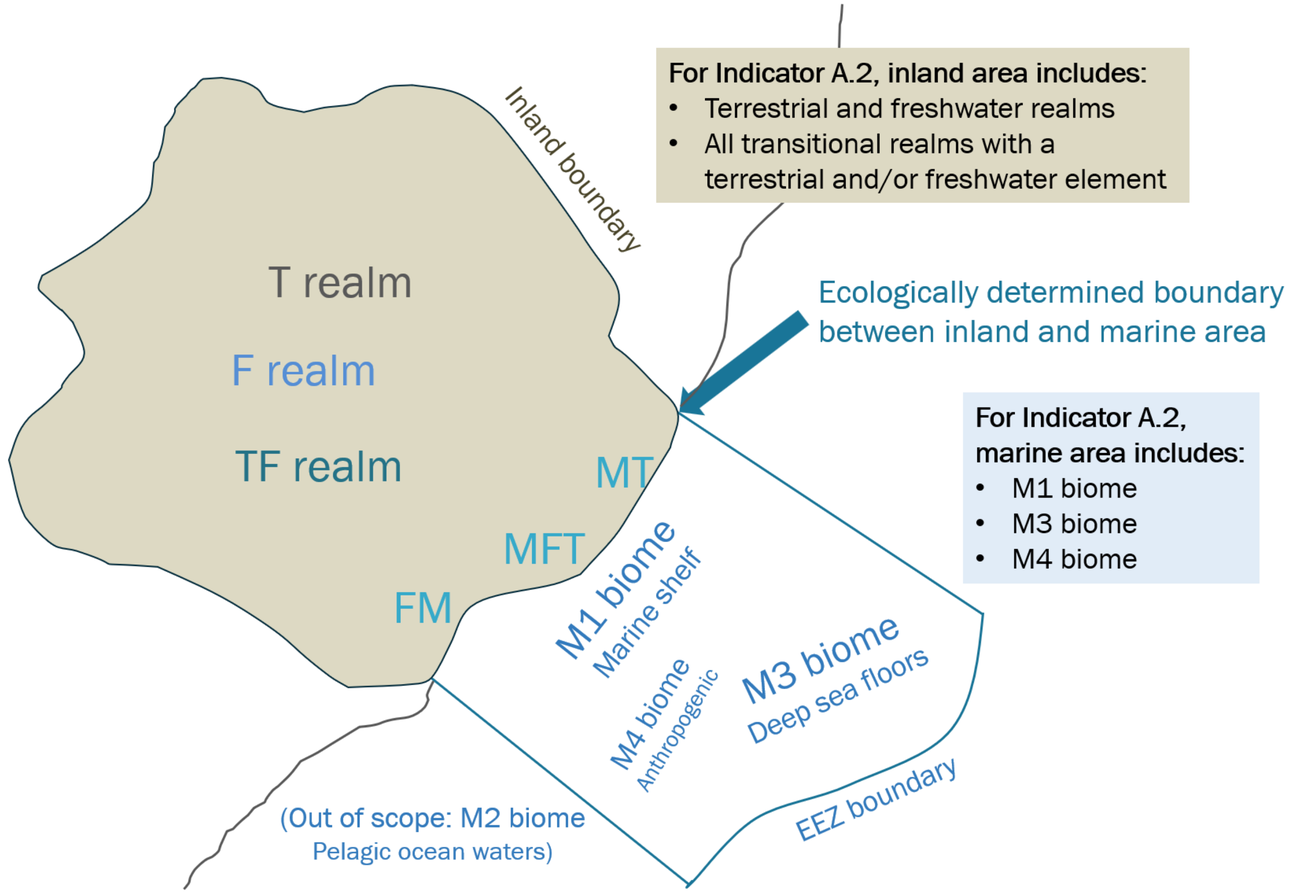
Stepwise Approach for Compiling GBF Headline Indicator A2 – Extent of Natural Ecosystems

United Nations

Step 1: Operationalizing the measurement scope of the indicator

- The measurement scope for Indicator A.2 is a country's whole territory.
- Realm-based approach to compile A.2 for:
  - > Inland territory: All terrestrial and freshwater ecosystems plus the ecosystems in transitional marine ecosystems to the marine territory (e.g., estuaries, mangroves, shorelines).
  - > Marine territory: All marine ecosystem types to the EEZ boundary.
- The boundary between the inland and marine territory is the seaward boundary of the transitional marine realms



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Step 2: Collecting and organizing key datasets

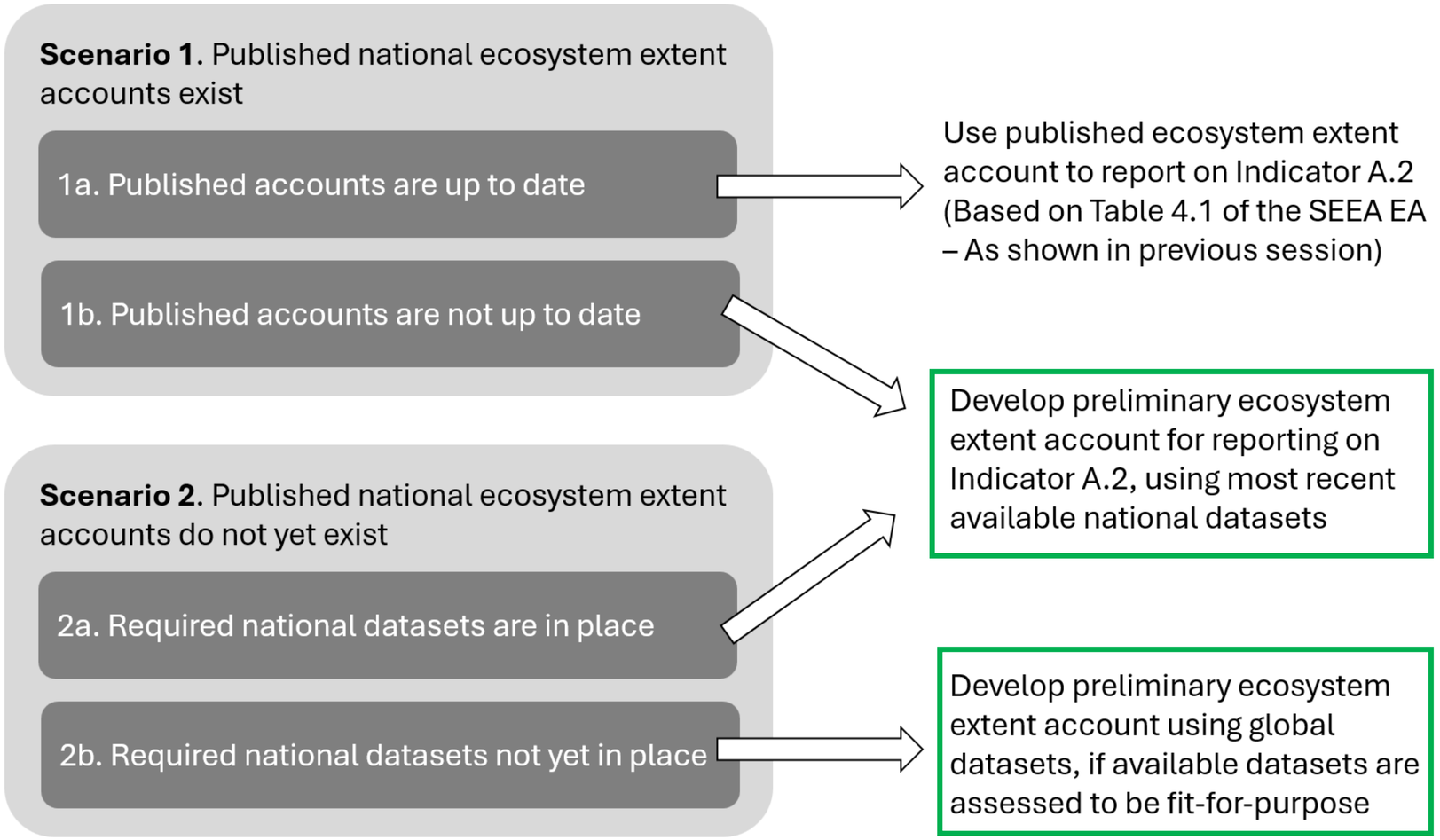
1. National baseline ecosystem map:
   a. Classification of all ecosystem types that occur in a country
   b. Spatial dataset representing their distribution at a baseline date (Could be known as: vegetation map, habitat map, geobotanical map, map of ecological communities)*
   c. Mutually exclusive and collectively exhaustive classes (No overlaps or gaps between ecosystem types)
2. Spatial datasets representing the change in distribution of ecosystem types for successive time points

*Requires the integration of geospatial data: Historical maps; Earth observation data; Environmental variables; Field data; Expert and local knowledge.

Step 2: Collecting and organizing key datasets

- Approaches to developing baseline map:
  - Mapping the contemporary (present-day or relatively recent) distribution of ecosystem types.
  - Mapping the historical (e.g. pre-industrial) distribution of ecosystem types.
- Links to land cover and land use classes:
  - Not suitable as a proxy for ecosystem
  - Do not consider the compositional and functional characteristics of natural ecosystems
  - For anthropogenic ecosystem types there is often a correspondence with some land cover and land use classes
- Approaches for determining change in distribution of ecosystem types for successive time points:
  - Remap the distribution of all ecosystem types at successive dates; OR
  - Use high-quality land cover/land use datasets to identify conversion from natural to anthropogenic ecosystem types
  - At least one time point in the period 2011-2020 (Reference period for reporting on the GBF)
  - At least one more recent time point 2020 – 2030 (Implementation period of the GBF)

Step 3: Compiling the accounts



A country can compile and report on Indicator A.2 from the starting point of either of these scenarios, i.e. even if it does not yet have formally published national ecosystem extent accounts.

A preliminary ecosystem extent account should use the table structure in SEEA EA OR the basic or interim options shown on the next slide.

Basic and interim options for a preliminary account

Basic ecosystem extent account for an inland territory.

Based on information on the open and closing extent only (no reductions or additions).

If national datasets are used, the columns in the account table will reflect national ecosystem types.

	Tropical/subtropical lowland rainforests (T1.1)	Tropical/subtropical dry forests and thickets (T1.2)	Tropical/subtropical montane (T1.3)	Urban and industrial ecosystems (T7.4)	Plantations (T7.3)	Permanent lowland rivers (F1.2)	**Total**
Opening Extent in year X	4	10	10	6	53	8	91
Net Change	0	1	3	2	-6	0	
Closing Extent in year Y	4	11	13	8	47	8	**91**

As an interim option, in the absence of data on ecosystem types, a table with natural and anthropogenic ecosystem extent can be compiled

	Natural Ecosystems	Anthropogenic Ecosystems	**Total**
Opening Extent in year X	32	59	91
Net Change	4	-4	0
Closing Extent in year Y	36	55	91

Step 4: Deriving the indicator from the account

- To derive Indicator A.2 from an extent account, national ecosystem types should be allocated to the broad categories of natural and anthropogenic ecosystems.
  - > Using natural and anthropogenic biomes and ecosystem functional groups of the Global Ecosystem Typology as a starting point
  - > Requires cross-referencing national ecosystem types to the Global Ecosystem Typology
- Indicator A.2 = (Total extent of natural ecosystem types / Total area) x 100

	Natural Ecosystems	Anthropogenic Ecosystems	**Total**
Opening Extent in year X	32	59	91
Net Change	4	-4	0
Closing Extent in year Y	36	55	91

Value of A.2
35%
40%

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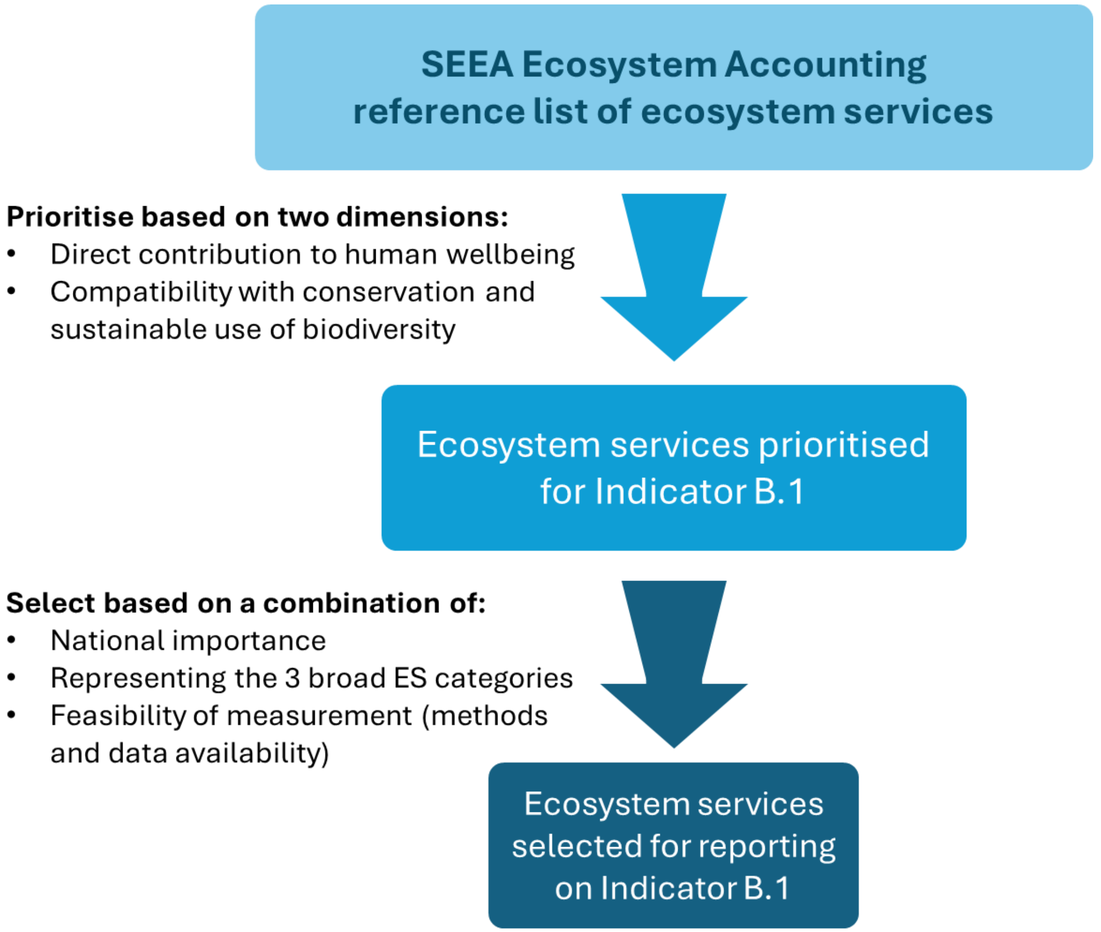
Stepwise Approach for Compiling GBF Headline Indicator B1 – Provision of Ecosystem Services

United Nations

Step 1: Operationalizing the measurement scope of the indicator

- Selecting the ecosystem services to include in the indicator.
  - > SEEA Ecosystem Accounting reference list of ecosystem services used for selecting ecosystem services.
  - > Ecosystem services that are not consistent with the rationale for the indicator should not be selected.
  - > Global Climate Regulation Service should be selected.
  - > At least 5 ecosystem services should be selected in total.
  - > Provisioning, regulating and cultural ecosystem services should all be represented.



Step 2: Collecting and organizing key datasets

1. Nationally comprehensive datasets on ecosystem service flows for those services selected for the indicator:
   - > Including supply from all relevant ecosystem types
   - > Measured in biophysical terms.
2. A national ecosystem map representing the distribution of all ecosystem types present in the country, to which the supply of ecosystem services can be linked (See Compilation Guidelines for A.2)

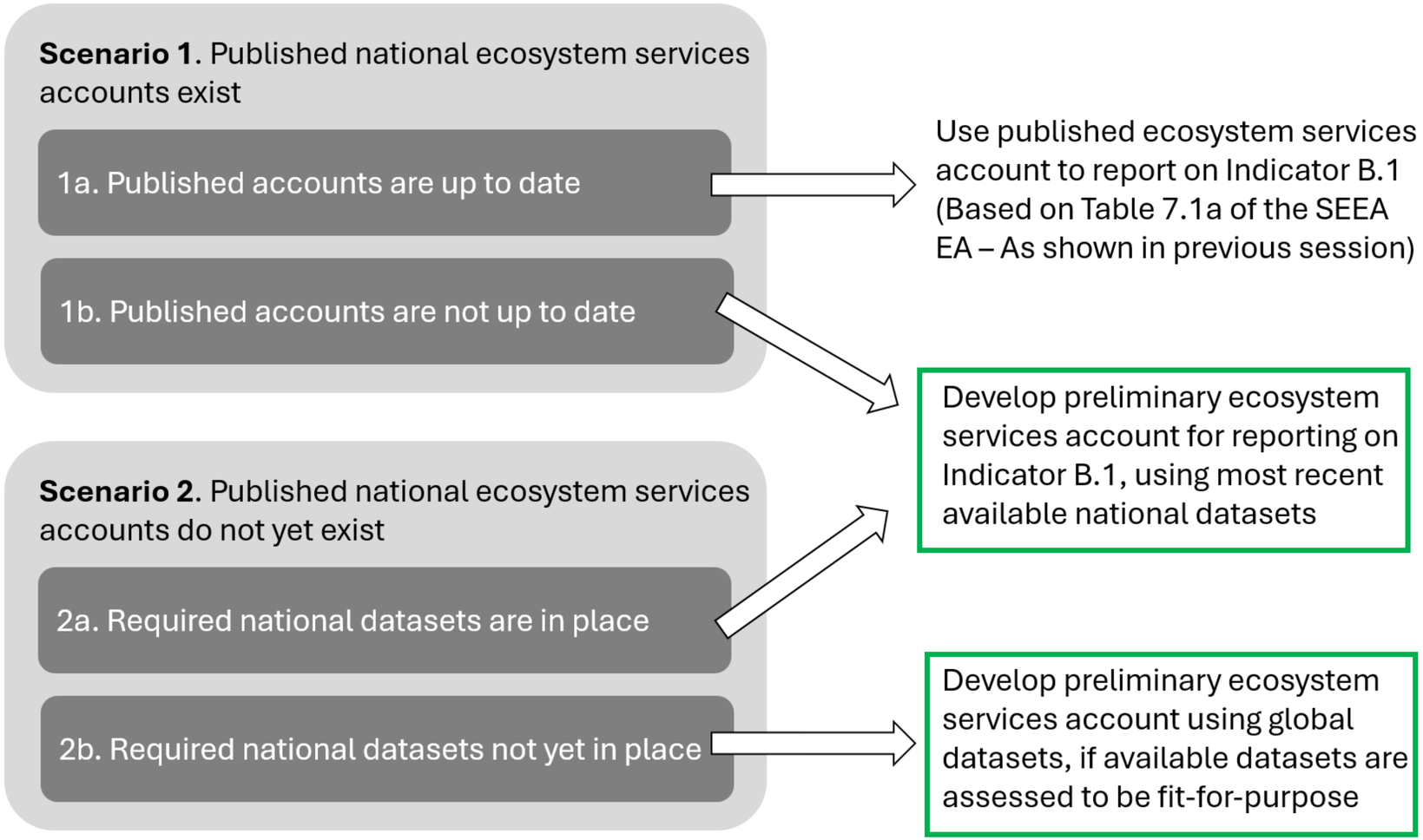
- National datasets on ecosystem services:
  - > Represent actual supply and use of the ecosystem service (i.e. the match between supply and use).
  - > Include at least 2 timepoints, for 2020 (or 2011 to 2020) and at least 1 more recent timepoint, but ideally a longer time series
  - > Nationally comprehensive
  - > Preferably attributed to the ecosystem types supplying the services
  - > Preferably spatially explicit
  - > Preferably attributed to economic users

Global datasets as an interim option

- When insufficient national data on ecosystem services :
  - > Initiate process of developing national datasets for B.1 reporting.
  - > Consider use of global datasets or models as an interim alternative.
  - > Hybrid options should be evaluated, using national data in global models or national models using global data
  - > Use national datasets for some ecosystem services and global datasets others

- Global platforms that may provide useful models and/or datasets on ecosystem services:
  - > ARIES for SEEA platform. Including new modules for grazed biomass provisioning, global climate regulation services, coastal protection services and nature-based tourism.
  - > InVEST models and tools,
  - > Co$ting Nature, which focuses on 18 ecosystem services from natural environments,
  - > Models and tools that have been developed for Europe as part of the INCA Platform.

Step 3: Compiling the accounts



A country can compile and report on Indicator B.1 from the starting point of either of these scenarios, i.e. even if it does not yet have formally published national ecosystem extent accounts.

A preliminary ecosystem extent account should use the table structure in SEEA EA OR the basic or interim options shown on the next slide.

Basic and interim options for a preliminary account

- Basic ecosystem service supply table:
  - > Information on the supply of ecosystem services by different ecosystem types (no information on users).
  - > Should be produced for at least 2 years.

Supply of Ecosystem Services (2020)	Temperate Woodlands (T4.4)	Intertidal forests and shriblands (MFT1.2)	Deciduous Temperate Forest (T2.2)	Total supply in 2020
Grazed Biomass (Tonnes)	10,000	-	500	10,500
Wild Fish Provisioning	-	2,500	-	2,500
Global Climate Regulation Service (Tonnes C)	1,500	1,000	20,000	22,500
Coastal Protection (People protected)	-	1,500	-	1,500
Nature-based Tourism (International Visitors)	-	2,000	3,000	5,000

- Interim / minimum table option:
  - > Total quantity of each ecosystem service supplied (no information about ecosystem types or users).
  - > At least two time points needed to calculate the indicator.

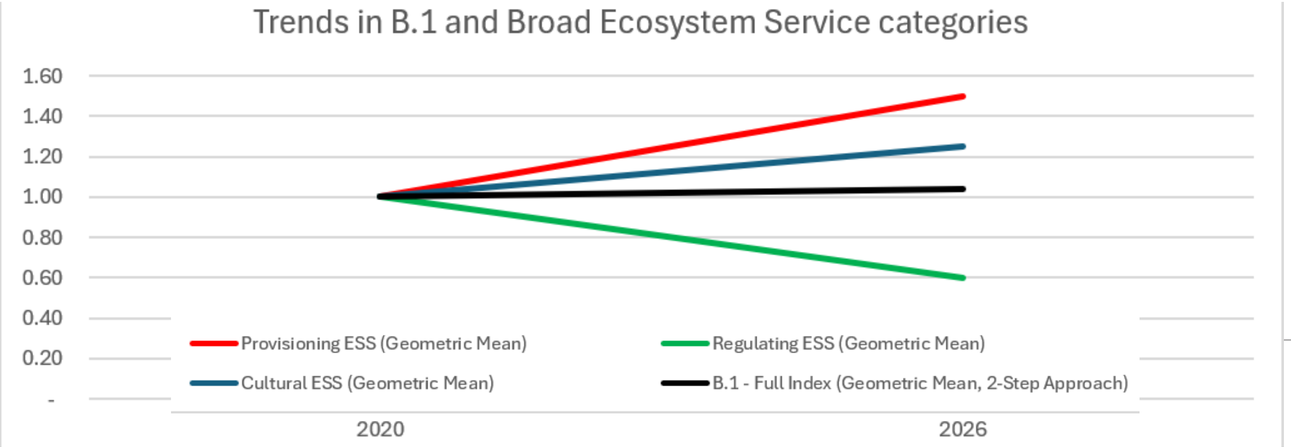
Supply of Ecosystem Services	2020	2026
Grazed Biomass (Tonnes)	10,500	15,750
Wild Fish Provisioning (Tonnes)	2,500	3,750
Global Climate Regulation Service (Tonnes C)	22,500	13,500
Coastal Protection (People protected)	1,500	900
Nature-based Tourism (International Visitors)	5,000	6,250

Step 4: Deriving the indicator from the account

- Two-step aggregation (or geometric mean averaging) process is recommended
  1. Calculate the Geometric Mean of the proportional changes in the supply of all selected ecosystem services within each of the broad category (i.e., provisioning, regulating and cultural services) → three **sub-indices**).
  2. Calculate the overall Ecosystem Services Index (i.e., Indicator B.1) as the geometric mean of the three sub-indices

Realative Supply of Ecosystem Services	2020	2026
Grazed Biomass (Relative to 2020)	1.00	1.50
Wild Fish Provisioning (Relative to 2020)	1.00	1.50
Global Climate Regulation Service (Relative to 2020)	1.00	0.60
Coastal Protection (Relative to 2020)	1.00	0.60
Nature-based Tourism (Relative to 2020)	1.00	1.25

Index for B.1 and ESS category sub-indicies	2020	2026
Provisioning ESS (Geometric Mean)	1.00	1.50
Regulating ESS (Geometric Mean)	1.00	0.60
Cultural ESS (Geometric Mean)	1.00	1.25
B.1 - Full Index (Geometric Mean, 2-Step Approach)	1.00	1.04



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Next Steps

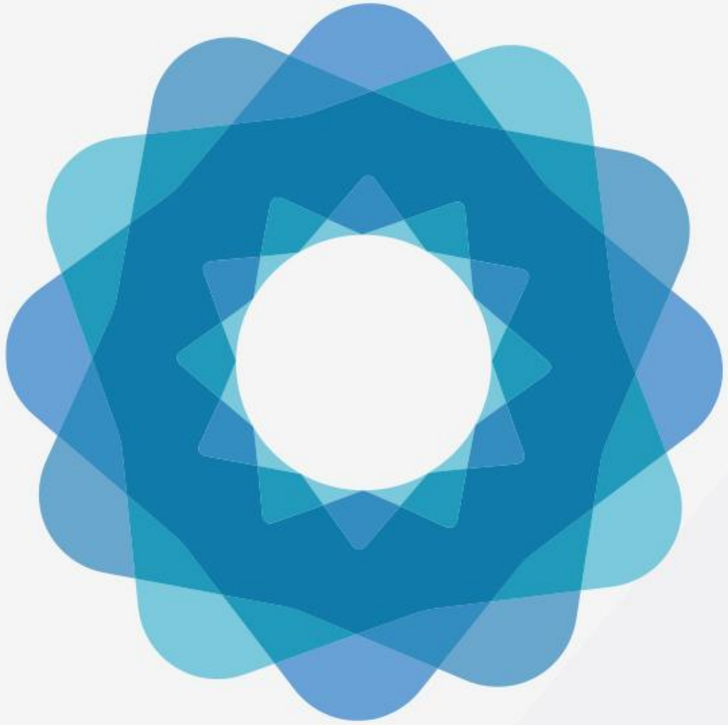
United Nations

Finalizing the Compilation Guidelines

- **London Group reflections on the Compilation Guidelines:**
  - Anything missing? Anything wrong?
  - Any additional feedback to steven.king@un.org by Friday 2 October 2026 please.
- **Next steps:**
  - **2026 Q4:** Expert Group Meeting to resolve remaining substantive issues.
  - **2027 Q1:** Fourth draft reviewed by SEEA EA TC and global consultation launched.
  - **2027 Q1:** Submission to UN Statistical Commission for consideration.
  - **2027 Q2:** Final review by SEEA EA TC and publication.

Key compilation challenges raised so far

- **Institutional:** Agreeing institutional arrangement for reporting indicators A.2 and B.1; Agreeing roles and responsibilities in the production of accounts and indicator compilation.
- **Data:** No national ecosystem maps or typologies; Limited availability of long-term time-series data; Inconsistencies in spatial resolution across datasets; data harmonization and integration across institutions; Existing accounts out of date.
- **Capacity:** Limited capacity in ecosystem service modelling; Limited capacity on natural capital accounting / SEEA (Staff turnover).



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