



System of
Environmental
Economic
Accounting

Introduction to the System of Environmental-Economic Accounting (SEEA)g

National Workshop on the System of Environmental-Economic Accounting (SEEA)

17 – 19 December 2024

Bujumbura, Burundi

Marko Javorsek
United Nations Statistics Division



United Nations

The need to account for the Environment

- Nature and the services it provides support almost every aspect of human well-being
- But headline indicators like GDP, the unemployment rate and inflation do not capture the full economic contributions of nature
- Traditional accounts don't help us understand how the depletion of natural resources and degradation of the environment affect the economy and wellbeing
- The System of Environmental Economic Accounts (SEEA) fills that gap
- SEEA integrates information on the economy and the environment showing their interrelationship complementing the System of National Accounts



Growing interest in Natural Capital Accounting

“

A historic step towards transforming the way how we view and value nature.

António Guterres
UN Secretary General



“

this new statistical framework moves beyond GDP and takes better account of biodiversity and ecosystems in national economic planning.

Frans Timmermans
VP European Commission

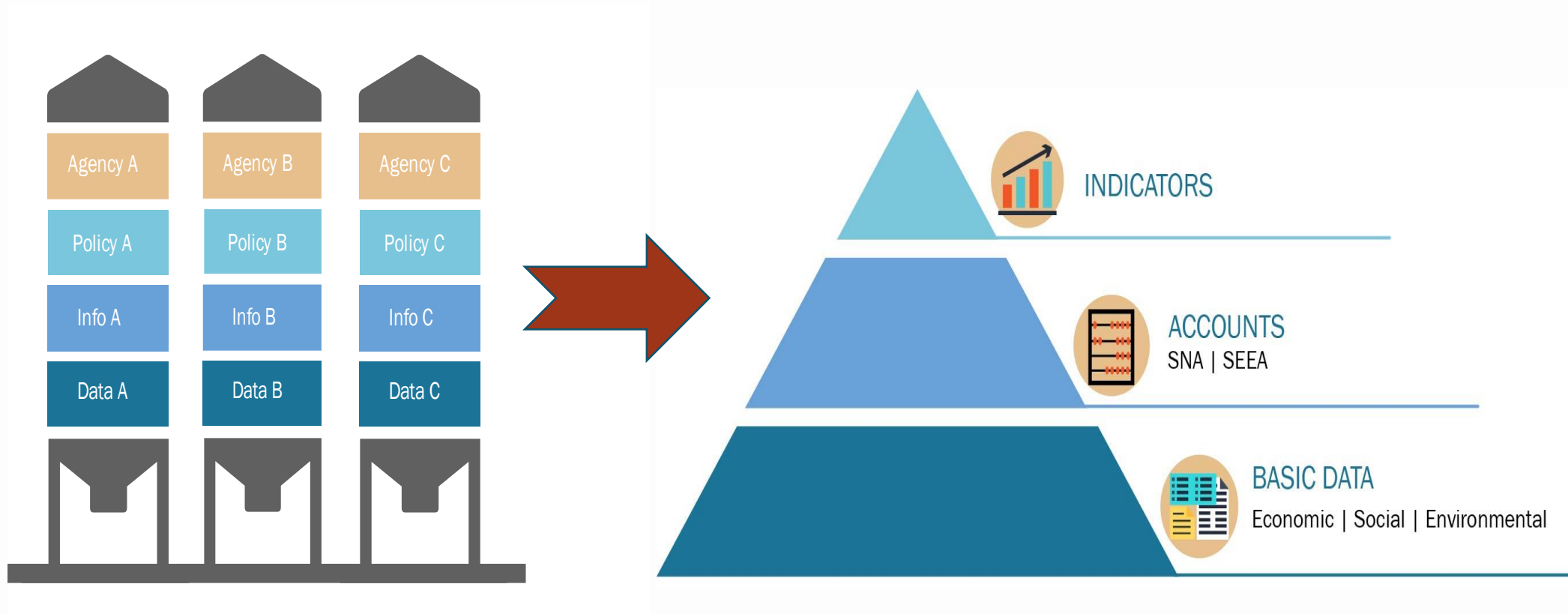


Monitoring framework for the GBF (COP 15 decision 15/5) :

- “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;“
- “Invites the Statistical Commission,..... and other relevant organizations to **support the operationalization of the monitoring framework** for the Kunming-Montreal global biodiversity framework;”
- “When possible, **indicators are aligned with existing intergovernmental processes under the Statistical Commission**, such as the SDGs, the FDES or the SEEA”



From data silos to integrated information



Data Sources

SEEA uses the accounting approach to integrate many data sets

- Many different types of SEEA accounts, each of which will rely on numerous data sources
 - Physical data on the availability of the resource in the environment, use, supply, consumption and return flows
 - Administrative data
 - Data from line ministries or other relevant institutions
 - Survey data
 - Earth observation
- These data sources are combined to produce an integrated set of accounts and develop policy relevant indicators

Examples:

SEEA energy accounts will use energy statistics and balances, but also likely economic, transport, trade, traffic and tourism statistics



SEEA – a statistical standard for the environment



Adopted in 2012



Adopted in 2021



Brings together environmental and economic data using the same accounting principles of the SNA



Credibility, reliability, replicability of data



Consistency over time and space



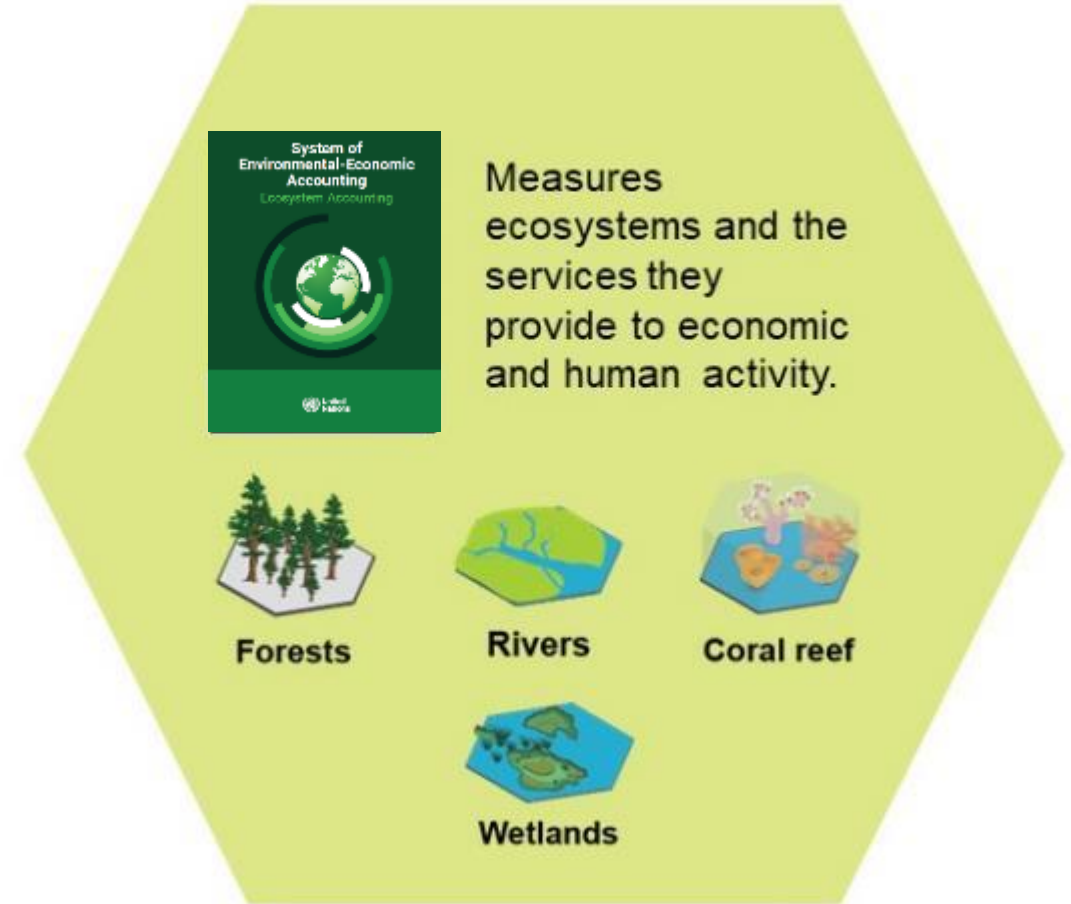
Common language between different communities



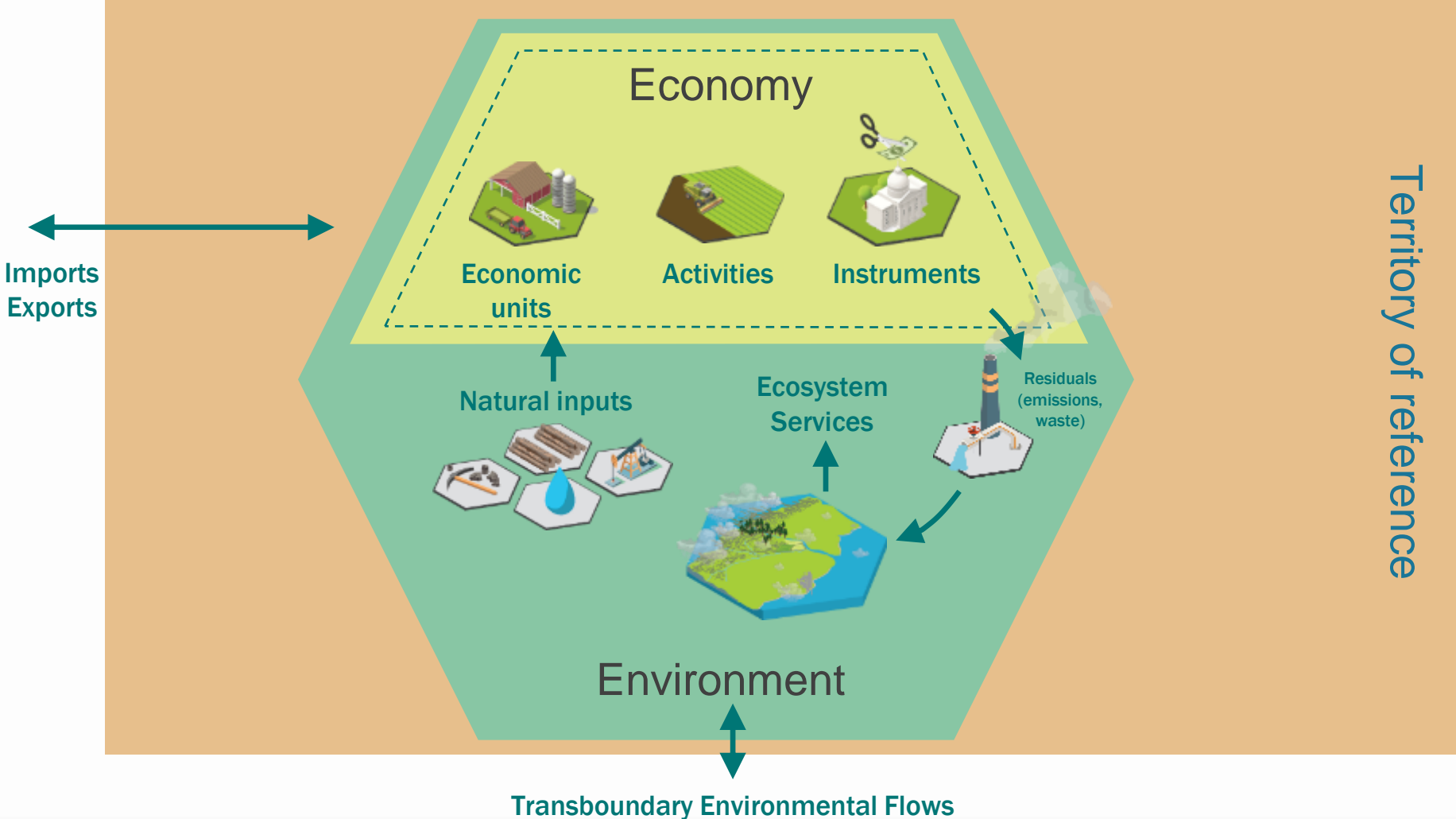
Breaks down silos and fosters collaboration

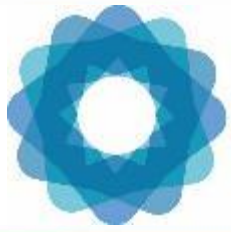
SEEA Central Framework and SEEA Ecosystem Accounting

– Two sides of the same coin



SEEA Conceptual Framework





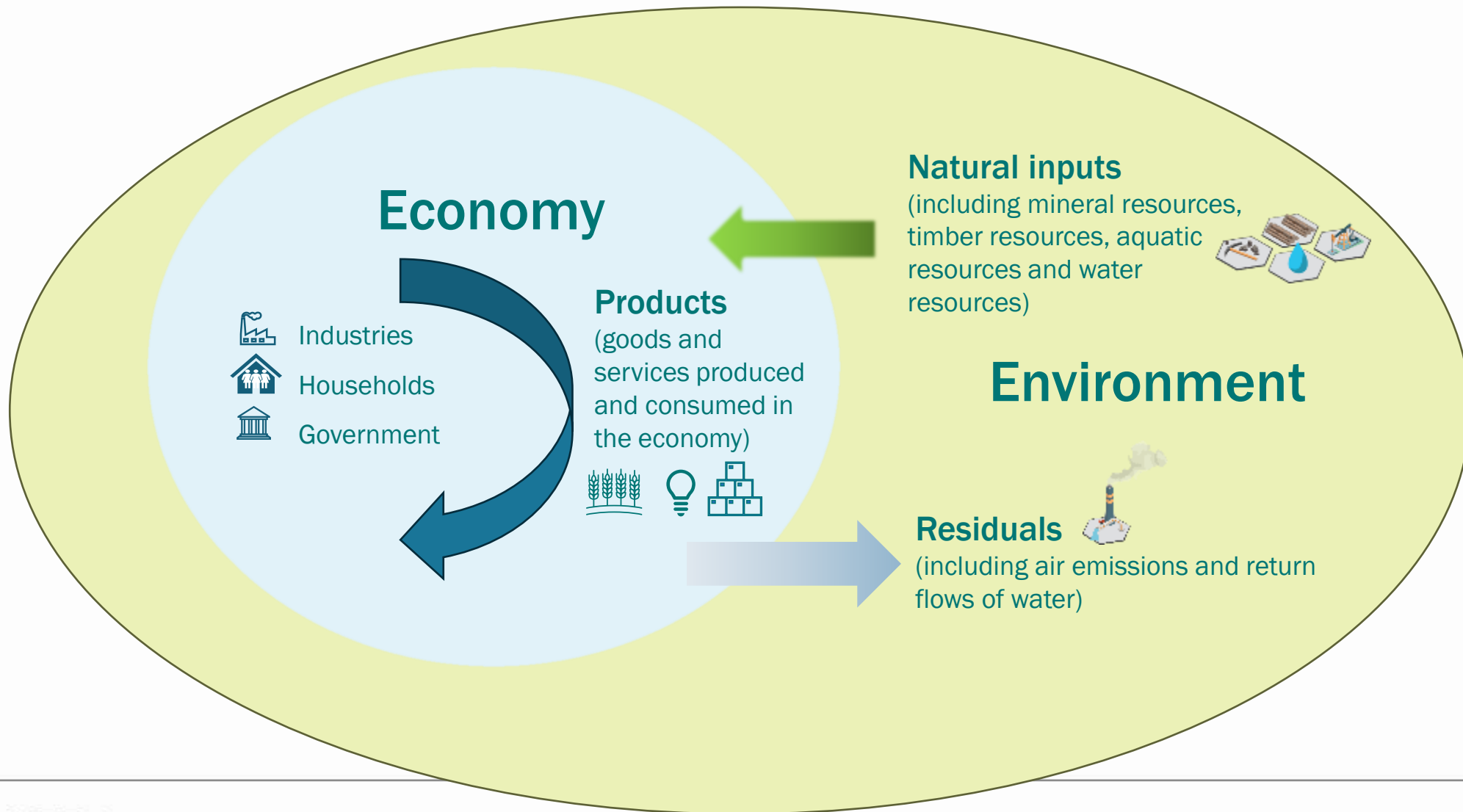
System of
Environmental
Economic
Accounting

SEEA Central Framework



United Nations

Conceptual Framework of the SEEA CF



SEEA principles

- A coherent measurement framework linked to SNA (aligns concepts, classifications and methods)
- Based on accounting principles & systems theory
- Flexible and modular
 - > NOT a model, database or analytical framework
- Provide guidance on producing “accounts” for:
 - > Natural inputs to the economy,
 - > Impacts of the economy on the environment, and
 - > Expenditures to mitigate impacts
- Support sustainable statistical infrastructure to regularly produce relevant accounts and indicators
- Improve coherence by standardizing concepts, classifications and methods
- Improve relevance by linking to SNA



SEEA Central Framework - accounts

- **Stock accounts for environmental assets:** natural resources and land
 - > physical (e.g. fish stocks and changes in stocks) and/or monetary values (e.g. value of natural capital, depletion)
- **Flow accounts:** supply and use tables for products, natural inputs and residuals (e.g. waste, wastewater) generated by economic activities.
 - > physical (e.g. m³ of water) and/or monetary values (e.g. permits to access water, cost of wastewater treatment, etc.)
- **Activity / purpose accounts** that explicitly identify environmental transactions already existing in the SNA.
 - > e.g. Environmental Protection Expenditure (EPE) accounts, environmental taxes and subsidies
- **Combined physical and monetary accounts** that bring together physical and monetary information for derivation indicators, including depletion adjusted aggregates

Flow account example

Basic form of a physical supply and use table for energy (joules)

Supply table						
	Industries	Households	Accumulation	Rest of the world	Environment	Total
Energy from natural inputs					A. Energy inputs from the environment	Total supply of energy from natural inputs
Energy products	C. Output			D. Imports		Total supply of energy products
Energy residuals	I. Energy residuals generated by industry	J. Energy residuals generated by household consumption	K. Energy residuals from accumulation	L. Energy residuals received from the rest of the world	M. Energy residuals recovered from the environment	Total supply of energy residuals

Use table						
	Industries	Households	Accumulation	Rest of the world	Environment	Total
Energy from natural inputs	B. Extraction of energy from natural inputs					Total use of energy from natural inputs
Energy products	E. Intermediate consumption	F. Household consumption	G. Changes in inventories	H. Exports		Total use of energy products
Energy residuals	N. Collection and treatment of energy residuals		O. Accumulation of energy residuals	P. Energy residuals sent to the rest of the world	Q. Energy residual flows direct to environment	Total use of energy residuals

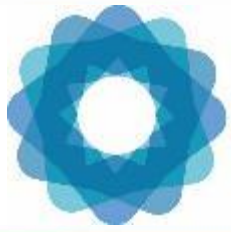
Asset account example

Mineral and energy resources account (physical units)

	Type of mineral and energy resource			
	(Class A: Commercially recoverable resources)			
	Oil resources (thousands of barrels)	Natural gas resources (cubic metres)	Coal and peat resources (thousands of tons)	Uranium and other nuclear fuels (tons)
Opening stock of mineral and energy resources	800	1 200	600	
Additions to stock				
Discoveries				
Upward reappraisals		200		
Reclassifications				
<i>Total additions to stock</i>		<i>200</i>		
Reductions in stock				
Extractions	40	50	60	
Catastrophic losses				
Downward reappraisals			60	
Reclassifications				
<i>Total reductions in stock</i>	<i>40</i>	<i>50</i>	<i>120</i>	
Closing stock of mineral and energy resources	760	1 350	480	

Update of the SEEA CF

- The Update of the SEEA Central Framework (SEEA CF) was mandated by the UN Statistical Commission in March 2024 to:
 - Better respond to emerging demands for integrated environmental and economic data in support of climate change, circular economy, disaster risk reduction, resource management, green growth and jobs, biodiversity and other policies
- Reflect the changes of the 2025 SNA and other recently revised standards, classifications and manuals, as appropriate (e.g. ISIC)
- Coordinate and harmonize with ongoing revisions (e.g. SIEC, COFOG)
- Timeline for the revision process: March 2028



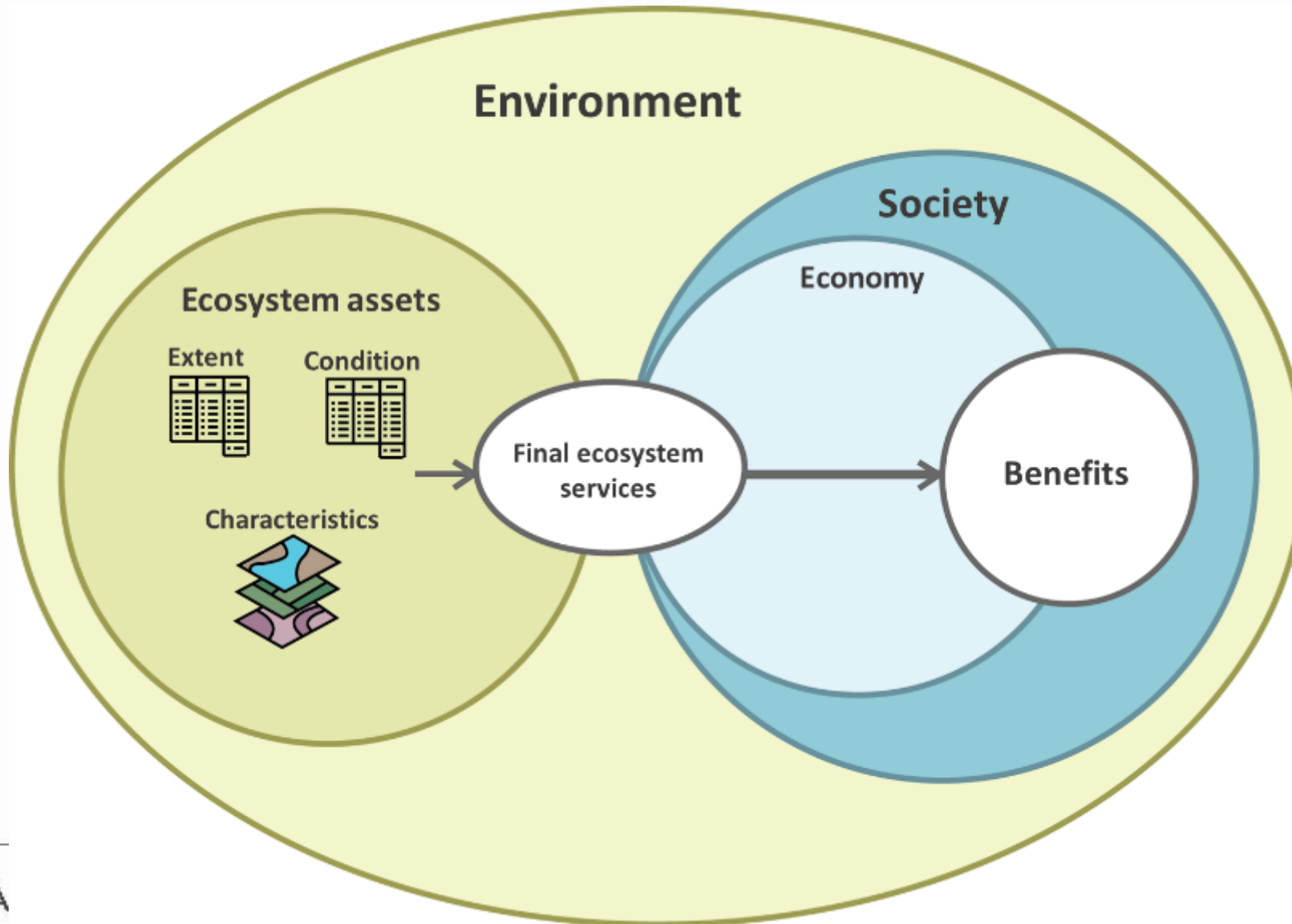
System of
Environmental
Economic
Accounting

SEEA Ecosystem Accounting

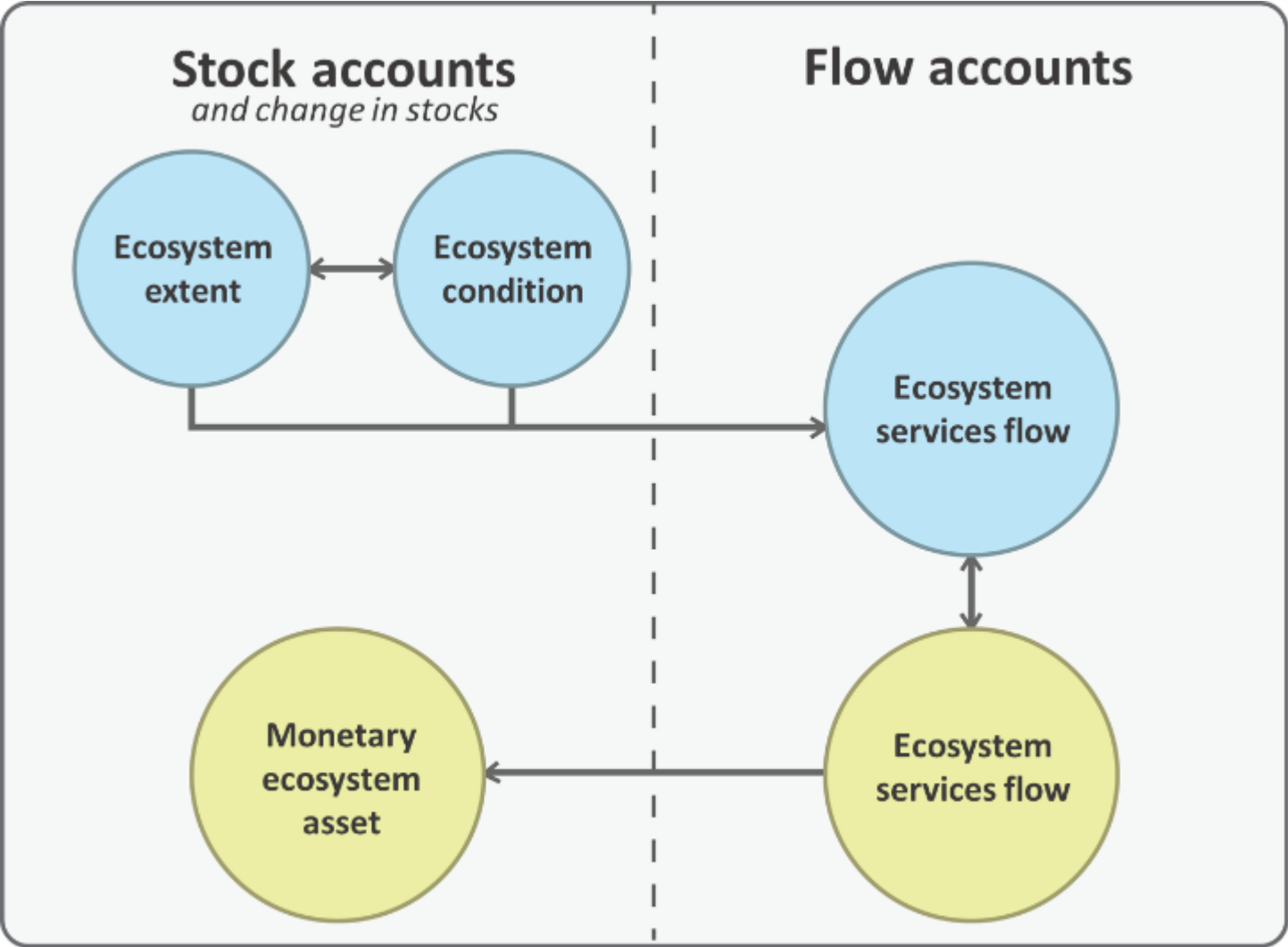


United Nations

SEEA Ecosystem Accounting - conceptual framework



SEEA Ecosystem Accounting – core accounts



SEEA EA Framework – Illustrative Example

1
Asset –
forest

2
Conditions



Soil depth

3
Services



Water
filtration

4
Benefits

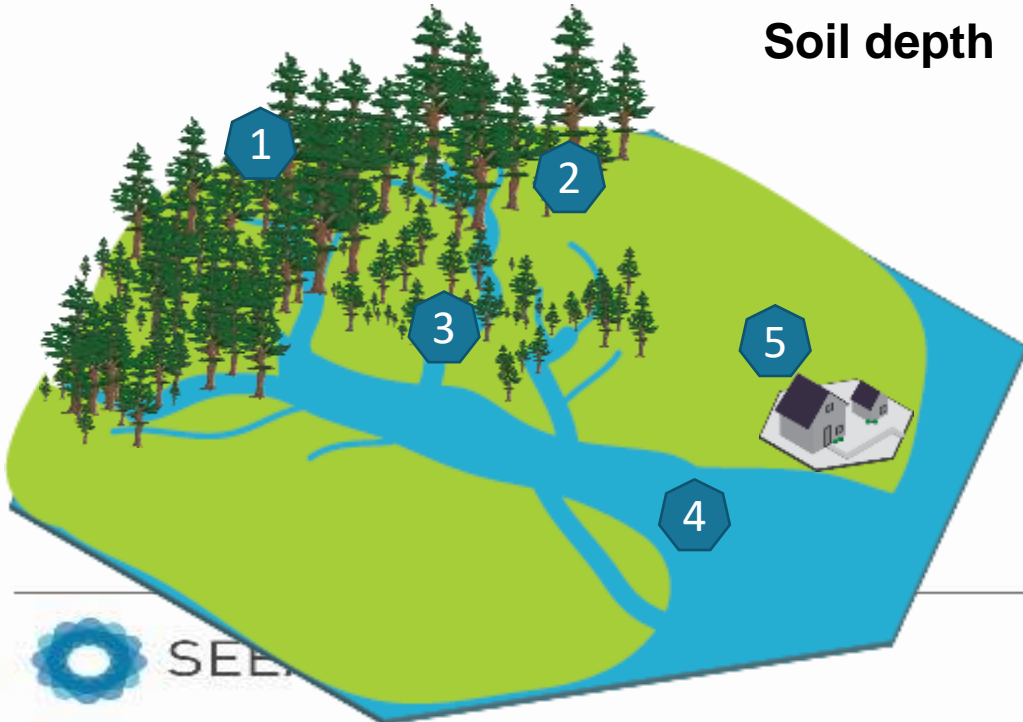


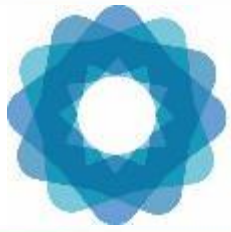
Clean water

5
Beneficiaries



People





System of
Environmental
Economic
Accounting

Policy Applications



United Nations

The SEEA supports multiple ongoing initiatives



SEEA and Climate Change

Various climate related policies can be informed by various types of SEEA accounts:

- Informing **mitigation and adaptation strategies**
- Providing a comprehensive overview of how much **carbon is stored per ecosystem type** and how this develops over time
- Assessing how **climate change impacts** economic activities and households
- A proposed new **Data Gaps Initiative** (under the auspices of the G20 Finance Ministers and Central Bank Governors)
 - > 4 priorities endorsed: a.o. Climate Change;
 - > SEEA air emission accounts and energy accounts included

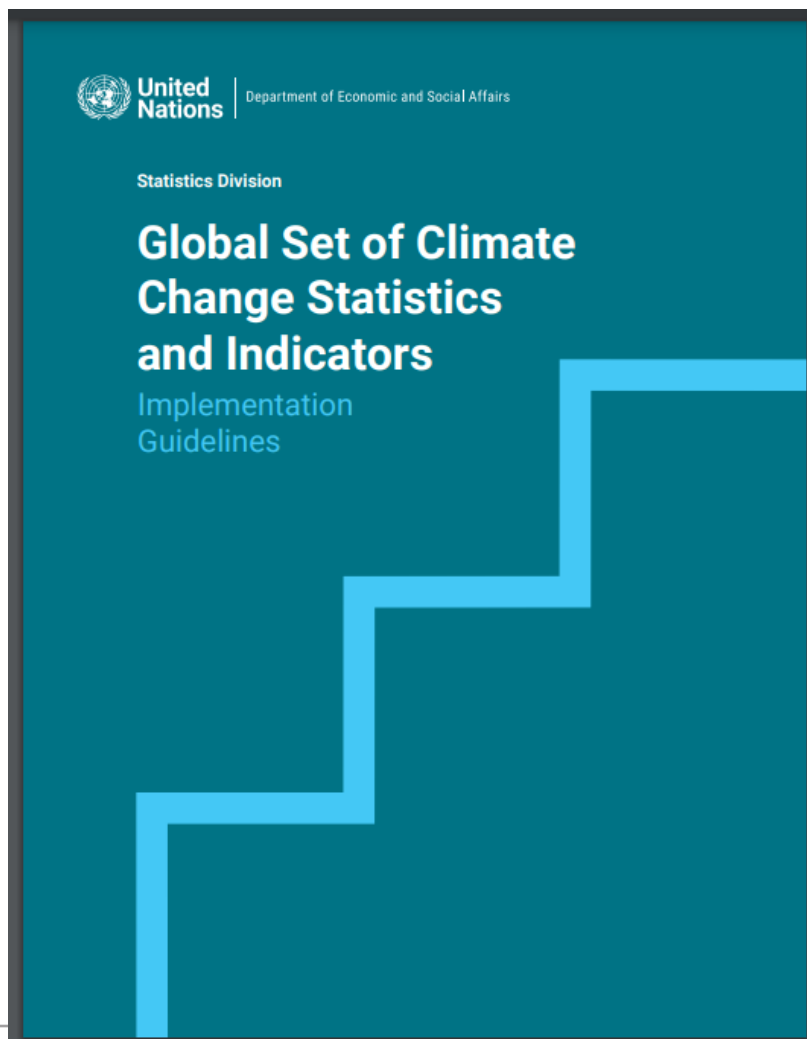


Global Set of Climate Change Statistics and Indicators

1. The Global Set was adopted at the 53rd session of the Statistical Commission ([Decision 53/116 \(2022\)](#))
2. Contains 158 indicators (and 190 statistics) which link policy targets (drivers, impacts, vulnerability, mitigation, adaptation) and statistical indicator frameworks across:
 - > Paris Agreement
 - > Sendai Framework
 - > Sustainable Development Goals
3. The aim is to contribute to:
 - > independent national policies evaluation
 - > comparable reporting to UNFCCC
 - > advance of climate change and environment statistics
4. The Global Set helps to define the scope and content of:
 - > National programmes, countries use the Global Set to develop their own sets
 - > Regional approaches, indicators were adapted/selected by ECLAC and ESCWA

<https://unstats.un.org/unsd/envstats/climatechange.cshtml>

Implementation Guidelines



Acknowledgements	v
Abbreviations and acronyms	vii
I. Introduction	1
1.1. Background	2
1.2. Rationale for the Guidelines	4
1.3. Aims and objectives	7
1.4. How to use the Guidelines	7
2. Understanding climate change	9
3. Global Set of Climate Change Statistics and Indicators	11
4. Developing a national programme of climate change statistics	21
4.1. Role of national statistical offices, national focal points and key stakeholders	21
4.1.1. Role of national statistical offices	21
4.1.2. Role of national focal points	22
4.1.3. Role of other key stakeholders	22
4.1.4. Collaboration between the national statistical office, national focal point and key stakeholders	23
4.2. Assessment and implementation of the Global Set	27
4.2.1. Assessment of available and needed resources	27
4.2.2. National action plan	32
4.2.3. High-level buy-in	33
4.2.4. National institutional arrangements	35
4.2.5. Capacity-building at the national level	38
4.2.6. Multidisciplinary approach	39
5. Production of climate change statistics	41
5.1. Measurement, reporting and verification system and transparency framework	41
5.2. Data sources for climate change statistics	44
5.2.1. Mapping and assessing sources of available statistics and indicators	47
5.2.2. Defining and prioritizing gaps in data and methods	51
5.2.3. Establishing data-collection processes	52
5.2.4. Database building	52
5.2.5. Data exchange protocols	52
5.3. Dissemination of national climate change statistics and indicators	54
5.3.1. Publication guidelines	54
5.4. Evaluating contribution to national policy demands and international reporting requirements	55

Climate Change Statistics and Indicators Self-Assessment Tool (CISAT)

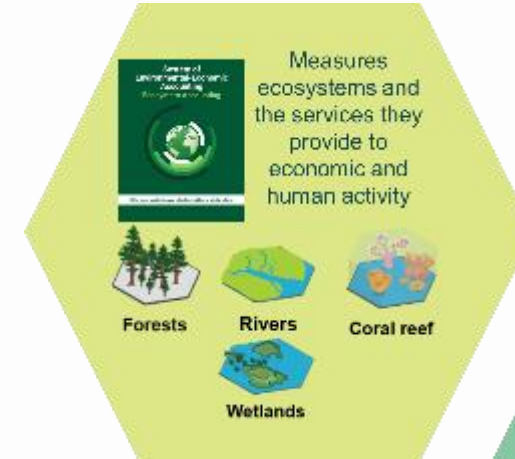
- CISAT to support the implementation of the Global Set of Climate Change Statistics and Indicators
 - > Helps with a thorough and detailed assessment of the statistics and indicators in the Global Set which will allow prioritization of the nationally relevant indicators and statistics
 - > Developed by UNSD, in collaboration with the UNFCCC and the Expert Group on Environment Statistics (EGES)
- Consists of:
 1. Introduction
 2. Part I: Institutional Dimensions of Climate Change Statistics and Indicators
 3. Part II: Statistics and Indicators Assessment
 - Instructions for Part II
 - Global Set of Climate Change Statistics and Indicators *
 - Metadata

The SEEA and GBF indicators

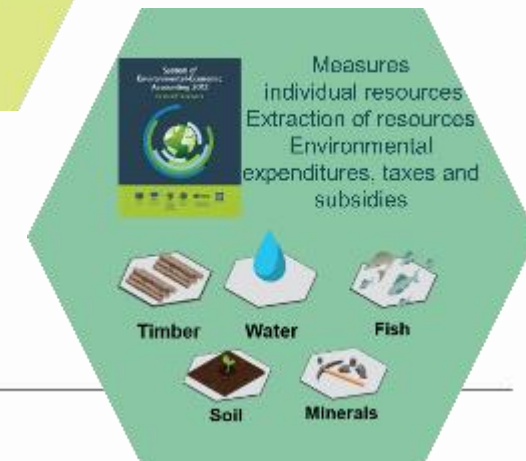


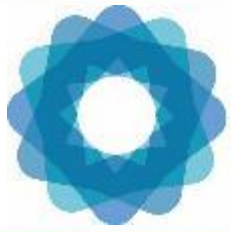
- The Convention of Biodiversity (CBD) adopted the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022
- Headline indicators were adopted to monitor each Goal and Target. A few indicators related to the SEEA:

- > Extent of natural ecosystems (Goal A)
- > Services provided by ecosystems (Goal B and Target 11)
- > *Integrating Biodiversity in Decision-Making (Target 14)*



- > Domestic public funding, and private funding on conservation and sustainable use of biodiversity and ecosystems (Goal D and Target 19)





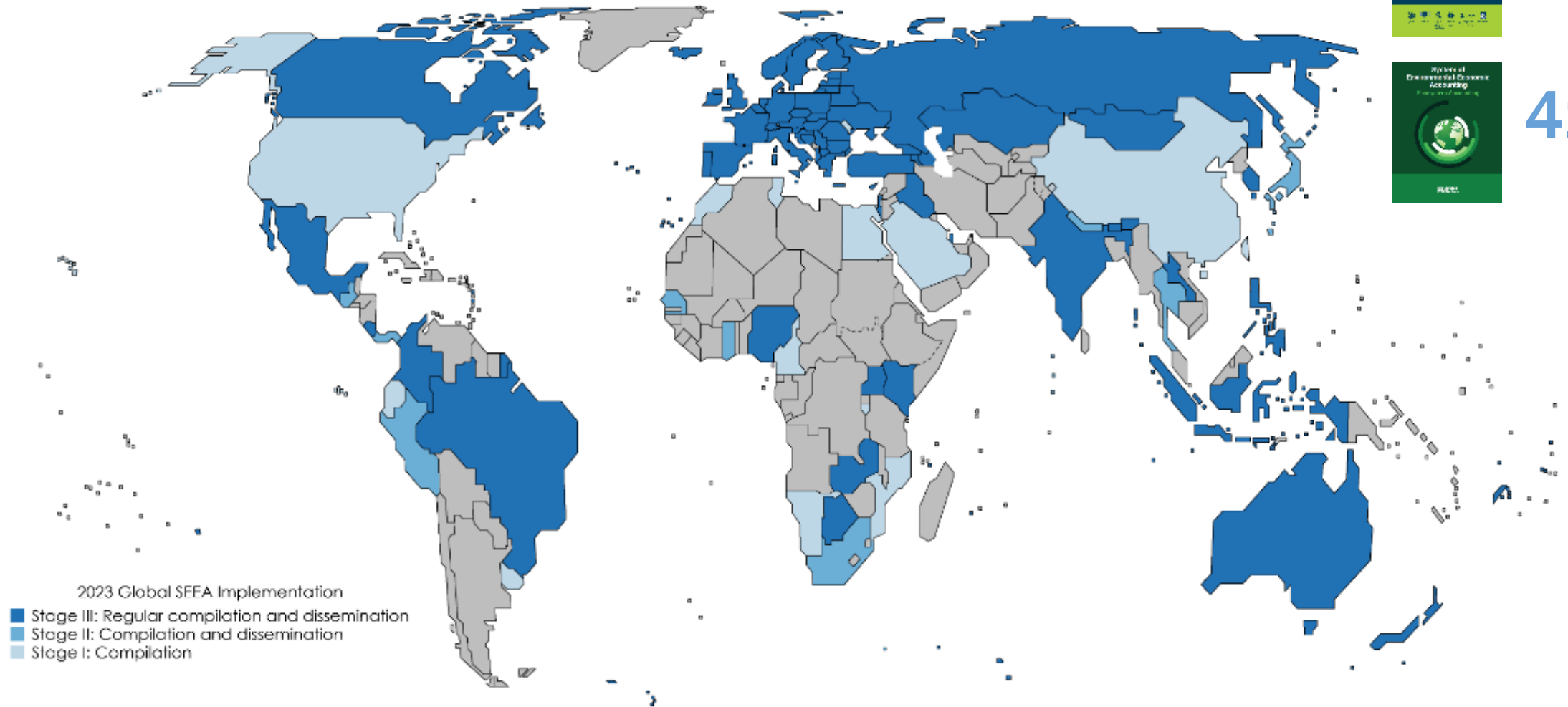
System of
Environmental
Economic
Accounting

SEEA Implementation



United Nations

SEEA implementation

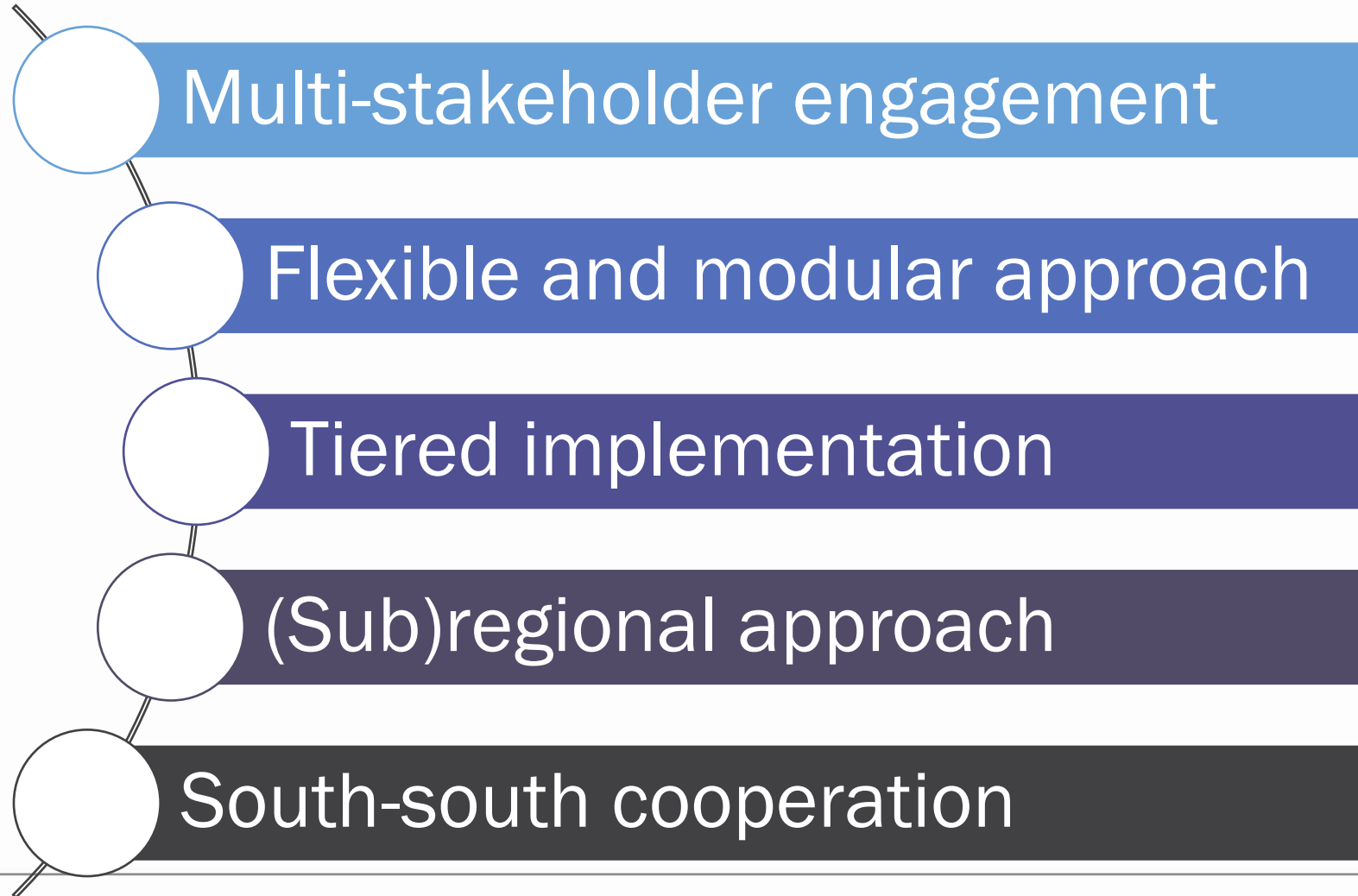


Number of countries compiling SEEA accounts over time



More information is available at <https://seea.un.org/content/global-assessment-environmental-economic-accounting>

Approach and main principles



SEEA Implementation Guide



- Published in 2023 to support implementation of the SEEA Central Framework and Ecosystem Accounting
- Provides guidance and support for implementation work at the national level in all countries, including examples with lessons learned

Strategic planning

- Characteristics of a strategic plan and its development in two steps: (1) establishing a core group, and (2) conducting a national assessment

Mechanisms for implementation

- Potential institutional set-ups needed for successful implementation of the SEEA

Compiling accounts

- Aspects related to compilation, such as data sources; work of the technical committee; collaboration with partners; and additional resources and activities to support implementation

Disseminating accounts

- Good practices around disseminating the accounts, identifying the main users of accounts and their information needs

Institutionalizing the SEEA

- Legal mandates, formalization of mechanisms between institutions, funding mechanisms, and moving from piloting to regular production

Guidelines and tools in support of implementation

Ecosystem Accounting

- Biophysical guidelines
- Monetary valuation
- Policy scenario analysis
- Eurostat guidance notes (in development)



Tools

- ARIES for SEEA



Policy applications

- Linkages of global indicators with SEEA
- How NCA contributes to sustainability policies



SEEA

THANK YOU

seea@un.org // <https://seea.un.org/>

