System of Environmental Economic Accounting

Overview of the SEEA

Workshop on Energy Statistics, Balances and Accounts for Informed Energy and Climate Policies

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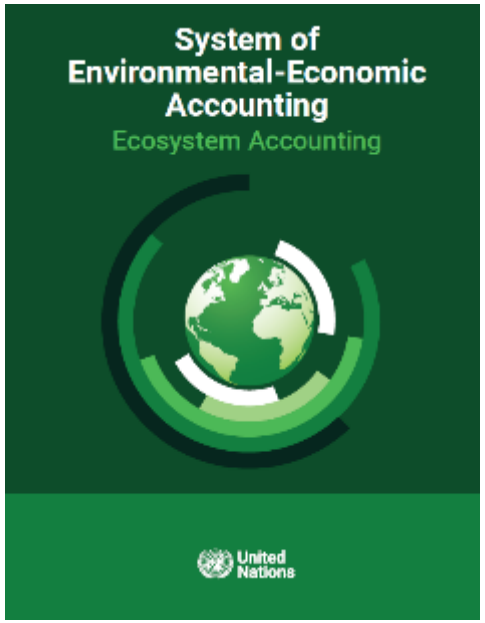
The need to account for the Environment

- 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 Accounting (SEEA) fills that gap
- SEEA integrates information on the economy and the environment showing their interrelationship complementing the System of National Accounts

Photo Credits

SEEA – a statistical standard for the environment

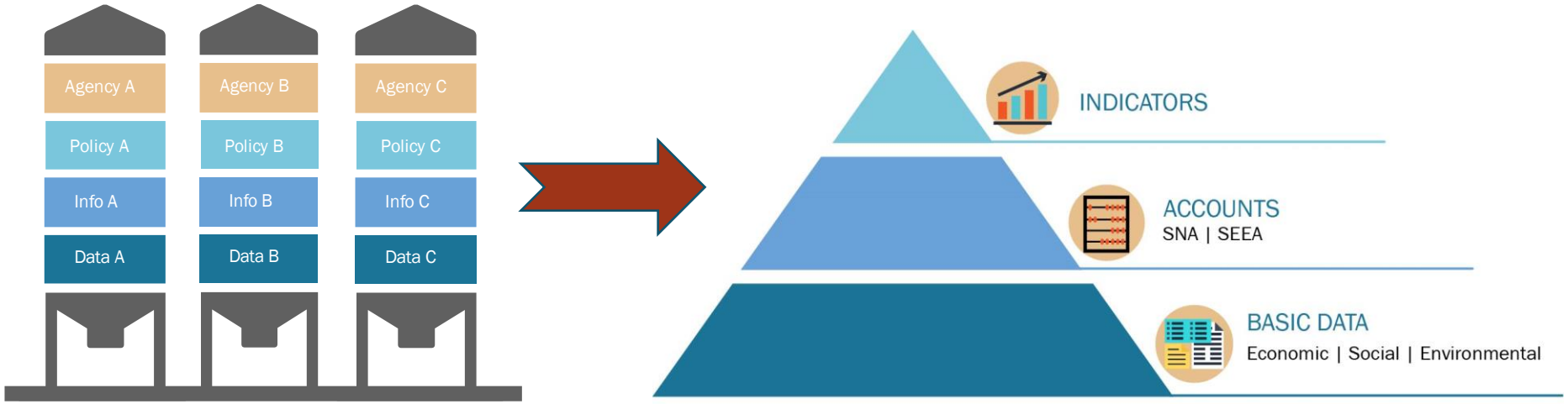
Adopted in 2012



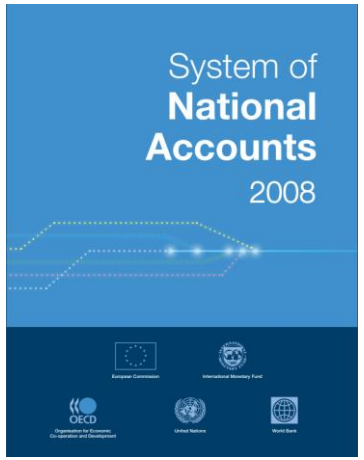
Adopted in 2021

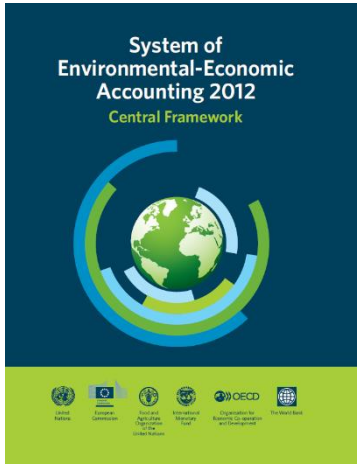
- Brings together environmental and economic data using the same accounting principles of the SNA
- Credibility, reliability, replicability of data
- Consistency over time and space
- Common language between different communities
- Breaks down silos and fosters collaboration

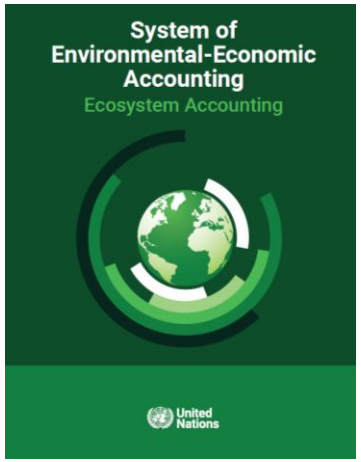
From data silos to integrated information

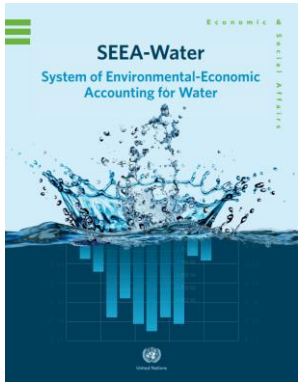


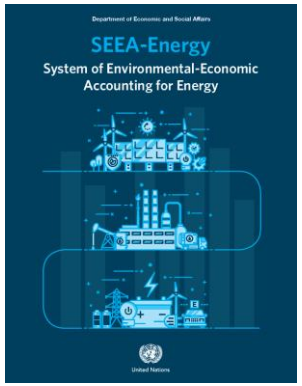
Statistical standards

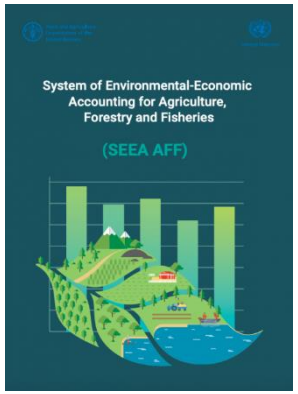












Measuring Sustainability of Tourism

Ocean Accounts

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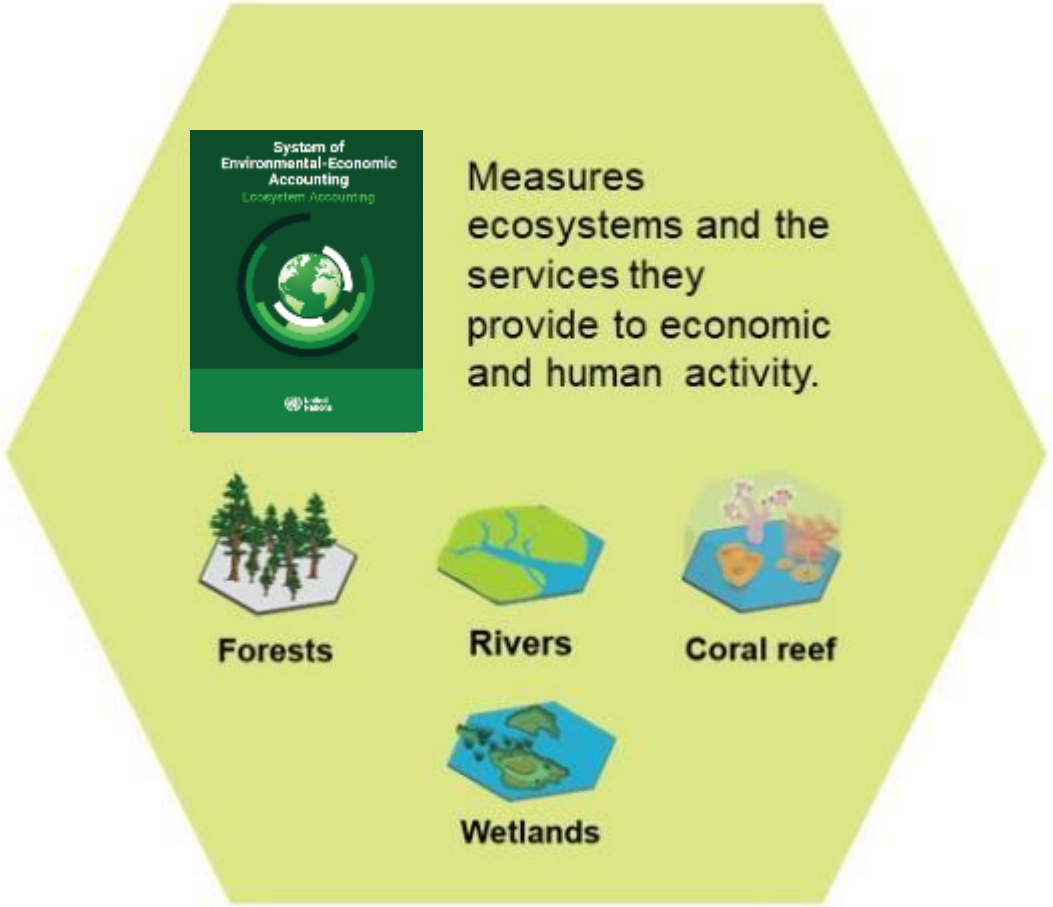
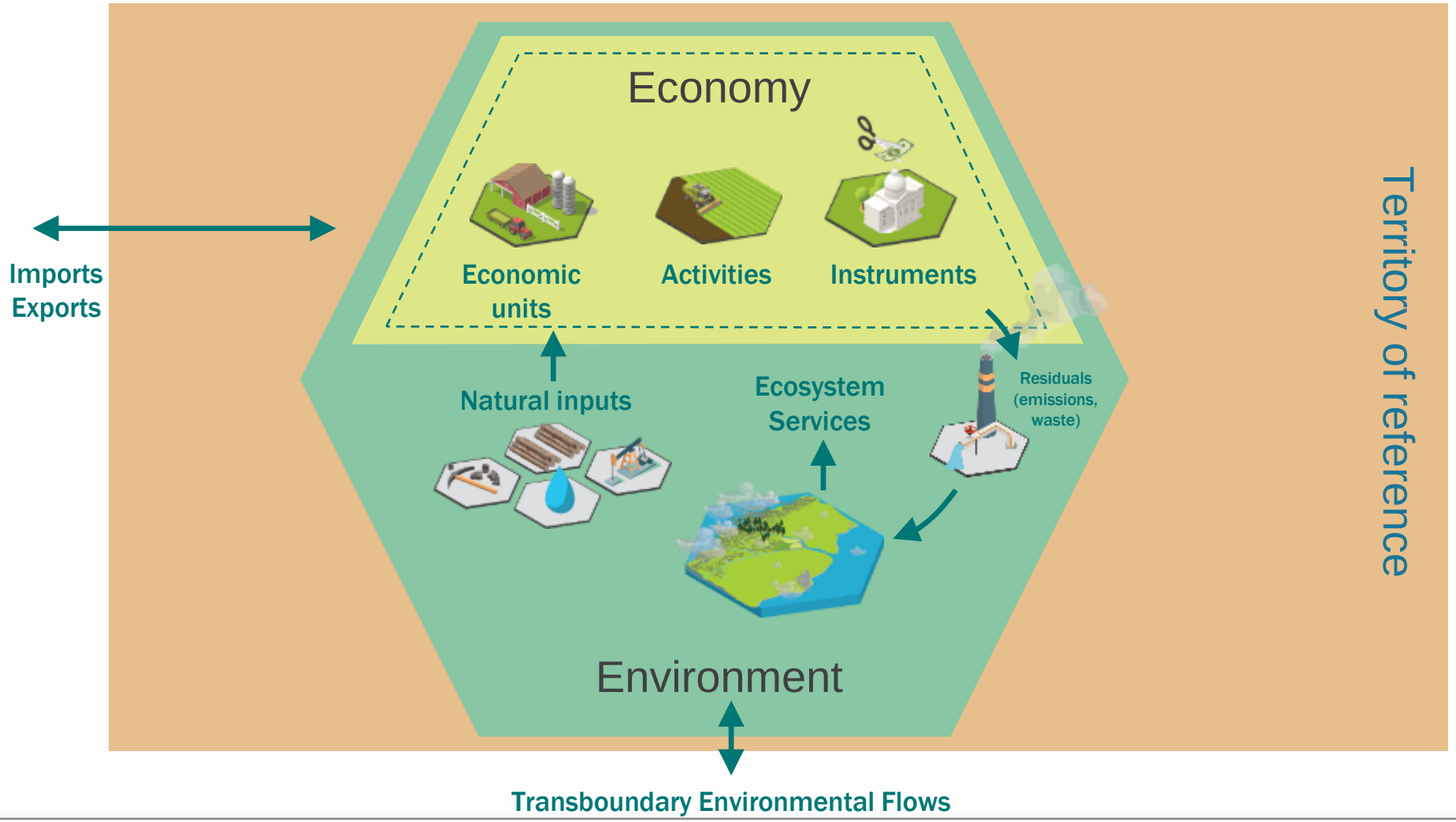
SEEA Central Framework and SEEA Ecosystem Accounting – Two sides of the same coin



SEEA Conceptual Framework



System of Environmental Economic Accounting

SEEA Central Framework

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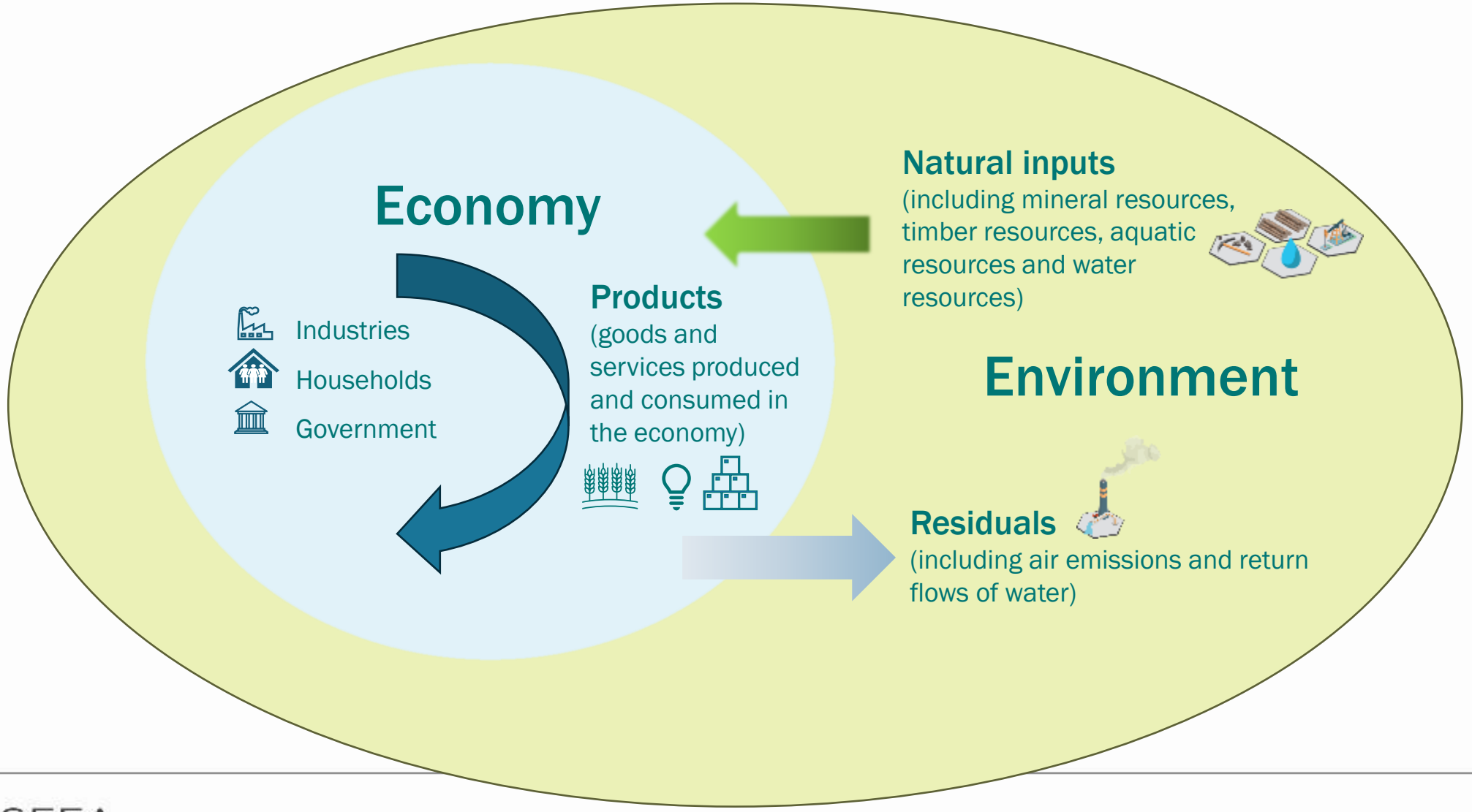
Conceptual Framework of the SEEA CF



SEEA Central Framework - accounts

- **Stock accounts for environmental assets**: natural resources and land
  - Look at changes in stocks of natural resources over an accounting period
  - Beginning stock, changes in stock, closing stock
  - physical (e.g. fish stocks and changes in stocks) and/or monetary values (e.g. value of natural capital)
- **Flow accounts**: , depletionflows of natural resources between the environment and economy
  - supply and use tables for products, natural inputs and residuals (e.g. waste, wastewater)
  - physical (e.g. m3 of water) and/or monetary values (e.g. cost of wastewater treatment)
- **Activity / purpose accounts** that explicitly identify environmental transactions already existing in the SNA.
  - e.g. Environmental protection expenditure 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

Note: Dark grey cells are null by definition.

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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				
Total additions to stock		*200*		
Reductions in stock				
Extractions	40	50	60	
Catastrophic losses				
Downward reappraisals			60	
Reclassifications				
Total reductions in stock	*40*	*50*	*120*	
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

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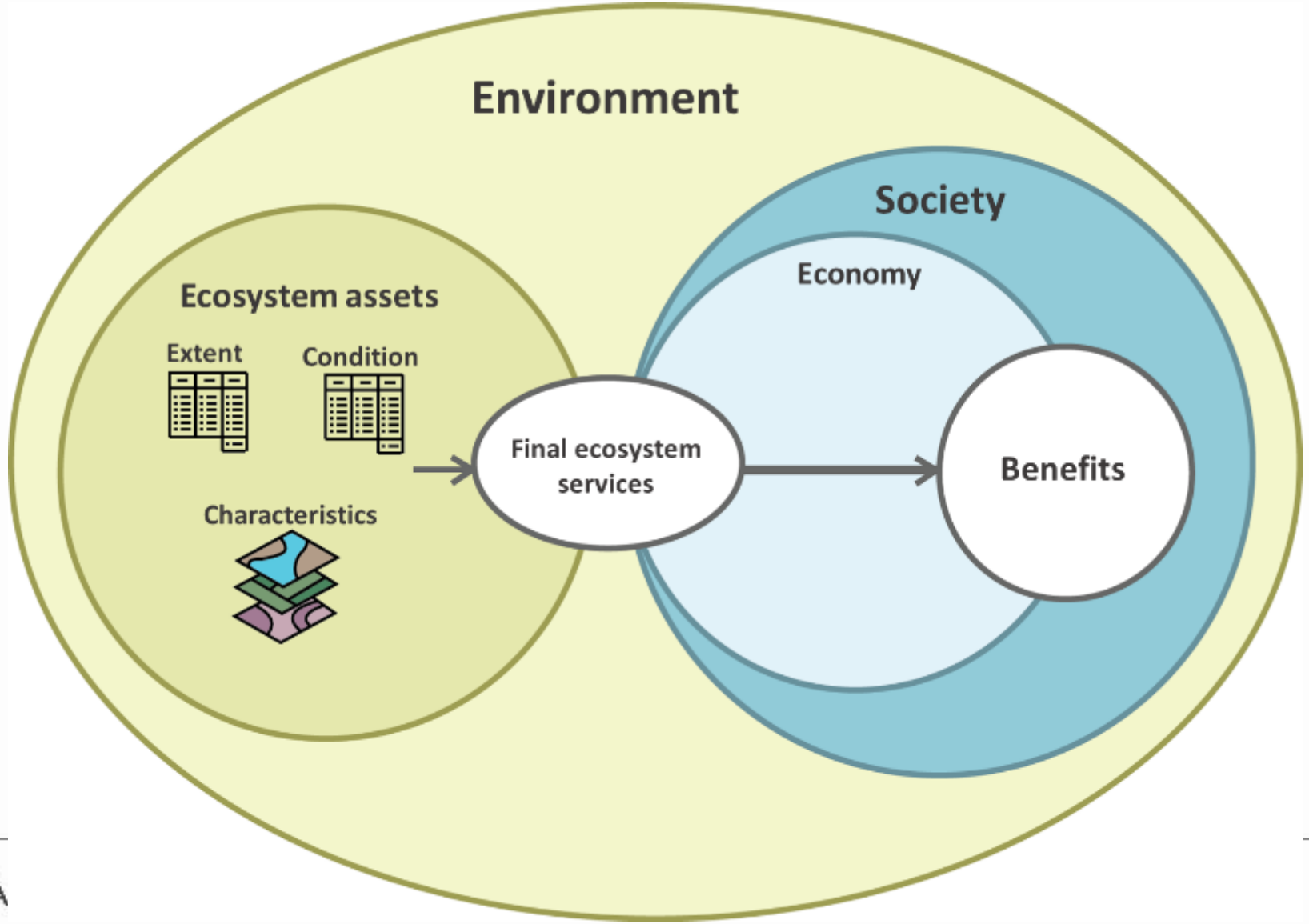
SEEA Ecosystem Accounting - conceptual framework



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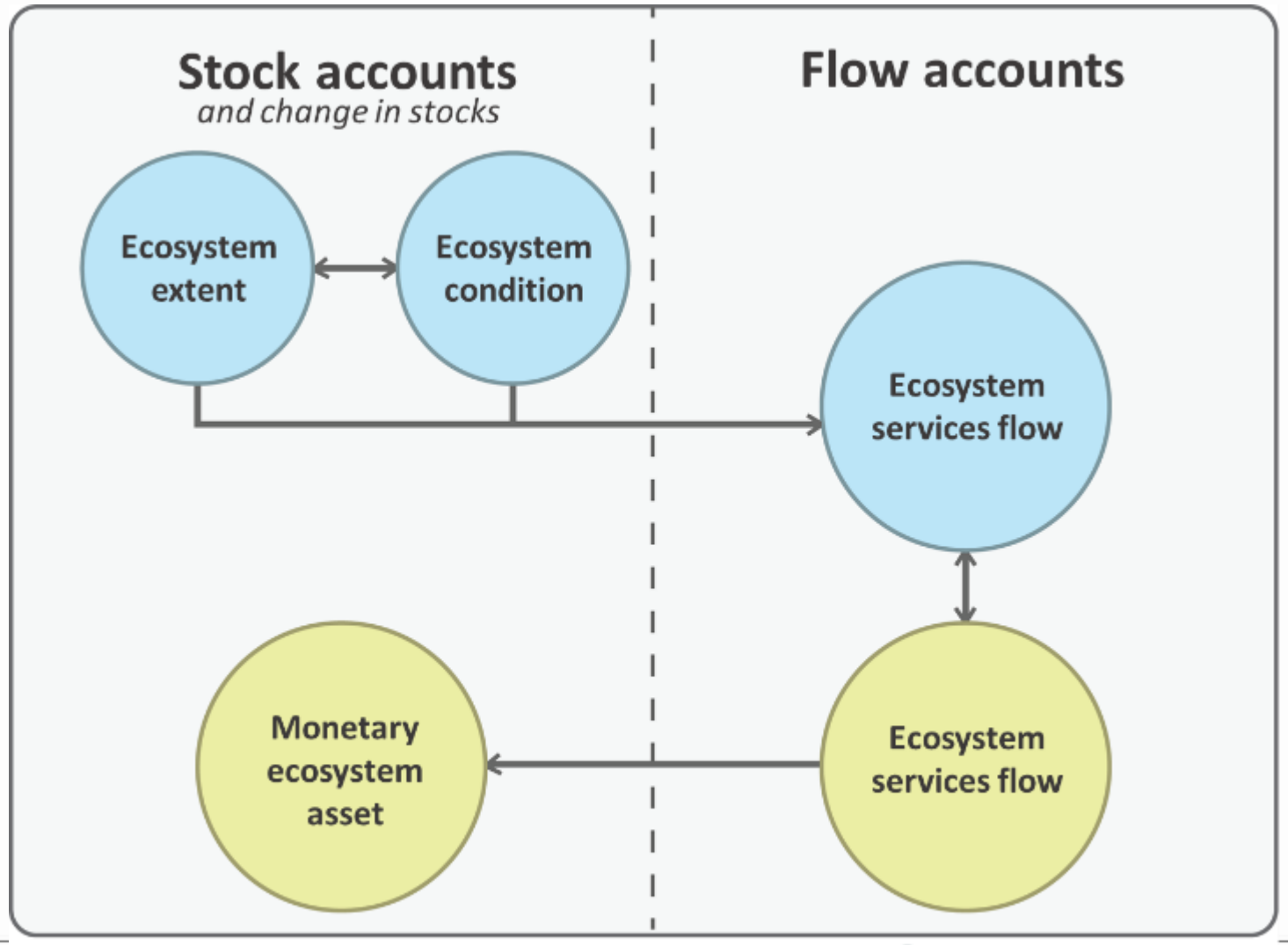
SEEA Ecosystem Accounting – core accounts



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SEEA EA Framework – Illustrative Example

1 Asset – **forest**

2 **Conditions**

Soil depth

3 **Services**

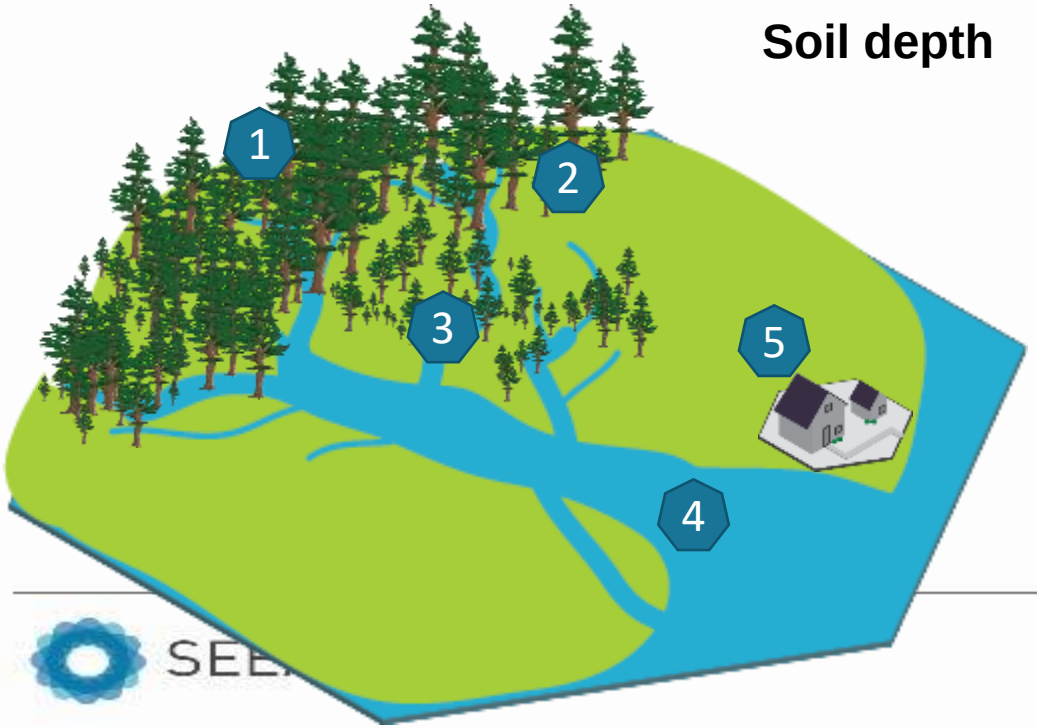
Water filtration

4 **Benefits**

Clean water

5 **Beneficiaries**

People



System of Environmental Economic Accounting

SEEA applications

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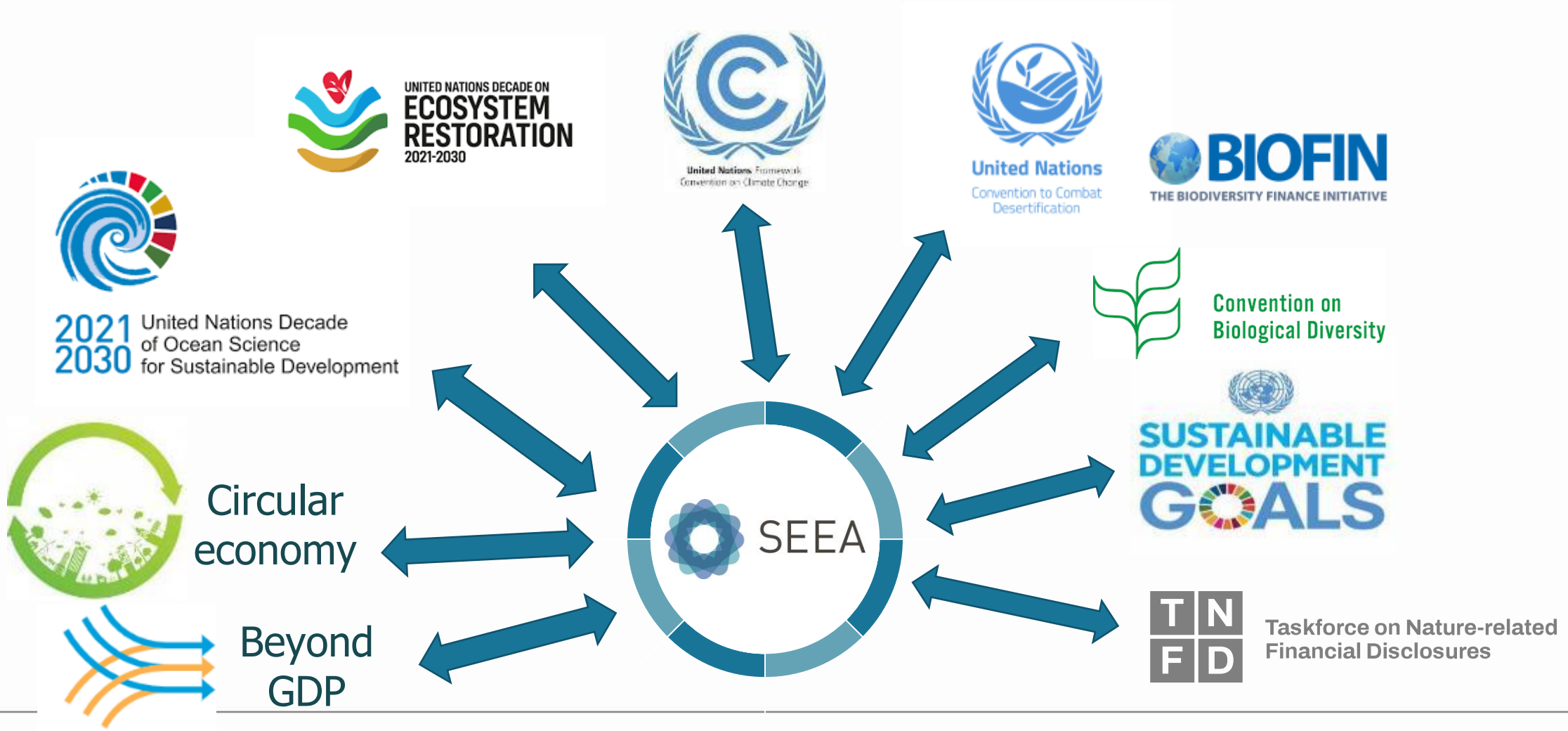
The SEEA supports multiple ongoing initiatives



SEEA and Climate Change

SEEA accounts can inform various aspects of climate change

- Important information on the **drivers** of climate change
  - > e.g. energy and air emission accounts can show the economic drivers of climate change, through comparisons to GDP and value added
- Assessing how **climate change impacts** economic activities and households
  - > E.g. climate change impacts on water supply and use and the impacts in terms of economic production
- **The third Data Gaps Initiative** (under the auspices of the G20 Finance Ministers and Central Bank Governors)
  - > 4 priorities endorsed related to climate change which make use of SEEA methodology;
  - > SEEA air emission accounts and energy accounts included (recommendations 1 and 2)

SEEA and Climate Change

TYPE OF INFORMATION	ACCOUNTS								
	SNA			SEEA-CF			SEEA-EEA	
	Asset Accounts	Flow Accounts	Functional Accounts	Asset Accounts	Physical Flow Accounts	Environmental Activity Accounts	Asset Accounts	Flow Accounts
Climate Change Drivers		SUT	Government Expenditure Account (COFOG)	Land use and Cover Accounts, Forest Accounts, Timber Accounts, Carbon Accounts	Material Flow Accounts, Energy Flow Accounts, Agriculture Accounts		Ecosystem Condition by LCEU, Carbon Stock Account	Physical Flow of Ecosystem Services
Emissions				Carbon Accounts	Air Emission Accounts	Environ. Taxes and Transfer		
Sinks				Land use and Cover Accounts, Forest Accounts, Timber Accounts, Carbon Accounts		Environ. Taxes and Transfer	Ecosystem Condition by LCEU, Carbon Stock Account	Physical Flow of Ecosystem Services
Impacts	Physical Assets	SUT	Government Expenditure Account (COFOG)	Land use and Cover Accounts, Forest Accounts, Timber Accounts, Aquatic Resource Accounts, Natural Biological Accounts, Water Resource Accounts	Water Accounts, Agriculture, Forestry, Fisheries Accounts		Ecosystem Condition by LCEU, Carbon Stock Account	Physical Flow of Ecosystem Services
Mitigation				Land use and Cover Accounts, Forest Accounts, Timber Accounts	PSUT, Material Flow Accounts, Energy Flow Accounts, Agriculture Accounts	EPEA, EGSS, Environ. Taxes and Transfer	Ecosystem Condition by LCEU, Carbon Stock Account	Physical Flow of Ecosystem Services
Adaptation				Land use Accounts, Forest Accounts, Timber Accounts, Soil Accounts	Material Flow Accounts, Energy Flow Accounts, Agriculture Accounts	EPEA, EGSS, Environ. Taxes and Transfer	Ecosystem Condition by LCEU, Carbon Stock Account	Physical Flow of Ecosystem Services
Recovery and Emergency	Physical Assets			Land use Accounts, Forest Accounts, Timber Accounts, Soil Accounts, Aquatic Resource Accounts, Natural Biological Accounts	Energy Flow Accounts, Agriculture Accounts	EPEA, EGSS, Environ. Taxes and Transfer	Ecosystem Condition by LCEU, Carbon Stock Account	
New Economy	Physical Assets	SUT	Government Expenditure Account (COFOG)	Land use and Cover Accounts, Forest Accounts, Timber Accounts, Soil Accounts	Material Flow Accounts, Energy Flow Accounts, Agriculture Accounts	EPEA, EGSS, Environ. Taxes and Transfer	Ecosystem Condition by LCEU, Carbon Stock Account	
Climate Expenditure			Government Expenditure Account (COFOG)			EPEA, Environ. Taxes and Transfer		
Policy Instruments						EPEA, Environ. Taxes and Transfer		

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https://seea.un.org/sites/seea.un.org/files/seea_-_climate_change_-_web_ready.pdf

System of Environmental Economic Accounting

SEEA implementation

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SEEA implementation

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The boundaries and names shown, and the designation used on this map do not imply official endorsement or acceptance by the United Nations. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Number of countries compiling SEEA accounts over time

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

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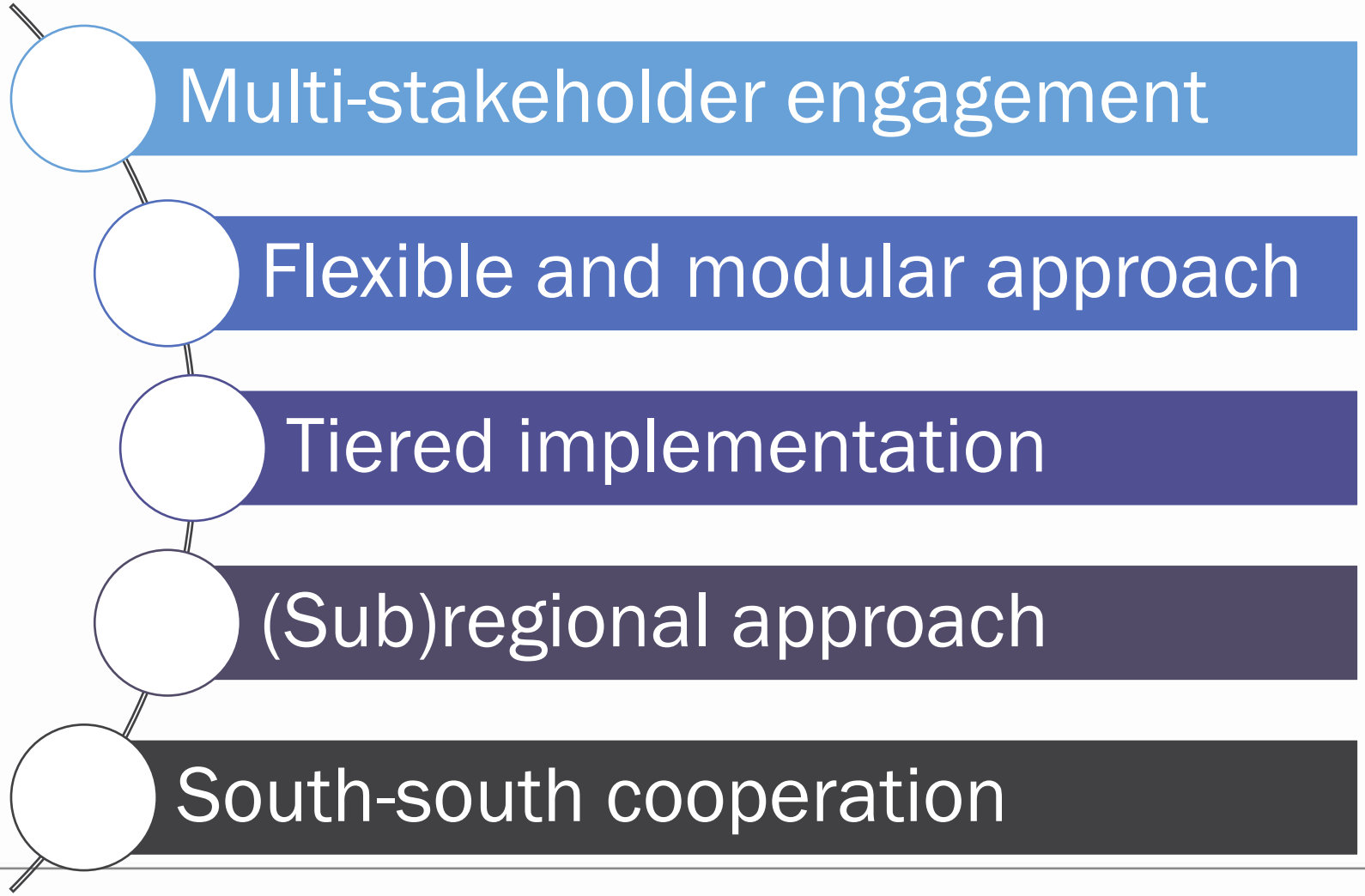
Approach and main principles



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

https://seea.un.org/content/towards-institutionalization-seea-implementation-guide

THANK YOU

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