Overview of the SEEA; SEEA tables and accounts

Alessandra Alfieri
United Nations Statistics Division

Regional Seminar on Developing an Implementation Strategy for the SEEA Central Framework and Supporting Statistics

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Policy settings

- Post-2015 UN development agenda/SDGs
- Green Growth/Green Economy
- Broader measures of progress/Beyond GDP
- Natural Capital Accounting/ WAVES
- Aichi targets (e.g. Target 2)
- Poverty and environment
- TEEB

Para.38 of the Rio+20 report

"We recognize the need for broader measures of progress to complement GDP in order to better inform policy decisions, and in this regard, we request the UN Statistical Commission in consultation with relevant UN System entities and other relevant organizations to launch a programme of work in this area building on existing initiatives."

Challenges ahead for our operations

- Fundamental rethink and transformational change in mainstreaming sustainable development
  - How we set the statistical agenda, how we keep the agenda under review and how we promote the statistical agenda and the authority of official statistics
  - How we engage within and between the national, regional and international statistical system with a bottom-up approach based on national priorities
  - How we integrate policy and statistics in our operations
  - How we integrate economic, social and environmental dimensions in our operations

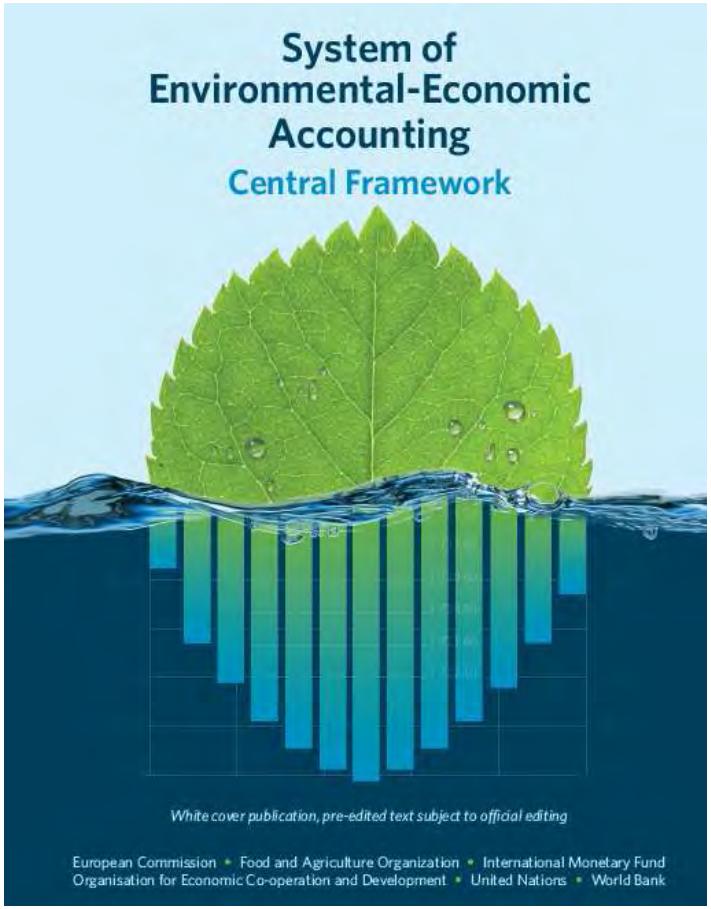
Implications for statistical community

- A need to bring statistical decisions into the political process of defining development goals, targets and indicators
- An early and adequate engagement of the statistical community is vital
- A leadership role for the national statistical offices in the national statistical system and engage with the national stakeholders
- A need to strengthen the capacity of national statistical systems to compile and report development indicators through balanced and resourced national statistical systems based on national priorities

Statisticians, politicians and policymakers, business sector, scientific/academic community and general public must join hands!

SEEA

- Internationally agreed statistical framework to measure environment and its interactions with economy
- Adopted as international statistical standard by UN Statistical Commission in 2012
- Developed through inter-governmental process
- Published by UN, EU, FAO, IMF, OECD, WB



SEEA: A Statistical Standard

- Countries are “encouraged to implement the standard”
- International organizations have obligations to assist countries in implementation
- Implementation strategy adopted by Statistical Commission in March 2013
- Data reporting mechanism will be established

The Suite of SEEAs

1993 Handbook – interim publication
2003 Updated SEEA handbook – manual of best practices
2006 UNSC decided to elevate SEEA to an international standard

2012 SEEA – The Central Framework (international standard)
2013 SEEA – Experimental Ecosystem Accounting
2013 SEEA – Applications and Extensions

Subsystems:

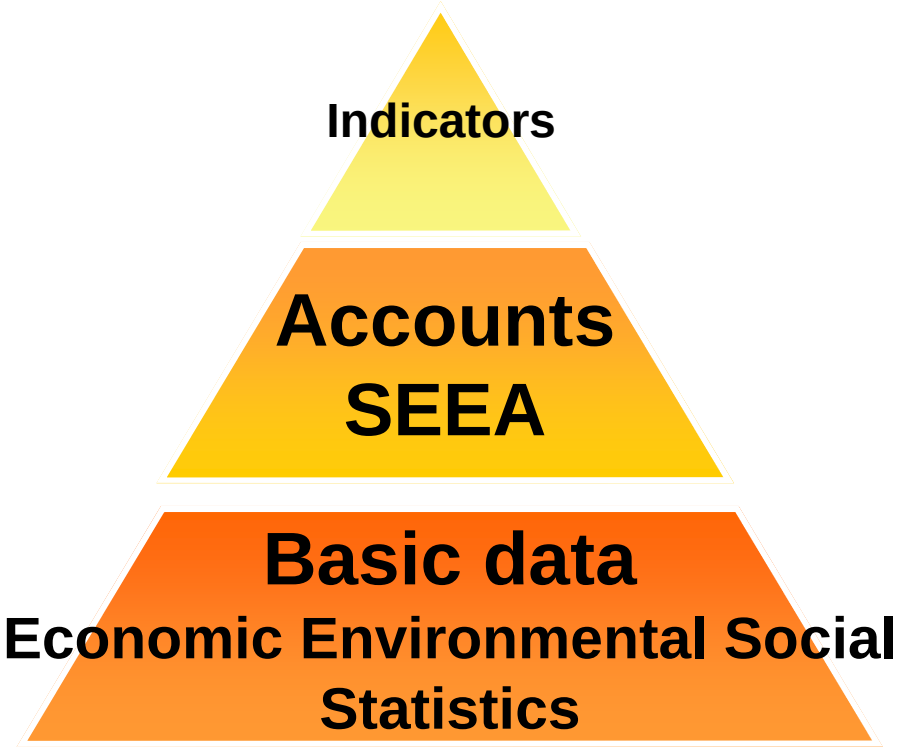
- SEEA – Water (adopted in 2007)
- SEEA – Energy
- SEEA – Agriculture

Information is vital
…and it needs to be integrated

- The economy impacts on the environment and the environment impacts on the economy
- To understand these linkages we need to integrate environmental and economic information
- This is the explicit purpose of the SEEA

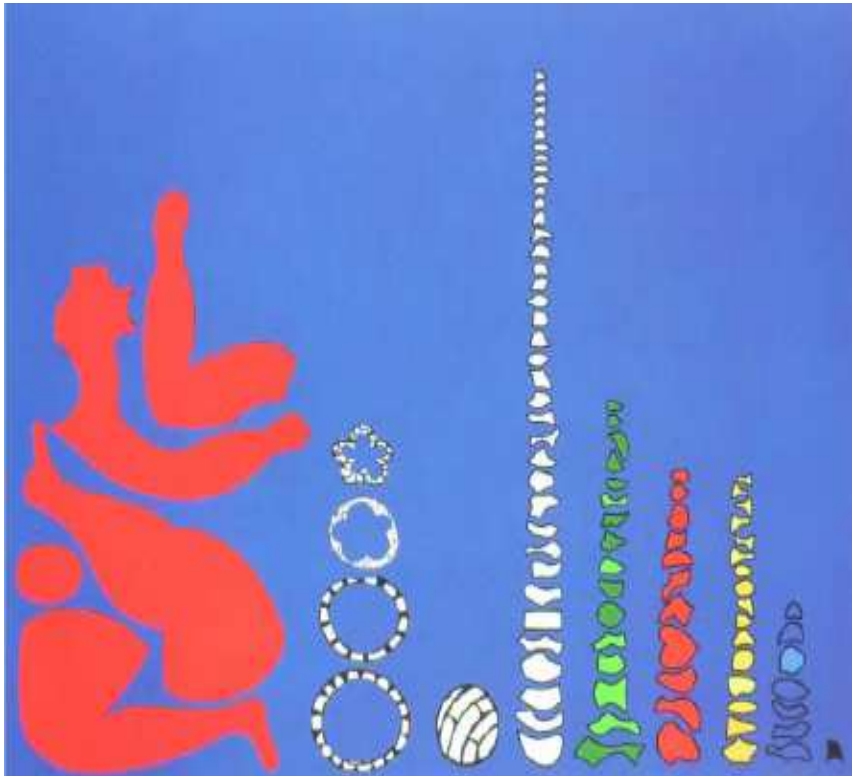
Integrated statistics

- Linking policy needs and statistics
- Understanding the institutional arrangements
- Integrated statistical production process/chain and services
- Consistency between basic data, accounts and tables and indicators



Problem: Information silos

- Data developed to answer one particular question or problem
- Difficult to figure out if all information is included
- Not always easy to see the whole picture, or how it relates to other things



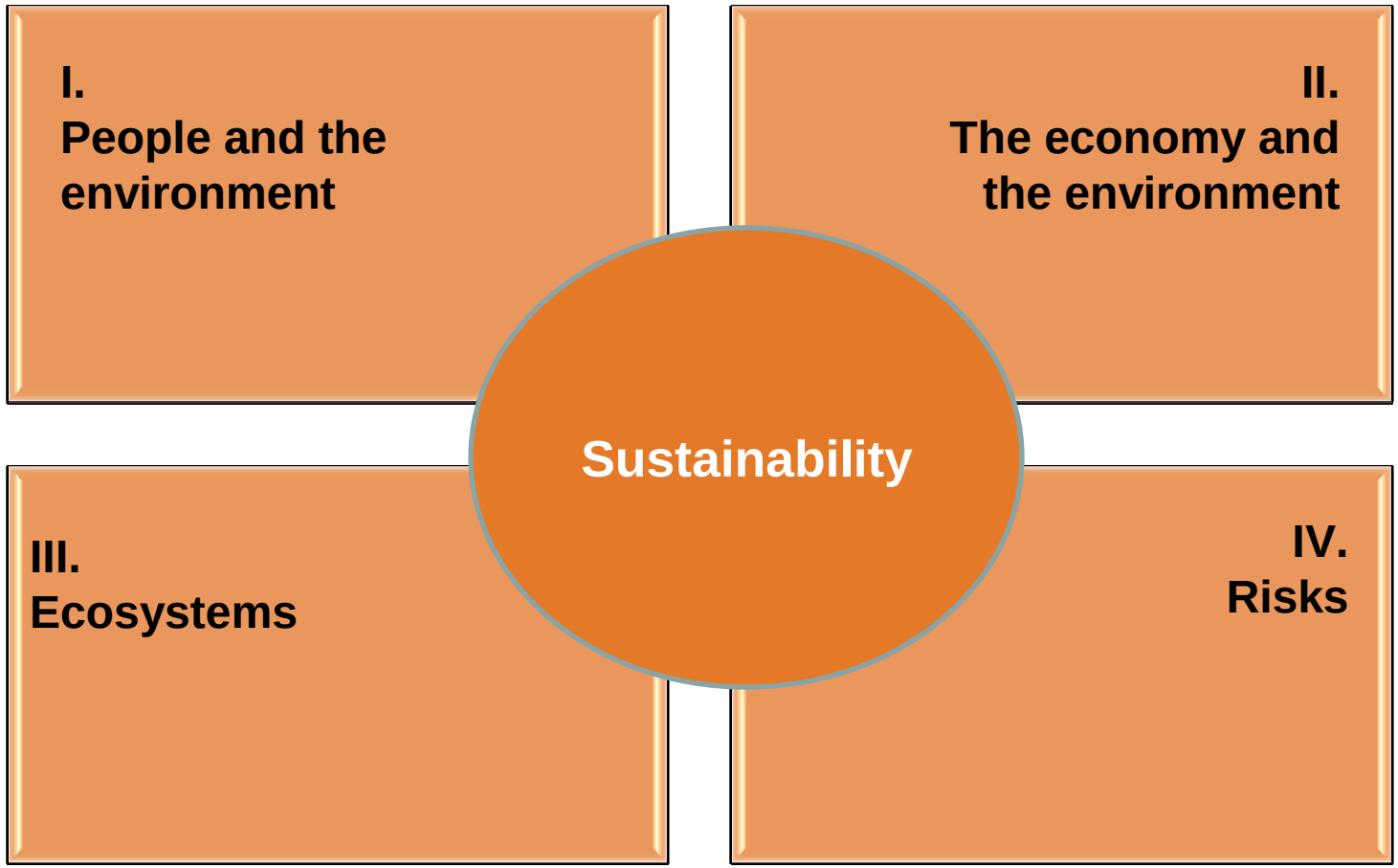
Solution: Integrated information

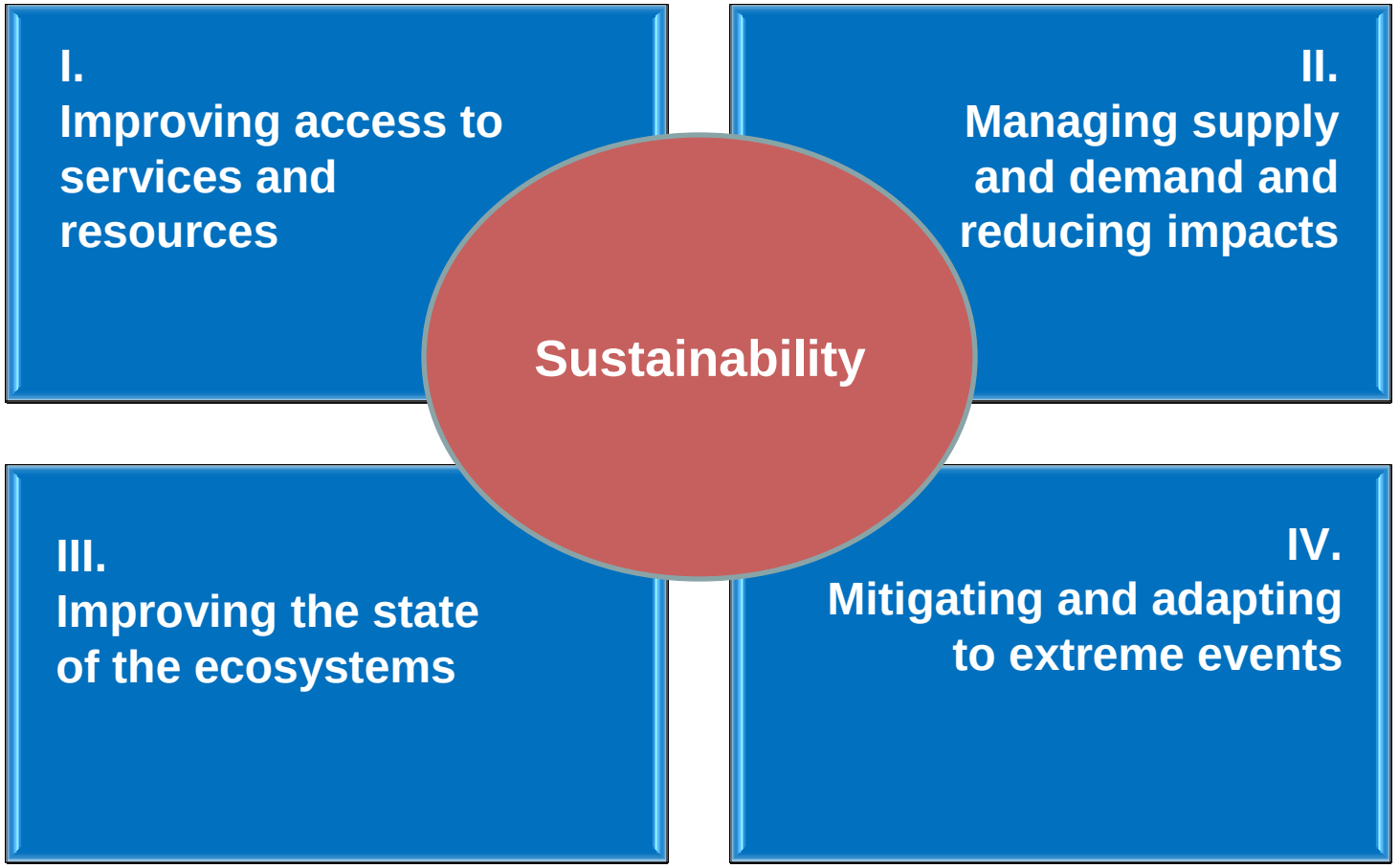
- Holistic picture
- Consistency of information and identification of data gaps
- Interconnections between economy, environment and society

Linking environmental and socio-economic data is essential for policymakers

- Enables analysis of the impact of economic policies on the environment and vice versa
- Provides a quantitative basis for policy design
- Identifies the socio-economic drivers, pressures, impacts and responses affecting the environment
- Supports greater precision for environmental regulations and resource management strategies
- Provides indicators that express the relationships between the environment and the economy
- Support relevant perspectives on the dimensions of economic development, environmental sustainability and social equity

The SEEA Policy Quadrants




I.
Improving access to services and resources
II.
Managing supply and demand and reducing impacts
Sustainability
III.
Improving the state of the ecosystems
IV.
Mitigating and adapting to extreme events

Quadrant I: Improving access

I. Improving access to services and resources

Key information in this quadrant (household sector related):

- Costs associated with the provision of services to households
- Investments in network infrastructure
- Employment and compensation in household production units
- Household consumption and disposable income
- Poverty and inequality

Quadrant II: The economy and the environment

II. Managing supply and demand

Key information in this quadrant:

- Efficiency of production
  - Decoupling
  - Multifactor productivity
- Efficiency of consumption
  - Embedded emissions
  - Footprint indicators
- Costs of production and payments by users (e.g. fees, taxes, rents, permits, etc.)
- Employment and compensation
- Financing (who pays for investments and current costs)
- Depletion estimates
- Solid waste and emissions
- Environmental protection and resource management expenditures

Quadrant III: Ecosystems

III. Improving the state of the ecosystems

Key information in this quadrant:

- Ecosystem extent
- Ecosystem conditions
  - Water cycle
  - Carbon cycle
  - Nutrient cycle
  - Primary productivity
- Biodiversity
- Regulatory services provided by ecosystems

Quadrant IV: Extreme Events

IV. Mitigating and adapting to extreme events

Key information in this quadrant:

- Natural disasters
- Investments for mitigation
- Investments for adaptation

The SEEA Central Framework Accounts

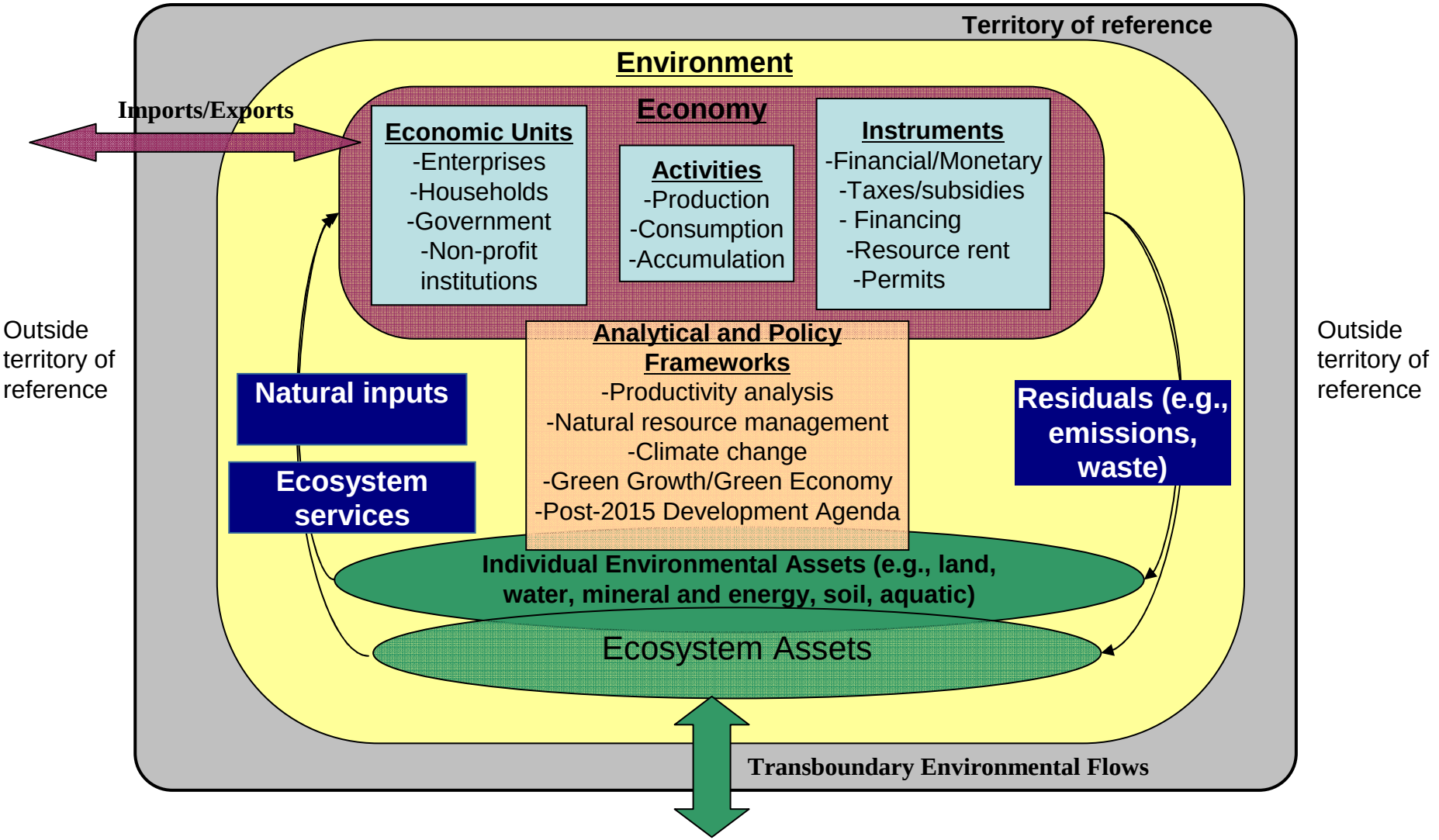
1. **Flow accounts**: supply and use tables for products, natural inputs and residuals (e.g. waste, wastewater) generated by economic activities.
   - physical (e.g. m^2 of water) and/or monetary values (e.g. permits to access water, cost of wastewater treatment, etc.)

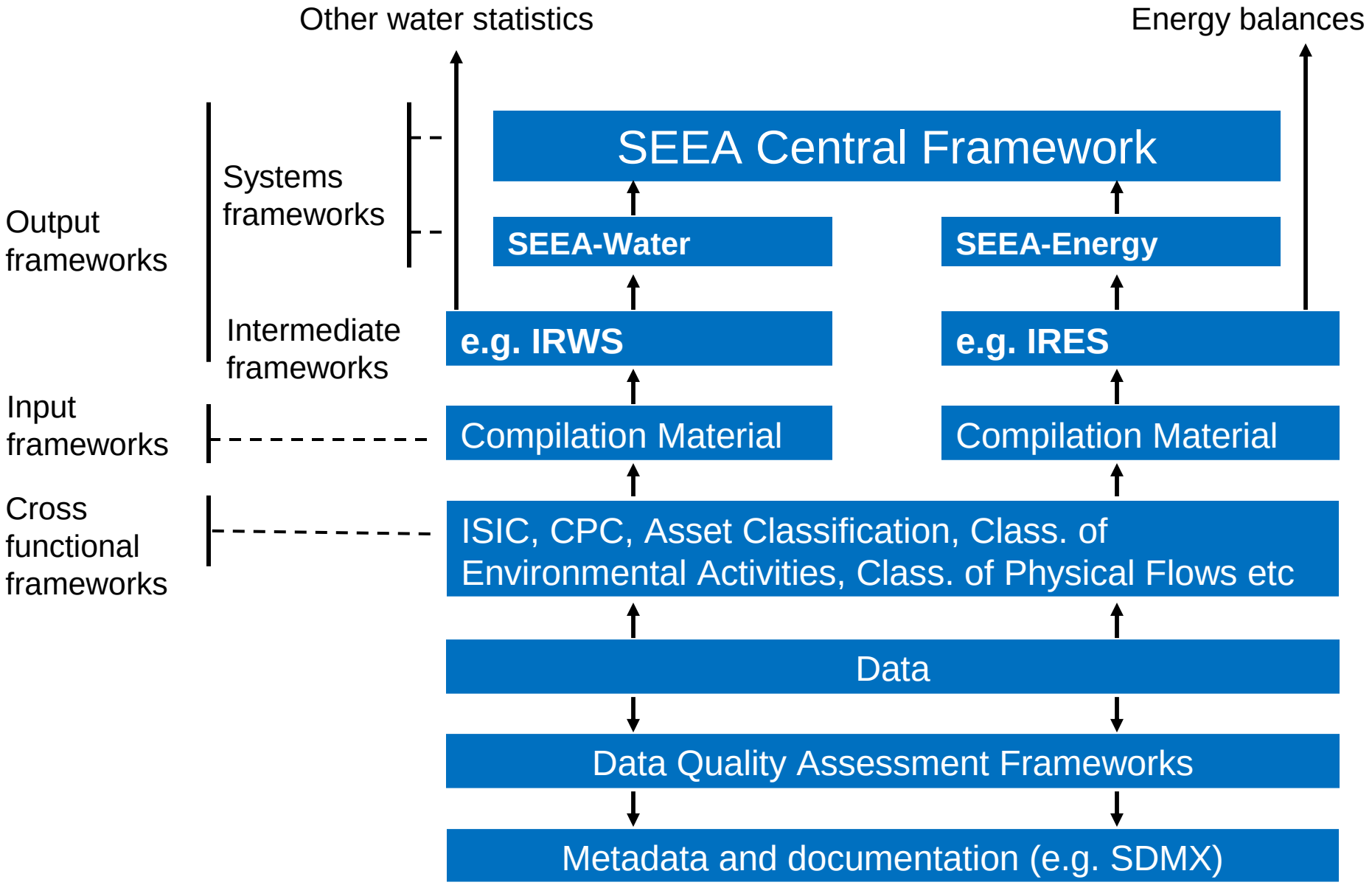
2. **Stock accounts** for environmental assets: natural resources and land
   - physical (e.g. fish stocks and changes in stocks) and/or monetary values (e.g. value of natural capital, depletion)

3. **Activity / purpose accounts** that explicitly identify environmental transactions already existing in the SNA.
   - e.g. Environmental Protection Expenditure (EPE) accounts, environmental taxes and subsidies

4. **Combined physical and monetary accounts** that bring together physical and monetary information for derivation indicators, including depletion adjusted aggregates

SEEA Conceptual Framework




Other water statistics
Energy balances
Output frameworks
Systems frameworks
Intermediate frameworks
Input frameworks
Cross functional frameworks
SEEA Central Framework
SEEA-Water
SEEA-Energy
e.g. IRWS
e.g. IRES
Compilation Material
Compilation Material
ISIC, CPC, Asset Classification, Class. of Environmental Activities, Class. of Physical Flows etc
Data
Data Quality Assessment Frameworks
Metadata and documentation (e.g. SDMX)

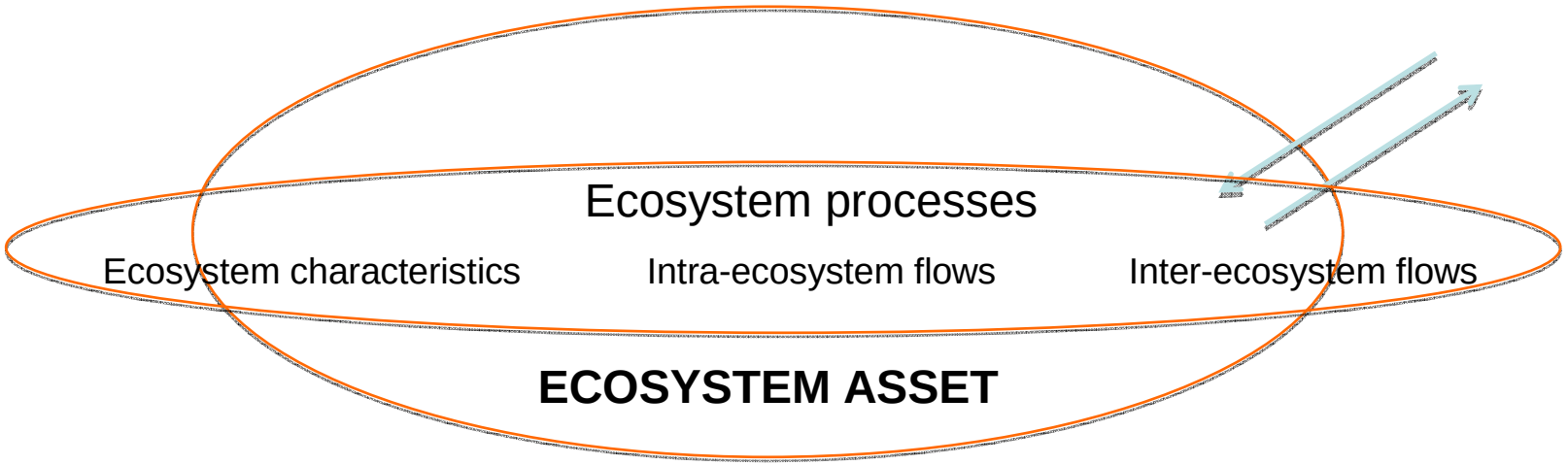
SEEA Experimental Ecosystem Accounting

- Complements SEEA Central Framework
- Integrated statistical framework for accounting for ecosystem assets and associated services
- Important first step in development of statistical framework for ecosystem accounting

SEEA Experimental Ecosystem Accounting

- Focus on monitoring environmental impact rather than environmental pressures
- Determine appropriate areas – ecosystem assets
- Find indicators of condition (e.g. carbon balances, water flows, biodiversity) and assess change over time
- Find indicators of ecosystem services
  - Provisioning, regulating, cultural
- Examine relationship between flows of ecosystem services and changing condition (essentially analysis in volume terms)

CORE SEEA ECOSYSTEM ACCOUNTING MODEL



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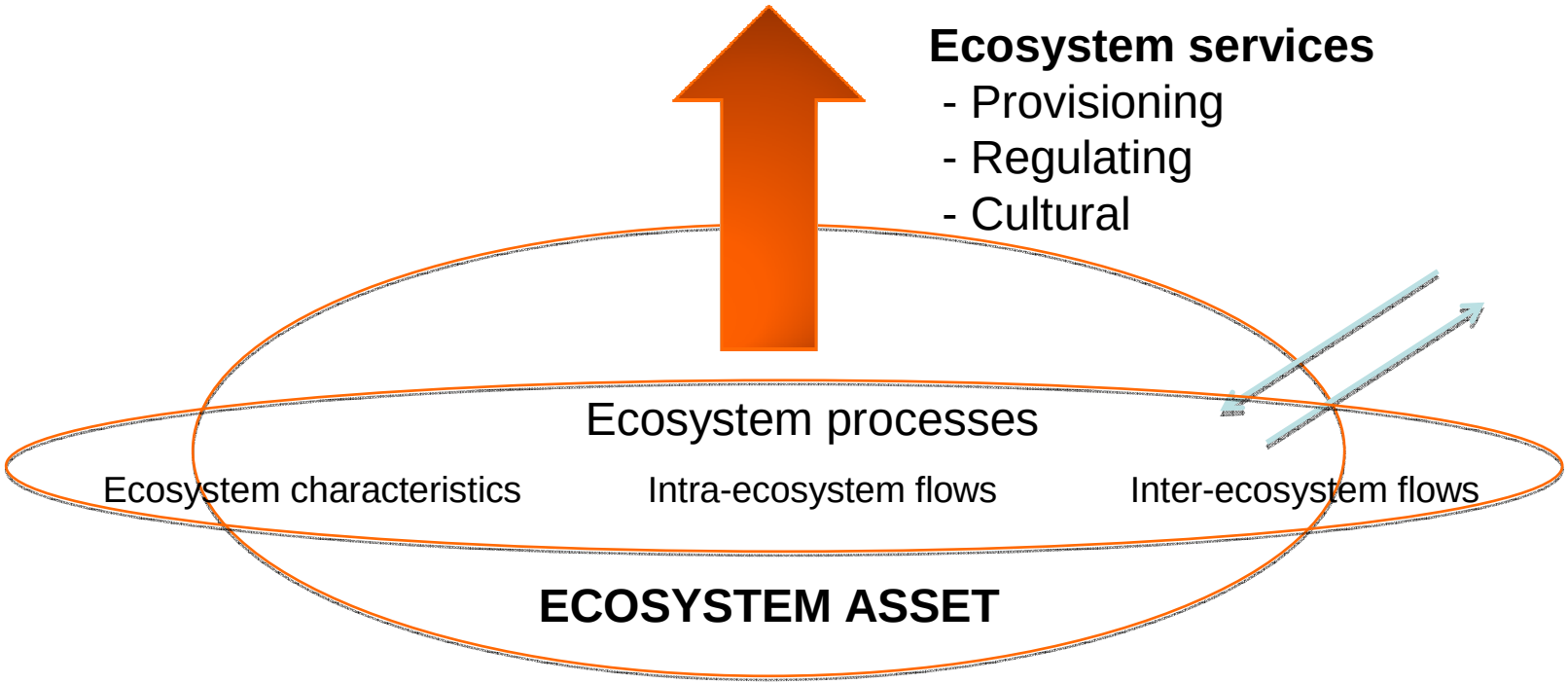

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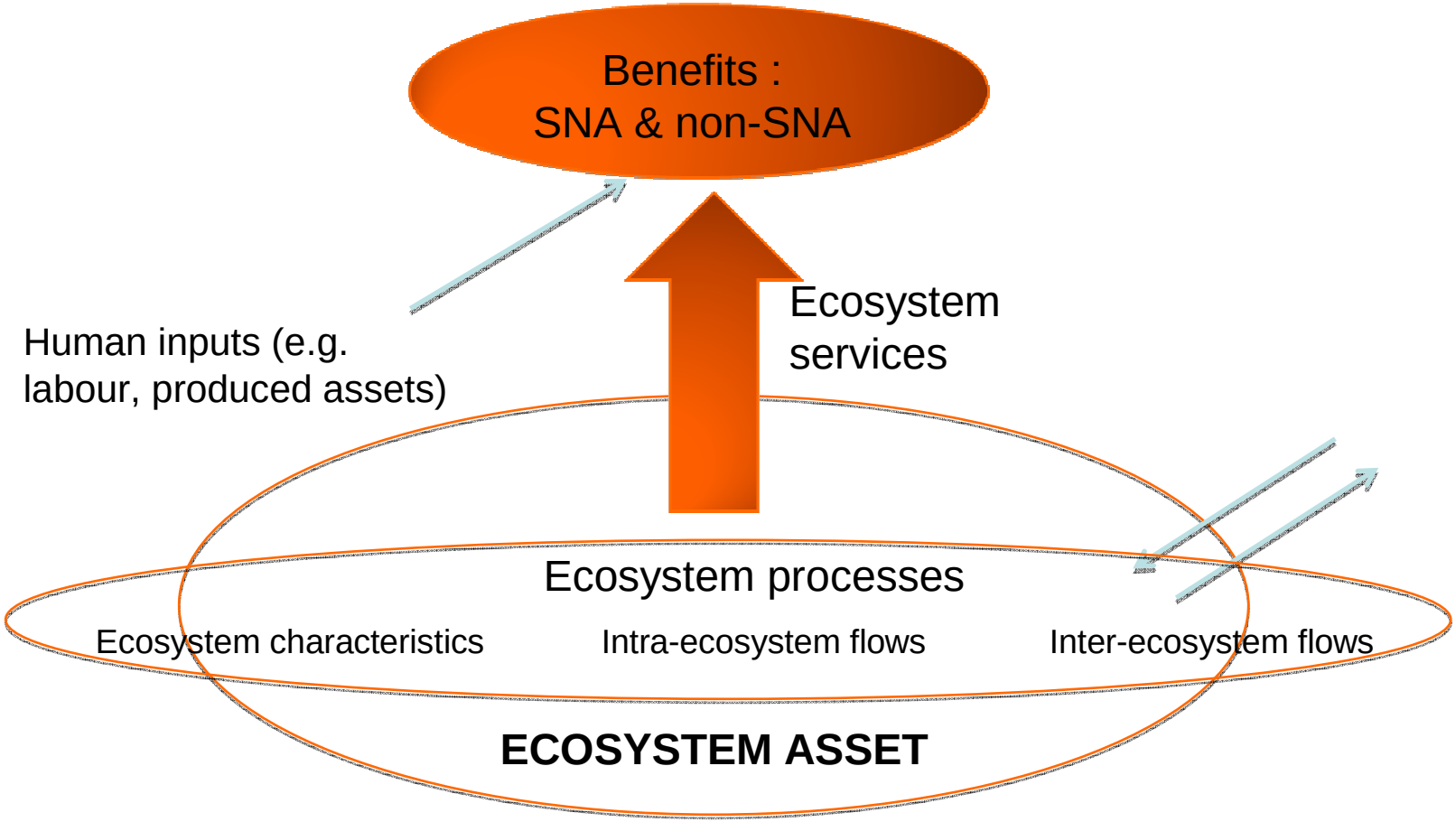
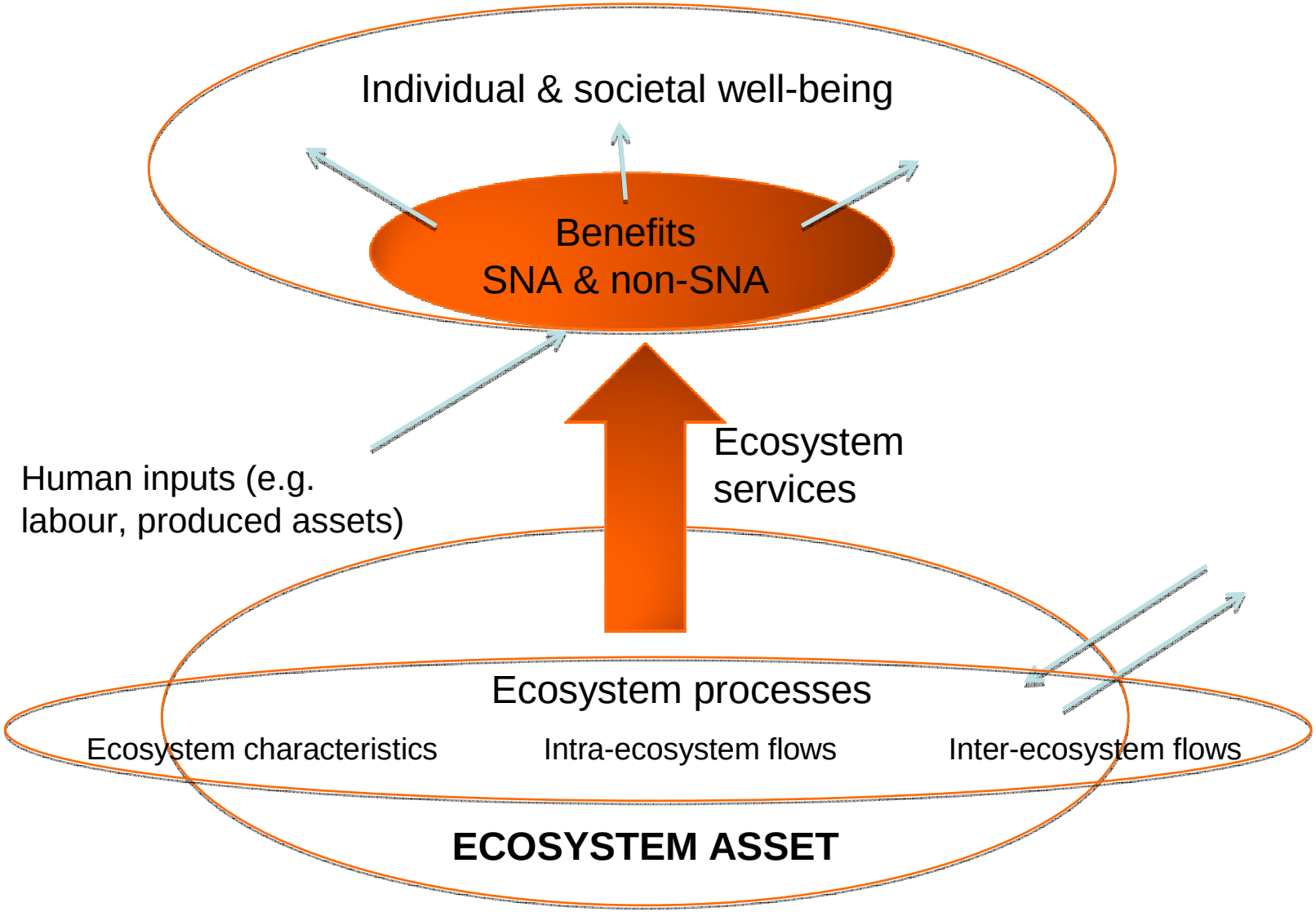



Individual & societal well-being
Benefits
SNA & non-SNA
Ecosystem
services
Human inputs (e.g.
labour, produced assets)
Ecosystem processes
Ecosystem characteristics
Intra-ecosystem flows
Inter-ecosystem flows
ECOSYSTEM ASSET

Ecosystem services

Ecosystem services are services that benefit humanity, and can be of direct or indirect use. Broad examples include:

- Provisioning services (nutrition, medicine, fur, uncultivated food)
- Regulating services (climate regulation, flood control, water filtration, air filtration, de-pollution)
- Cultural services (science, spiritual, ceremonial, recreation, aesthetic)

SEEA Experimental Ecosystem Accounting

- UN Statistical Commission
  - Encouraged countries to test framework
  - Requested creation of mechanism to advance research agenda
  - 4 research streams:
    - Ecosystem conditions and services
    - Geospatial
    - Valuation
    - Policy applications

Reference Material

Briefing notes:

Briefing note on SEEA Central Framework:
http://unstats.un.org/unsd/envaccounting/Brochure.pdf

Briefing note on SEEA Experimental Ecosystem Accounting:
http://unstats.un.org/unsd/envaccounting/workshops/int_seminar/note.pdf

Briefing note on SEEA Water and International Recommendations for Water Statistics (IRWS)
http://unstats.un.org/unsd/envaccounting/WWAP_UNSD_WaterMF.pdf

Methodological publications:

SEEA Central Framework:
http://unstats.un.org/unsd/envaccounting/White_cover.pdf

SEEA Experimental Ecosystem Accounting:
http://unstats.un.org/unsd/statcom/doc13/BG-SEEA-Ecosystem.pdf

SEEA Applications and Extensions:
http://unstats.un.org/unsd/statcom/doc13/BG-SEEA-AE.pdf

Library – searchable library of publications (e.g. country case studies, methodological publications, etc.)
http://unstats.un.org/unsd/envaccounting/ceea/archive/

Research agenda accompanying SEEA-Experimental Ecosystem Accounting
http://unstats.un.org/unsd/statcom/doc13/BG-SEEA-ResearchAgenda.pdf

Contact E-mail: seea@un.org

SEEA tables and accounts

SEEA Tables and Accounts

- Stocks and flows
- Coherent and internally consistent
- Integrated and comprehensive
- Time series
- Apply to both physical and monetary data
- Links to SNA
  - Accounting principles
  - Consistent classification, definitions, measurement boundaries
  - Consistent aggregates, indicators
  - Mainstreaming

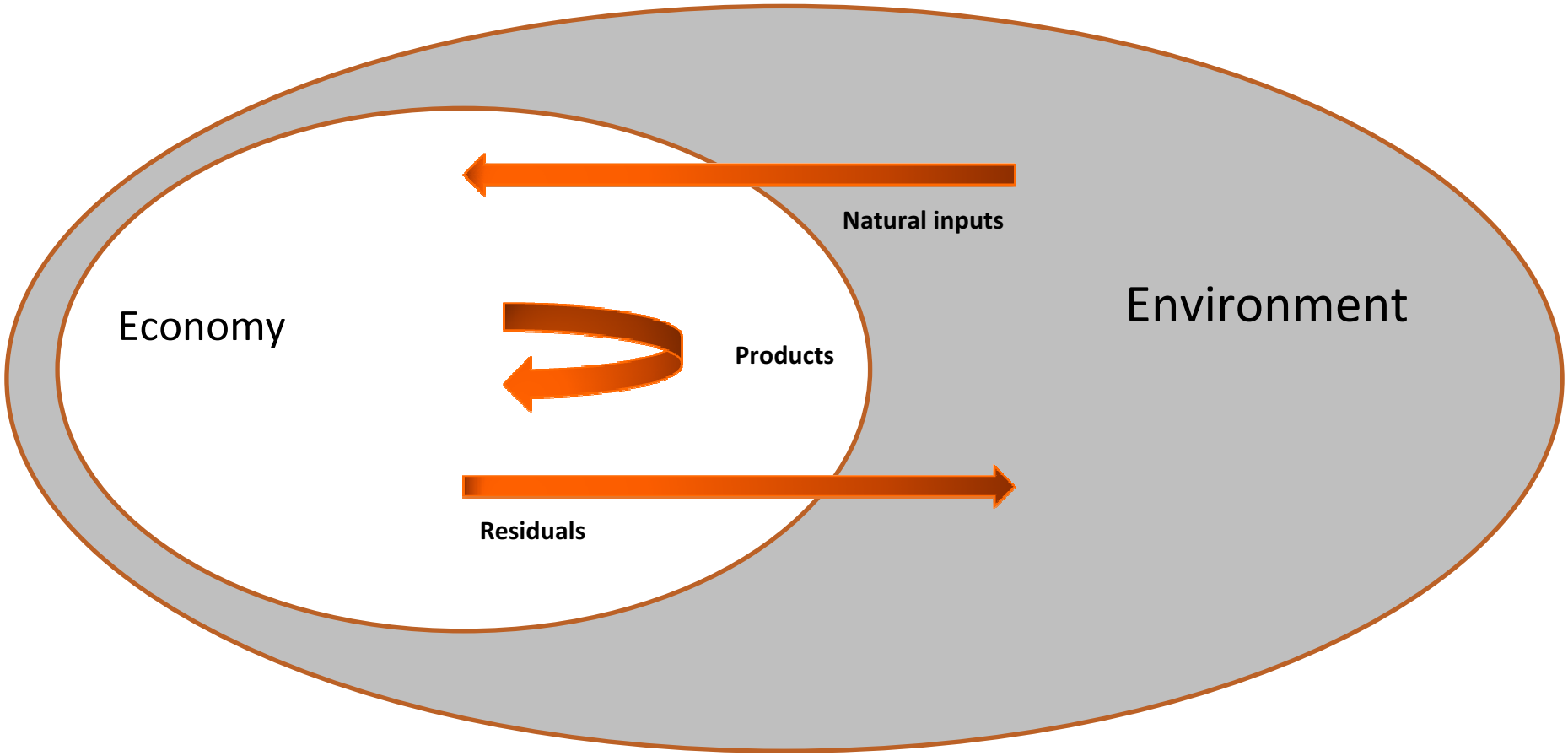
Types of accounts

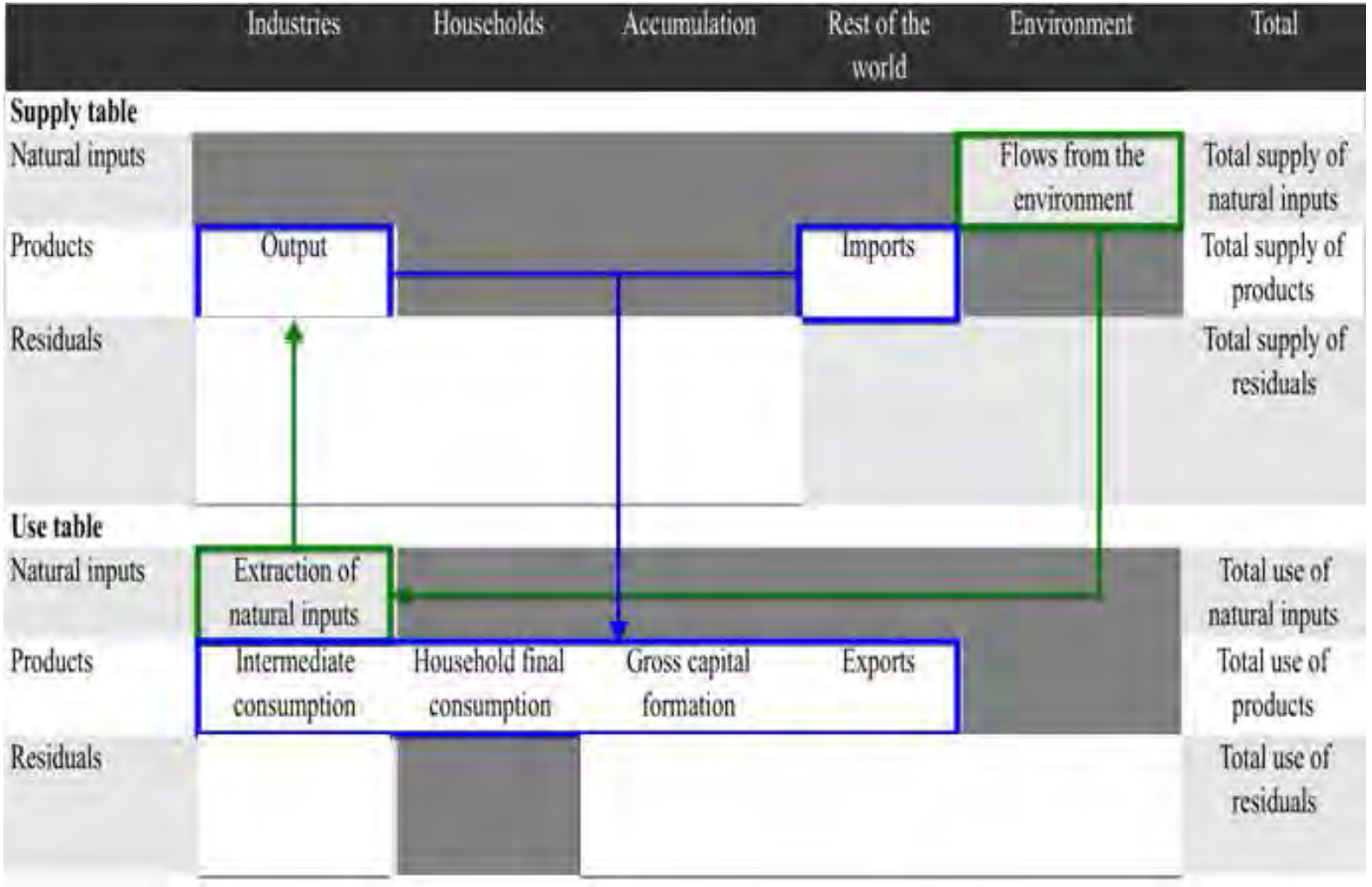
- Physical flow accounting
  - Energy, water, emissions, waste
- Accounting for environmental activities
- Natural resource accounting
  - Stocks, natural growth, extracti on
- Land accounting
  - Changes in land use and land c
- Ecosystem

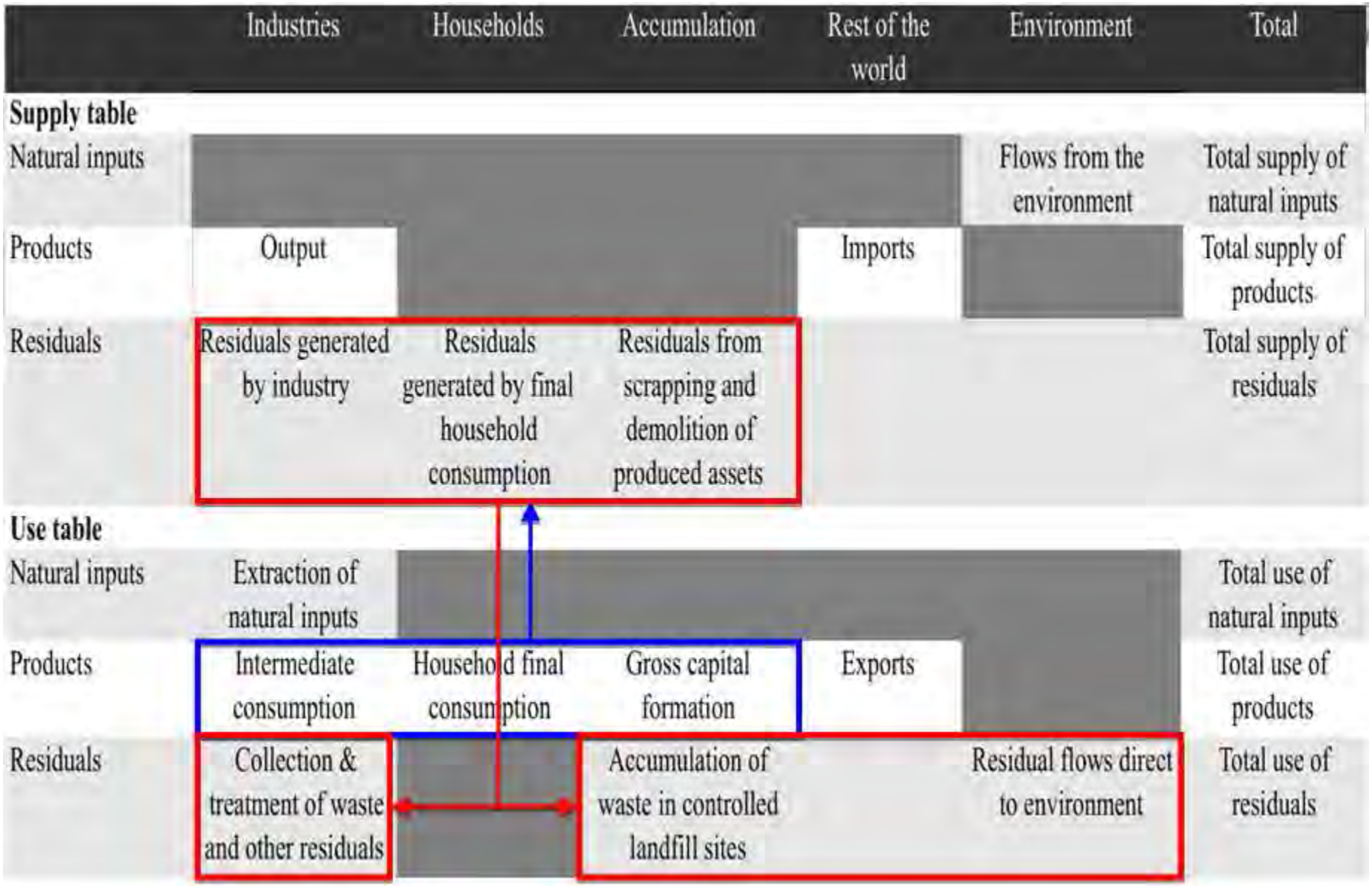




THE ENVIRONMENT-ECONOMIC LINK




Industries
Households
Accumulation
Rest of the world
Environment
Total
Supply table
Natural inputs
Flows from the environment
Total supply of natural inputs
Products
Output
Imports
Total supply of products
Residuals
Total supply of residuals
Use table
Natural inputs
Extraction of natural inputs
Total use of natural inputs
Products
Intermediate consumption
Household final consumption
Gross capital formation
Exports
Total use of products
Residuals
Total use of residuals


Industries
Households
Accumulation
Rest of the world
Environment
Total
Supply table
Natural inputs
Flows from the environment
Total supply of natural inputs
Products
Output
Imports
Total supply of products
Residuals
Residuals generated by industry
Residuals generated by final household consumption
Residuals from scrapping and demolition of produced assets
Total supply of residuals
Use table
Natural inputs
Extraction of natural inputs
Total use of natural inputs
Products
Intermediate consumption
Household final consumption
Gross capital formation
Exports
Total use of products
Residuals
Collection & treatment of waste and other residuals
Accumulation of waste in controlled landfill sites
Residual flows direct to environment
Total use of residuals

Types of physical accounts

- Energy
- Water
- Air emissions (including GHG emissions)
- Solid waste
- Emissions to water
- Nutrients

Opening stock of environmental assets			
Additions to stock			
	Growth in stock		
	Discoveries of new stock		
	Upward reappraisals		
	Reclassifications		
	Total additions of stock		
Reductions of stock			
	Extractions		
	Normal loss of stock		
	Catastrophic losses		
	Downward reappraisals		
	Reclassifications		
	Total reductions in stock		
Revaluation of the stock*			
Closing stock of environmental assets			

Types of environmental asset accounts

- Mineral and energy resources
- Timber – natural and cultivated
- Aquatic – natural/wild fish and aquaculture
- Other biological resources
- Water resources
- Land – land cover and land use, forest accounts
- Soil resources

Accounts for environmental activities and transactions

- Environmental activities
  - Environmental protection
  - Resource management
- Environmental Protection Expenditure Account
- Environmental Goods and Services Sector (EGSS) statistics
- Environmental taxes and subsidies

Combined presentation

- Comparison between monetary and physical information possible through use of
  - Common and aligned structures
  - Aligned measurement boundaries
  - Consistent classifications (especially industry)
- Many possibilities
  - Thematic approach for energy, water, emissions, forests
  - “Production function” approach for individual activities – e.g. agriculture
- Organisation of data in combined

"SECTOR" AND ACTIVITY VIEWS

	Agriculture / Fishing / Tourism
Output ($)	
Value added ($)	
Employment (number)	
Assets ($ / number)	
Land use (hectares)	
Water use (m3)	
Energy use (joules)	
Carbon emissions (tonnes)	
Solid waste (tonnes)	