INSTITUTE FOR THE DEVELOPMENT OF ENVIRONMENTAL-ECONOMIC ACCOUNTING

SEEA Central Framework - Introduction

System of Environmental-Economic Accounts (SEEA)

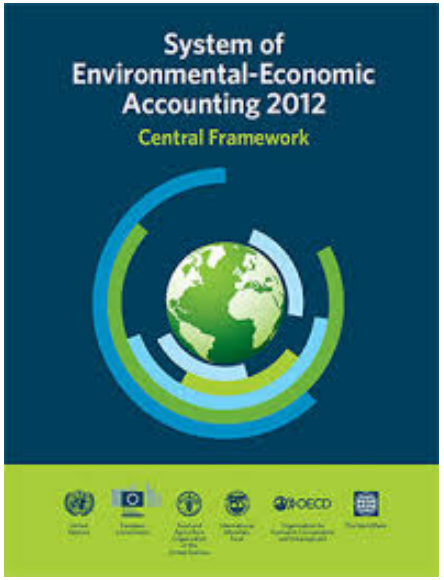
Mark Eigenraam: Director, IDEEA

Gaborone Declaration for Sustainability in Africa, Regional Perspectives on Natural Capital Accounting

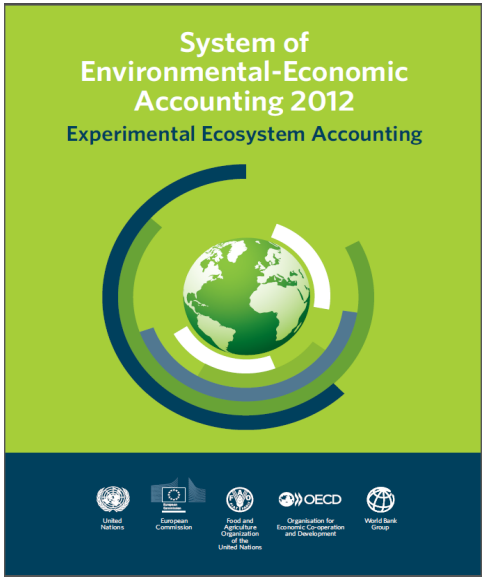
June 21 – 23 2016, Intercontinental Hotel, Nairobi, Kenya

The SEEA Family

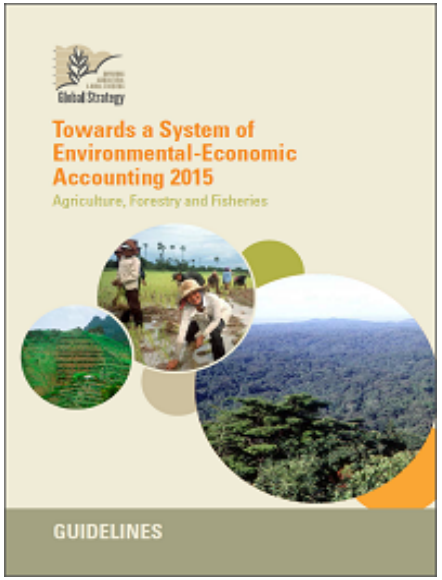
SEEA Central Framework*



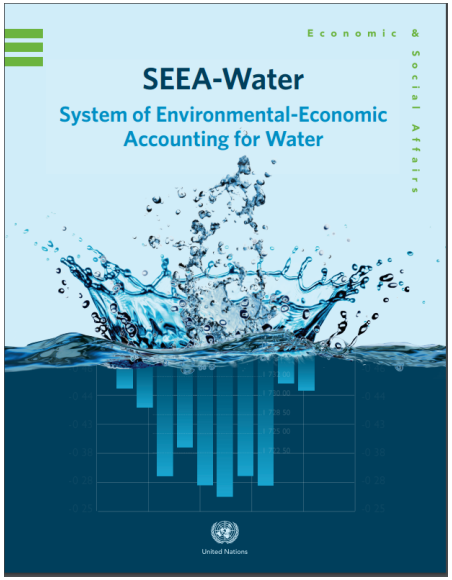
SEEA Ecosystem Accounting



SEEA Agriculture, Forestry & Fisheries



SEEA Water



Coverage of the SEEA

Physical flow accounting (Physical Supply & Use Tables)*

- Energy, water, emissions, waste

Accounting for environmental activities*

Natural resource accounting*

- Stocks, natural growth, extraction and depletion

Land accounting*

- Changes in land use and land cover

Ecosystem accounting





Applications of SEEA based accounting

- Integrated international reporting
  - Sustainable development goals (SDGs), Gaborone Declaration
  - UNFCCC / CBD (Aichi targets) / UNCCD / CI / etc.
- Economic analysis and valuation
  - TEEB Agriculture and Food
  - Extended Input-Output and CGE modelling
  - Environmentally adjusted measures of Multi-factor Productivity
- Local and regional development
  - Spatial planning and analysis of trade-offs
  - Integrated management of weeds, pests, invasive species
  - Scenario modelling e.g. climate change adaptation, biodiversity loss

Environmentally Related Economic Transactions

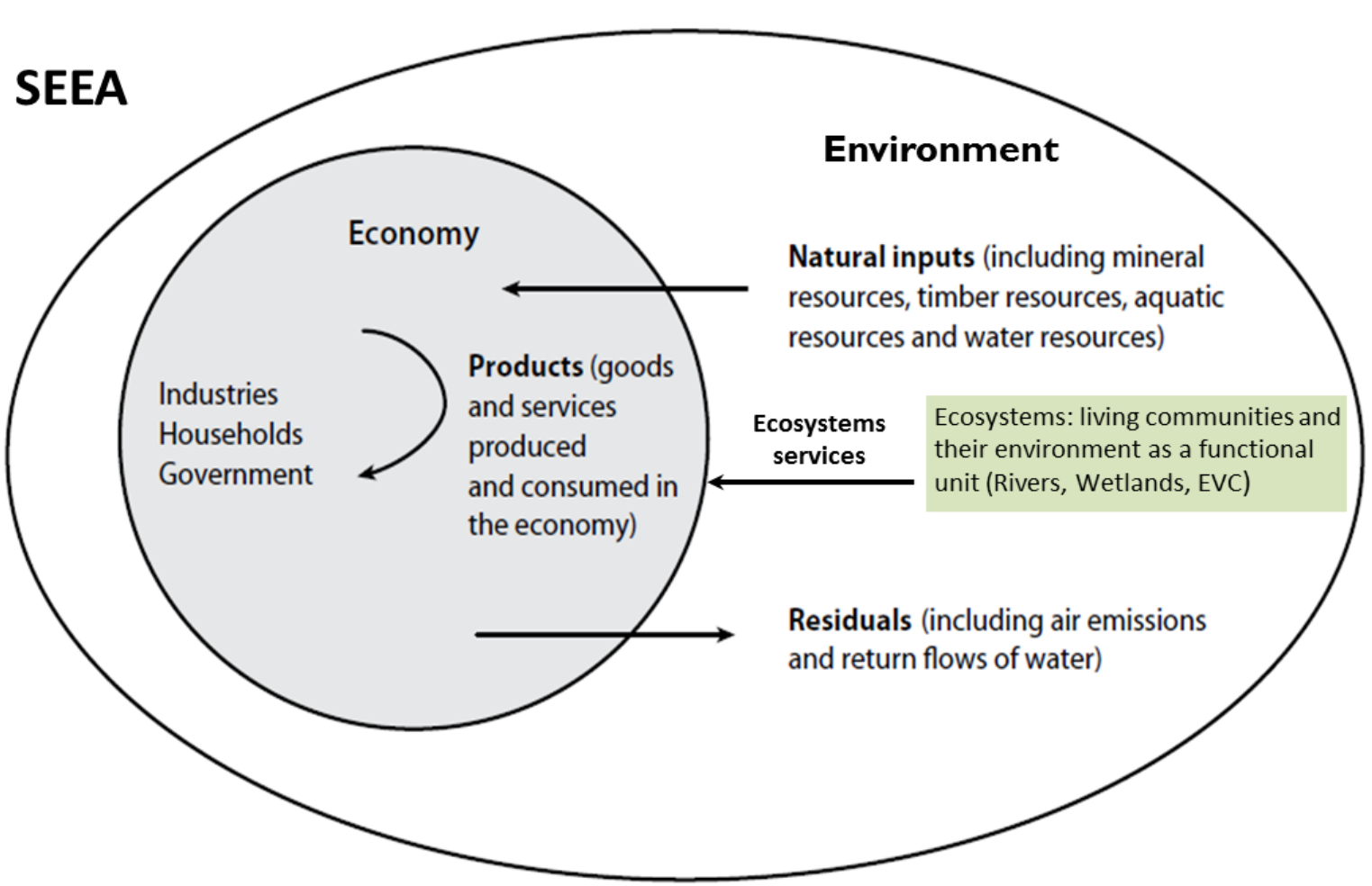
SEEA Central Framework describes those flows within the standard economic accounts that may be considered environmentally related.

Aspects covered include:

- Environmental protection and resource management activity and expenditure
  - Connected and specific products
  - Adapted goods
  - Financing of environmental activity
- Environmental goods and services sector (EGSS)
- Classification of environmental activities
- Environmental taxes and subsidies
- Permits for use of the environment (e.g. emission permits)

Linking the economy to the environment

System of Environmental-Economic Accounting (SEEA)



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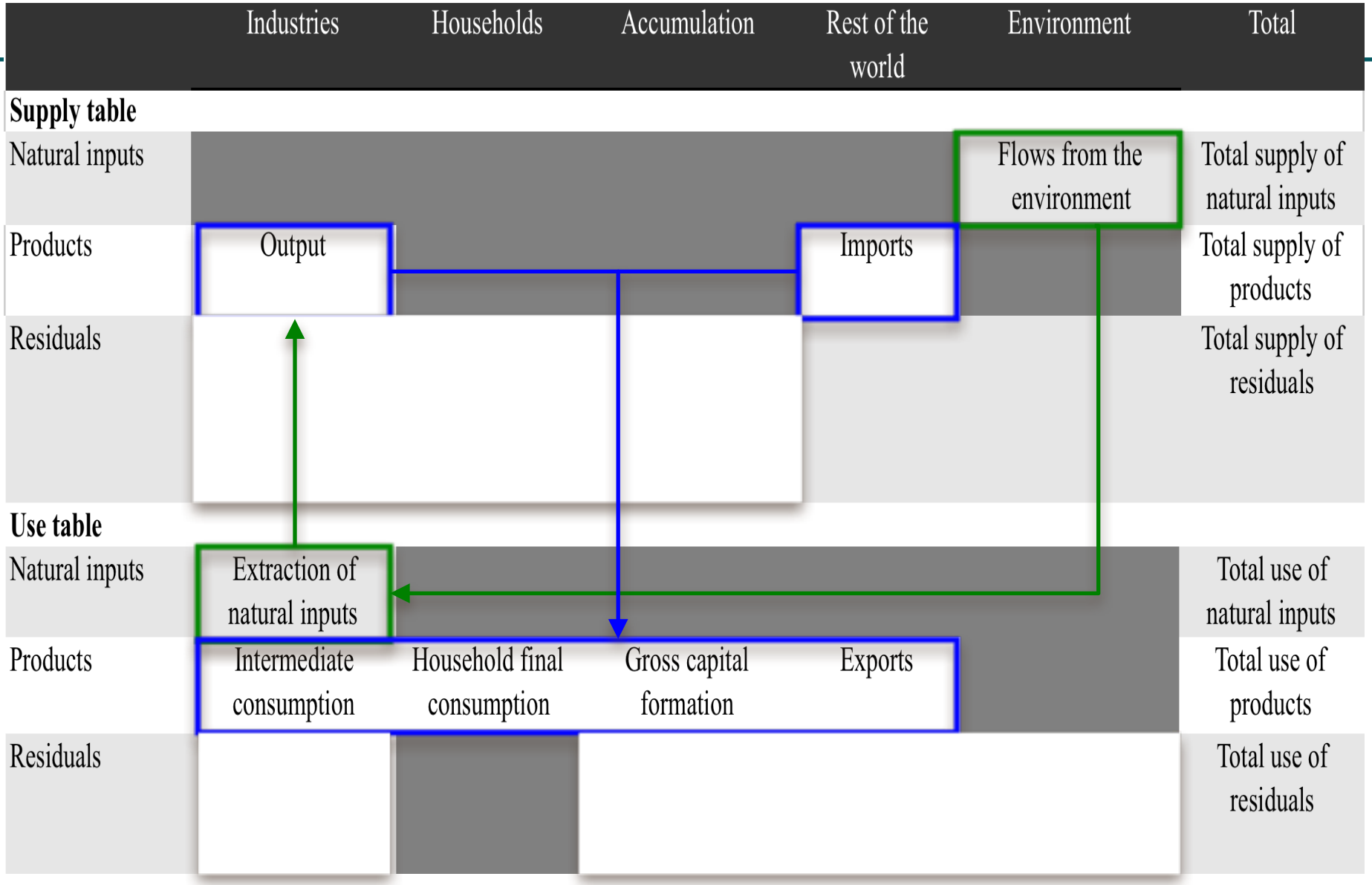
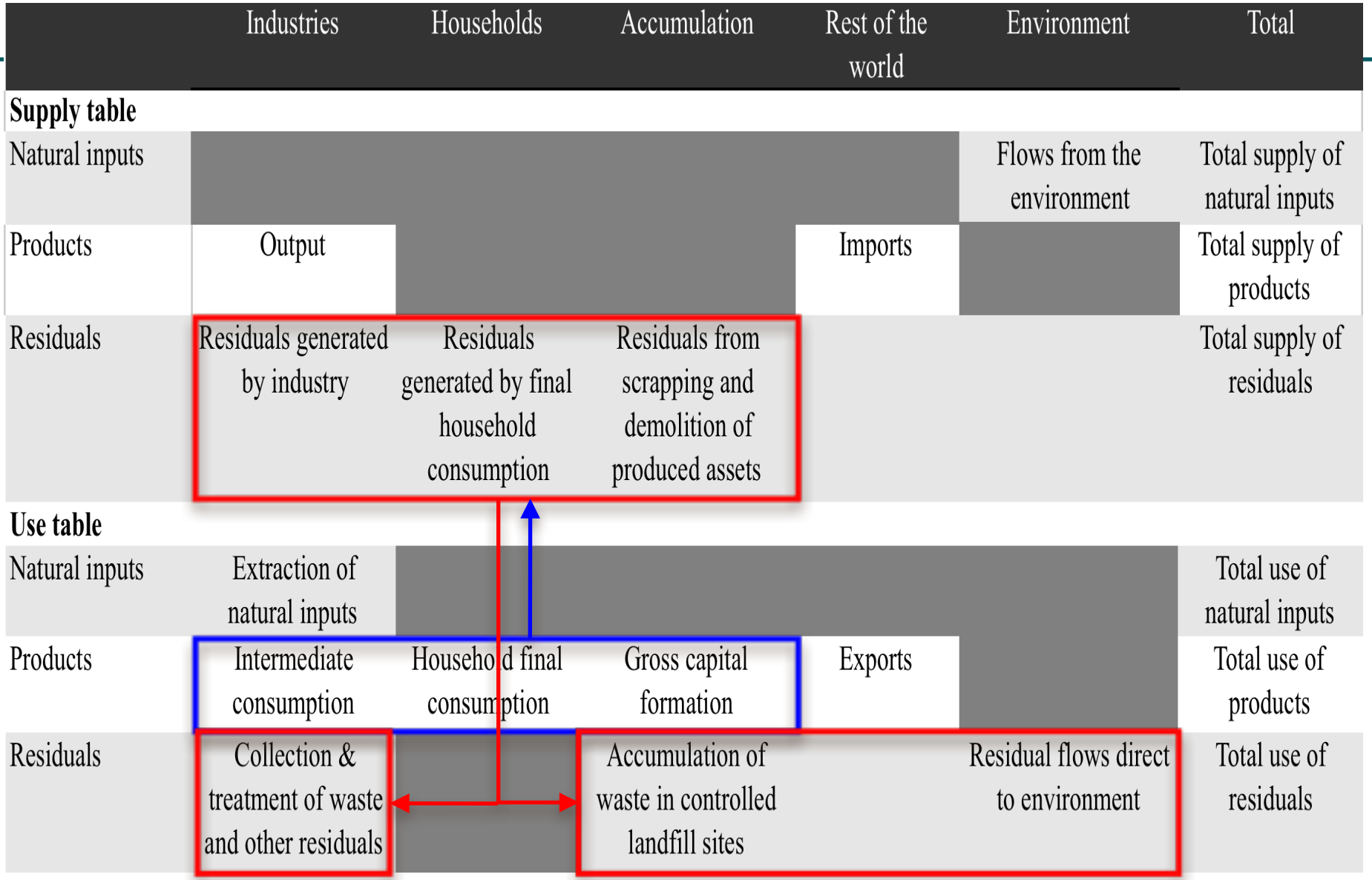

Industries
Households
Accumulation
Rest of the world
Environment
Total
Supply table
Natural inputs
Flows from the environment
Total supply of natural inputs
Products
Output
Imports
Total supply of products
Residuals
Total supply of residuals
Use table
Natural inputs
Extraction of natural inputs
Total 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

Accounting for Environmental Assets

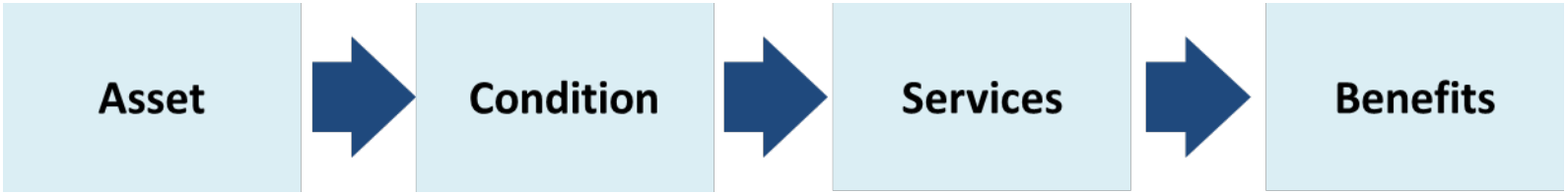
Environmental assets: "Naturally occurring living and non-living components of the Earth, together comprising the bio-physical environment, that may provide benefits to humanity" (SEEA Central Framework 2.17)

Central Framework focus on individual components / resources

- Mineral & energy resources, land, soil resources, timber resources, aquatic resources (incl. fish), water resources
- Include both natural and cultivated resources

Generalised Accounting model

- Common language – classification of assets and their condition
- Holistic approach to environmental assets as systems that support ecological functions and provide multiple benefits



- Inform management (tradeoffs) of environmental assets more effectively
- Embed consistent management of environmental assets into public policy influencing diverse portfolios
- Improve measures of progress for the State / National

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Units, Classifications and Geographic Scope

Measurement units

- Use a single unit for each PSUT – joules, cubic metres, tonnes

Classifications

- Classification of natural inputs
- Central Product Classification (CPC)
- Standard International Energy product Classification (SIEC)
- Groups of residuals – waste, wastewater, emissions,etc

Geographic scope

- Start with economic territory/country
- Record flows based on residence of economic units in the territory
- Flow not based solely on geographic location

Asset Accounts

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			

Example SEEA CF Land Account

	1 Artificial surfaces (including urban and associated areas)	2 Herbaceous crops	3 Woody crops	4 Multiple or layered crops	5 Grassland	6 Tree-covered areas	7 Mangroves	8 Shrub-covered areas	9 Shrubs and/or herbaceous vegetation,	10 Sparsely natural vegetated areas	11 Terrestrial barren land	12 Permanent snow and glaciers	13 Inland water bodies	14 Coastal water bodies and intertidal areas	TOTALS
Opening Stock	14,859	193,019	-	14	135,772	16,830	-	11	504	-	-	-	9,859	-	370,868
Additions to stock															
Managed expansion						3,408									3,408
Natural Expansion															-
Upward reappraisals						120									120
Total additions to stock						*3,528*									3,528
Reductions in stock															
Managed regression		2,229			1,179										3,408
Natural Regression															-
Downward reappraisals	112												8		120
Total reductions in stock	*112*	*2,229*			*1,179*										3,520
Net change in stock	(112)	(2,229)			(1,179)	3,528							(8)		
Closing stock	14,747	190,790	-	14	134,593	20,358	-	11	504	-	-	-	9,851	-	370,868

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SEEA CF: Land change matrix

Extent (ha)	Closing Land Cover														
Opening Land Cover	1 Artificial surfaces (including urban and associated areas)	2 Herbaceous crops	3 Woody crops	4 Multiple or layered crops	5 Grassland	6 Tree-covered areas	7 Mangroves	8 Shrub-covered areas	9 Shrubs and/or herbaceous vegetation, aquatic or regularly	10 Sparsely natural vegetated areas	11 Terrestrial barren land	12 Permanent snow and glaciers	13 Inland water bodies	14 Coastal water bodies and intertidal areas	Opening Total
1 Artificial surfaces (including urban and associated areas)	14,747					112									14,859
2 Herbaceous crops		190,790				2,229									193,019
3 Woody crops			-												-
4 Multiple or layered crops				14											14
5 Grassland					134,593	1,179									135,772
6 Tree-covered areas						16,830									16,830
7 Mangroves							-								-
8 Shrub-covered areas								11							11
or regularly flooded									504						504
10 Sparsely natural vegetated areas										-					-
11 Terrestrial barren land											-				-
12 Permanent snow and glaciers												-			-
13 Inland water bodies						8							9,851		9,859
14 Coastal water bodies and intertidal areas														-	-
Closing Total	14,747	190,790	-	14	134,593	20,358	-	11	504	-	-	-	9,851	-	370,868

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Thank You

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

SEEA Experimental Ecosystem Accounting
http://unstats.un.org/unsd/envaccounting/seeaRev/eea_final_en.pdf