Introduction to Water Accounting

Regional Training Workshop on the System of Environmental-Economic Accounting with a Focus on Water Accounting

September 26-30, 2016
Putrajaya, Malaysia

François Soulard, Ph.D.

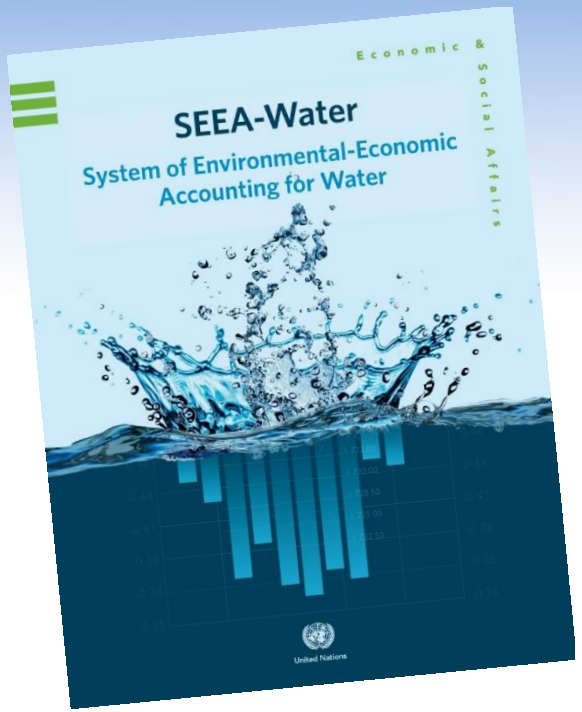
Environment, Energy and Transportation Statistics Division

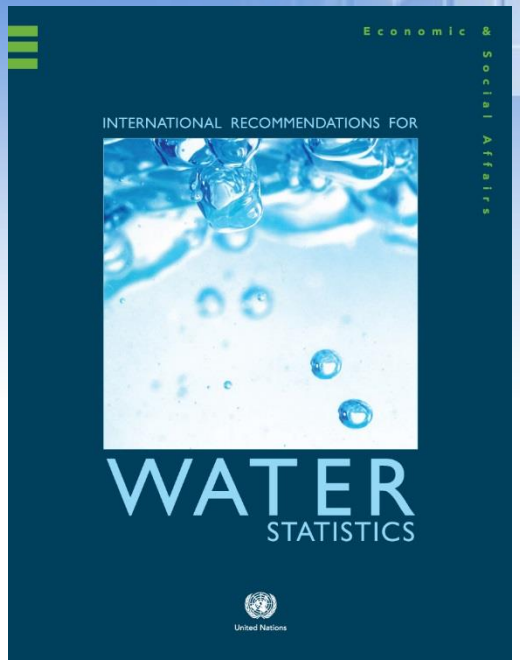
Statistics Canada

Outline

- Introduction
- What are water accounts
- Why account for water
- Water accounts schematics
- Accounting tables

The SEEA-Water is a subsystem of the SEEA that covers the physical and economic stocks and flows associated with water. It also covers, to some extent, emissions of pollutants and water quality.





The International Recommendations for Water Statistics (IRWS) was designed to assist countries in the implementation of SEEA-Water. Guidelines are being developed to provide additional support.

The SEEA-Water and the IRWS provide the framework for developing information that is comprehensive, consistent, and comparable through time and space.

SEEA-Water international statistical standard

- Part 1 of SEEA-Water was adopted by the United Nations Statistical Commission in March 2007 as an statistical standard

- Part 2 contains the elements of SEEA-Water for which there is less country experience and there is still some debate

- SEEA-Water has been recognized as useful by the users of information
  - For example: experiences of several countries with SEEA-Water were presented at 5th World Water Forum. It was concluded that it was an important part of the way forward.

SEEA-Water - Structure

9 Chapters, 2 parts:

- Part 1
  - Ch. 1 Introduction
  - Ch. 2 Water Accounting Framework
  - Ch. 3 Physical Supply and Use Tables
  - Ch. 4 Emission Accounts
  - Ch. 5 Hybrid and Economic Accounts
  - Ch. 6 Asset Account
- Part II
  - Ch. 7 Quality Account
  - Ch. 8 Valuation
  - Ch. 9 Policy use

International Recommendations for Water Statistics (IRWS)

- The IRWS define and support the compilation of basic statistical data to support the SEEA-Water and the water indicators used by international agencies (e.g. the FAO, World Bank and UN SDGs)

- It provides information on the concepts, sources and methods needed for water statistics used in water accounting

- It also provides practical guidance on the compilation of water accounts and indicators

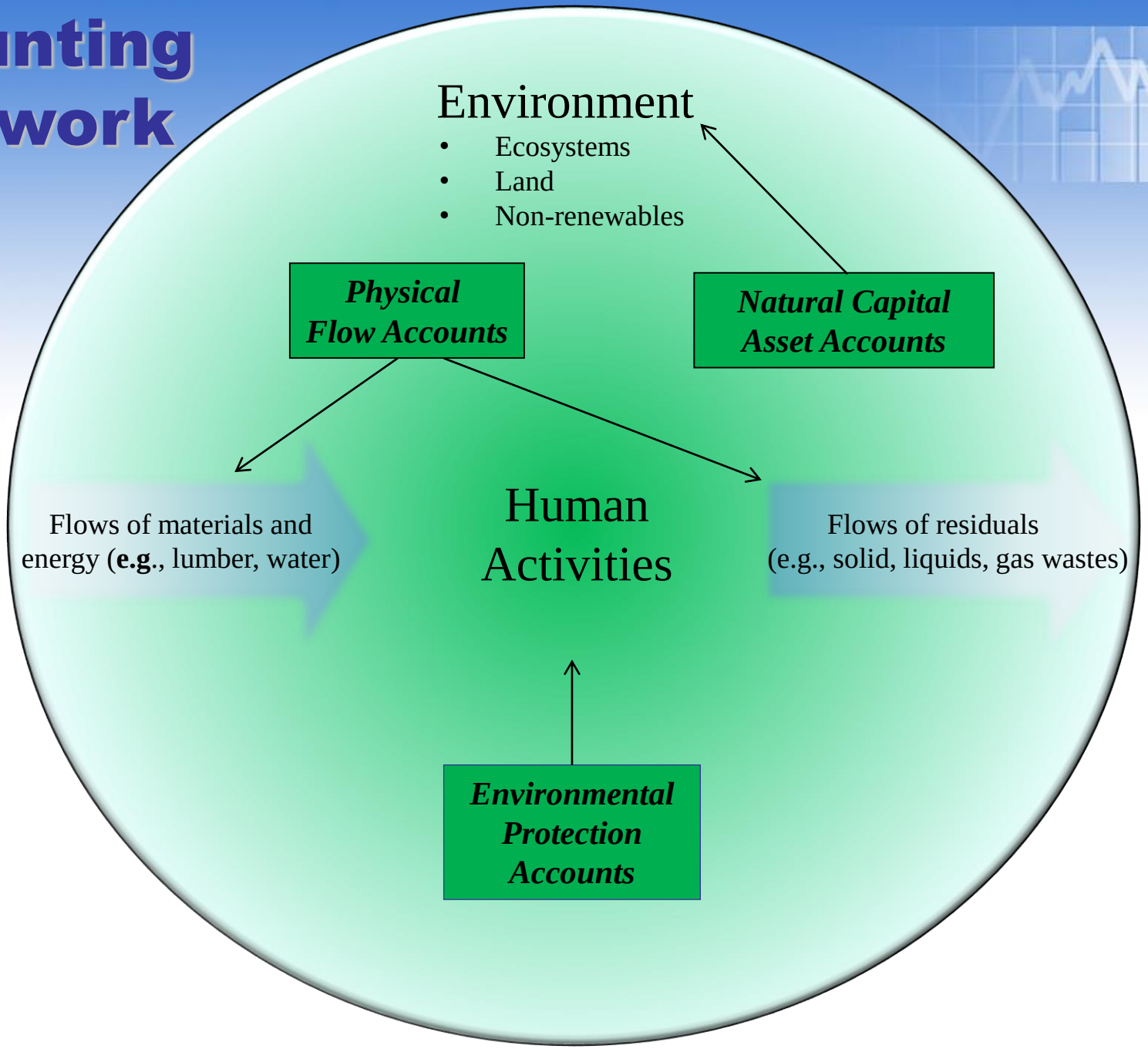
What is environmental-economic accounting?

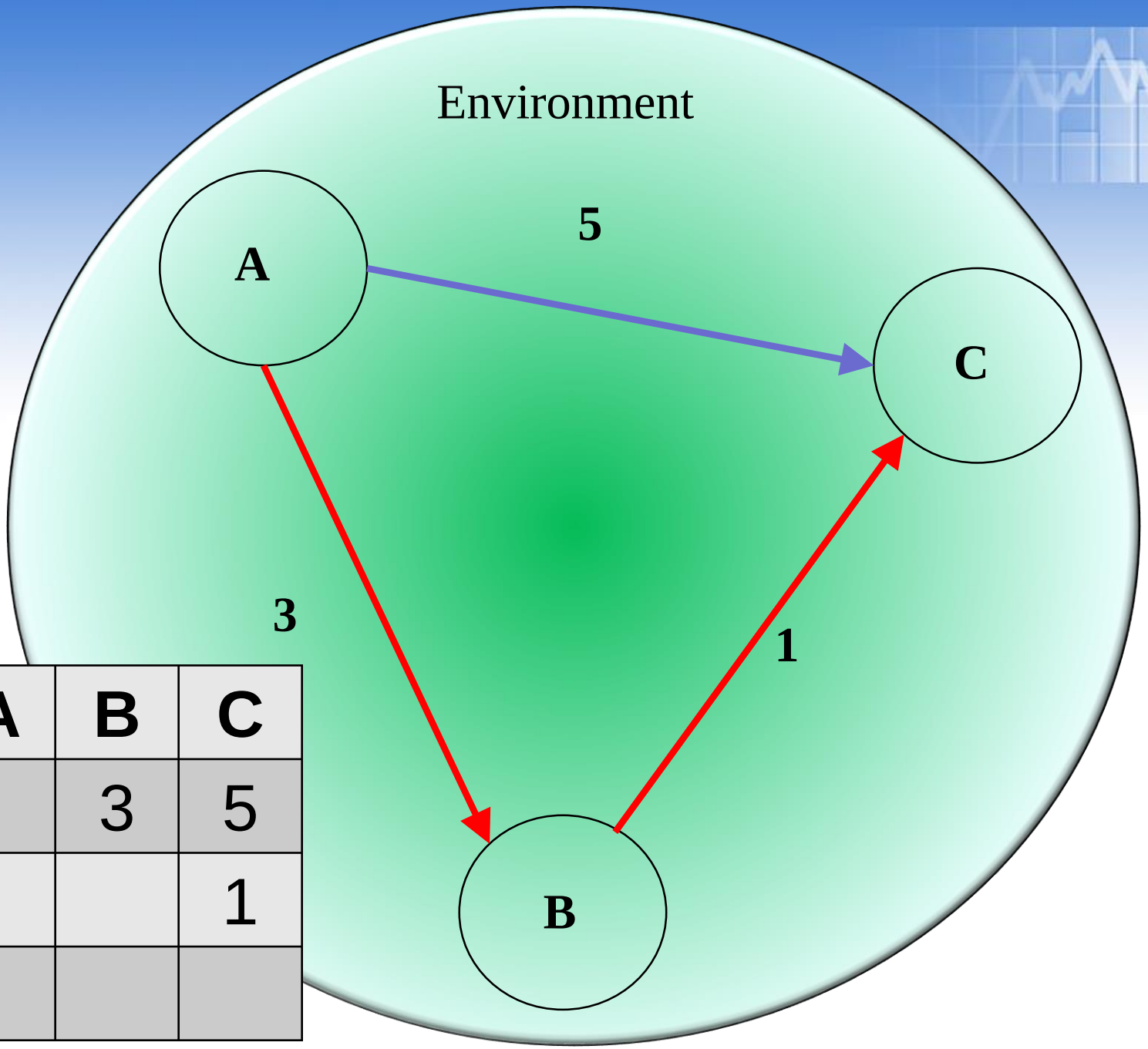
- **Environmental-economic accounting** is:
  a) The application of concepts and methods used in the national accounts, *where appropriate*, to produce a statistical description of the relationship and linkages between the environment the economy
  b) Where national accounts approaches are not appropriate, *specialized concepts and methods are applied*
  c) The goal is an accounting system describing the environment that is parallel to, and coherent with, the national accounts.

What are environmental accounts?

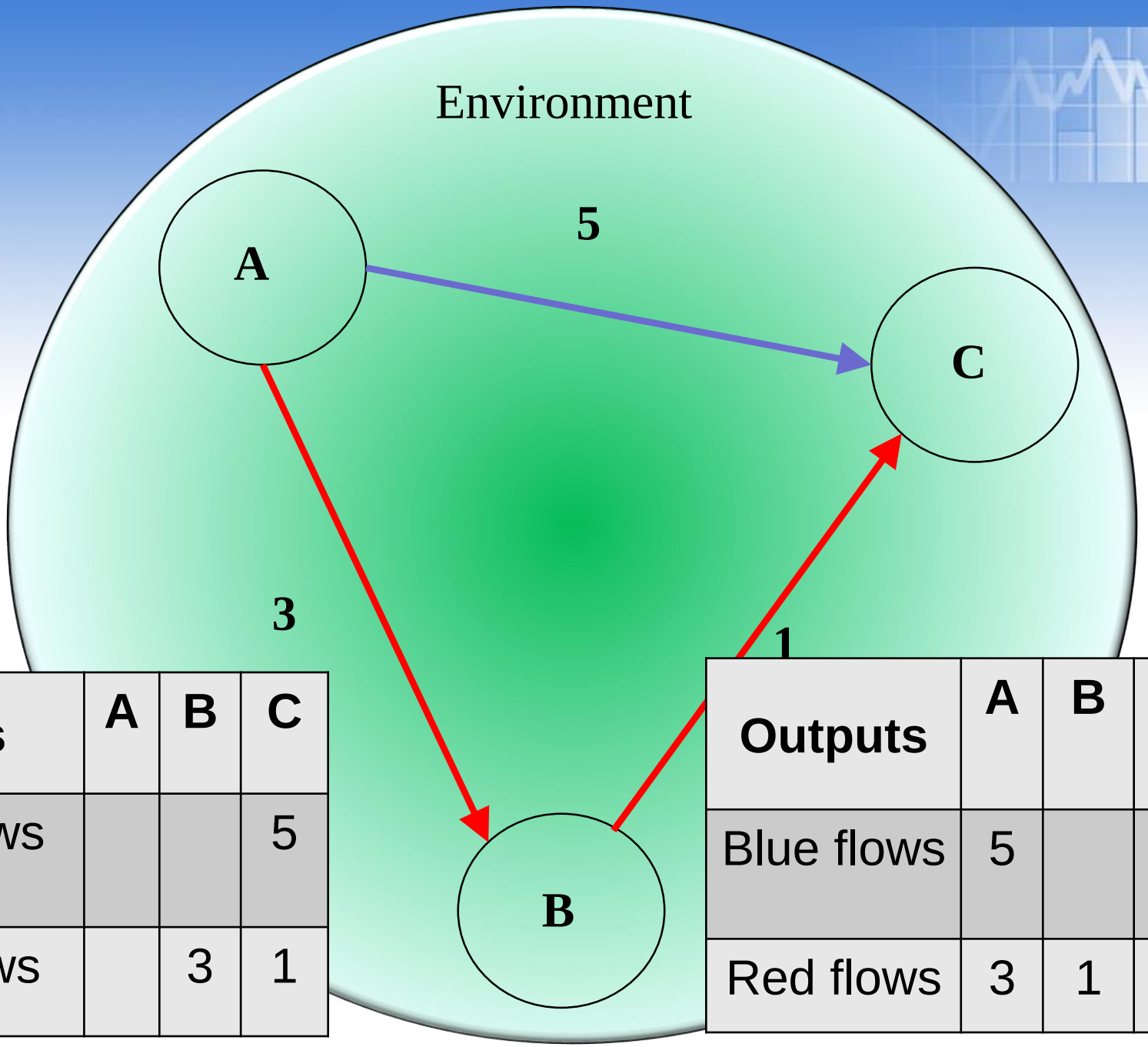
1. Environmental accounts are records of:
    1. the stock and value of environmental assets
    2. the flows of material and energy resources between the economy and the environment, and within the economy
    3. the expenditures on environmental protection, and the cost of environmental damage.
2. Environmental accounts meet specific criteria:
    1. consistent over time
        - always use the same methods and data sources
    2. comprehensive in their coverage
    3. compatible with economic accounts
    4. national in scope (with sub-national detail as appropriate)

Accounting framework





	A	B	C
A		3	5
B			1
C			



Inputs	A	B	C
Blue flows			5
Red flows		3	1

Outputs	A	B	C
Blue flows	5		
Red flows	3	1	

Why account for water?

Why account for water?

1. Increasing human pressure on water and ecosystems from:
    1. Extraction of water
    2. Pollution of water
    3. Degradation and depletion of ecosystems (e.g., conversion of forests to palm oil plantations) changes the local water balance

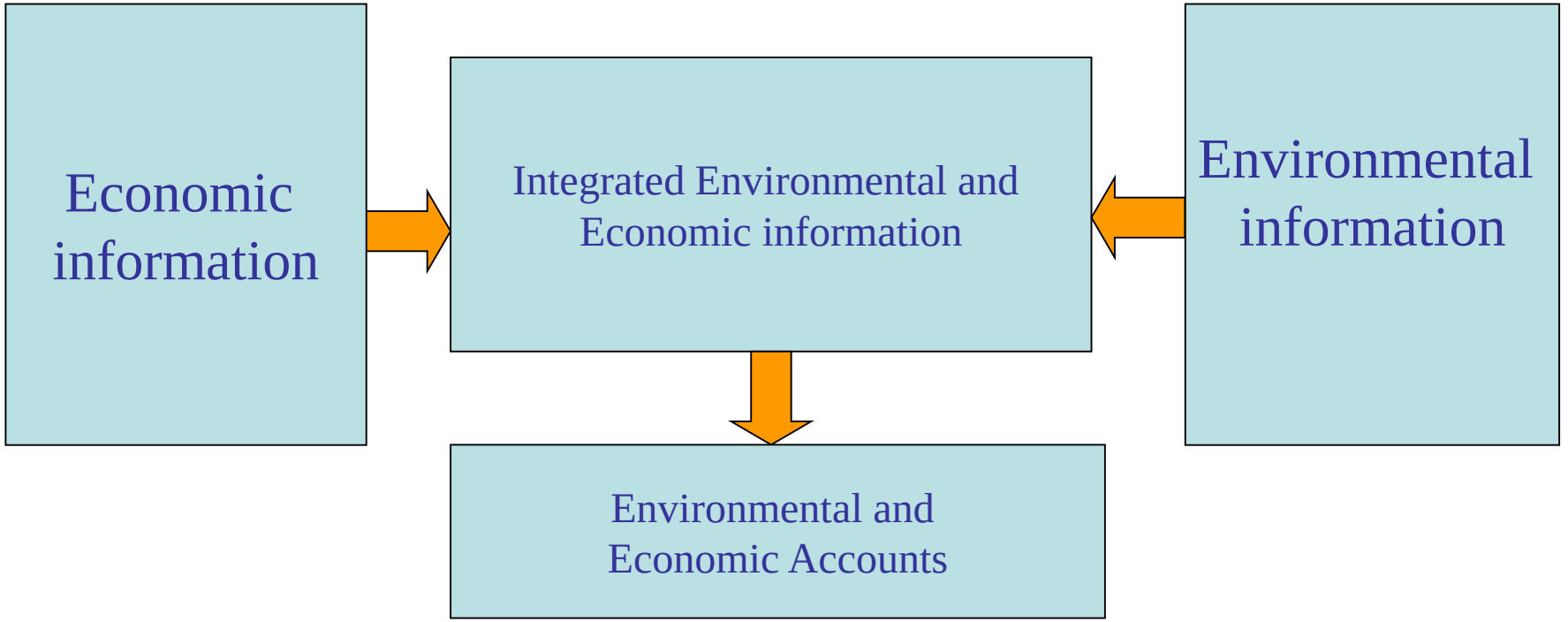
2. The changing climate impacts the global and local hydrological water cycles
    1. Frequency and severity of droughts and floods
    2. Melting of ice and snow
    3. Timeliness and location of temperature and precipitation patterns
    4. Etc.

What will water accounts assess?

1. The quantities of water in the various types of water resources, and their change over space and time
2. The use of the water by type of water resources, and its change over space and time
3. The impact of changes in vegetation cover and land use on water stocks and water provisioning and filtration services
4. Policies for managing water and ecosystems on the economy:
    1. e.g., restricting human activity in catchments used for water supply
    2. e.g., limiting the amount of water available for extraction by industry (e.g. agriculture).

How will water accounting do that?

- By bringing information about water into the system of national accounts

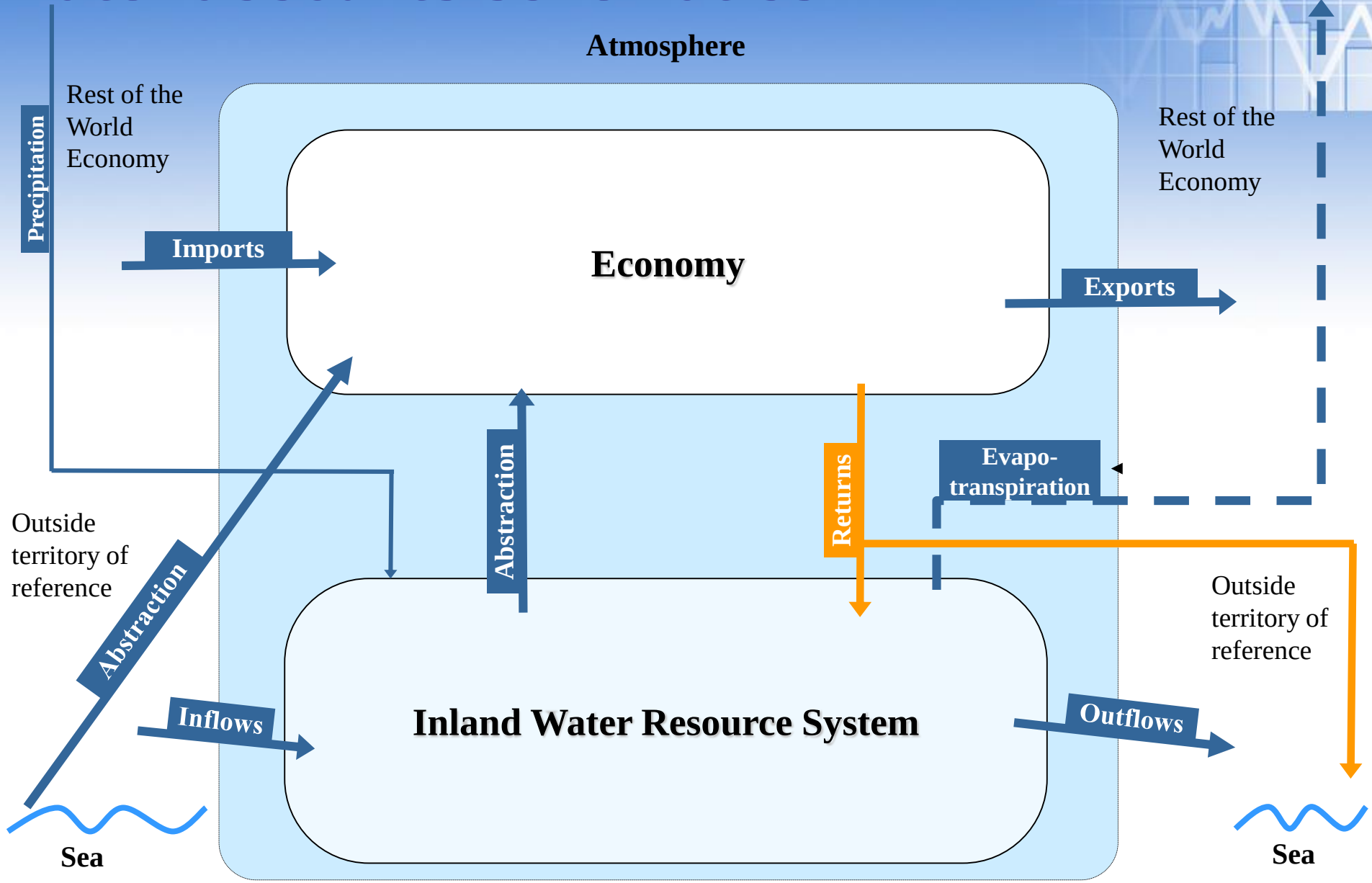


Water accounts schematics

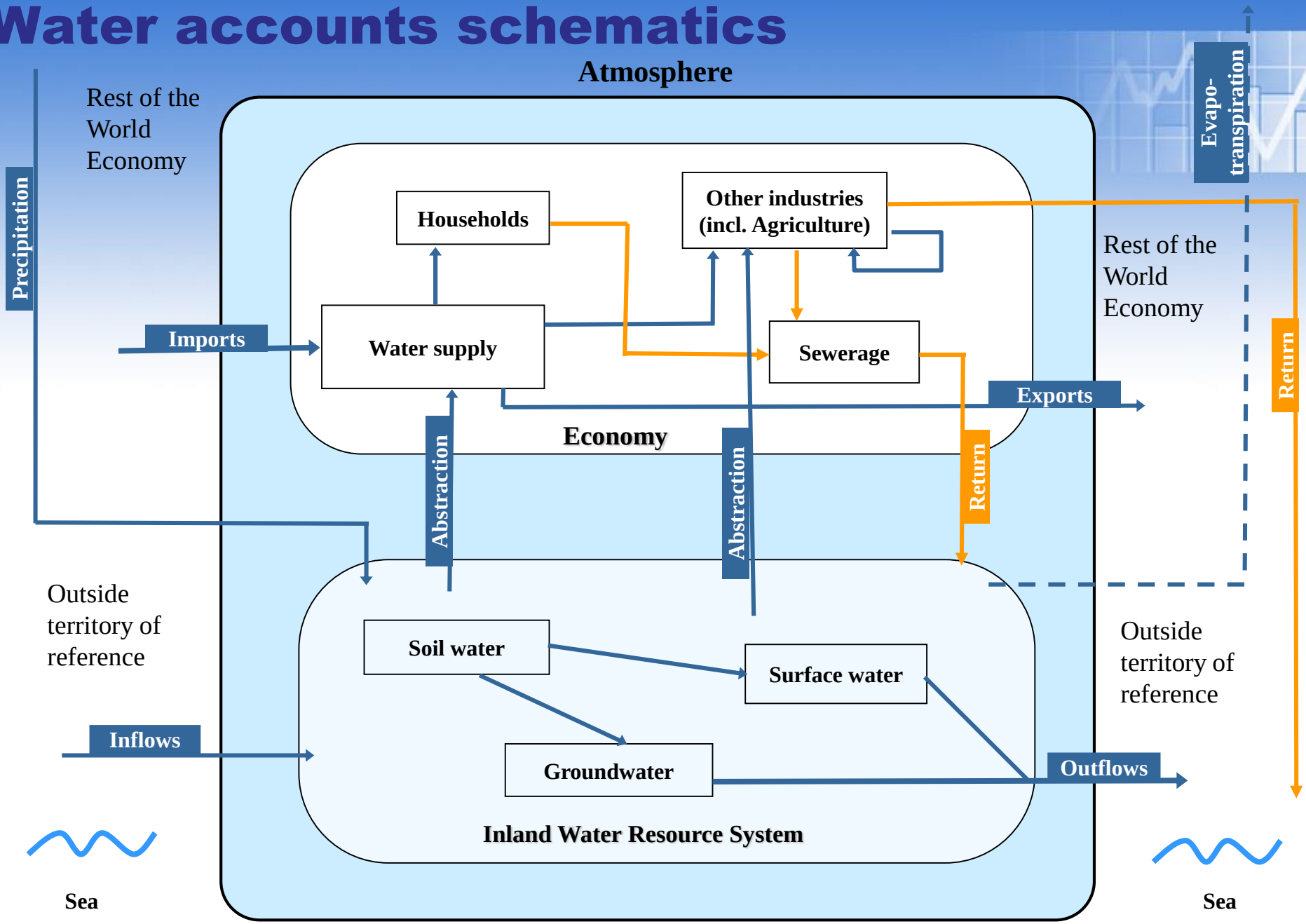
Economy

Inland Water Resource System

Water accounts schematics



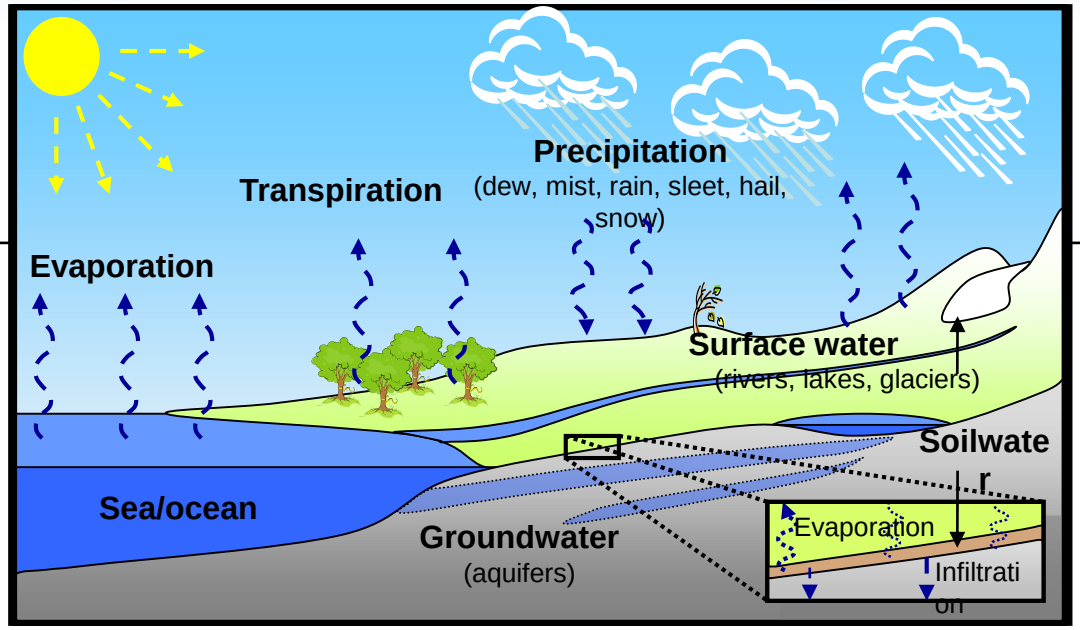
Water accounts schematics



Asset accounts table

physical units

	EA.131 Surface water						
	EA.1311 Reservoirs	EA.1312 Lakes	EA.1313 Rivers	EA.1314 Snow, Ice and Glaciers	EA.132 Groundwater	EA.133 Soil water	Total
Opening Stocks							
Increases in stocks							
Returns from the economy							
Precipitation							
Inflows							
from upstream territories							
from other resources in t territory							
Decreases in stocks							
Abstraction							
of which Sustainable use							
Evaporation/Actual evapotranspiration							
Outflows							
to downstream territories							
to the sea							
to other resources in the territory							
Other changes in volume							
Closing Stocks							



Physical use table

Physical units

		Industries (by ISIC categories)							Households	Rest of the world	Total
		1-3	5-33, 41-43	35	36	37	38, 39, 45-99	Total			
From the environment	U1 - Total abstraction (=a.1+a.2= b.1+b.2): a.1- Abstraction for own use a.2- Abstraction for distribution b.1- From water resources: Surface water Groundwater Soil water b.2- From other sources Collection of precipitation Abstraction from the sea										
Within the economy	U2 - Use of water received from other economic units										
U=U1+U2 - **Total use of water**											

Physical supply table

Physical units

		Industries (by ISIC categories)							Households	Rest of the world	Total
		1	2-33, 41-43	35	36	37	38,39, 45-99	Total			
Within the economy	S1 - Supply of water to other economic units										
	of which: Reused water										
	Wastewater to sewerage										
To the environment	S2 - Total returns (= d.1+d.2)										
	d.1- To water resources										
	Surface water										
	Groundwater										
	Soil water										
	d.2- To other sources (e.g. Sea water)										
S - **Total supply of water** (= S1+S2)											
Consumption (U - S)											

Gross and net emissions table

Physical units

Pollutant	Industries (by ISIC categories)						Households	Rest of the world	Total
	1	2-33, 41-43	35	36	38, 39, 45-99	Total			
Gross emissions (= a + b) a. Direct emissions to water (= a1 + a2 = b1 + b2) a1. Without treatment a2. After on-site treatment *b1. To water resources* *b2. To the sea* b. To Sewerage (ISIC 37)									
d. Reallocation of emission by ISIC 37 e. Net emissions (= a. + d.)									

Hybrid use table

Physical and monetary units

	Intermediate consumption of industries (by ISIC categories)							Actual final consumption						
			35					Households						
	1	2-33, 41-43	Total	*of which*: Hydro	36	37	38,39, 45-99	Total industry	Final consumption expenditures	Social transfers in kind from Government and NPISHs	Total	Government	Capital formation	Exports	Total uses at purchaser 's price
Total intermediate consumption and use (monetary units)															
of which: Natural water (CPC 1800)															
Sewerage services (CPC 941)															
Total value added (monetary units)															
Total use of water (physical units)															
U1 - Total Abstraction															
of which: a.1- Abstraction for own use															
U2 - Use of water received from other economic units															

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Thank you for your attention

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