Water and Environment Support
in the ENI Southern Neighbourhood region

Regional training on Water Accounting / RW-2-REG

Session 1.1 – Introduction SEEA-W

12/10/2020, online

Presented by: Eric MINO, Non Key Expert on water management

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Content

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Session 1.1

- Why SEEA-W?
  - Data for Policy needs
- What is SEEA-W?
  - SEEA-CF (Conceptual Framework)
  - Key accounting concepts (assets, flows, stocks, emission accounts)
  - SEEA-W accounting tables overview

Session 1.2

- Benefits of water accounting
- SDG Reporting
- Other approaches

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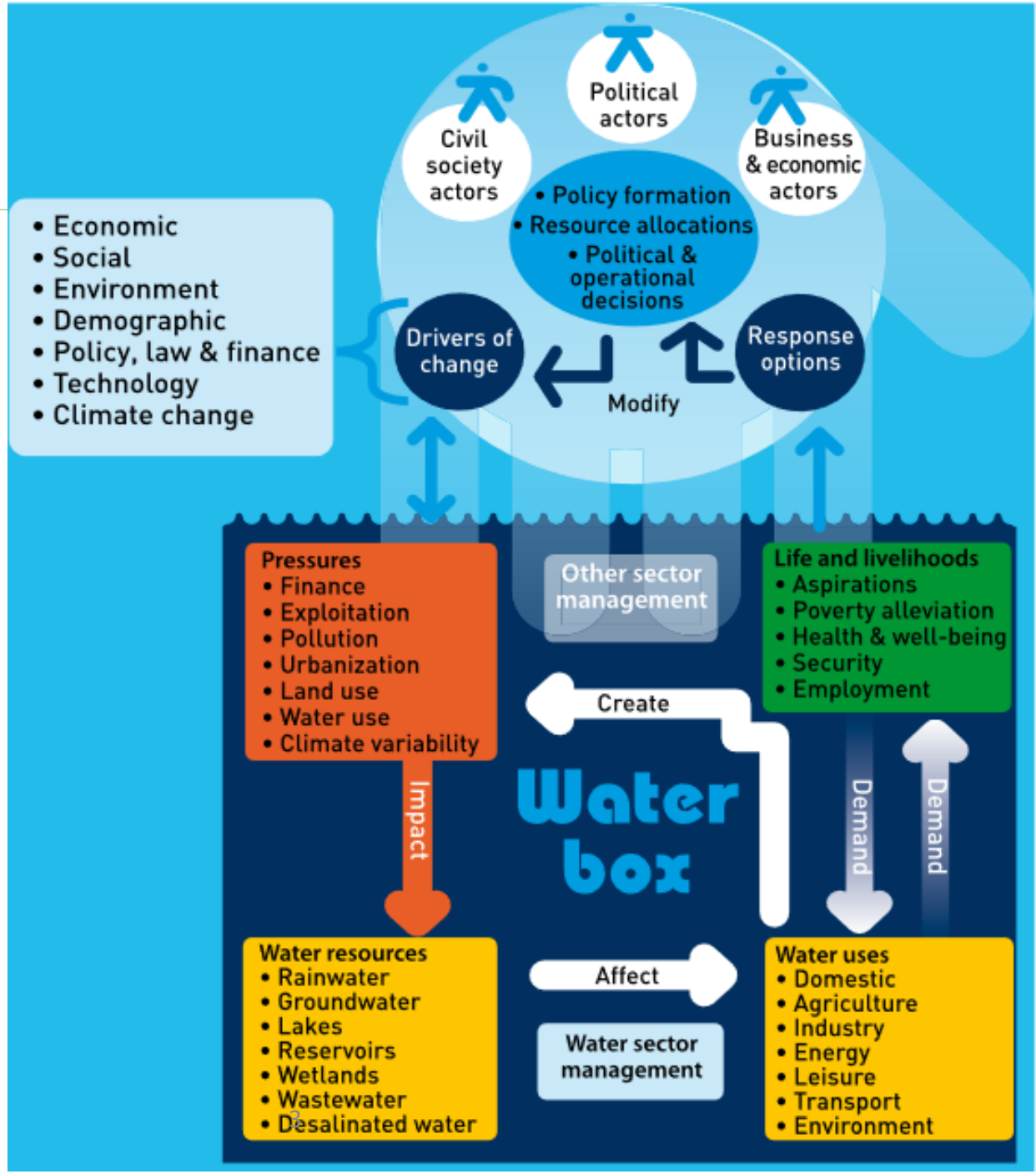
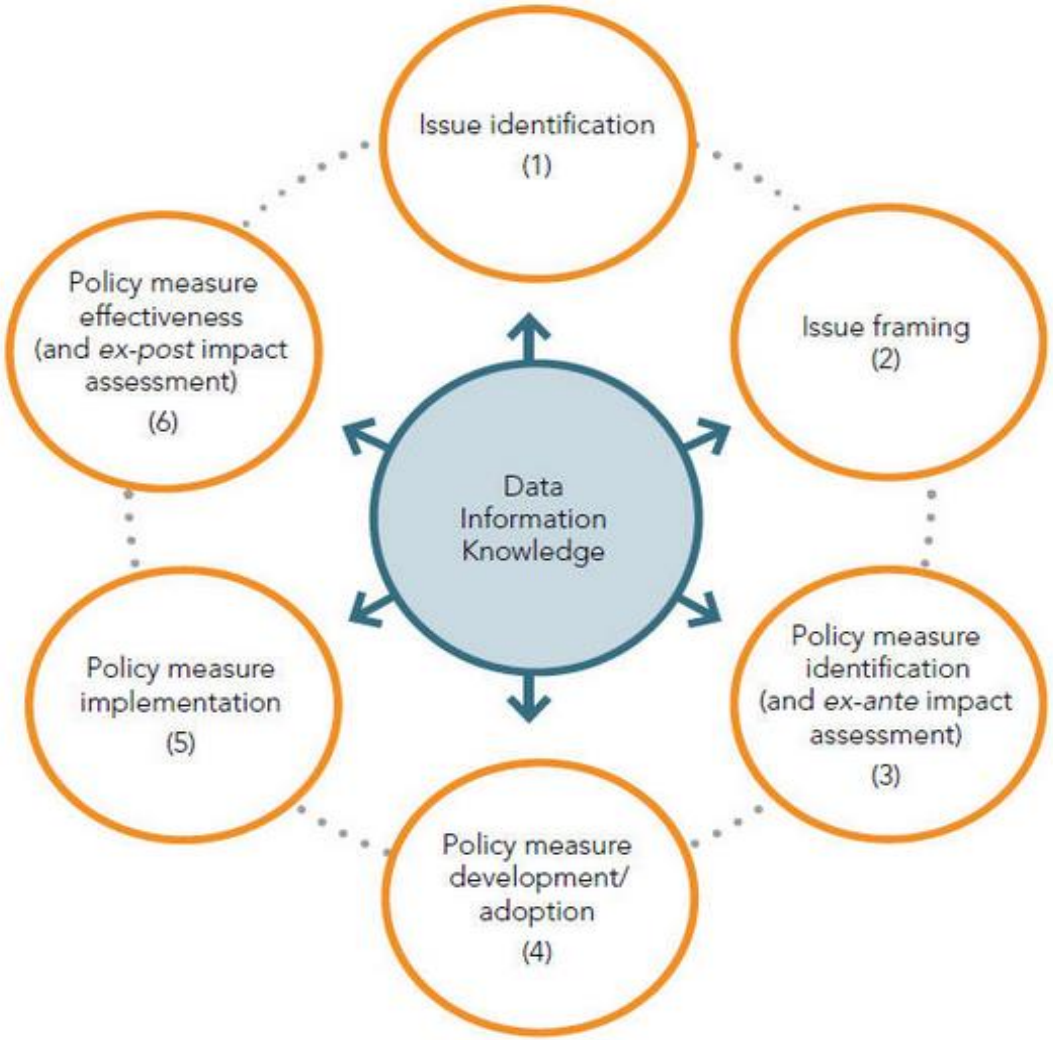
Complexity of water management

- Interrelations between sectors:
  - IWRM approach
  - Nexus approach

- Difficulty to aggregate sectoral data, indicators



Policy cycle and data



Source: EEA

To support these 6 stages, information must be:

- Accessible
  - Legal framework
  - Information Systems
- Comparable
  - Based on standard
- Accurate
- Timely available

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MDIAK framework to support policy

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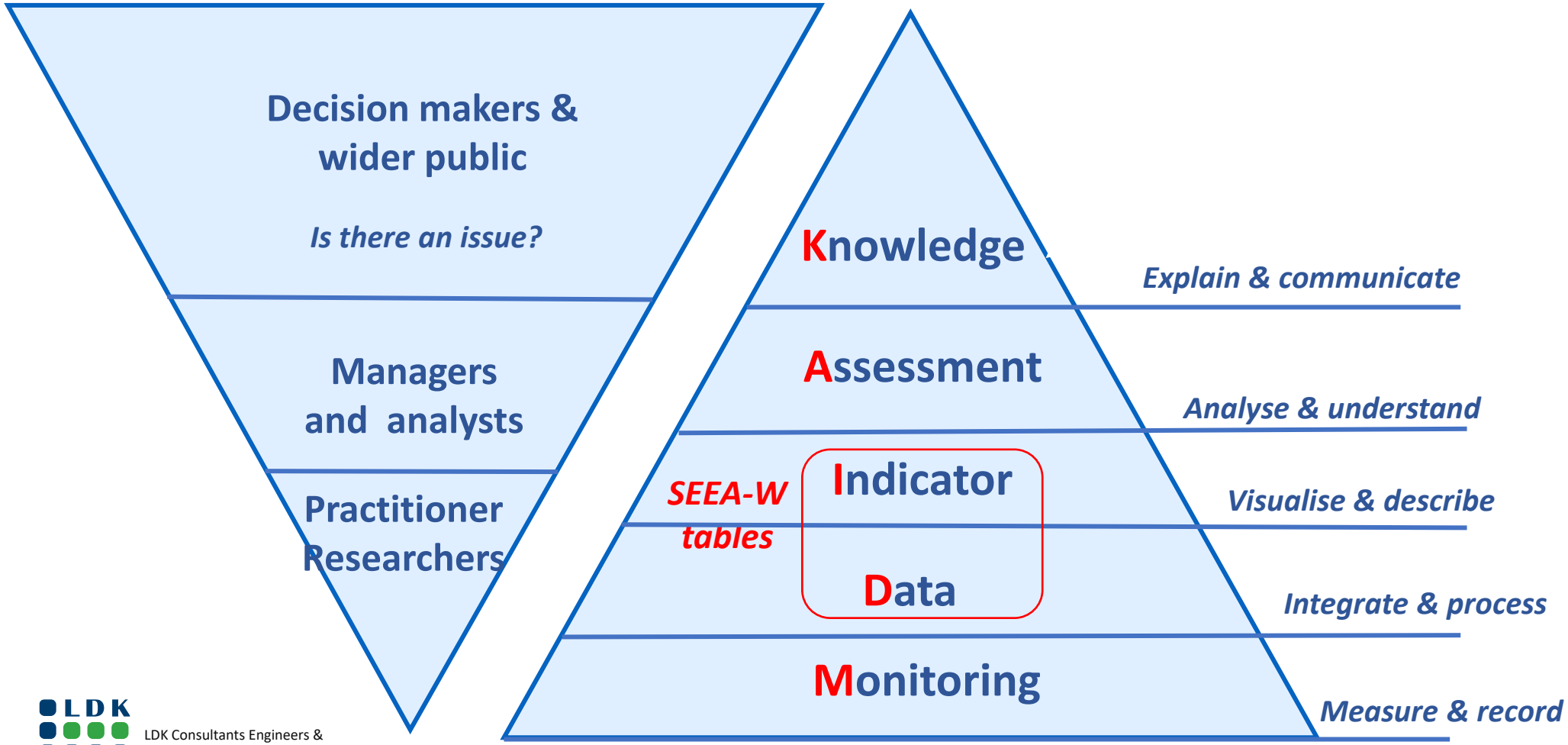

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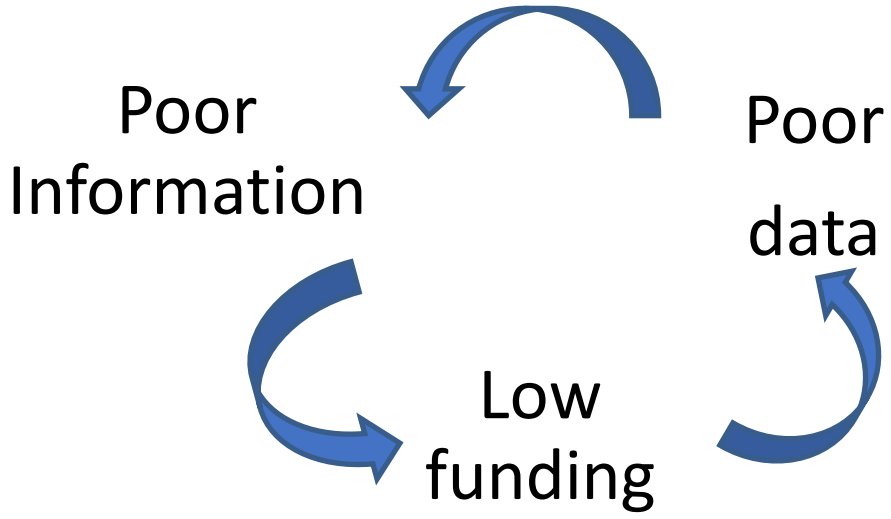
Water management and information

- Water management is in a vicious cycle:
  - insufficient data,
  - translated into poor information.
  - results in low funding for data production,
  - having as consequence even poorer data.



How to transform it into a virtuous cycle?

SEEA Conceptual framework

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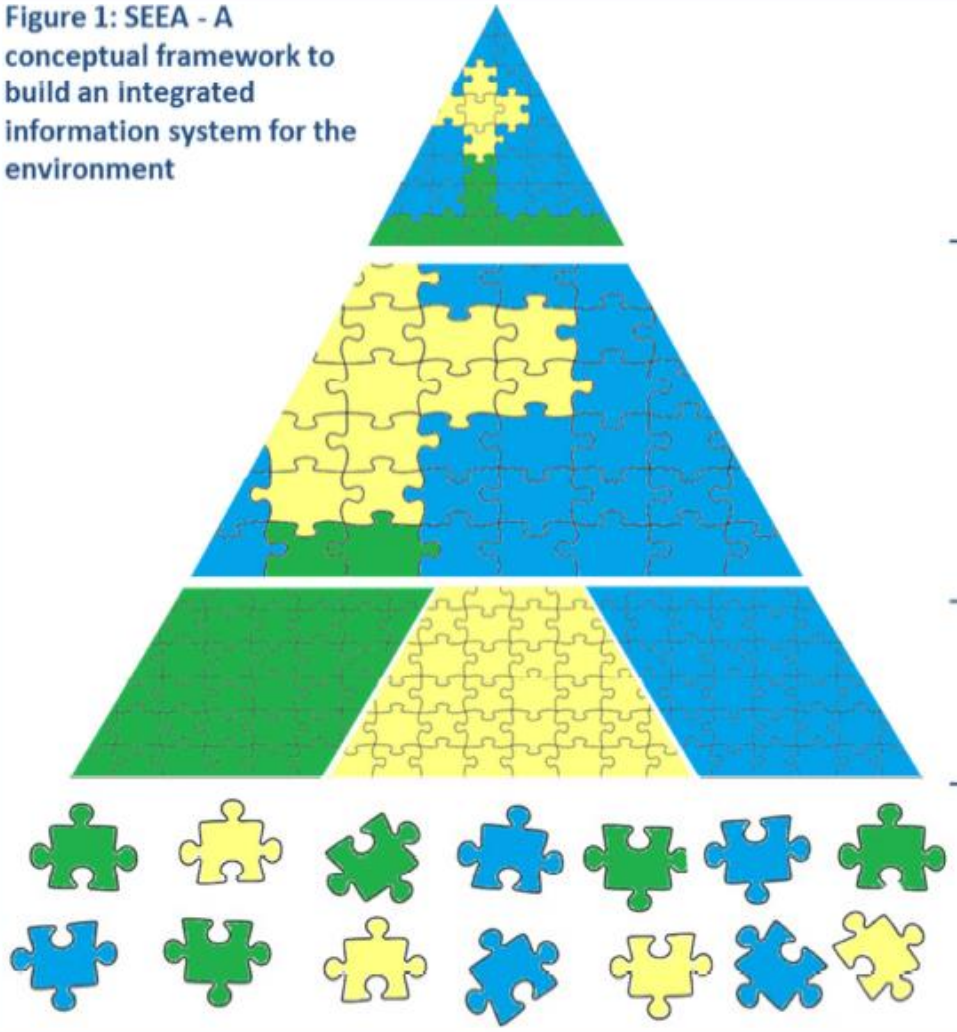
Figure 1: SEEA - A conceptual framework to build an integrated information system for the environment



4. Deriving High Quality Indicators
- The accounts provide the building blocks for the derivation of methodologically consistent indicators by integrating and reconciling the underlying statistics.
- Statistics can be easily combined to calculate indicators.

3. Compiling Accounts
- Data from multiple agencies is bought together into one integrated information system.
- Environmental data is combined with economic data.
- Organizing data into accounts promotes an understanding of *'how things fit together'* (including interlinkages and associated trade-offs).
- This integrated system can better support coherent policy analysis and modelling.

2. Harmonizing Basic Data according to Standards
- Application of statistical standards across dispersed data collection activities means statistics can be *coherently combined* regardless of agency responsible.

1. Fragmented Environment and Economic Data:
- Data collection is dispersed across different agencies.
- Methodological inconsistencies result as agencies use different definitions, classifications, time boundaries, geographical scope etc. making comparisons difficult.
- Difficult to access and interpret data across agencies.

3 dimensions

- Environmental flows
- Stock of environmental assets
- Economic activities related to environment

Modular approach:

- Water, energy, waste, ….

Progressive implementation

- Data availability
- Institutional agreements

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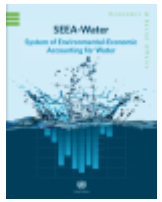
UN efforts towards harmonised information

2010



2012

2012

2017

- 1947, Creation of UN Statistic Division
- 1953, System of National Accounts –SNA adopted: **framework to connect data with policy**.
- 1993, Handbook on environmental accounting adopted in response to Rio (1992)
- 2007: System of Environmental-Economic Accounting for Water (SEEA-Water)
- 2010: International Recommendations for Water Statistics were adopted
- 2012: SEEA-Water and SEEA-CF adopted as international statistics standard

A framework for comprehensive, consistent, and comparable data and indicators

System of National Accounts (SNA)

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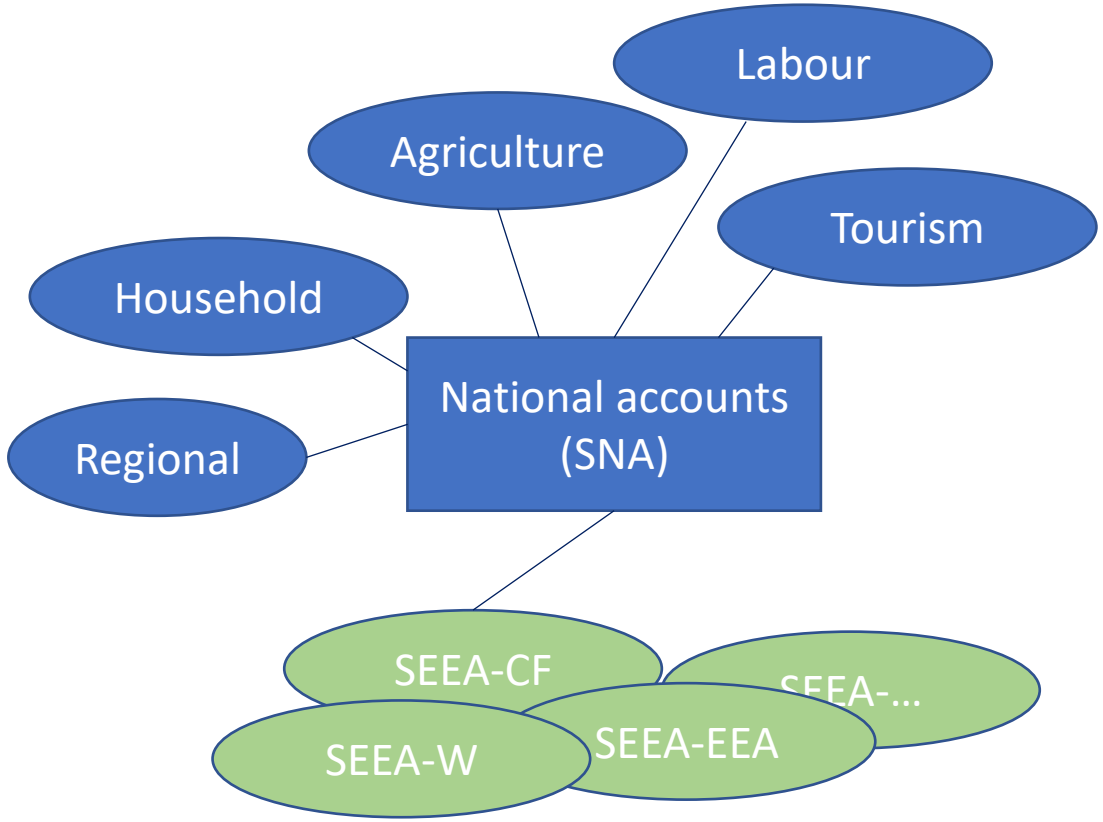
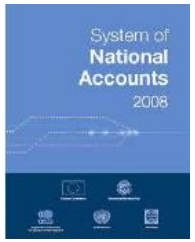
- Framework for economic data at country level
- International statistical standard
  - Definitions, classifications (e.g. ISIC)
- Provides macro-economic indicators
  - GDP, value added by sector, …
- Support for various analysis & forecast, relations between economic sectors
- Key information source for government & society



National & Satellite accounts



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SEEA-Water
A component of a larger framework

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- Water accounting brings together economic and environmental information

- Water Accounts capture inter ecosystem flows of water, water quality, and supply/use for ecosystems and for economic supply/use.

SEEA-CF
System of Environmental Economic Accounting Central Framework

- Water is an ecosystem service
  - i.e. shown as clean water requires less treatment to use. Water systems also provide filtration and water regulation services.

SEEA-EEA
System of Environmental Economic Accounting – Experimental Ecosystem Accounting

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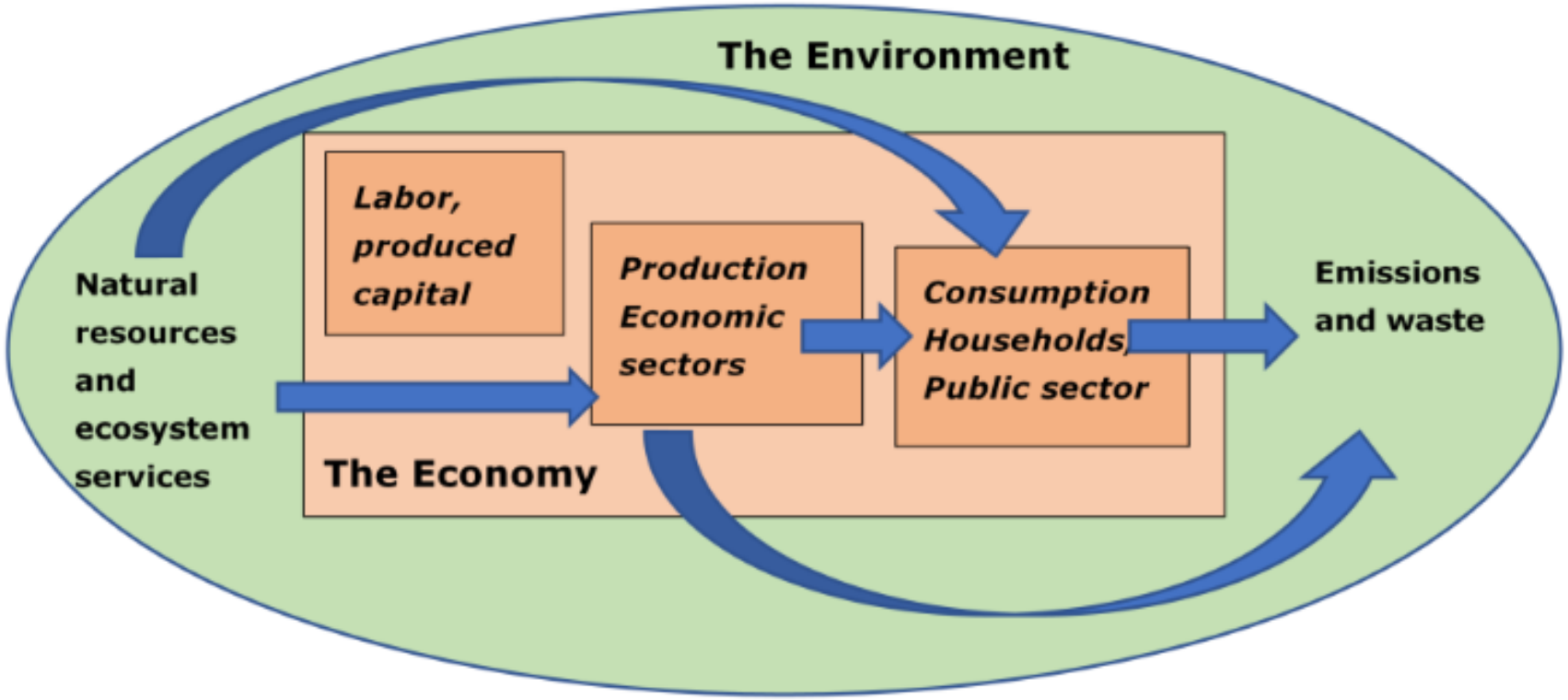
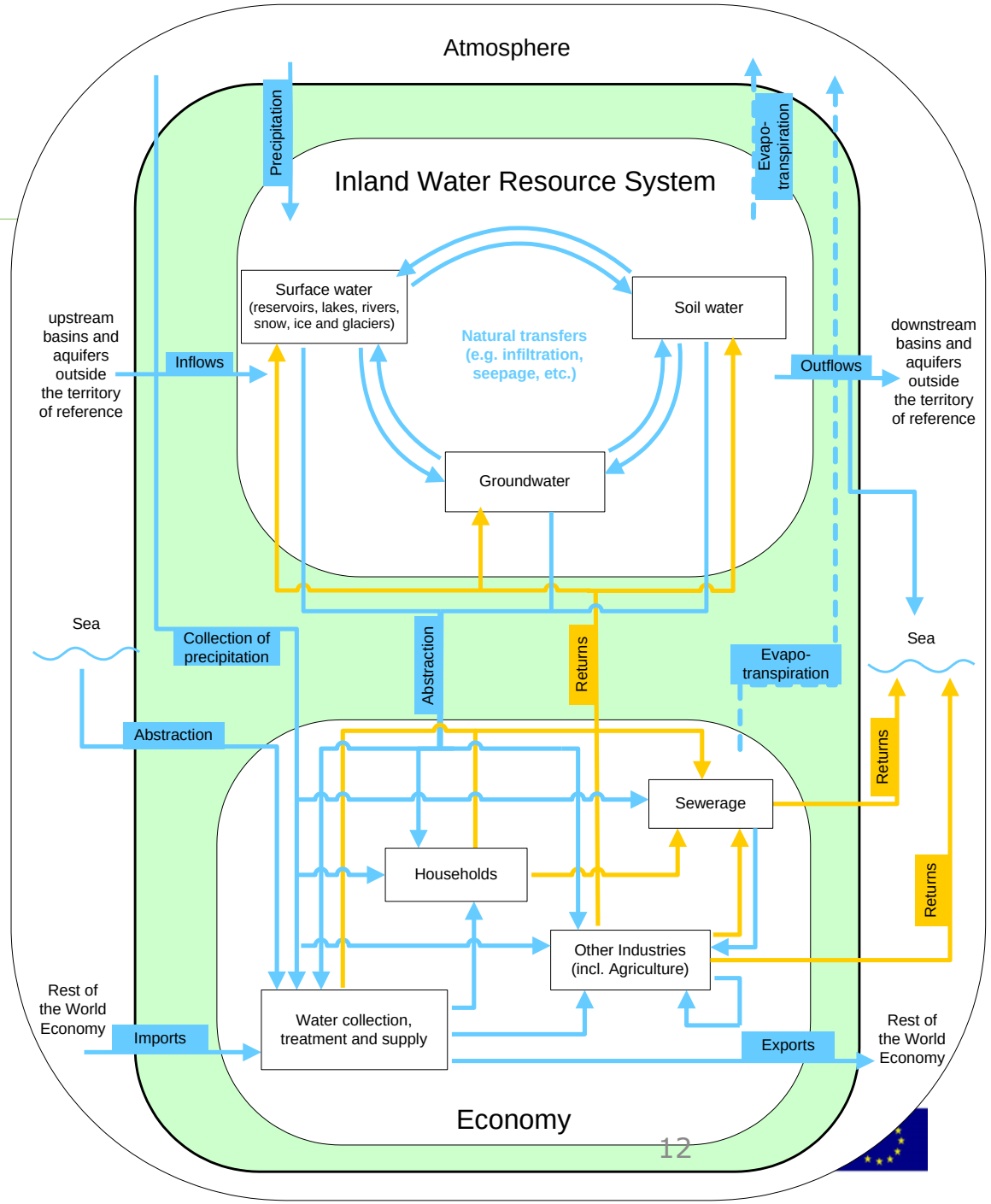
Broader context
Natural Capital Accounts



SEEA-W

- 2 main concepts:
  - Water cycle (within the environment and the economy)
  - Stocks and flows (supply, abstraction, use, returns)

- Provides comprehensive, consistent and comparable policy relevant information
- Linking water information with economic information
- Built on existing capacity and stakeholder owned information



Water accounting concepts: hydrological cycle

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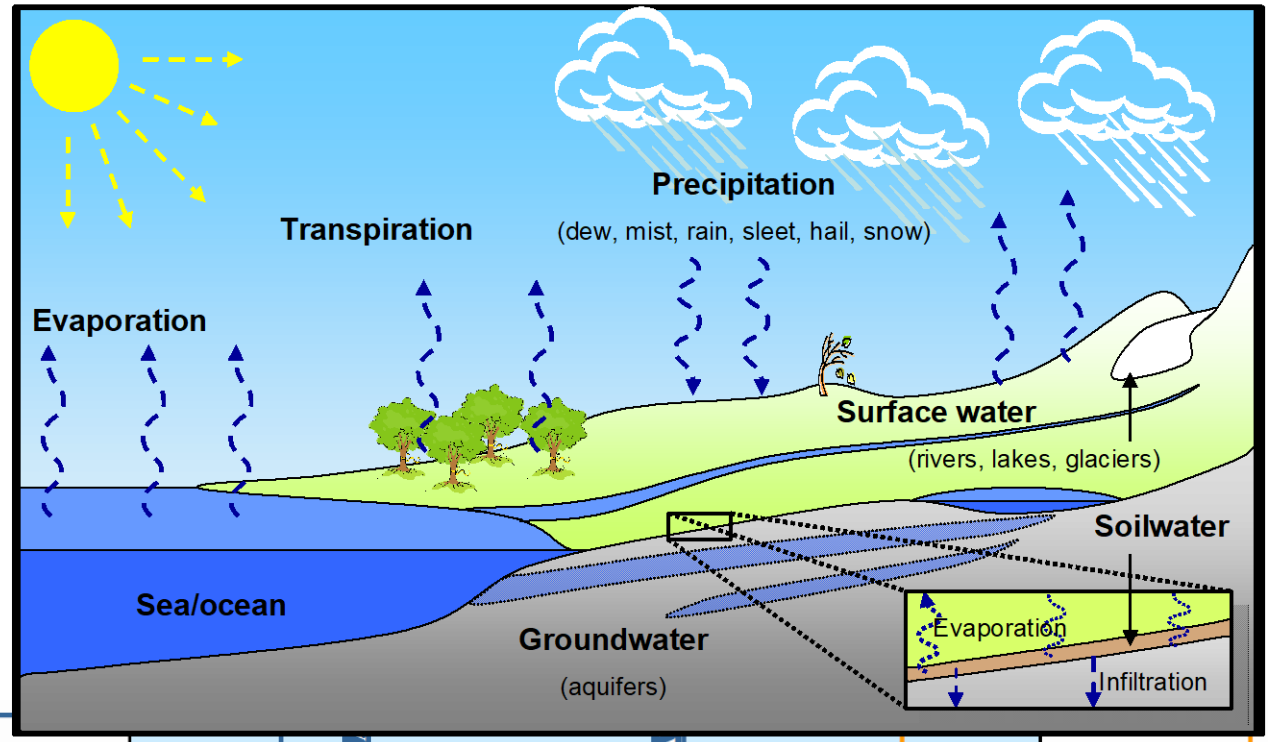
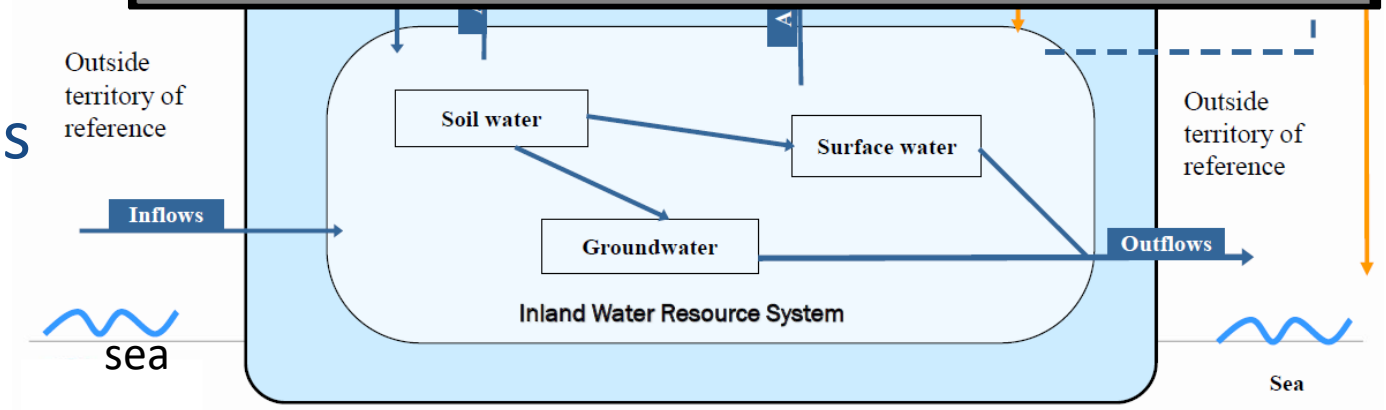
- Sea water
- Evaporation
- Transpiration
- Precipitation
- Infiltration
- Water storage in soil, aquifers, lakes, and glaciers.
- Transfers from over territories





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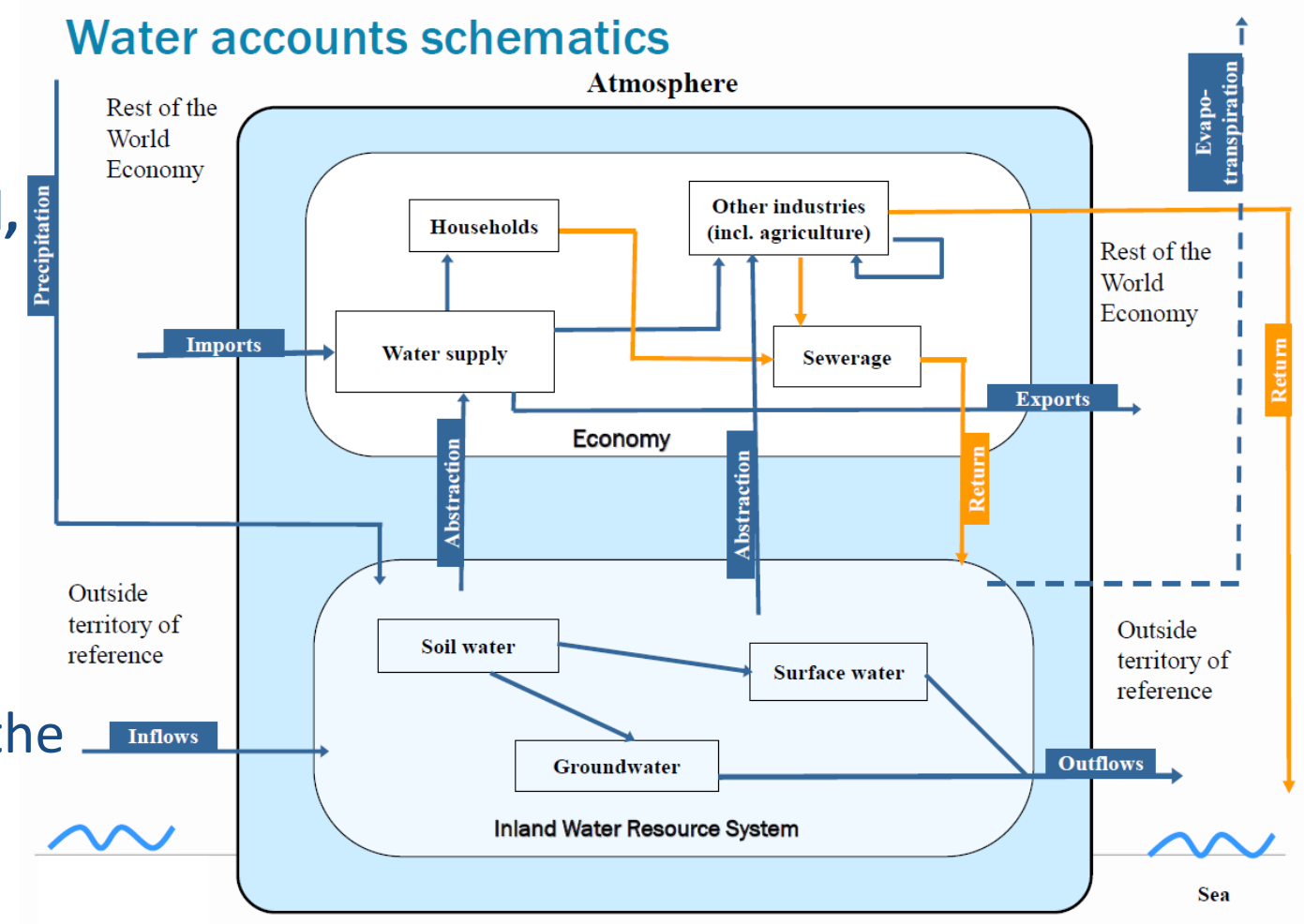
SEEA-W
Scales and units

- Territorial scale: territory of reference
  - **Statistical unit: national, regional, sub-regional**
  - Other scales are possible
- Temporal scale
  - **Yearly**
  - Other scales are possible
- Economy scale
  - Industrial classification based on the International Standard Industrial Classification (ISIC)



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12 Standard Tables of SEEA-Water

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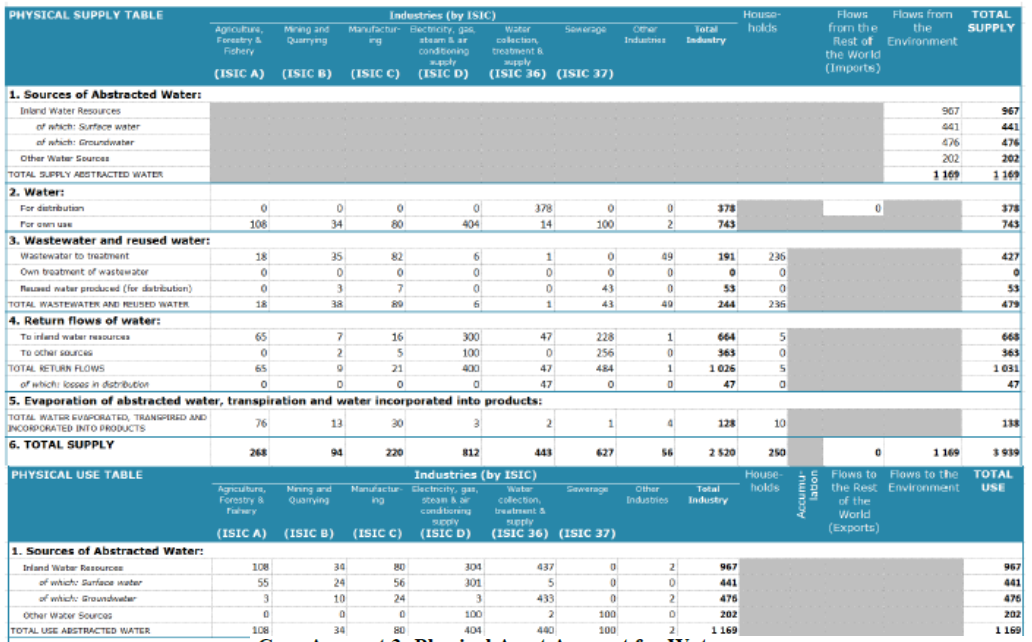
1. Physical supply
2. Physical use
3. Gross and net emissions (of pollution)
4. Emissions (of pollution) by Sewerage Industry
5. Hybrid (Monetary and Physical) supply
6. Hybrid use
7. Hybrid supply and use
8. Hybrid water supply and sewerage for own use
9. Government accounts for water related collective consumption services (Monetary)
10. National expenditure for waste management (Monetary)
11. Financial accounts for wastewater management (Monetary)
12. Asset account (Physical)

Plus 12 Supplementary tables



PHYSICAL SUPPLY TABLE	Industries (by ISIC)								Households	Flows from the Rest of the World (Imports)	Flows from the Environment	TOTAL SUPPLY
	Agriculture, Forestry & Fishery (ISIC A)	Mining and Quarrying (ISIC B)	Manufacturing (ISIC C)	Electricity, gas, steam & air conditioning supply (ISIC D)	Water collection, treatment & supply (ISIC 36)	Sewerage (ISIC 37)	Other Industries	Total Industry				
1. Sources of Abstracted Water:												
Inland Water Resources											967	967
of which: Surface water											441	441
of which: Groundwater											476	476
Other Water Sources											202	202
TOTAL SUPPLY ABSTRACTED WATER											1 169	1 169
2. Water:												
For distribution	0	0	0	0	378	0	0	378		0		378
For own use	108	34	80	404	14	100	2	743				743
3. Wastewater and reused water:												
Wastewater to treatment	18	35	82	6	1	0	49	191	236			427
Own treatment of wastewater	0	0	0	0	0	0	0	0	0			0
Reused water produced (for distribution)	0	3	7	0	0	43	0	53	0			53
TOTAL WASTEWATER AND REUSED WATER	18	38	89	6	1	43	49	244	236			479
4. Return flows of water:												
To inland water resources	65	7	16	300	47	228	1	664	5			668
To other sources	0	2	5	100	0	256	0	363	0			363
TOTAL RETURN FLOWS	65	9	21	400	47	484	1	1 026	5			1 031
of which: losses in distribution	0	0	0	0	47	0	0	47	0			47
5. Evaporation of abstracted water, transpiration and water incorporated into products:												
TOTAL WATER EVAPORATED, TRANSPIRED AND INCORPORATED INTO PRODUCTS	76	13	30	3	2	1	4	128	10			138
6. TOTAL SUPPLY	268	94	220	812	443	627	56	2 520	250	0	1 169	3 939

PHYSICAL USE TABLE	Industries (by ISIC)								Households	Accumulation	Flows to the Rest of the World (Exports)	Flows to the Environment	TOTAL USE
	Agriculture, Forestry & Fishery (ISIC A)	Mining and Quarrying (ISIC B)	Manufacturing (ISIC C)	Electricity, gas, steam & air conditioning supply (ISIC D)	Water collection, treatment & supply (ISIC 36)	Sewerage (ISIC 37)	Other Industries	Total Industry					
1. Sources of Abstracted Water:													
Inland Water Resources	108	34	80	304	437	0	2	967					967
of which: Surface water	55	24	56	301	5	0	0	441					441
of which: Groundwater	3	10	24	3	433	0	2	476					476
Other Water Sources	0	0	0	100	2	100	0	202					202
TOTAL USE ABSTRACTED WATER	108	34	80	404	440	100	2	1 169					1 169
2. Water (use):													
Use of distributed water													

Core Account 2: Monetary Supply and Use Table for Water

	Industries (by ISIC)								Rest of the World	Taxes less subsidies on products, trade & transport margins	Actual Final Consumption		TOTAL
	Agriculture Forestry & Fishery (ISIC A)	Mining and Quarrying (ISIC B)	Manufacturing (ISIC C)	Electricity, gas, steam & air conditioning supply (ISIC D)	Water collection, treatment & supply (ISIC 36)	Sewerage (ISIC 37)	Other Industries	Total Industry			Households	Government	
Supply of water products (currency):													
Total Supply of Products	170 737	80 143	187 000	195 769	6 570	5 036	6 478 288	7 123 543					
of which: Natural Water (CPC 1800)	0	4	9	1	6 570	14	7	6 605	1	- 2			6 604
of which: Sewerage Services (CPC 941)	0	0	0	0	0	5 022	0	5 022	2	14			5 038
Intermediate consumption and final use (currency):													
Natural Water (CPC 1800)	406	193	450	88	1 004	100	1 229	3 470	4		3 074	60	6 608
Sewerage Services (CPC 941)	3	69	160	1	13	1	1 406	1 653	3		3 316	66	5 038
Other products	145 597	38 454	89 727	180 683	2 360	1 718	5 842 990	6 301 529			605 817	50 096	6 957 442

Core Account 3: Physical Asset Account for Water

	Type of Water Resources					TOTAL
			Groundwater	Soil Water		
	Glaciers, ice & snow					
	0	100 000	500			109 700
	0	315	0			668
	0	*0*	*0*			*100*
	0		23 015			23 435
	0	0				17 650
	0	437	0			4 317
	0	0	0			0
	0	752	23 015			46 070
Abstraction	280	20	141	0	476	50	967
of which: for hydro power and cooling	*100*	*0*	*0*	0	*0*	*0*	*100*
Evaporation & actual evapotranspiration	80	215	54	0		21 125	21 474
Outflows to other territories			9 430	0	0		9 430
Outflows to the sea			10 000	0	0		10 000
Outflows to other inland water resources	1 000	100	1 343	0	87	1 787	4 317
TOTAL REDUCTIONS IN STOCK	**1 360**	**335**	**20 968**	**0**	**563**	**22 962**	**46 188**
4. Closing stock of water resources	**1 618**	**2 950**	**4 272**	**0**	**100 189**	**553**	**109 582**

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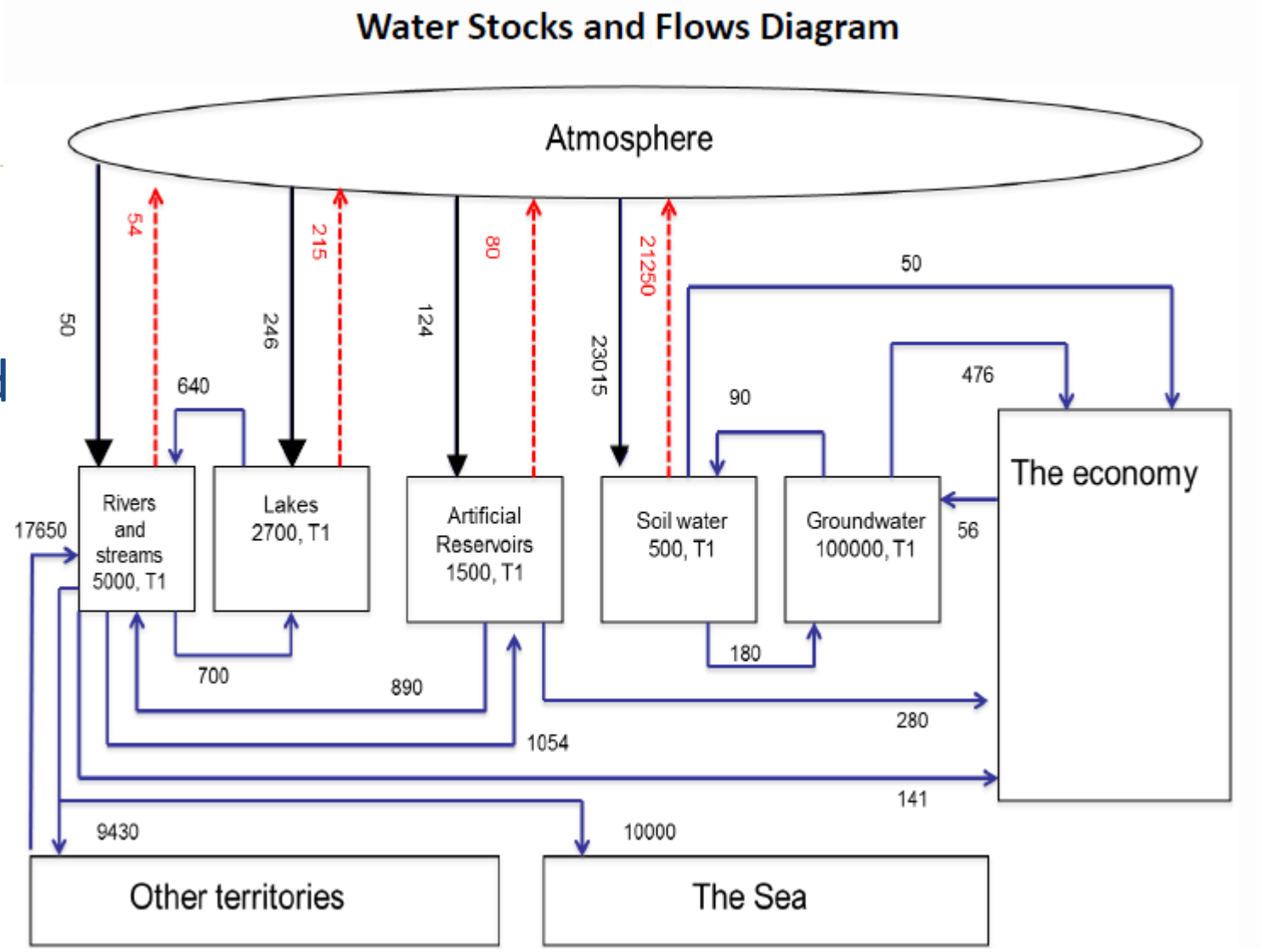
Water stocks and flows

- Stocks (initial and final)
- Flows (abstraction, supply and use, transfers)

- Losses from inland system
- Inputs to inland system
- Transfers between units



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Asset accounts

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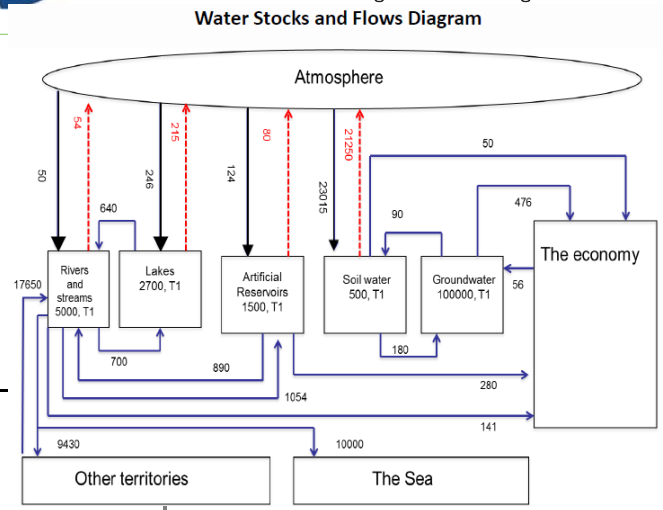

	Type of water resources						
			Surface water				
	Artificial reservoirs	Lakes	Rivers and streams	Glaciers, snow and ice	Goundwater	Soil water	Total
(A) Opening stock	**1,500**	**2,700**	**5,000**	-	**100,000**	**500**	**109,700**
Additions to stock							
(B) Returns (from Economy)	-	-	-	-	56	-	56
(C) Precipitation	124	246	50	-		23,015	23,435
(D) Inflows from other territories	-	-	17,650	-	-		17,650
(E) Inflows from other inland water	1,054	700	640	-	180	90	2,664
(F) Discoveries of water in aquifers					-		-
(G) Total additions to stock	*1,178*	*946*	*18,340*	-	*236*	*23,105*	**43,805**
Reductions in stock							
(H) Abstraction (to Economy)	280		141	-	476	50	947
(I) Evaporation and evapotranspiration	80	215	54	-		21,250	21,599
(J) Outflows to other territories			9,430	-	-		9,430
(K) Outflows to the sea			10,000	-	-		10,000
(L) Outflows to other inland water	890	640	1,754	-	90	180	3,554
(M) Total reductions in stock	*1,250*	*855*	*21,379*	-	*566*	*21,480*	**45,530**
Closing stock	**1,428**		**1,961**		**99,670**	**2,125**	**107,975**

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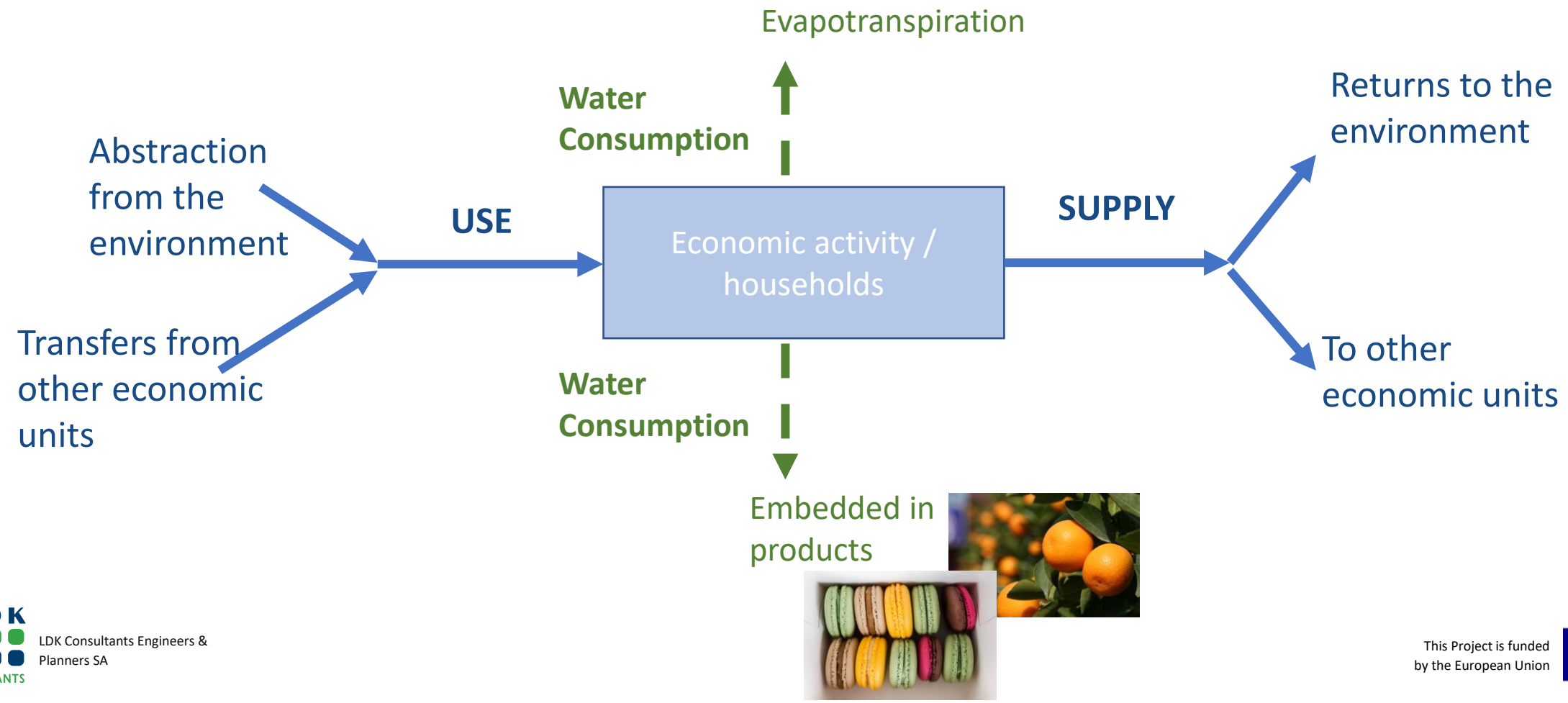
Supply and Use Concept

- Water flows



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Physical water use

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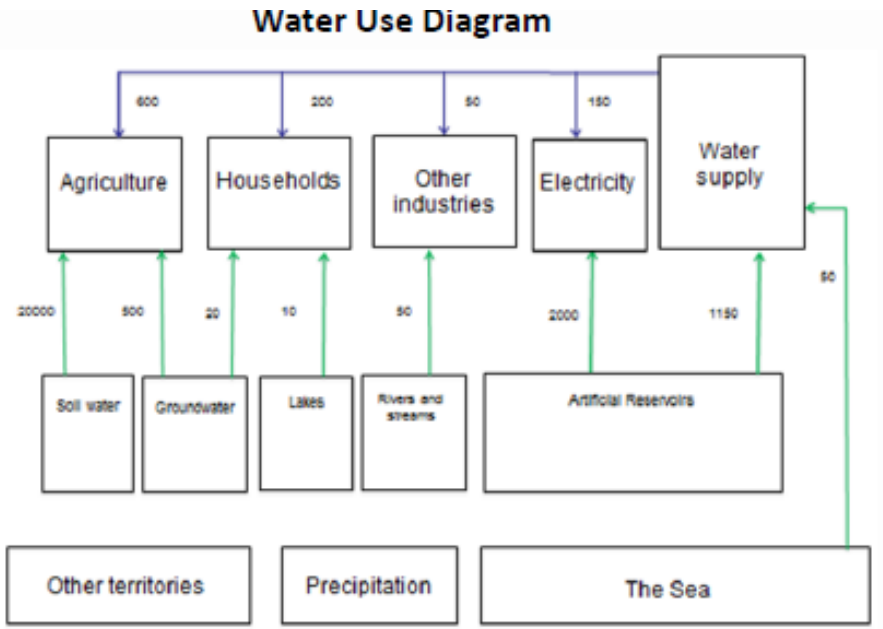
- Physical use tables
  - From the environment
  - From economic units



	Use of water					
	Agriculture, forestry and fishing	Electricity, gas, steam and air conditioning	Water collection, treatment and supply	Other industries	Households	Total use
Sources of abstracted water						
Inland water resources						
Surface water	-	2,000	1,150	50	10	**3,210**
Groundwater	500	-	-	-	20	**520**
Soil water	20,000	-	-	-	-	**20,000**
Sea water	-	-	50	-	-	**50**
Total abstracted water	20,500	2,000	1,200	50	30	**23,780**
Abstracted water						
Distributed water (to other econmic units)	-	-	1,000	-	-	
Use of water (from other economic units)	600	150	-	50	200	**1,000**
Own use	20,500	2,000	200	50	30	**22,780**
Total use of water (abstracted and distributed water)	**21,100**	**2,150**	**200**	**100**	**230**	**23,780**

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SEEA-W experiences worldwide

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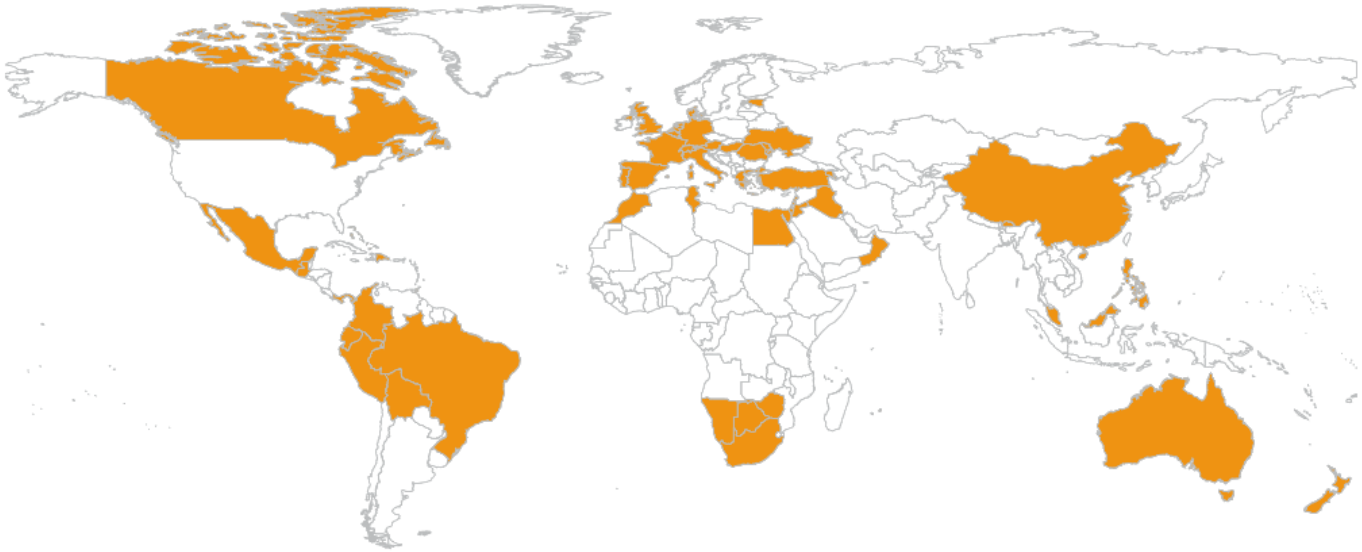
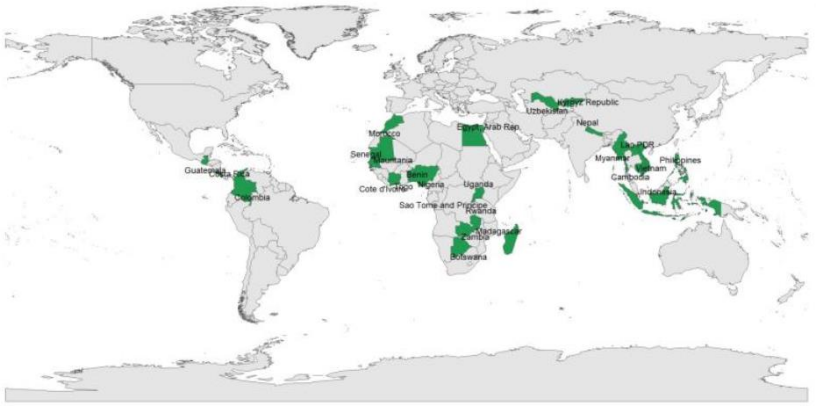


Source: UN SEEAW briefing note



Source: WAVES (Natural Capital accounting

Experiences in the Med area

- Joint effort from EC, Eurostat, UN-DS UN-ESCWA
- **MedStat**
  - Trainings and pilot water accounts
- **ENI-SEIS South**
  - Several training organised
- **ESCWA**
  - Training for member countries
  - Support for National Water accounts

European Environment Agency

ENI SEIS II South

Shared Prosperity Dignified Life

United Nations
Economic and Social Commission for Western Asia

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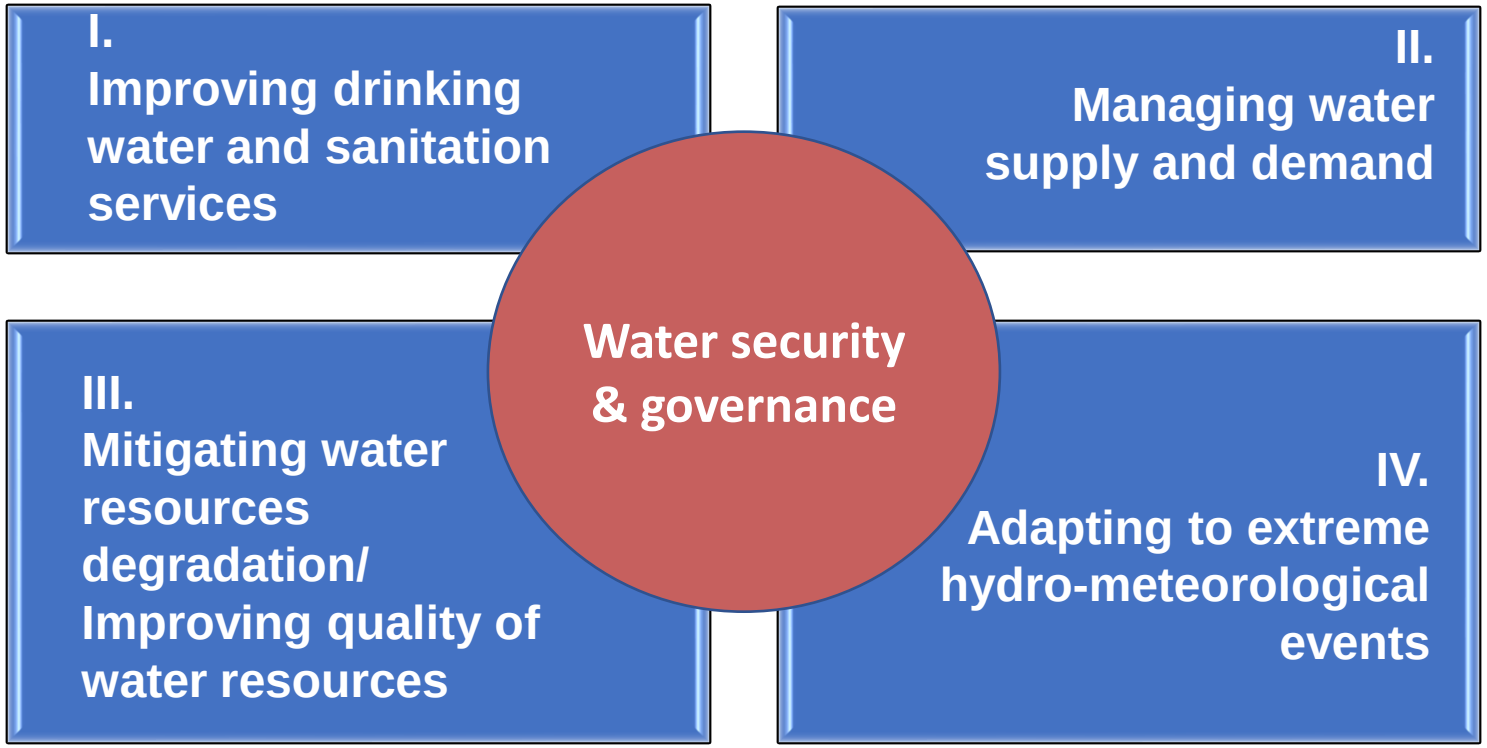
Policy objectives

- SEEA-W contributes to the 4 quadrants of water policy, enabling to measure progress, enabling linking water security with social and economic development



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Thank you for your attention!

https://www.wes-med.eu/

Eric Mino

e.mino@semide.org

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