

Regional training on Water Accounting / RW-2-REG

Session 1.2 – Use and benefits of
SEEA-W

12/10/2020, online

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



Content



**Water and
Environment Support**
in the ENI Southern Neighbourhood region

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

Session 1.2

- Benefits of water accounting
- SDG Reporting
- Other approaches



IRWM and its links to SEEAW



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- Allocating water resources efficiently
- Improving water efficiency
- Understanding the impacts of water management on all users
- Getting the most value for money from investment in infrastructure
- Linking water availability and use
- Providing a standardized information system
 - which harmonizes information from different sources,
 - is accepted by the stakeholders and
 - is used for the derivation of indicators

IWRM calls for sustainable management of water resources to ensure that there is enough water for the future generations and that the water meets high quality standards

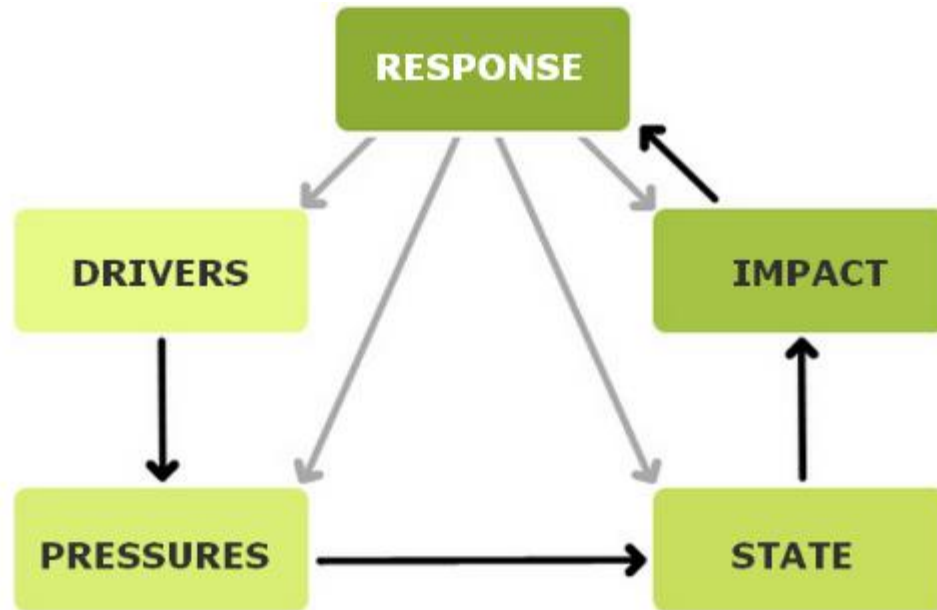
*IWRM approach requires that policies and priorities take **water resources implications** into account including the **two-way relationship between macro-economic policies** and water development, management and use*



DPSIR connections



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- **D**: anthropogenic activities
- **P**: abstraction & emissions to water
- **S**: ecosystems capacity & environment conditions
- **I**: changes in ecosystems conditions (depletion & degradation)
- **R**: expenditures & taxes

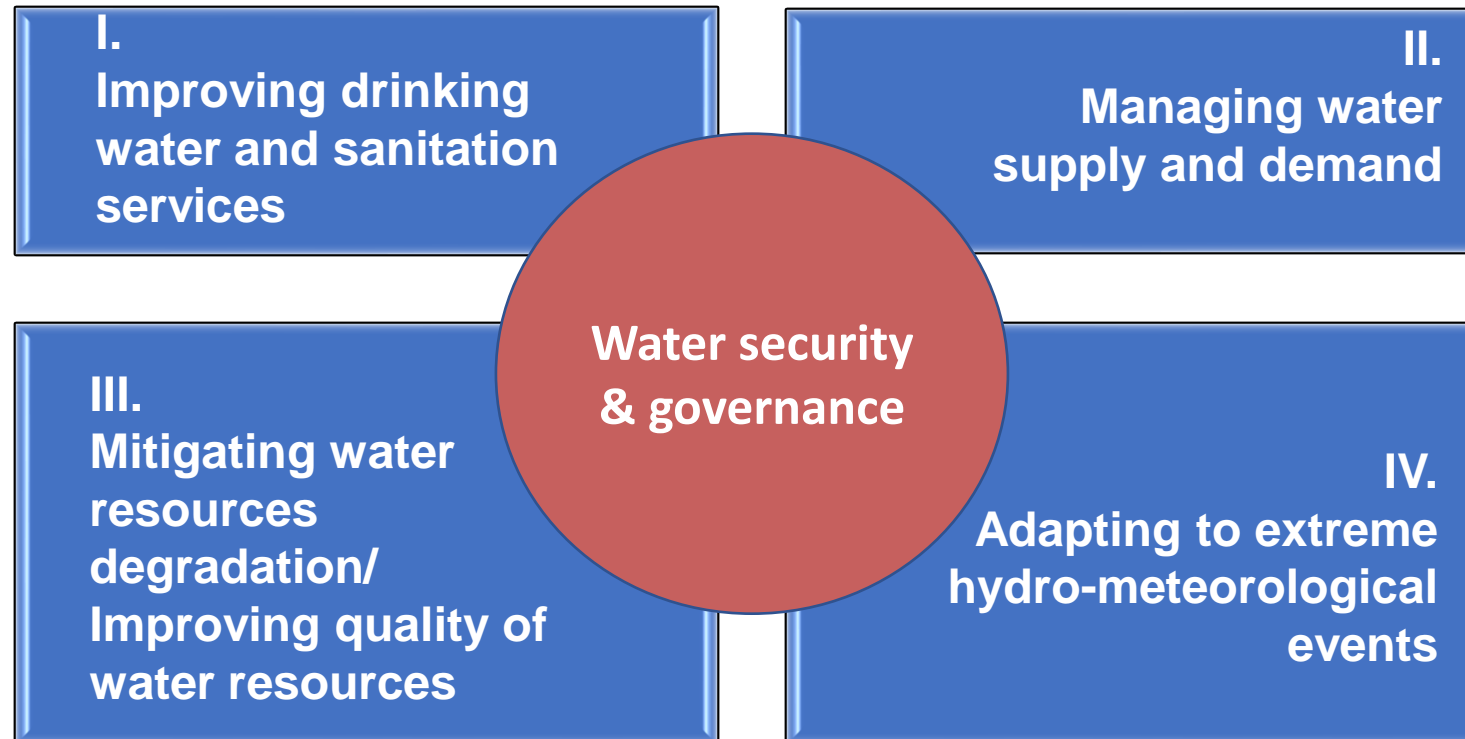


Policy objectives



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



Quadrant I: Water and Sanitation



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I. Improving drinking water and sanitation services



- Relevant SEEA-W accounts
 - Physical Supply & Use
 - Monetary
 - Emissions
- Number of people with access to improved water and sanitation
- How much water do households use?
- All costs associated to the provision of the services
- Investments in infrastructure and value of infrastructure
- Volume of water abstracted, distributed and lost (unaccounted for water)



Quadrant II: Water Supply and Demand



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II. Managing water supply and demand



- Relevant SEEA-W accounts
 - Physical Supply & Use
 - Monetary
 - Emissions
- Renewable inland water resources
- Water abstracted/consumed/returned by economic activities (including households).
- Water productivity by economic activity
- Employment linked to water
- Who pays the most for water?
- Investments in hydraulic infrastructure and value of existing infrastructure
- Have measures to improve water use efficiency been successful?
- Change of rights/allocation/use over time



Quadrant III: Water Quality and Water Health



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III. Mitigating water resources degradation/ Improving quality of water resources



- Relevant SEEA-W accounts
 - Monetary
 - Emissions
- Waterborne pollutants emitted by economic activity, e.g. main sources of nitrate emissions
- Pollutants removed as a result of treatment
- Water quality assessments in watercourses
- Regulatory services provided by ecosystems in terms of assimilation of waterborne pollution (water purification and disease control)
- Pollution emissions to water / GDP or / capita for the different industries



Quadrant IV: Extreme Hydro-Meteorological Events



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IV. Adapting to extreme hydro- meteorological events



- Water stocks and variations through time (surface and groundwater).
 - Investments for the storage and control of water
 - Regulatory services provided by the ecosystems in terms of water flows
 - Is water use sustainable?
- Relevant SEEA-W accounts
 - Asset
 - Monetary
 - Emissions
 - Experimental Ecosystem accounts



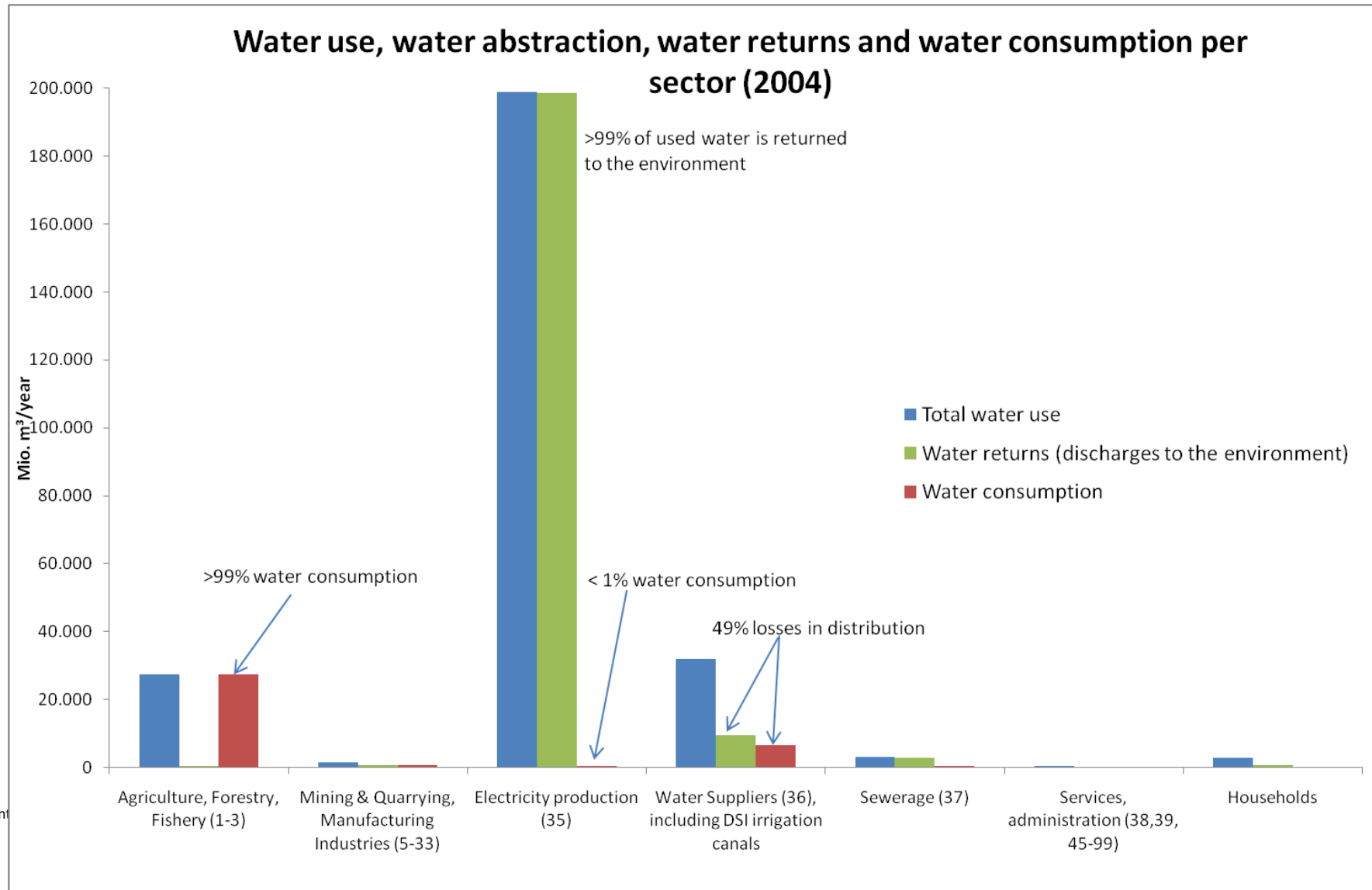
A few examples



Analysing water use



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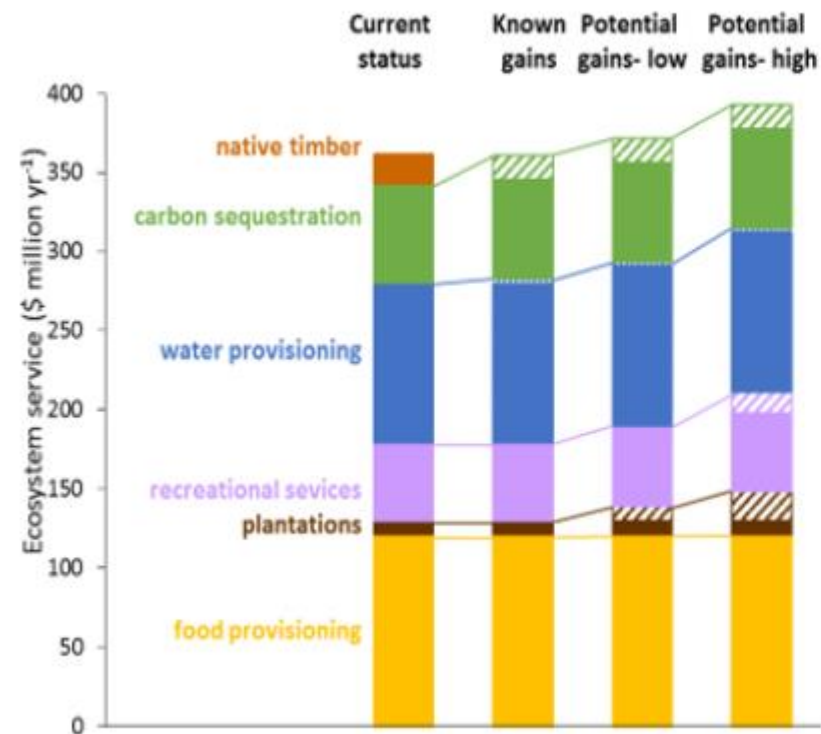
Ecosystem services Value vs Industry Value Added



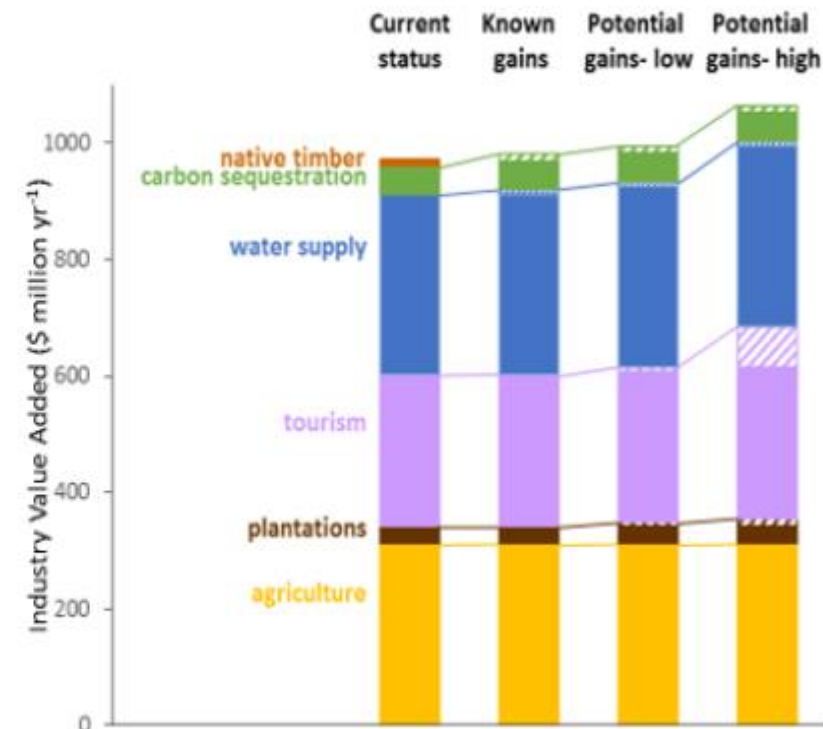
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- Case of Australia (2013-14)

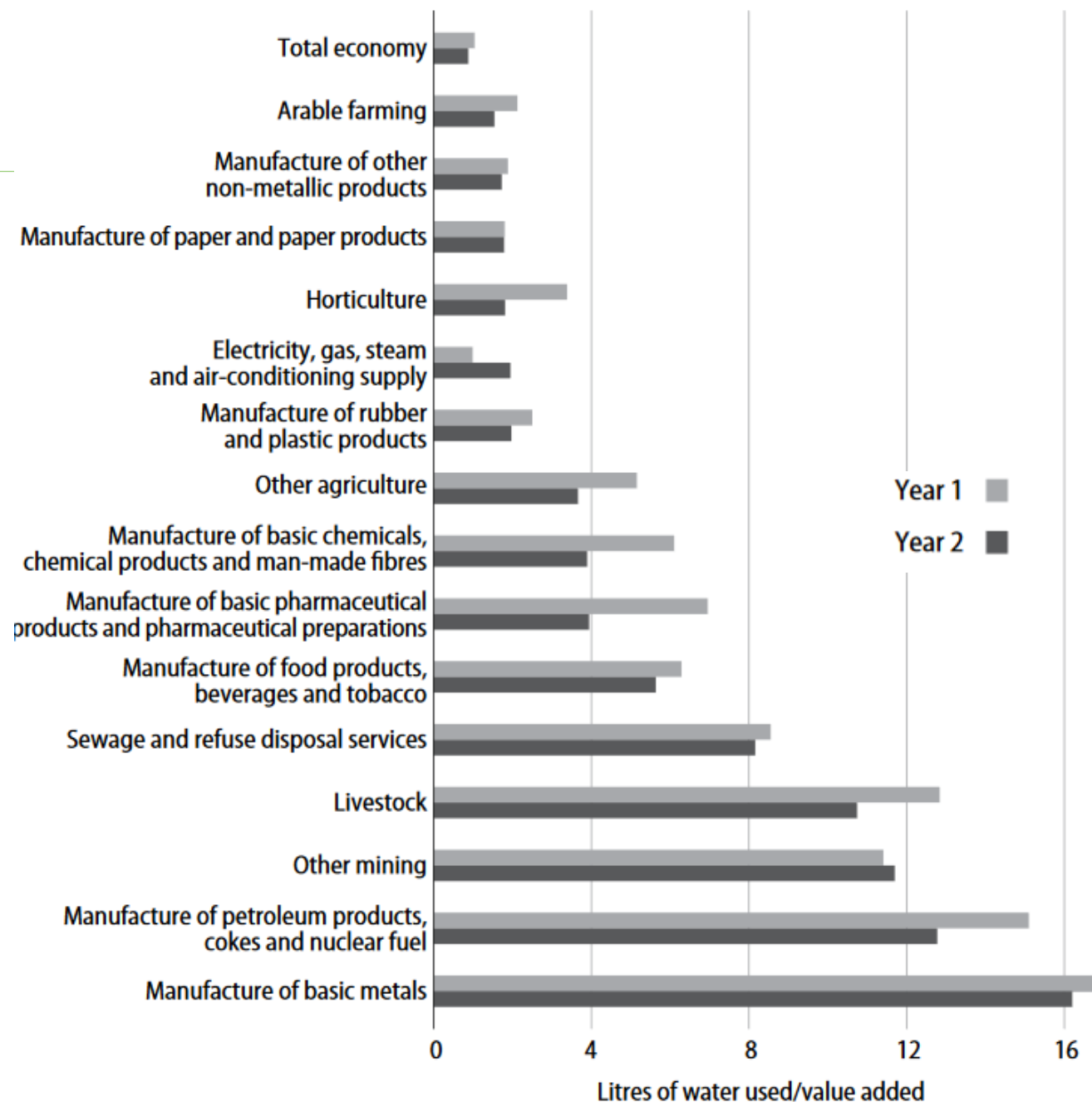
(a) Ecosystem services



(b) Industry Value Added



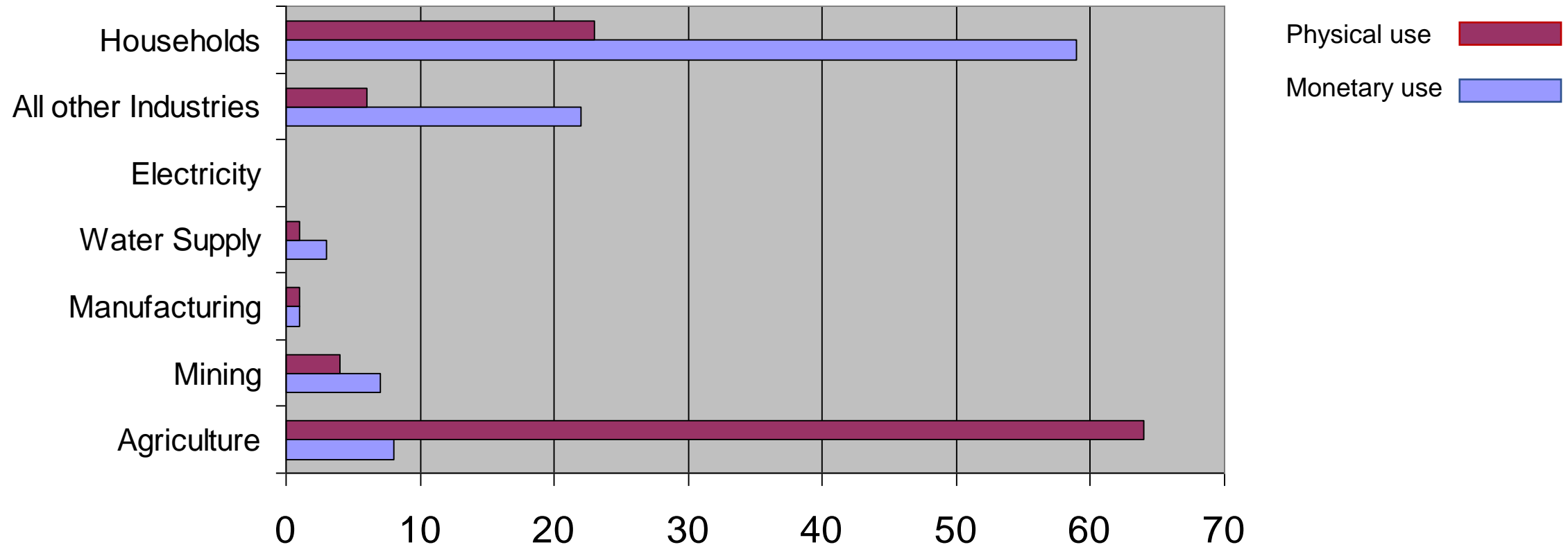
Industry-level water-use intensity indicators



Monetary versus physical use distributed water



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Australia: % of total use



SDG reporting



Relevance to SDG



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- Statistical frameworks and SDG

Sustainable Development Goal	SNA (2008)	SEEA CF (2012)	SEEA EEA
1. Poverty			
2. Sustainable Agriculture			
3. Healthy Lives			
4. Equitable Education			
5. Gender Equality			
6. Water			
7. Energy			
8. Sustainable Growth			
9. Innovation and Infrastructure			
10. Inequality			
11. Sustainable Cities			
12. Sustainable Consumption and Production			
13. Climate Change			
14. Marine and Coastal			
15. Ecosystems			
16. Peace and Governance			
17. Partnership and Implementation			



SDG indicators & SEEA alignment



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Indicators calculated combining various SEEA accounts

Full Alignment		Partial Alignment
1	6.3.1 - Proportion of wastewater safely treated	2.4.1 - Proportion of agricultural area under productive and sustainable agriculture
2	6.3.2 - Proportion of bodies of water with good ambient water quality	6.1.1 Proportion of population using safely managed drinking water services
3	6.4.1 - Change in water-use efficiency over time	
4	6.4.2 - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	
5	6.6.1 - Change in the extent of water-related ecosystems over time	
6	8.9.1 - Tourism direct GDP as a proportion of total GDP and in growth rate	
7	11.3.1 Ratio of land consumption rate to population growth rate	
8	11.7.1 Average share of built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	
9	14.1.1 - Index of coastal eutrophication and floating plastic debris density	
10	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations	
11	14.4.1 - Proportion of fish stocks within biologically sustainable levels	
12	14.5.1 - Coverage of protected areas in relation to marine areas	
13	14.7.1 - Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries	
14	15.1.1 - Forest area as a proportion of total land area	
15	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	
16	15.2.1 - Progress towards sustainable forest management	
17	15.3.1 - Proportion of land that is degraded over total land area	
18	15.4.1 - Coverage by protected areas of important sites for mountain biodiversity	
19	15.4.2- Mountain Green Cover Index	
20	15.5.1 - Red List Index	
21	15.9.1 - Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020	

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Direct calculation from SEEA-W

Source: Global indicator initiatives, SEEA Modules and SDG, working document UN-EU 2019

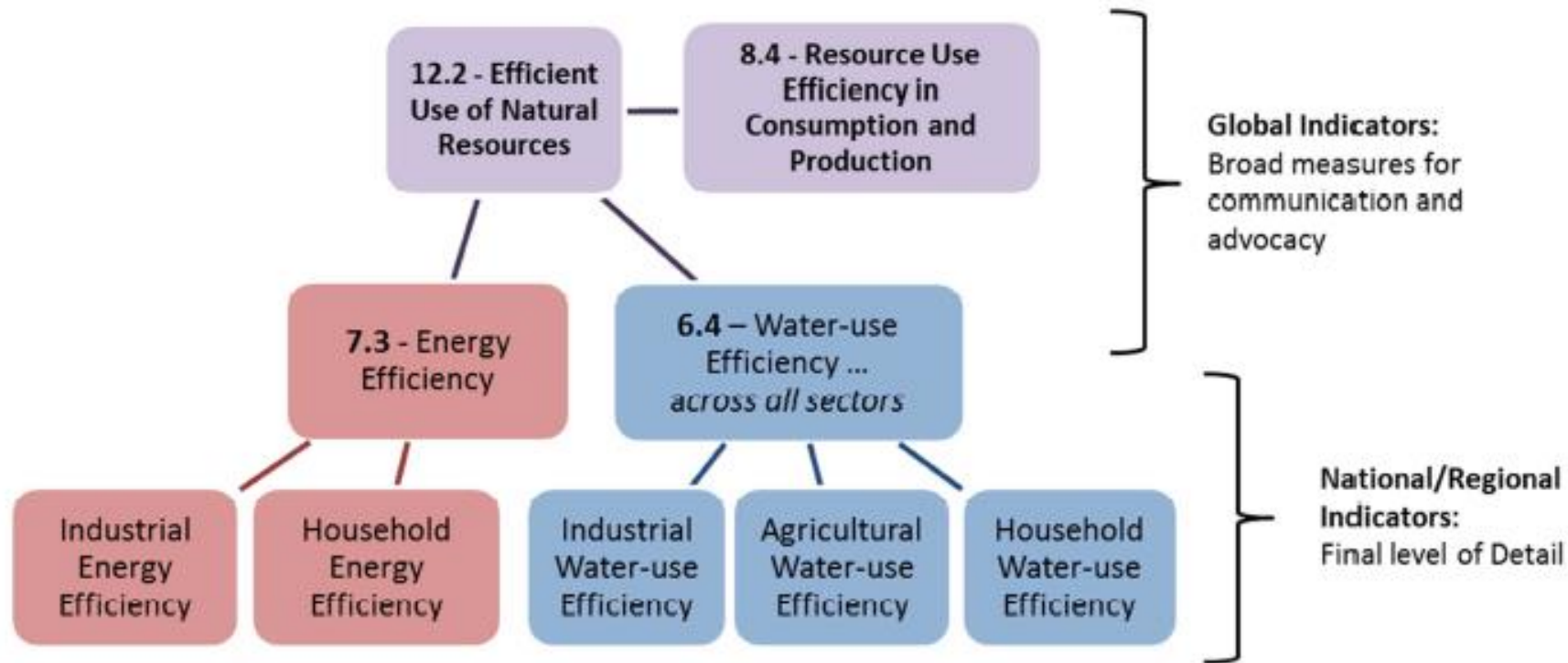


Integration capacity of SEEA



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- Collect data once, use it for several purposes (SEIS principle)



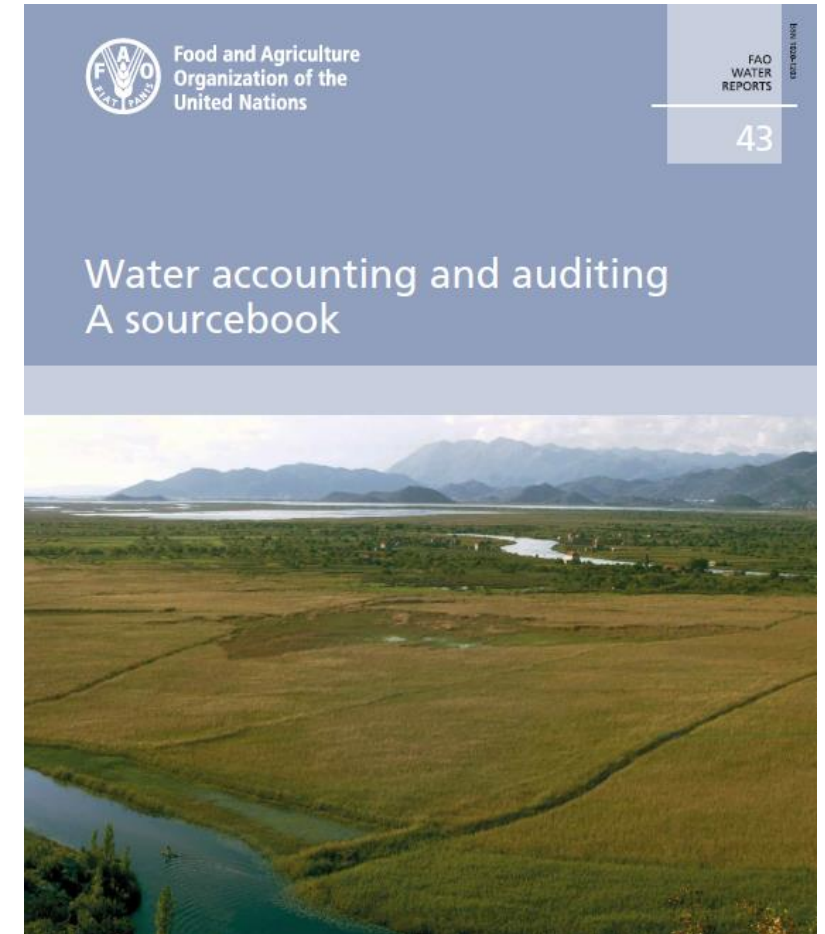
Other water accounting approaches

Water Accounting and Auditing



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- **Advantages**
 - Simple step wise approach:
 - ✓ Rapid water accounting
 - Guiding principles
 - Wide community and projects
 - Economic issues = water auditing
- **Challenges**
 - Ad'hoc framework (focus on agriculture)
 - Industry and domestic uses



Other water accounting approaches

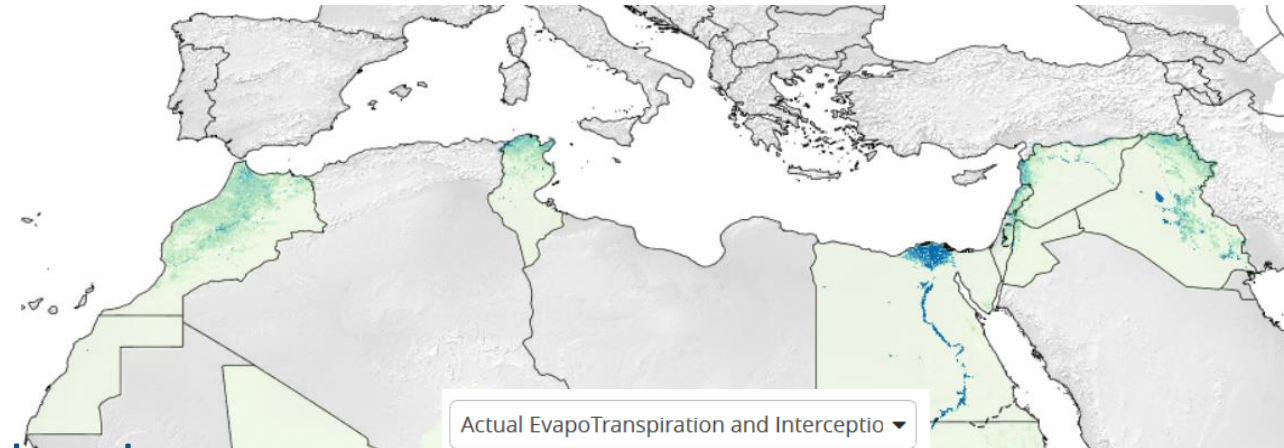
WA+ - Remote-sensing based water accounting



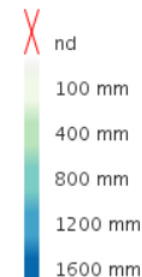
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- Advantages
 - Determine water consumption
 - Surface area bases
 - Suitable for agriculture and natural land use
 - Cost effective
- Challenges
 - No direct information on withdrawal and return flow
 - Not suitable for industry and municipalities
 - Reduced stakeholder engagement
 - Wide and variable degree of uncertainty

Water ACCOUNTING+



The actual EvapoTranspiration and Interception (ETIa) is the sum of the soil evaporation (E), canopy transpiration (T), and evaporation from rainfall intercepted by leaves (I). [See more in Catalog](#)



Other water accounting approaches

Water Footprint



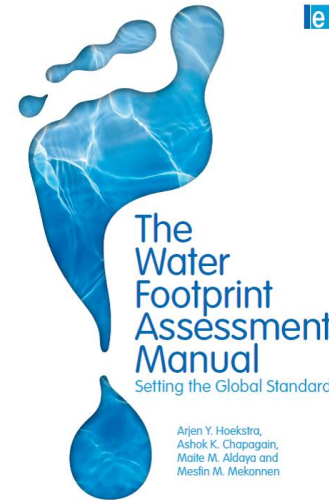
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- **Advantages**

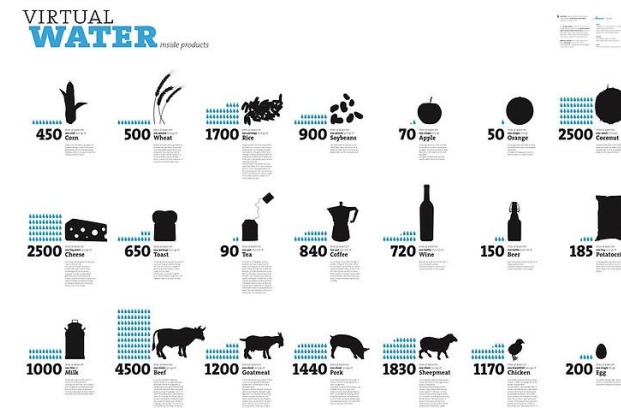
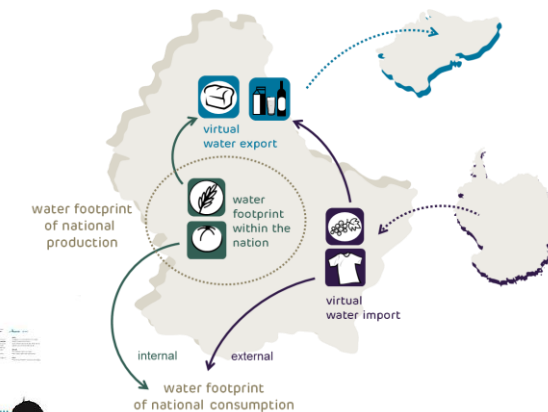
- Water use per product
- Shows impact on people consumption patterns
- High communication value

- **Challenges**

- Traceability
- Consumptive vs non-consumptive water use
- Renewable vs non-renewable water resources
- Rainfed vs irrigated agriculture



**water
footprint
network**



Tim Kekeritz



Other water accounting approaches



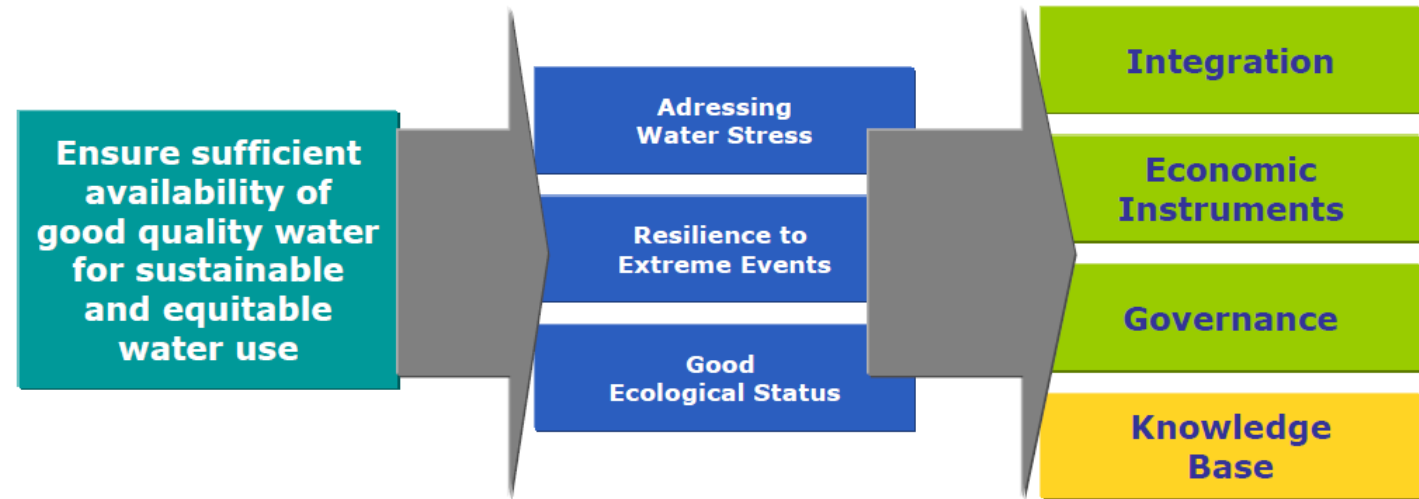
- FAO Water accounting and auditing
- Water Accounting + (based on remote sensing)
- Water Footprint
- EU water accounts approach
- OECD-Eurostat joint questionnaire on water statistics



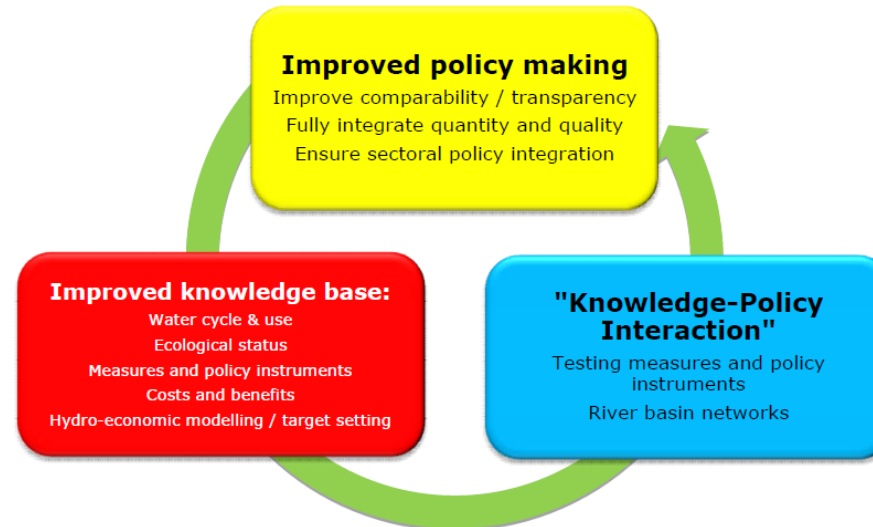
EU water accounts

- EU Water balances as indicator for water scarcity
- Based on UN-SEEA-W methodology (2007)
- Shift from **Year / Country** to **Month / sub-basin**
- **Tested in pilot basins**
- **Implemented at EU level (EEA)** as part of WISE (Water Information System for Europe)

Blueprint Objectives



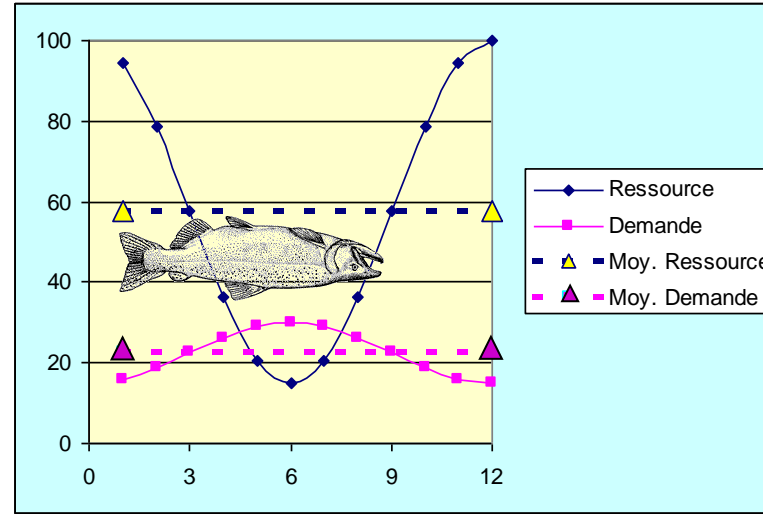
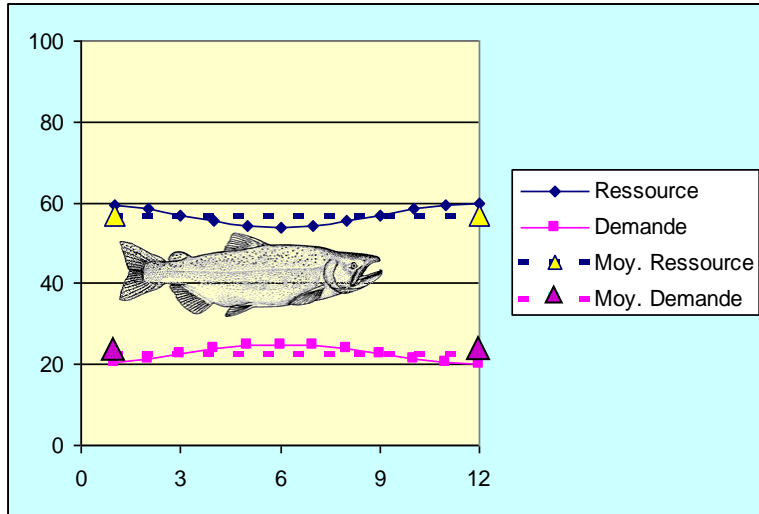
Knowledge-Policy Interface



Importance of temporal resolution

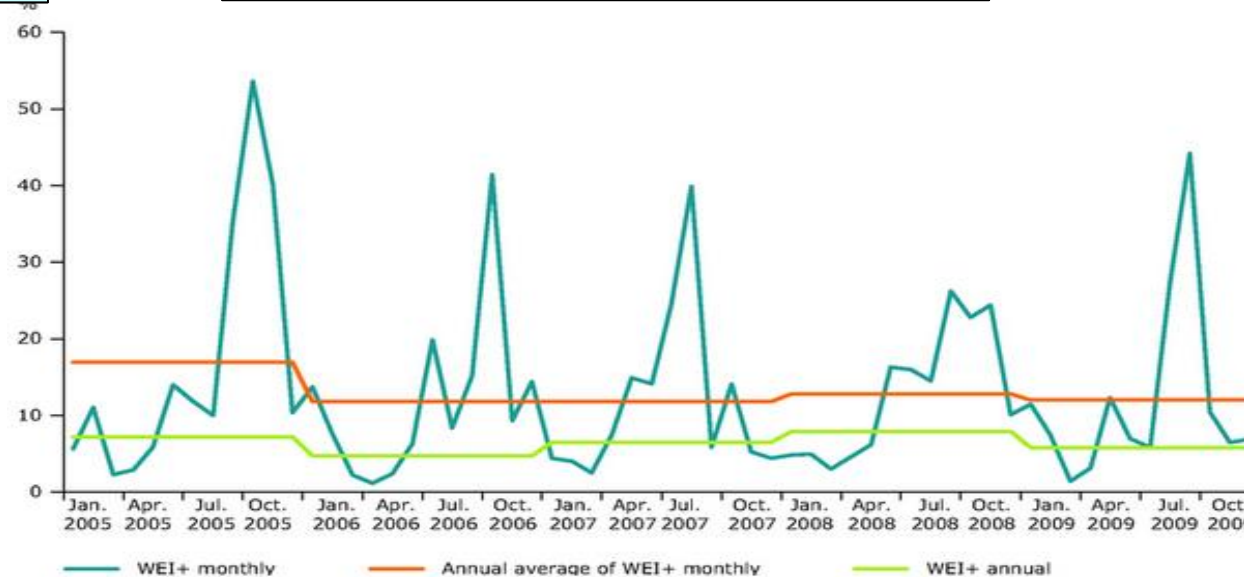


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Jean-Louis Weber – Philippe Crouzet
(EEA)

- Water Exploitation Index
Annual vs monthly
(2005-2009)

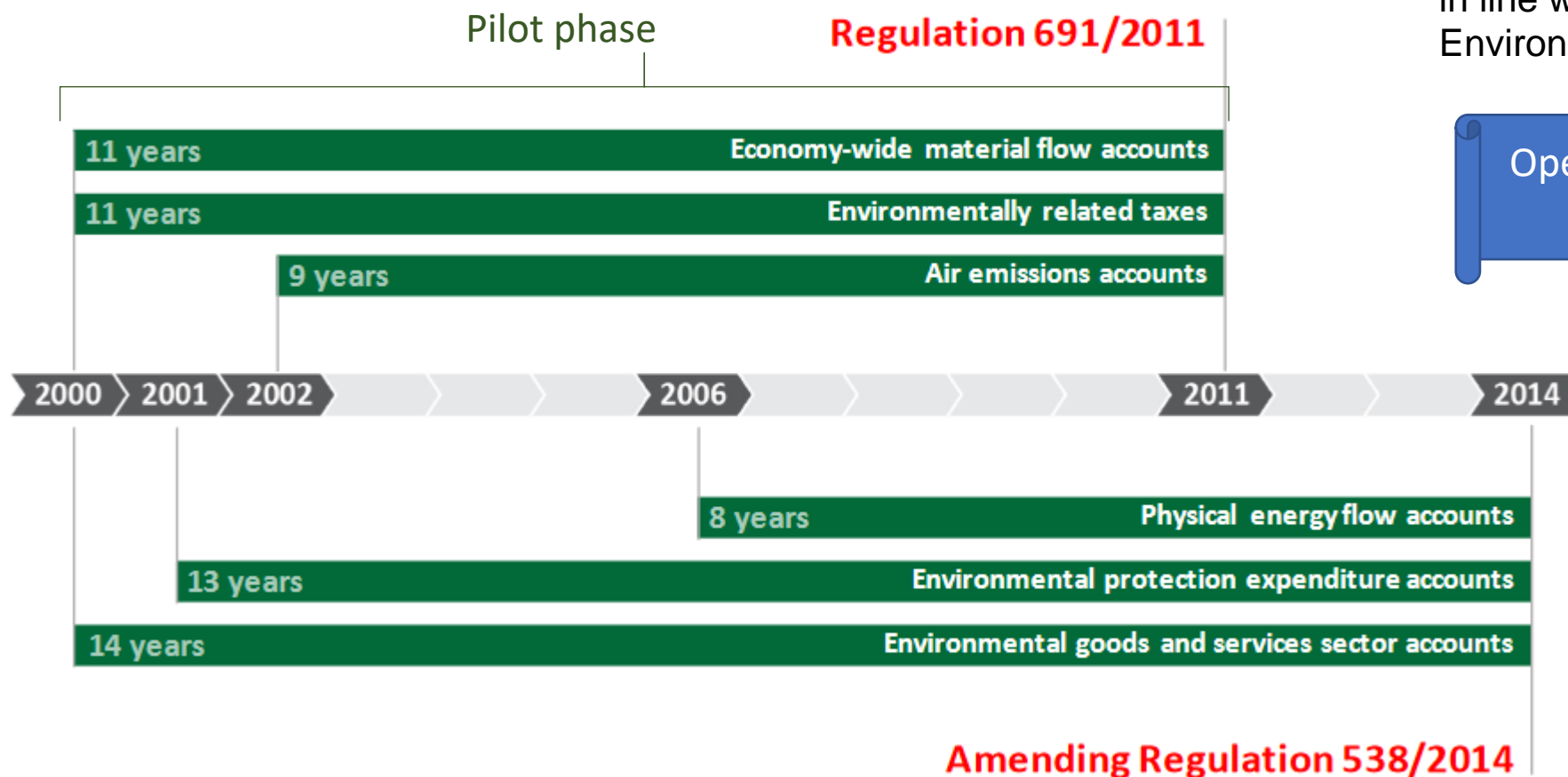


European Environmental Economic Accounts legal framework



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in line with the UN System of Environmental Economic Accounting.



Operational since
2013

Operational since
2017

Planned accounts
(pilot phase)

Forest accounts, environmental subsidies. natural capital accounts/ecosystem accounts, **water accounts** and resource management expenditure accounts.





Take away messages

- A standard framework for systematic assessment & support to policies
- Multisectoral vision: align policy questions beyond the water sector
- Ownership & adaptation:
 - Pilot applications on sub-national units (e.g. river basin)
 - Build on existing data & estimation, acknowledge uncertainty
 - Progressive knowledge development
- Institutionalisation: a long process
 - Legal framework
 - Agreement between stakeholders to collect, share and aggregate data
 - Multidisciplinary teams are necessary with shared responsibilities
 - Build on / extension of National Water Information Systems





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Thank you for your attention!

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

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