



Session 4.2

Linking water accounts & statistics with water policy objectives

RW-2-REG

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Introduction



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

- Global freshwater resources are under pressure from
 - the **increasing demand** created by human activities
 - the **contamination** caused by pollution
 - the increasing incidence of **water-related diseases**
 - loss and **degradation of freshwater ecosystems** and
 - from **climate change**
- As the limits of domestic water resources are reached, this situation raises the potential for competitions especially in shared / transboundary water bodies (SW, GW)



Water accounts and policy objectives



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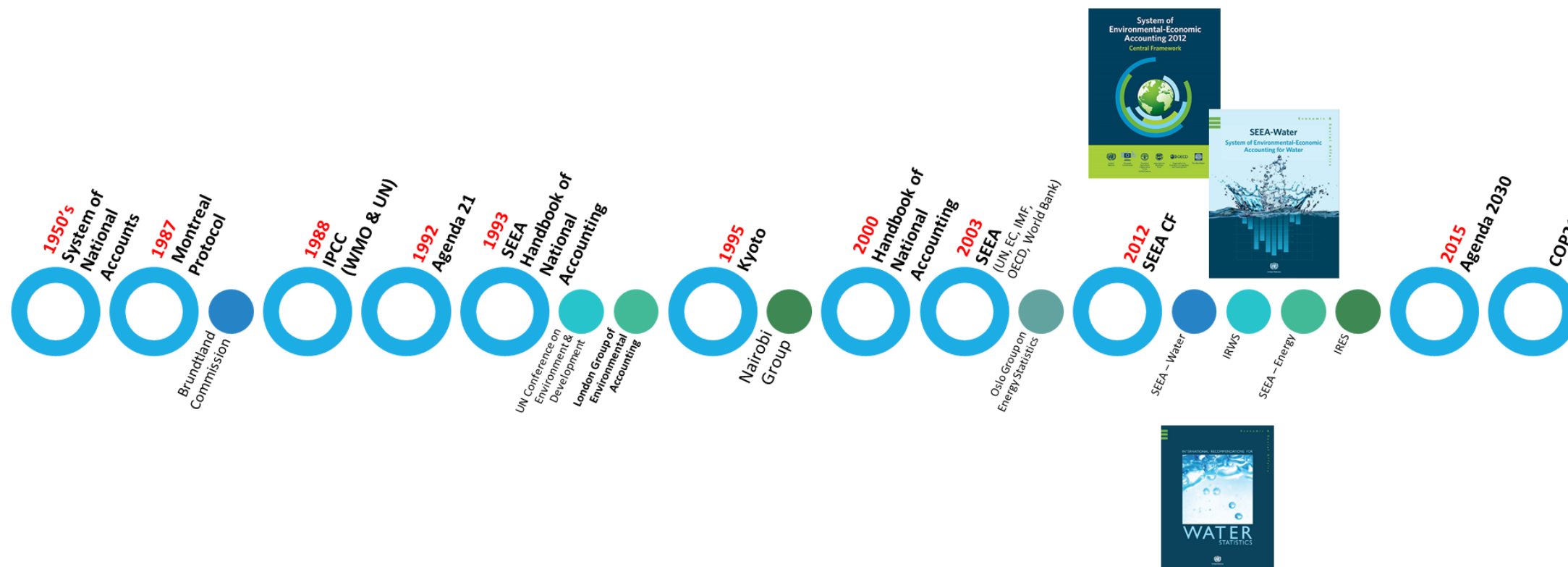
- The water accounts provide detailed information that can be used to
 - analyze the pressure on water resources,
 - formulate long-term water management strategies and
 - design effective policies for implementing a given strategy, such as appropriate **water pricing** and **effluent taxes**



Historical background – Global scale



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Source: Bariamis et al., EWRA 2017



State of environment reporting



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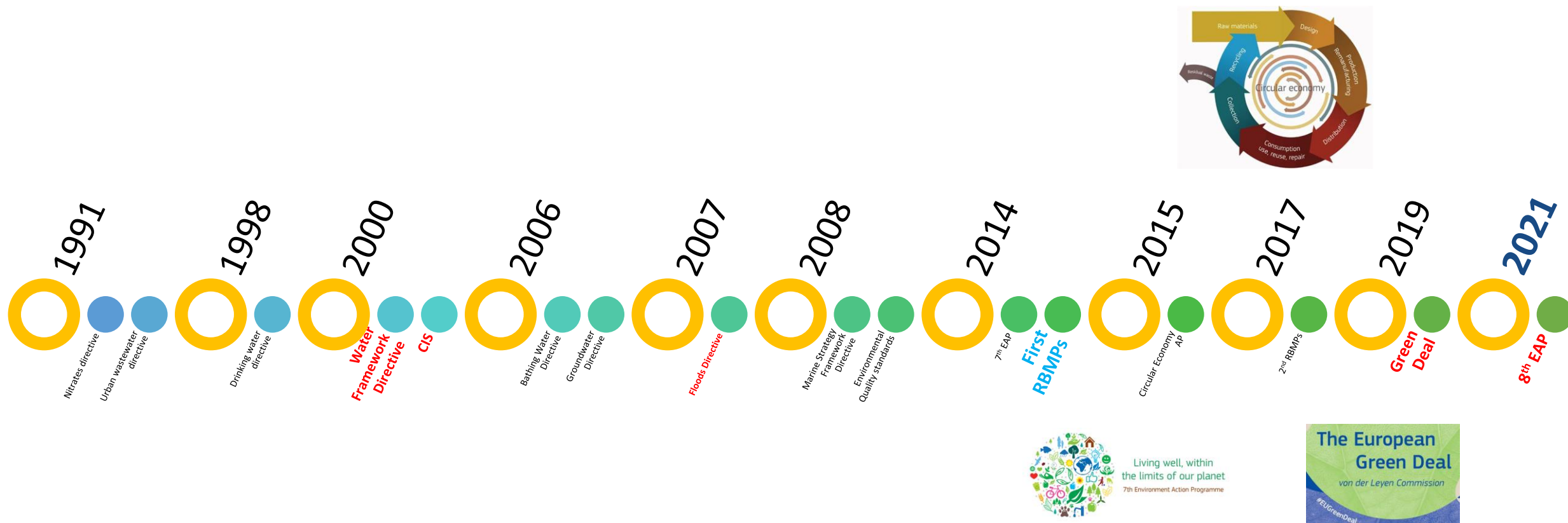
Source: EEA ([link](#))



Historical background – EU water policy



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Challenge areas



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- Global – climate change , allocation of water assets
- Agriculture – food security
- Industry – circularity
- Sustainable Energy
- Ecosystems protection



Water Framework Directive (2000/60/EC)



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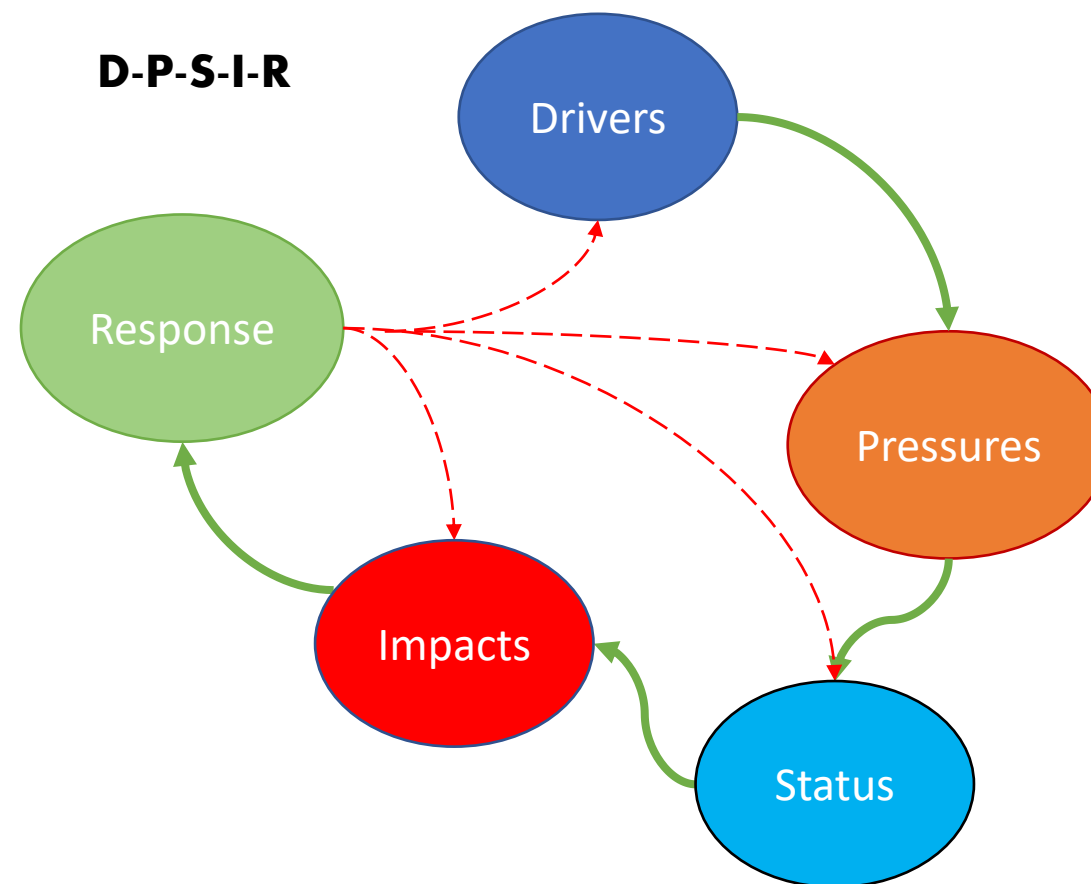
- The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater
 - prevents further deterioration and protects and enhances the status of aquatic ecosystems
 - promotes sustainable water use based on a long-term planning approach
 - ensures the progressive reduction of pollution of groundwater
 - contributes to mitigating the effects of floods and droughts





Assessment framework

- Recognition of drivers
- Identification of pressures
- Definition of status
 - Ecological
 - Quantitative
 - Chemical
- Impacts (effects) of pressures
- Responses (measures) - PoMs





Quantitative pressures

- Water abstractions from groundwater bodies
 - Continental
 - Coastal
- Directly linked with Physical use (by source) and Asset Tables (decrease of stocks) of water accounts

Table A1.9
Asset account table (physical units) (chap. VI)

	EA.131. Surface water				EA.132 Groundwater	EA.133 Soil water	Total
	EA.1311 Artificial reservoirs	EA.1312 Lakes	EA.1313 Rivers	EA.1314 Snow, ice and glaciers			
1. Opening stocks							
Increases in stocks							
2. Returns							
3. Precipitation							
4. Inflows							
4.a. From upstream territories							
4.b. From other resources in the territory							
Decreases in stocks							
5. Abstraction							
6. Evaporation/actual evapotranspiration							
7. Outflows							
7.a. To downstream territories							
7.b. To the sea							
7.c. To other resources in the territory							
8. Other changes in volume							

Table A2.1
Supplementary information^a to the physical supply and use tables (chap. III)

		Industries (by ISIC category)							Households	Rest of the world	Total
		1-3	5-33, 41-43	35	36	37	38, 39, 45-99	Total			
From the environment	1. Total abstraction (= 1.a + 1.b = 1.I + 1.II)										
	1.a. Abstraction for own use										
	Hydroelectric power generation										
	Irrigation water										
	Mine water										
	Urban run-off										
	Cooling water										
	Other										
	1.b. Abstraction for distribution										
	1.I. From inland water resources:										
	1.I.1. Surface water										
	1.I.2. Groundwater										
	1.I.3. Soil water										
	1.II. From other sources										
Within the economy	2. Use of water received from other economic units										
	of which:										
	2.a. Reused water										
3. Total use of water (= 1 + 2)											



Ranking of the water-dependent sectors



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Sector	C1. Water abstraction	C2. Share of water costs in total output	C3. Dependence on quality	C4. Dependence on consumed water
1. Agriculture	High	High	High	High
2. Mining and quarrying	Low	High	Low	Low
3. Food and beverages	Medium	Medium	High	High
4. Textiles	Low	Medium	Low	Medium
5. Paper products	High	High	High	Medium
6. Coke, chemicals and pharmaceuticals	High	High	High	High
7. Basic metals	Medium	Medium	Medium	Medium
8. Other manufacturing	Medium	Low	Medium	Low
9. Electricity production	High	Low	Low	Low
10. Water supply and sewerage	High	High	High	High
11. Construction	Low	Low	Medium	High
12. Forestry	<i>These sectors were not ranked as they do not abstract water and thus cannot be assessed based on the four criteria. However, they do significantly depend on water. Forestry and water transport are dependent on access to water (water quantity), while fishery is dependent on both water quantity and quality.</i>			
13. Fishery				
14. Water transport				

Source: Blue2 Project: Task A2

*Sector based PSU tables
fully integrate
such options*

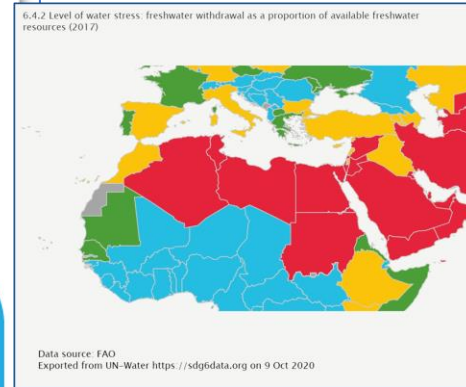
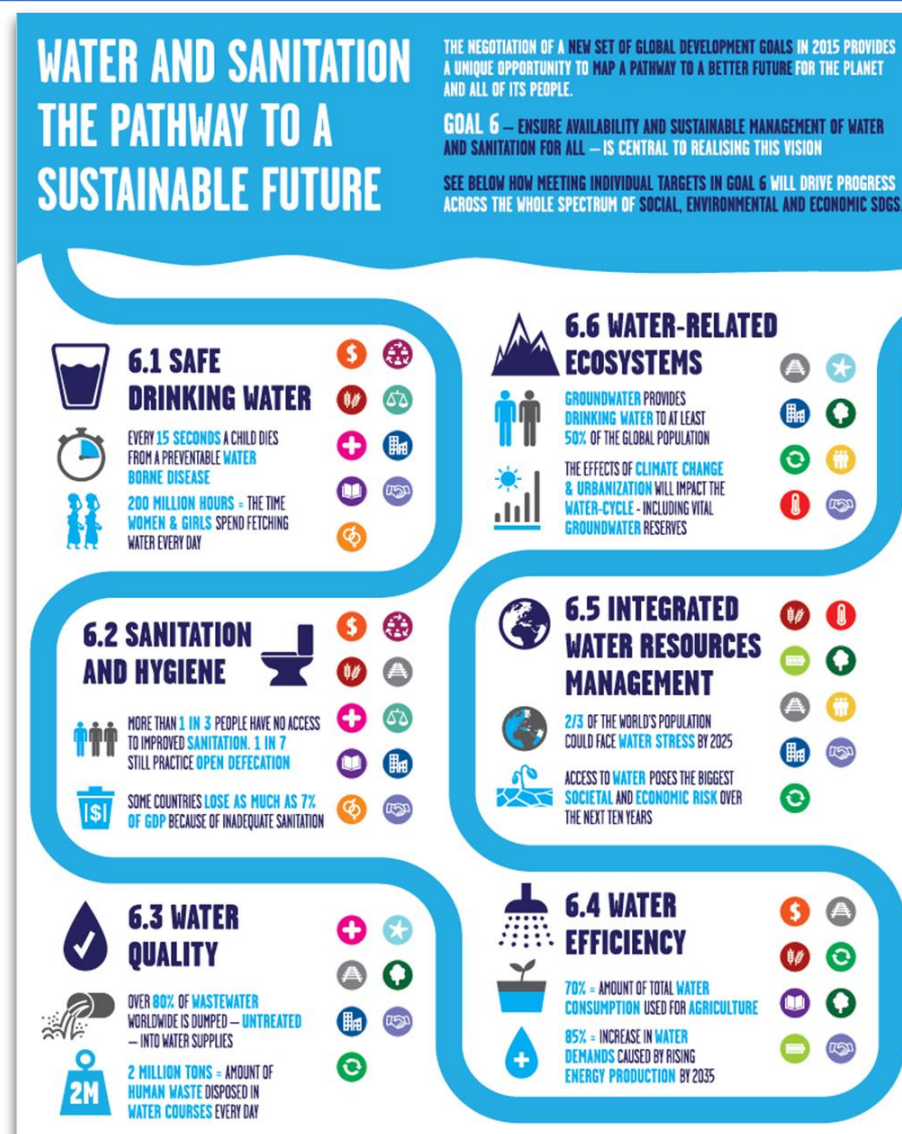


UN SDG – Goal 6

- Access to drinking water
- Groundwater management
- Efficient use of water, stop the wastage
- Reduction of water stress
- Sanitation and hygiene
- Wastewater treatment
- Protection of ecosystems



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Integrating water with energy and food



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Figure 1-1. World energy consumption, 1990-2040
quadrillion Btu

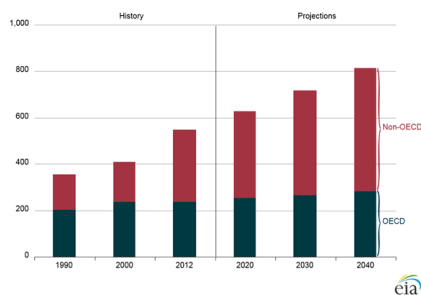
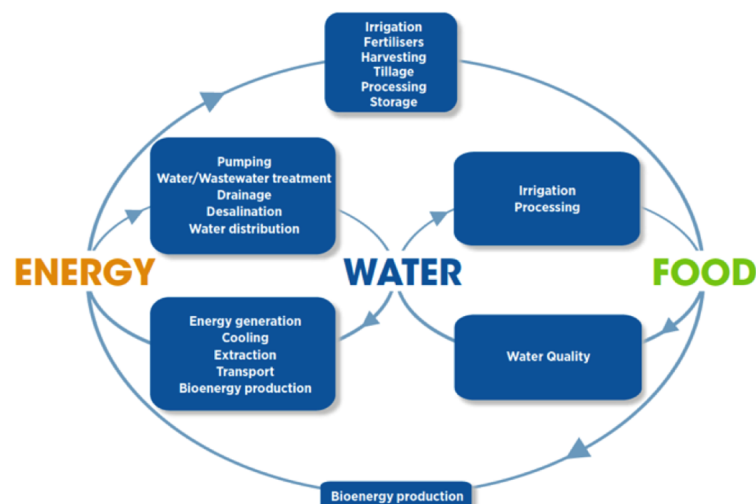
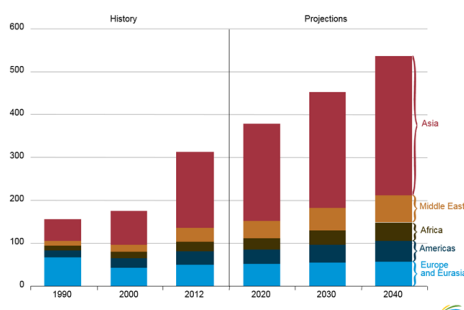
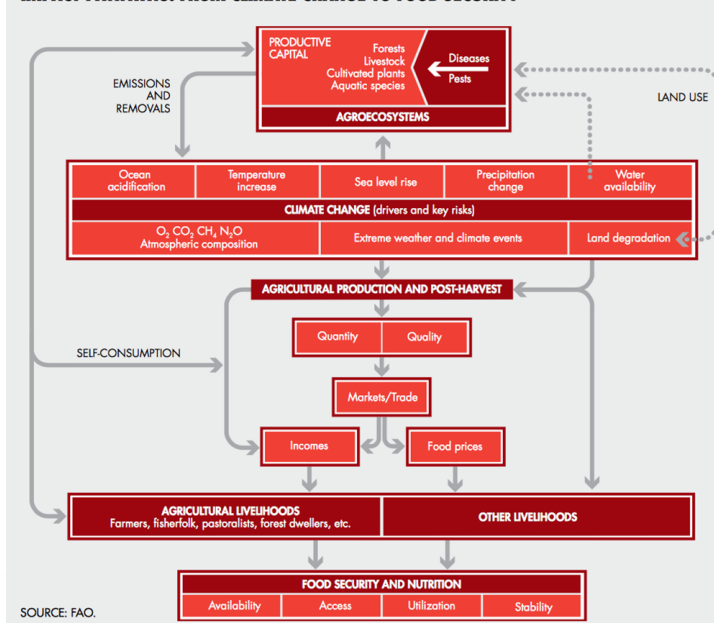


Figure 1-4. Non-OECD energy consumption by region, 1990-2040
quadrillion Btu



IMPACT PATHWAYS: FROM CLIMATE CHANGE TO FOOD SECURITY





Water accounts – Policy – IWRM

- Decision makers no longer rely primarily on conventional supply-oriented approaches to water management.
- Water management analyses the benefits of current allocations of water, anticipates future water demand and evaluates **different policy options** for meeting that demand
- Options include
 - increasing the effective supply of water
 - wastewater reuse
 - demand management
 - pricing



Common policy questions to be answered



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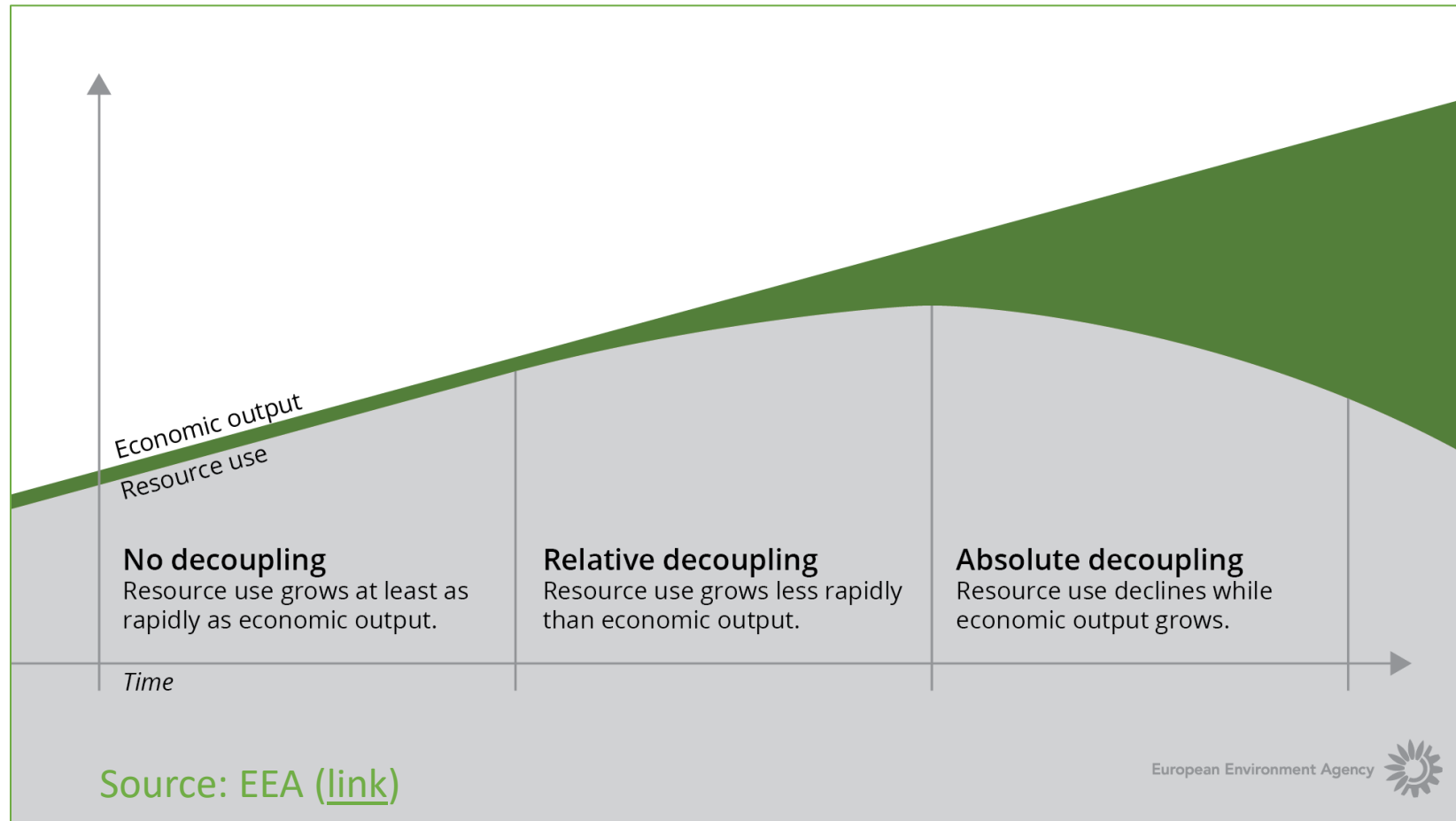
- What are the likely future water demands under alternative economic development scenarios and are they sustainable?
- How do changes in agricultural, energy, forestry and other policies affect water supply and use?
- What would be the social and economic impacts of pricing reform for water and wastewater?
- What are the opportunities for water demand management and other water conservation measures?
- Can economic growth be “decoupled” from growth in water use?



Decoupling



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Thank you for your attention!

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