Water accounts

Sokol Vako

United Nations Statistical Institute for Asia and the Pacific

ESCAP | UNITED NATIONS SIAP Statistical Institute for Asia and the Pacific

Outline

- Water and climate change
- Measuring water assets
- Measuring water supply and use
- Indicators

Water and climate change

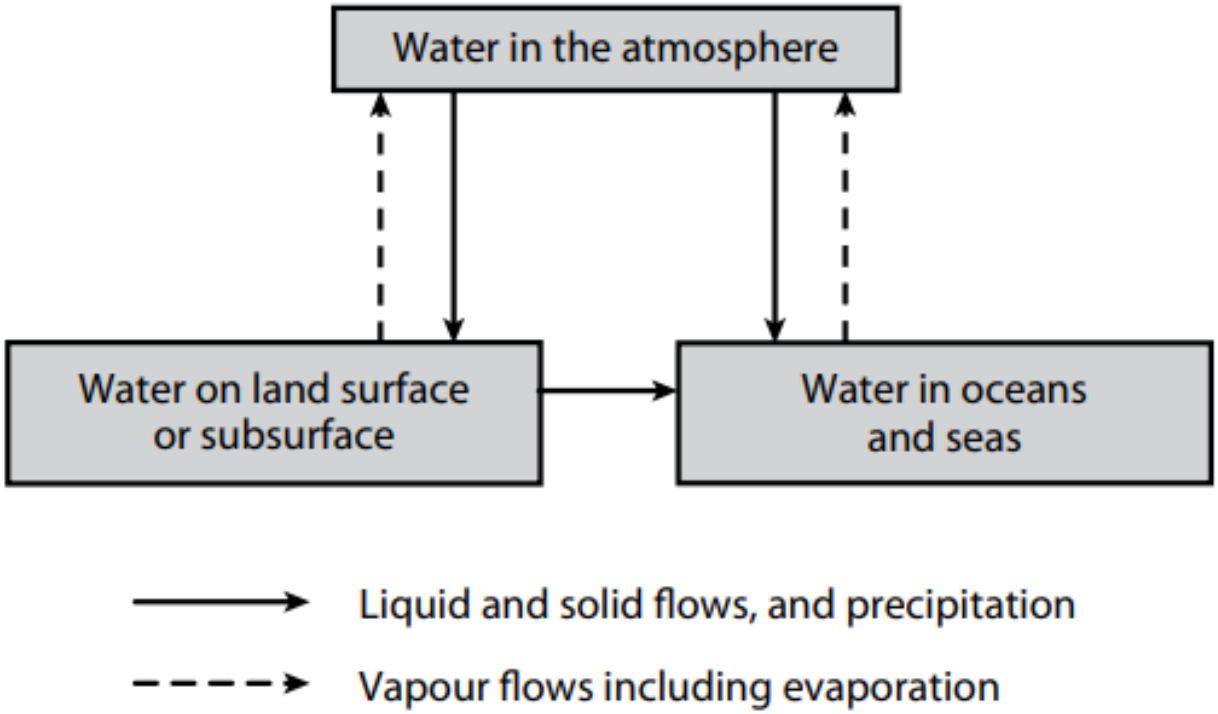
Water and climate change

* Shifts to rainfall patterns
* Water scarcity
* Changes to water cycle
    - More floods
    - More droughts

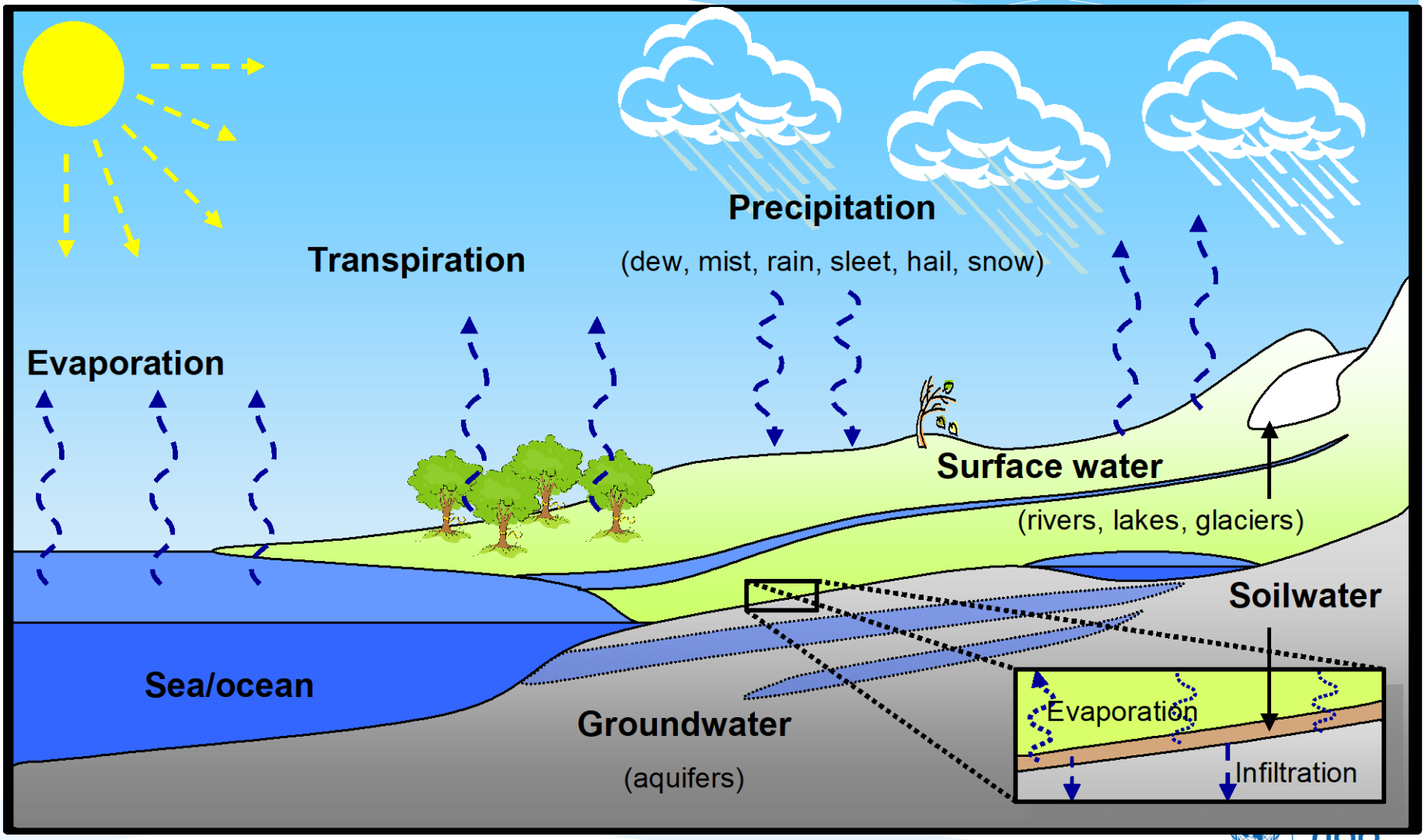
* Related issues
    - Food production
    - Health impacts
    - Etc.

Measuring water assets

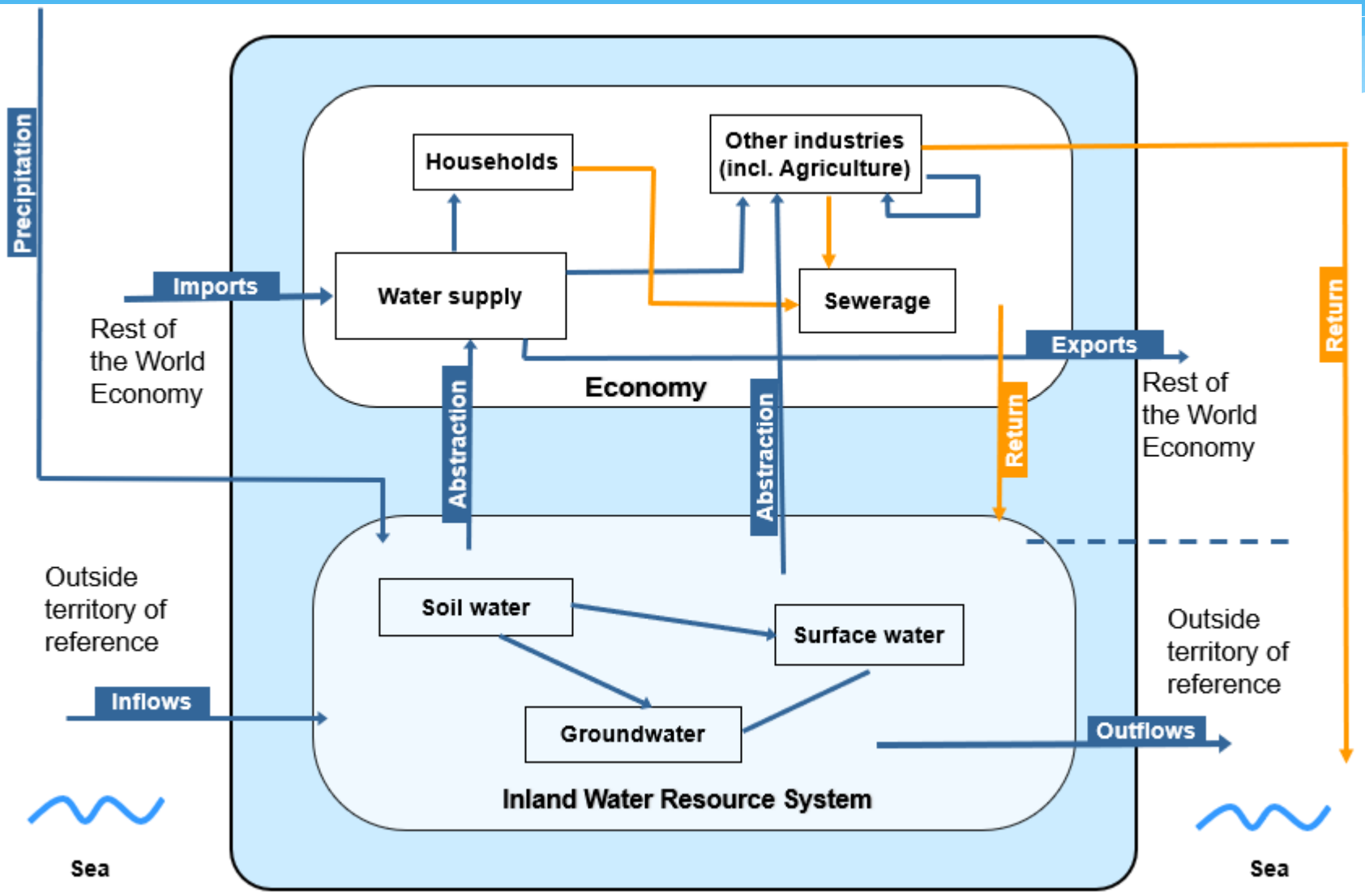
Hydrological cycle—the simple view



Hydrological cycle—a more detailed view



Some further details about water



Asset accounts

* *An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.*

* Recall definition of environmental assets in SEEA CF (different from SNA):

  naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity.

* And ecosystem assets (in SEEA Ecosystem Accounting)

  Ecosystem assets (EAs) are contiguous spaces of a specific ecosystem type characterized by a distinct set of biotic and abiotic components and their interactions.

What assets are in scope (we sometime add brackish water)

Classification of inland water bodies

Inland water bodies	
1	Surface water
1.1	Artificial reservoirs
1.2	Lakes
1.3	Rivers and streams
1.4	Glaciers, snow and ice
2	Groundwater
3	Soil water

Asset accounts

* Water is an environmental asset
  * Unique in that it is always in motion!
  * We exclude oceans, seas, and atmosphere from scope but can include brackish water
  * Issues with time and place to consider

Structure of the asset account

	Type of water resource					Total
	Surface water			Groundwater	Soil water	
	Artificial reservoirs	Lakes	Rivers and streams			
Opening stock of water resources						
Additions to stock						
Returns						
Precipitation						
Inflows from other territories						
Inflows from other inland water resources						
Discoveries of water in aquifers						
Total additions to stock						
Reductions in stock						
Abstraction						
Evaporation & actual evapotranspiration						
Outflows to other territores						
Outflows to the sea						
Outflows to other inland water resources						
Total reductions in stock						
Closing stock of water resources						

Measuring water supply and use

What are we accounting for?

1. The abstraction of water from the inland water system, and seas and oceans by economic units
2. The distribution and use of this water by various economic units
3. The returns of water to the inland water system and seas and oceans

Before compiling the PSUT, please think about what information is need by your user/policy makers and at what level of detail (disaggregation)

Simplified structure of supply table

PHYSICAL SUPPLY TABLE	Industries (by ISIC)							House-holds	Flows from the Rest of the World (Imports)	Flows from the Environment	TOTAL SUPPLY
	Agriculture, Forestry & Fishery (ISIC A)	Mining, Quarrying and Manufacturing (ISIC B & 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											
Other Water Sources											
TOTAL SUPPLY ABSTRACTED WATER											
2. Abstracted water:											
For distribution											
For own use											
3. Wastewater and reused water:											
Total Wastewater											
Reused water produced (for distribution)											
TOTAL WASTEWATER AND REUSED WATER											
4. Return flows of water:											
To inland water resources											
To other sources											
TOTAL RETURN FLOWS											
5. Evaporation of abstracted water, transpiration and water incorporated into products:											
TOTAL WATER EVAPORATED, TRANSPIRED AND INCORPORATED INTO PRODUCTS											
6. TOTAL SUPPLY											

Simplified structure of use table

PHYSICAL USE TABLE	Industries (by ISIC)							House-holds	Accumu-lation	Flows from the Rest of the World (Imports)	Flows to the Environment	TOTAL SUPPLY
	Agriculture, Forestry & Fishery (ISIC A)	Mining & Quarrying (ISIC B)	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												
Other Water Sources												
TOTAL USE ABSTRACTED WATER												
2. Abstracted water:												
Distributed water												
Own use of water												
3. Wastewater and reused water:												
Total Wastewater												
Reused water (distributed reuse)												
TOTAL WASTEWATER AND REUSED WATER												
4. Return flows of water:												
To inland water resources												
To other sources												
TOTAL RETURN FLOWS												
5. Evaporation of abstracted water, transpiration and water incorporated into products:												
TOTAL WATER EVAPORATED, TRANSPIRED AND INCORPORATED INTO PRODUCTS												
6. TOTAL USE												

Some things to keep in mind

* Space
  * Usually PSUT compiled at the national level
  * Can also be relevant to compile at water basin level, for each island or other administrative level
* Time
  * Usually PSUT compiled on an annual basis, lining up with the national accounts (makes integration easier)
  * Water cycle might be different
* Need to be mindful of variation in time and space
* Units: cubic meters (usually in millions)

Thank you


ESCAP
UNITED NATIONS
SIAP
Statistical Institute for
Asia and the Pacific