



## Session 2.1 Water in the Economy

RW-2-REG

October 14<sup>th</sup>, 2020 Online

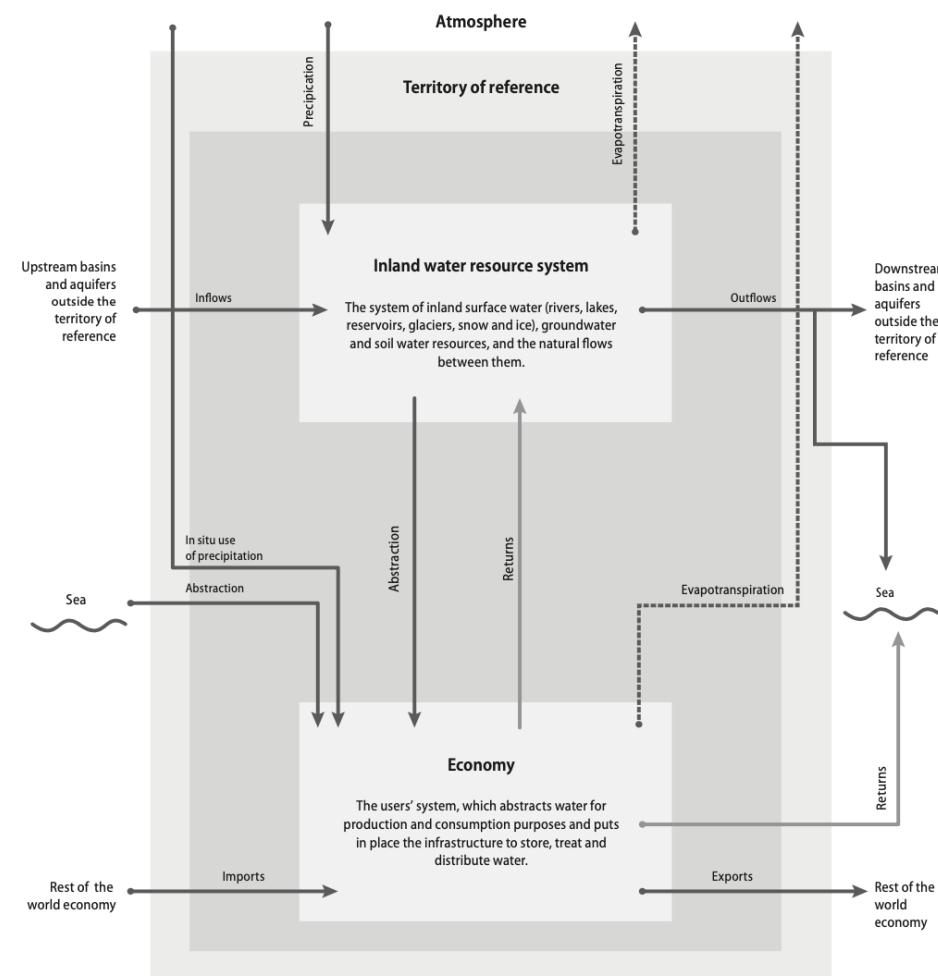
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NKE 2 – Senior Expert in Water Accounting





# Introduction

- Flow and asset accounts are **two major blocks** of tables in the SEEA – Water accounting system
- Flow accounts - also named as **Physical Supply and Use tables** (PSU Tables)
- Asset accounts describe the **stocks of water resources** at the beginning and the end of an accounting period and the changes in stocks that have occurred during that period.

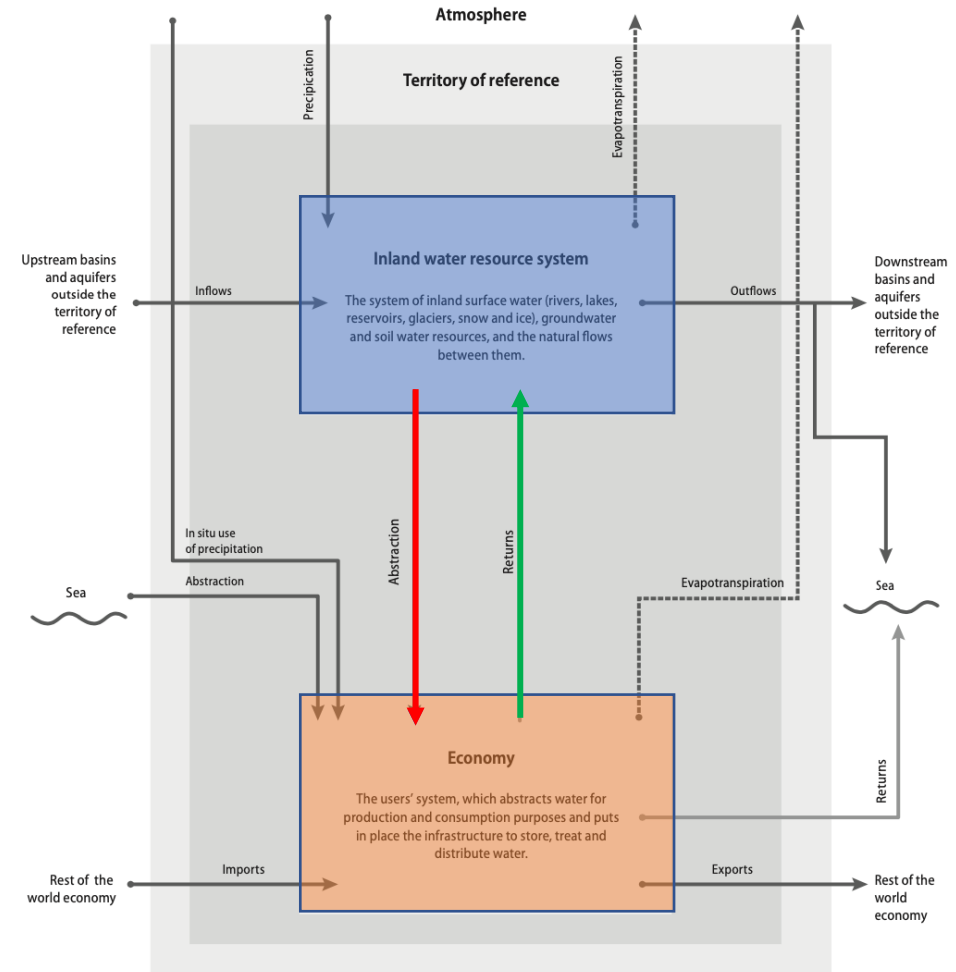


# Flow accounts



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- Physical water supply and use tables describe water flows in physical units
  - within the economy
  - between the environment and the economy



# Compilation of flow accounts



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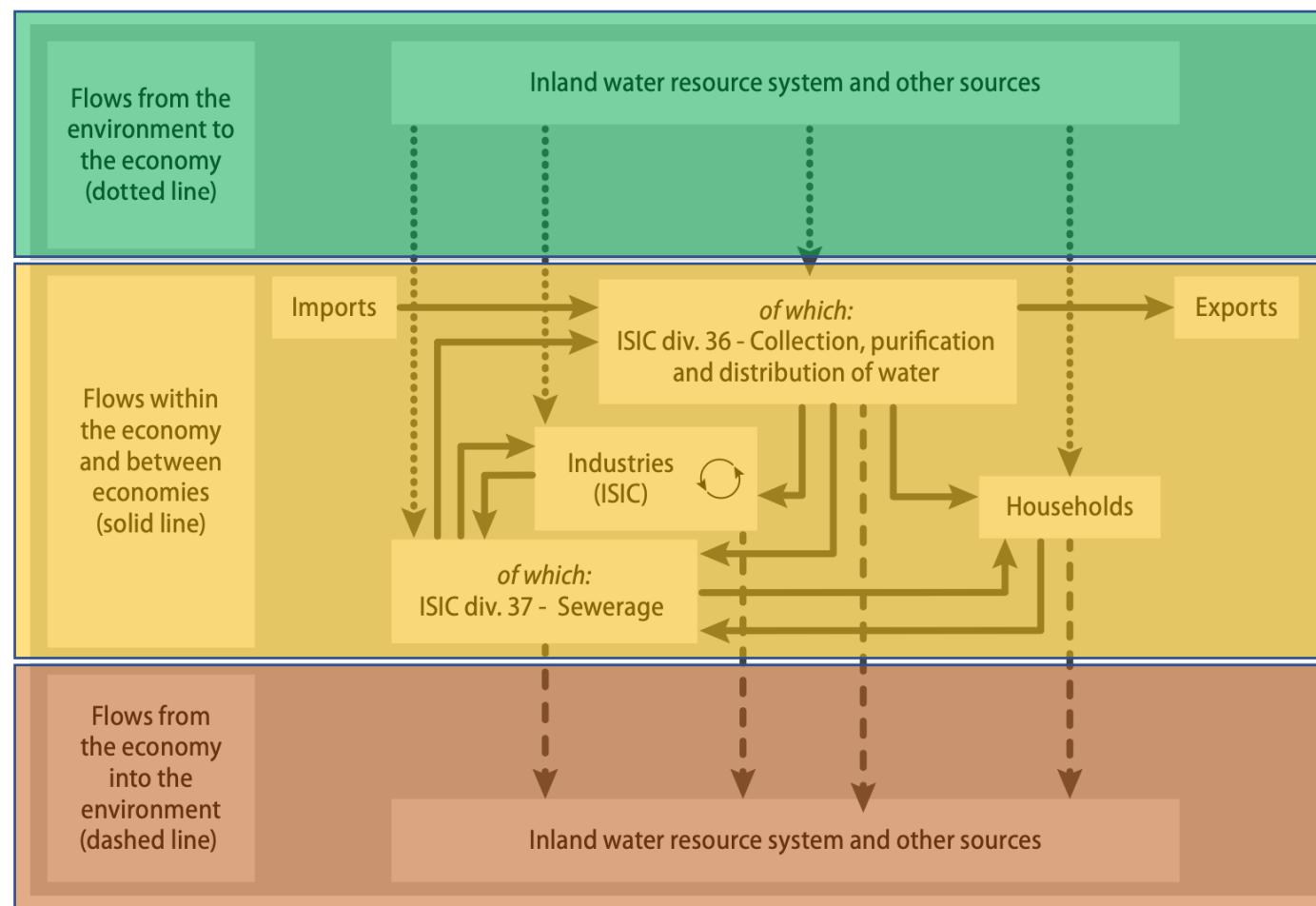
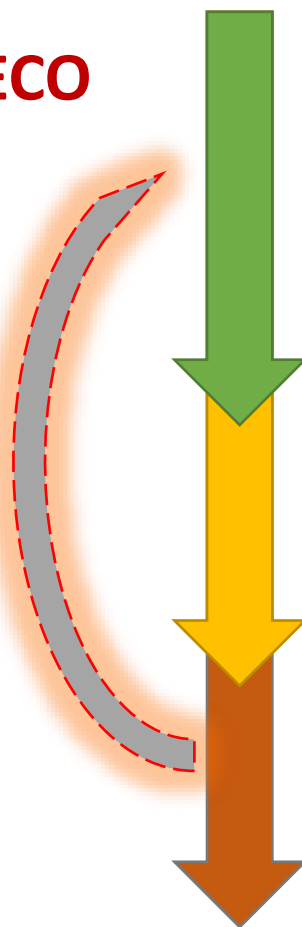
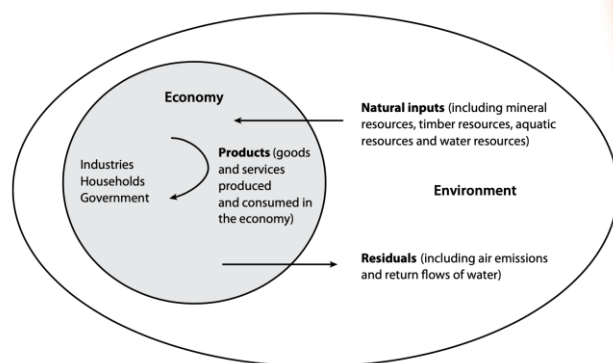
- Allows
  - assessment and monitoring of the pressure on water quantities that is exerted by the economy
  - identification of the economic agents responsible for the abstraction and discharge of water into the environment
  - the evaluation of alternative options for reducing the pressure on water (efficiency/intensity indicators)





# Types of water flows

- From the **ENV** to **ECO**
- **Within ECO**
- From **ECO** to **ENV**



# Flow Accounts: From ENV to ECO



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- **Abstraction from water sources** includes abstraction
  - from inland water resources
  - abstraction of sea water (usually for cooling or desalination purposes)
  - the direct collection of precipitation for production and consumption activities (rooftops rainwater harvesting)



# Flow Accounts: Within the ECO



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- Mainly covers
  - Water from public water supply
  - Water reuse
  - Wastewater flows to and from sewerage systems



# Flow Accounts: From ECO to ENV



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- **Total returns** include water that is returned into the environment. Total returns can be classified according to
  - the receiving media (including sea water) and
  - the type of water, such as treated water and cooling water





# Water Losses



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- Residuals are also considered in terms of losses
  - Losses during extraction
    - ✓ *water abstracted from groundwater and reinjected into an aquifer*
  - Losses during distribution
    - ✓ *losses that occur between a point of abstraction, extraction or supply and a point of use*
  - Losses during storage
    - ✓ *evaporation of water from artificial reservoirs is excluded from losses during storage (but reported under water assets table)*
  - Losses during transformation
    - ✓ **only for energy flows**



# Main economic sectors under ISIC Rev.4



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- Agriculture, forestry and fishing (ISIC 01-03)
- Mining, manufacturing and construction (ISIC 05-33, 41-43)
- Electricity supply (ISIC 35)
- Water supply (ISIC 36)
- Sewerage (ISIC 37)
- All other industries (ISIC 38, 39, 45-99)
- Households



# Water in the Economy



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- Economic sectors
  - Complexity
- Standard grouping
  - EU, USA, International
- ISIC Rev 4 → Close to NACE Rev. 2

eurostat 

Section	Divisions	Description
A	01–03	Agriculture, forestry and fishing
B	05–09	Mining and quarrying
C	10–33	Manufacturing
D	35	Electricity, gas, steam and air conditioning supply
E	36–39	Water supply; sewerage, waste management and remediation activities
F	41–43	Construction
G	45–47	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	49–53	Transportation and storage
I	55–56	Accommodation and food service activities
J	58–63	Information and communication
K	64–66	Financial and insurance activities
L	68	Real estate activities
M	69–75	Professional, scientific and technical activities
N	77–82	Administrative and support service activities
O	84	Public administration and defence; compulsory social security
P	85	Education
Q	86–88	Human health and social work activities
R	90–93	Arts, entertainment and recreation
S	94–96	Other service activities
T	97–98	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	99	Activities of extraterritorial organizations and bodies





## Section A - Agriculture

- This section includes the exploitation of vegetal and animal natural resources, comprising the activities of
  - growing of crops,
  - raising and breeding of animals,
  - harvesting of timber and other plants,
  - animals or animal products from a farm or their natural habitats.







## Section B – Mining and quarrying

- This section includes the extraction of minerals occurring naturally
  - as solids (coal and ores),
  - liquids (petroleum) or
  - gases (natural gas).
- Extraction can be achieved by different methods such as
  - underground or surface mining,
  - well operation,
  - seabed mining etc.
- This section also includes supplementary activities aimed at preparing the crude materials for marketing, These operations are often carried out by the units that extracted the resource and/or others located nearby.





## Section C - Manufacturing

- This section includes the physical or chemical transformation of materials, substances, or components into new products
- The materials, substances, or components transformed are raw materials that are products of agriculture, forestry, fishing, mining or quarrying as well as products of other manufacturing activities.







## Section D – Energy production

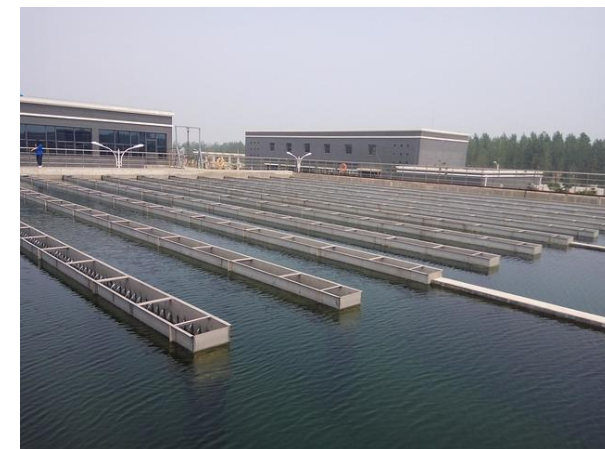
- This section includes the activity of providing electric power, natural gas, steam, hot water and the like through a permanent infrastructure (network) of lines, mains and pipes
- This section therefore includes the operation of electric and gas utilities, which generate, control and distribute electric power or gas. Also included is the provision of steam and air-conditioning supply.
- This section **excludes** the operation of water and sewerage utilities





## Section E – Water supply

- This section includes activities related to the management (including collection, treatment and disposal) of various forms of waste, such as solid or non-solid industrial or household waste, as well as contaminated sites.
- This division includes the collection, treatment and distribution of water for domestic and industrial needs. Collection of water from various sources, as well as distribution by various means is included.







## Section F - Construction

- This section includes
  - general construction and specialized construction activities for buildings
  - civil engineering works
- It includes new work, repair, additions and alterations, the erection of prefabricated buildings or structures on the site and also construction of a temporary nature.

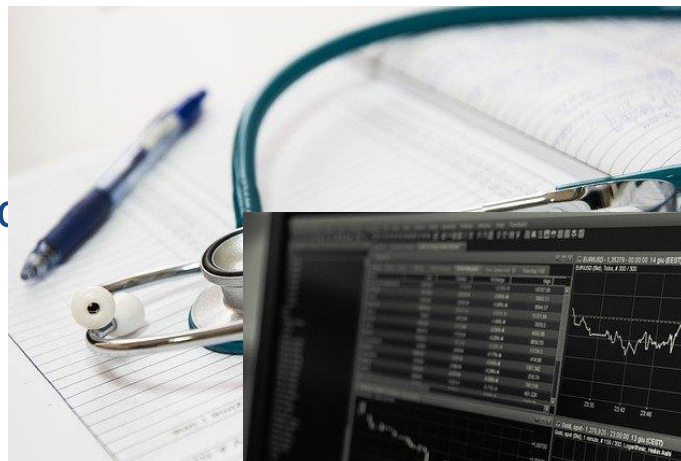




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## Section G-U Services

- Wholesale and retail trade; repair of motor vehicles and motorcycles,
- Transportation and storage, Accommodation and food service activities,
- Information and communication, Financial and insurance activities, Real estate activities,
- Professional, scientific and technical activities, Administrative and support service activities, Public administration and defense; compulsory social security,
- Education, Human health and social work activities,
- Arts, entertainment and recreation
- Activities of households as employers







# Spatial and Temporal aspects

- Water statistics can provide data for water management at many geographical levels, ranging from local levels and the level of river basins, to national and multinational levels
- The choice of spatial reference for the compilation of water accounts ultimately depends on the data needed by users and the resources available to data producers.
- ***The choice of spatial scale is important, as countries may experience significant geographical variation in the availability of water (e.g., areas of very high or very low rainfall) and national aggregates may not accurately reflect the issues facing particular countries***
- It is recognized internationally that a **river basin is the most appropriate** spatial reference for integrated water resource management
- When integrating or collecting water data, it is important that the reference periods for the different data items be aligned





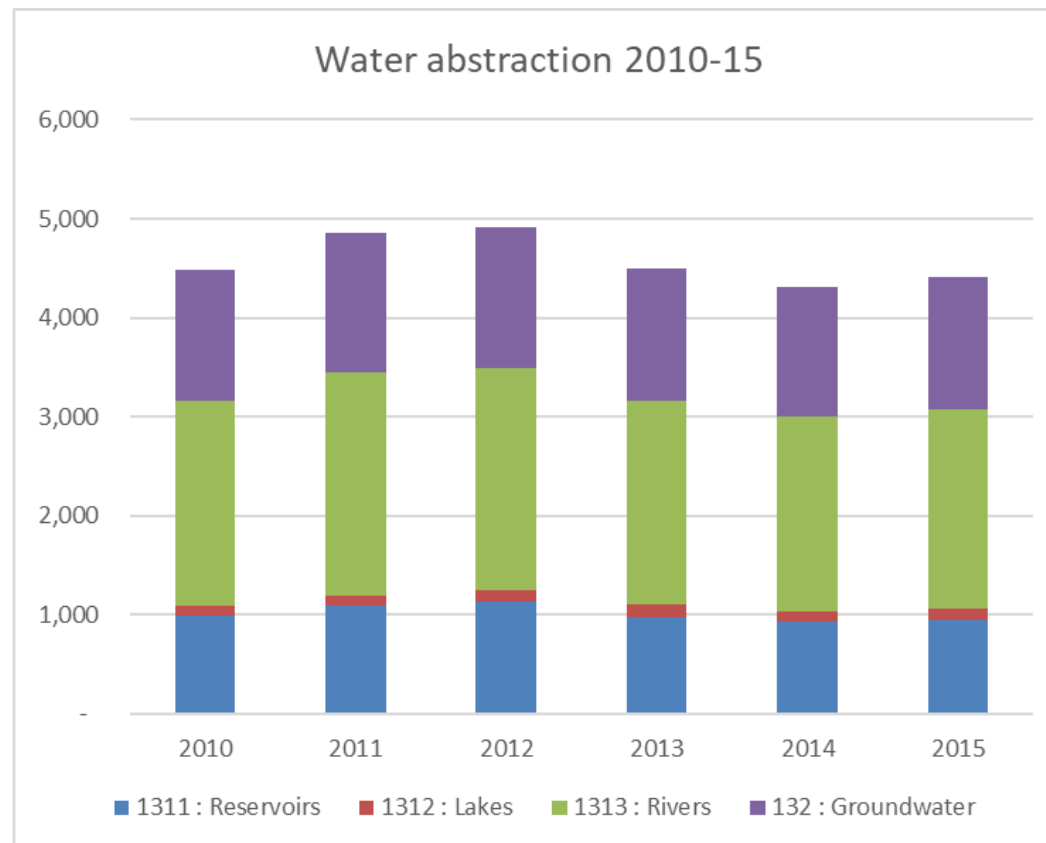
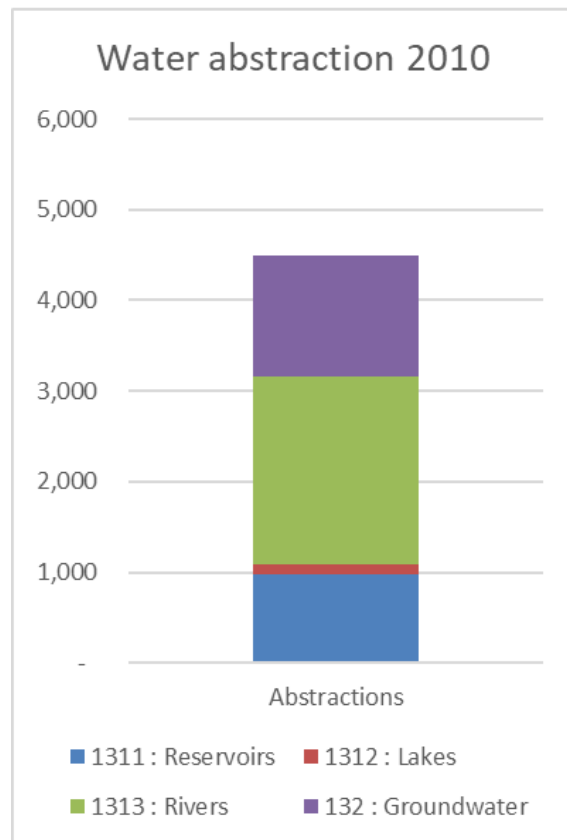
# Temporal resolution of water accounts

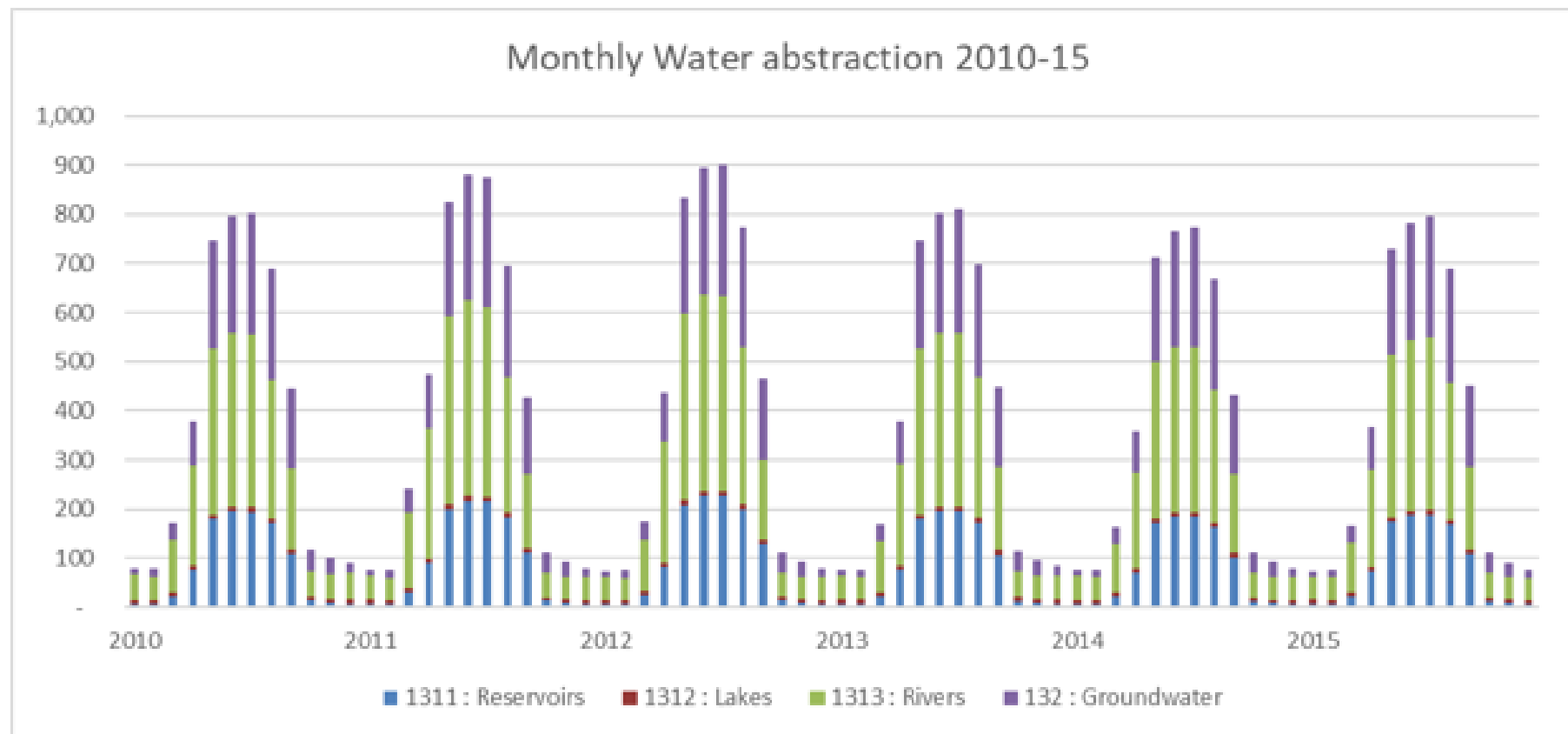
- For example, for national accounts some countries use a financial year, while for water statistics, they may use a hydrological year.
- Financial and hydrological years may be the same as or different from calendar years
- In some cases high seasonal variability in the relationship between the demand and supply of water may mean that annual data (either on a financial or hydrological year) are insufficient and, instead, sub-annual data are required.





# Temporal scale change







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# Thank you for your attention!

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