

# **WATER STATISTICS AND WATER ACCOUNTS IN TURKEY**

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# Organizational Structure of TurkStat



**Turkish Statistical  
Institute**

**Presidency  
of TurkStat**

**Statistical Council**  
• *Advisory Board*

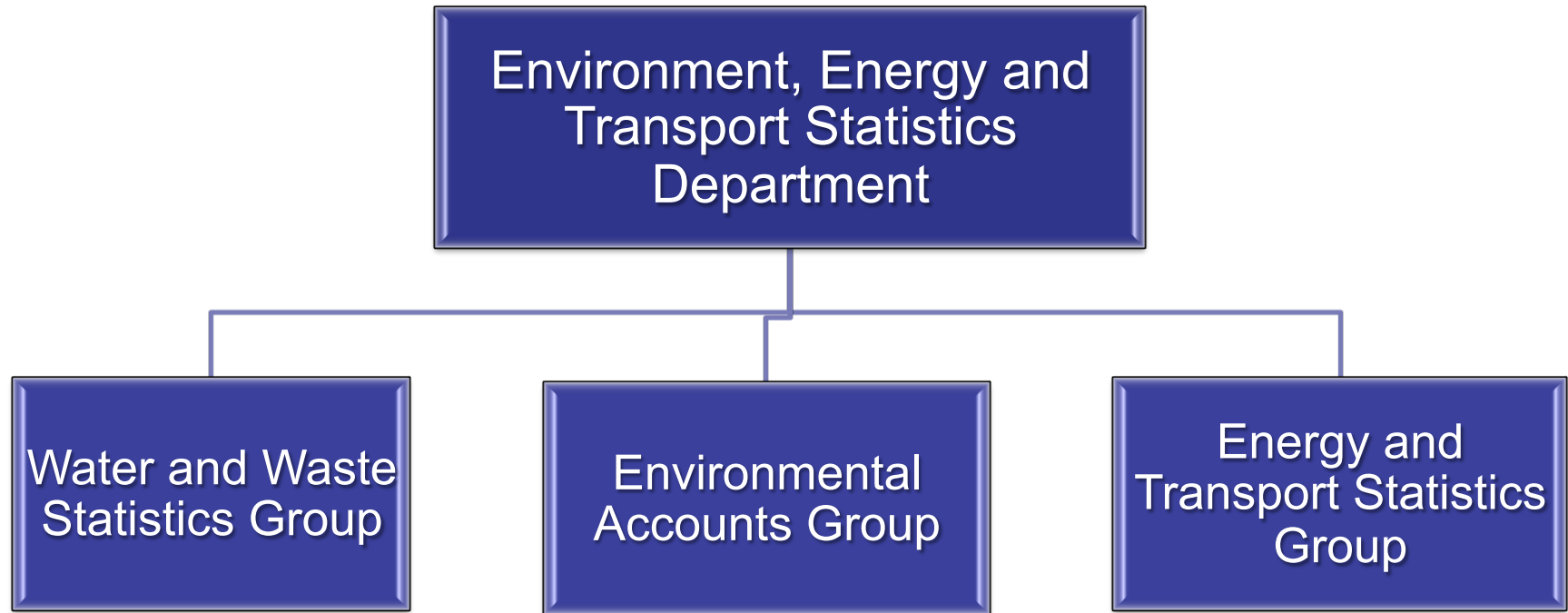
## **Central Organization**

- *Managing the Turkish Statistical System*
  - *Planning*
  - *Coordination*
- *Methodological Studies*
  - *Analysing*
  - *Processing*
  - *Dissemination*

## **Regional Offices (26)**

- *Data Collection*
- *Data Control*

## Environment Statistics



In the Official Statistics Programme, the responsibilities of all organizations besides TurkStat are defined

## Environment Statistics

Framework: OECD core set of environmental data and indicators since 1990

Main environmental topics:

- water
- wastewater
- waste
- air emissions
- environmental employment
- environmental expenditure and revenues
- environmental accounts

## Water Statistics

### Data sources;

- municipalities,
- Ministry of Interior,
- manufacturing industry establishments,
- thermal power plants,
- organized industrial zones,
- mining establishments



Biennial surveys in order to compile data on water abstraction, treatment, water consumption, wastewater discharges and treatment.

# Water Statistics

## Scope

- municipalities : all municipalities (1396) (1994+)
- villages: Ministry of Interior (for all villages) (~ 18250) (2008+)
- manufacturing industry establishments: all manufacturing industry establishments with 50 or more employees (~11000) (1992+)
- thermal power plants : all thermal power plants having installed capacity 100 MW or more (70) (1994+)
- mining establishments : all operating mining ores (~9000) (2009+)
- organized industrial zones : all organized industrial regions completed their infrastructure (~300) (1994+)

# Water Statistics

## Variables

- amount of water abstracted by source and wastewater discharged by type of receiving bodies,
- number, type and capacity of water and wastewater treatment plants,
- amount of water and wastewater treated
- wastewater analysis by parameters (for the calculation of pollution loads)
- amount of sewage sludge
- type of sewage sludge treatment

# Water Statistics

## Classifications

- NACE Rev.2
- NUTS: Nomenclature of Territorial Units for Statistics (Statistical Regions-SRE)



# Water Statistics

## Data validation

- SAS analysis reports (regional offices)
  - data coherency in the question and between the questions
  - data analysis by population, sector, per capita or employee, etc.
  - data control of the respondent with the previous years
  - data control in terms of totals and subjects (ex: total water abstraction and water abstraction from sea, lake, etc.)
- Other analysis (central organization)
  - in depth analysis of explanations of the respondents
  - data control with the available administrative records (ex: treatment plant capacity)
  - data analysis by population, sector, per capita or employee, etc.
  - data control with the previous years despite the correction via SAS analysis

# Water Statistics

## Other work (central organization)

- preparation of press bulletins,
- updating databases,
- preparation of tables for other publications (yearbook, web-page, statistics in figures, etc.),
- responding data requirements,
- transfer of data to Eurostat biennially,

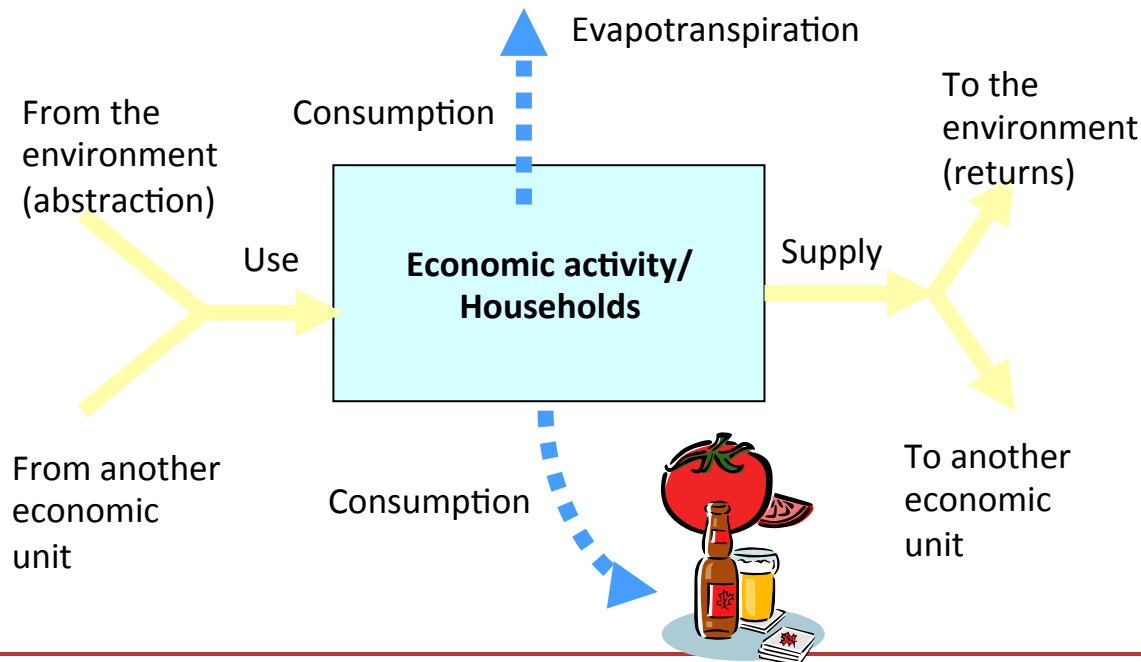
## Environmental Economic Accounts

- Physical water flow accounts as a pilot for 2004 and 2008
- European Regulation on Environmental Economic Accounts (No 691/2011)

<ul style="list-style-type: none"><li>✓ air emission accounts</li><li>✓ environmental taxes</li><li>✓ material flow accounts</li></ul>	<b>}</b>	<b>Annual reporting to Eurostat</b>
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## Water Accounts in TurkStat

- physical water flow accounts
- Upgrading Statistical System of Turkey II Project (2008)
- physical supply and use tables (PSUT) and transfers table
- pilot study for the year 2004



# Water Accounts in TurkStat

## Working steps

- Evaluation of data availability
- Extra effort for additional data compilation (forestry, fishery, hydraulic power plants, irrigation channels)
- Clarification of some ISIC issues (Municipalities, State Hydraulic Works, Organised industrial zones)
- Extension of SEEAW standart tables (ISIC 36: municipalities, SHW, OIZ)

# Water Accounts in TurkStat

## Working steps

- Reclassification of environmental bodies
  - 1.i. From water resources:
    - 1.i.1 Surface water
      - 1.i.1.a Rivers
      - 1.i.1.b Lakes
      - 1.i.1.c Artificial Reservoirs, of which
        - 1.i.1.c.1 Large dams
        - 1.i.1.c.2 Small dams (artificial lakes)
    - 1.i.2 Groundwater
    - 1.i.3 Soil water
    - 1.i.4 Unknown

# Water Accounts in TurkStat

## Working steps

- Compilation of extended PSUT and transfer table
- Aggregation of tables according to standart tables
- Presentation of the results to data providers and data users
- Drafting of a road map for regular water accounts

# Water Accounts in TurkStat

Some data recording issues

- Main economic activity (May be more than one – Ex:ISIC Rev. 4 - 36 ve 37)
- Water transfer between the establishments having the same economic activity (water supply)

In Turkey, municipalities provide both natural water and sewerage services. Municipalities are accepted as ISIC 36 in use table, as ISIC 37 in supply table.



# Water Accounts in TurkStat - Sectoral Information

## Agriculture (ISIC 01)

- Data source : State Hydraulic Works (SHW) and TurkStat
- SHW - irrigation canals and permits for groundwater abstraction
- Amount of water abstracted for the distribution with irrigation canals is known, but no data for the amount of water used from canals for irrigation. Expert judgement – water losses in canals is 40%. This water goes to groundwater. It is estimated that 10% of water used from canals is collected by drainage canals and goes back to environment (freshwater sources in total)
- There is no data for the selfsupply of farmers.
- There is data for municipal water used for irrigation purposes after treatment
- Data for use of water from public water supply system from municipal survey
- TurkStat Agricultural Business Economical Structure Survey  
(2 questions for water abstracted for irrigation and wastewater discharged)

# Water Accounts in TurkStat - Sectoral Information

## Forestry (ISIC 02)

- Data source : Ministry of Forestry and Water Affairs (MoFWA)
- MoFWA – forestry activities
- Private forests
- Water use for new plantation (small amounts)
- No data for forest fires (MoFWA will try to calculate)

# Water Accounts in TurkStat - Sectoral Information

## Fishery (ISIC 03)

- Data source : Ministry of Food, Agriculture and Livestock (MFAL)
- Data for private sector fish farms (aquaculture) (99.5% of total)
- Research Institute of MFAL - small amounts of fish production
- Some of the universities (check data for the production and amount of water)

# Water Accounts in TurkStat - Sectoral Information

## Mining and quarrying (ISIC 5-9)

- Data source : TurkStat
- Sample survey, data only for 2004 at that time
- Data compiled from local units.

# Water Accounts in TurkStat - Sectoral Information

## Manufacturing Industry (ISIC 10-33)

- Data source : TurkStat
- Scope : In 2004; all the establishments in public sector and large scale establishments in private sector which represent approximately 80% value added data of the private sector establishments with 10 or more employees. Now; all manufacturing industry establishments with 50 or more employees are covered in the scope of the survey now.
- Data compiled from local activity units (establishments)
- Wastewater discharged to land was taken as consumption
- There is wastewater transfers to other economic activities.  
(manufacturing industry establishments, municipality, organised industrial zones, irrigation canals etc.)

# Water Accounts in TurkStat - Sectoral Information

## Electricity production (ISIC 35)

- Data source : TurkStat, General Directorate of Renewable Energy, Electricity Generation Co. Inc.
- Scope : All thermal power plants producing 100 MW or more energy and all hydraulic power plants belongs to the government
- No data for private hydraulic power plants (may be estimated by using electricity generation data)
- No data for geothermal power plants
- Supply = Use (no consumption and losses)

# Water Accounts in TurkStat - Sectoral Information

## Water supply (ISIC 36) – Sewerage (ISIC 37)

- Data source : TurkStat
- Scope : All municipalities.
- No data for economic sectors and households. Amount of water has been compiled by receiving body.
- The total use and supply of the water supply industry originates from:
  - Water supply systems operated by municipalities
  - Water supply by Industrial Organized Zones
  - Irrigation canals operated by the State Hydraulic Works
  - “Tanker” is also considered as a form of water supply
- Similar to Water Supply Industry, use and supply-data for the Sewerage Industry are the total of municipalities and OIZ.

# Water Accounts in TurkStat - Sectoral Information

## Households

Estimated data on the amount of selfsupplied water in **villages** were taken as households data

## Others

No data for

- Construction sector
- Service sector
- Wastewater discharges of households to sewerage

Missing data

- Water used from irrigation canals
- Forestry
- Energy



# Water Accounts in TurkStat - Problems

- **Classification**

1. Municipalities and SHW - ISIC 84, OIZ- different ISIC codes

ISIC 36:

- Municipalities
- Tanker
- Organized Industrial Zones
- SHW Irrigation Channels
- Total ISIC 36

ISIC 37:

- Municipalities
- Organized Industrial Zones
- DSI Drainage Channels
- Total ISIC 37

2. Data compiled are according to NACE Rev. 1.1 which is identical with ISIC Rev.3

- **Data gaps**
- **Unknown source and receiving body**

## Future studies

- improvement of environmental economic accounts – new modules ([Regulation 538/2014](#) amending Regulation 691/2011 on European Environmental Economic Accounts)
  - ✓ environmental protection expenditure accounts (EPEA)
  - ✓ energy accounts (IPA Program)
  - ✓ environmental goods and services
- WAVES Program – World Bank
  - ✓ June 2014 membership
  - ✓ forest accounts
  - ✓ water accounts

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Thank you...