

# Review on existing conceptual frameworks and standard tables for water accounting

*Stephan Lutter<sup>a</sup>, Nancy Steinbach<sup>b</sup>, Anna-Karin Westöö<sup>b</sup>, Ertug Ercin<sup>c</sup>*

<sup>a</sup>Sustainable Europe Research Institute (SERI). Vienna, Austria.

<sup>b</sup>Statistics Sweden. Stockholm, Sweden

<sup>c</sup>University of Twente. Enschede, The Netherlands.



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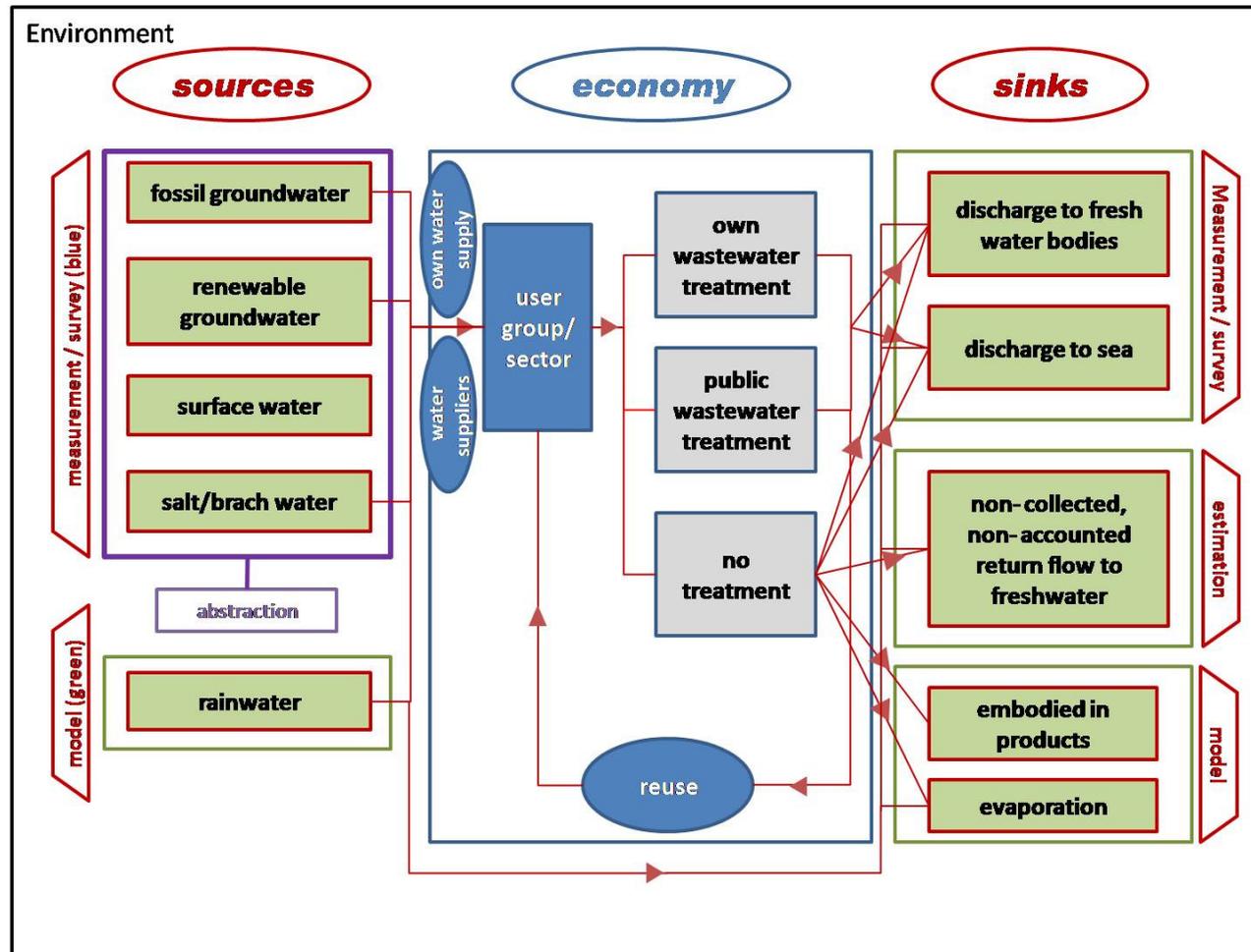


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- 4. Interesting / promising elements in the approaches**
- 5. Implications for the new water accounts tables to be developed by Eurostat**

# Scope



## A general structure of the water metabolism:



# Scope

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- **...review existing conceptual frameworks and standard tables for water accounting and...**
- **...to evaluate them with respect to the extent to which they manage to represent the water metabolism**
- **Basis for two next working steps:**
  - 1. The set up of a first draft of Eurostat water accounting tables**
  - 2. The design of the compilation guide**

# Evaluation categories

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- Level of sectoral disaggregation
- Disaggregation into use of “blue” and “green” water
- Type of water source
- Water withdrawal vs. water consumption
- Accounting for waste water / “grey water”
- Quantity of waste water
- Quality of waste water
- Spatial and temporal dimension of water statistics
- Modelling emissions - indirect flows
- Interesting / promising elements in the approaches

# Sources of tables and frameworks

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- Tables developed by the Eurostat Task Force on Water Accounts
- Existing national water accounts (AT, HU, PT, US)
- Joint questionnaire of OECD/Eurostat
- Tender 2008/S 149-199643/EN (EU + EFTA accounts)
- Water Framework Directive – main requirements
- State & Quantity of Water Resources, EWN-4 (WISE SoE#3)
- UN SEEA-W
- Draft International Recommendations for Water Statistics
- FAO – AQUASTAT
- Experiences from EXIOPOL
- Water Footprint accounting scheme

# Promising elements

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## **Eurostat Water Accounts Standard Tables**

- In many countries many sources are available - it is just a question of organisation and harmonisation
- High level of disaggregation (60+) seems feasible
- Allow for direct comparison between monetary and physical values
- Valuable information concerning role of water in economic system

## **Existing national water accounts (AT, HU, PT, US)**

- Model based approaches for emissions (AT: N/P, HU: diffuse sources)
- US: comprehensive guidelines and estimation methods for irrigation, mining, livestock and thermoelectric sectors
- US: disaggregation level – from hydrological unit to country level
- US: thermoelectric water use: “once-through” / “closed-loop” /reservoir evaporation

# Promising elements

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## **Joint questionnaire of OECD/Eurostat**

- Detail and structure of data on wastewater discharge (volumes of discharges by type of collecting system)
- By disaggregating economic activity involved in collection, treatment and disposal of wastewater (ISIC 90) according to type of treatment, matrix of transfer within economy can show deliveries to ISIC 90.
- Linking physical and monetary tables, information gained on costs of treatment facilities in relation to ability pollutant elimination.

## **Tender 2008/S 149-199643/EN (EU + EFTA accounts)**

- Overview of existing data and data to be estimated
- Overview of available emission account data
- Adequate coding and nomenclature

# Promising elements

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## **Water Framework Directive – main requirements**

- Many countries used the national water accounts as part of reporting.
- Analyses should be undertaken on river basin levels.
- Compare SEEA-W: “accounting catchments [...] large enough so that economic information is available.”

## **State & Quantity of Water Resources, EWN-4 (WISE SoE#3)**

- RBD as the smallest spatial scale to be applied
- Cooling water (generated from NACE activities B, C and D) and water used for hydropower generation is included.
- Sectoral disaggregation by NACE-activities for connecting to economic data

# Promising elements

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## **UN SEEA-W / draft recommendations**

- Broad application => expertise gained
- Accounting for blue as well as green water use
- Devision of emission accounts into pollutants generated by economic unit measured at point of discharge released directly into water vs. emissions generated by sector ISIC 37
- Separation of discharge flows into different water bodies the waste water is discharged to

## **EXIOPOL**

- Valuable experiences concerning availability of international data on water use – especially with regard to modelled data necessary for filling categories not available from statistical institutions.

# Promising elements

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## Water Footprint accounting scheme

- Data on water consumption not on water use (“withdrawal”)
- Blue, green and grey water
- Direct and indirect water consumption
- High disaggregation in agricultural sector ⇔ no industrial disaggregation foreseen so far.
- Calculation method and database on green water estimates for agriculture
- Grey water calculation method for non-point emissions from agriculture applied in “indirect flow” estimations

# Conclusions

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## Level of sectoral disaggregation

- 60x60 disaggregation is the aim – given by the monetary SUTs.
- Issues related of new NACE structure and data availability might reduce this level of disaggregation.
- 34 sectors disaggregated in the Eurostat Standard Tables good start, but further split-up of agricultural sectors and some industrial sectors.

## Blue ↔ green water / type of water

- For all sectors data disaggregated into blue and green water use
- Blue water use set into relation to the different sources of water (such as ground water, surface water, etc).
- With help of data water consumption values (input minus output) calculated.

# Conclusions

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## **Accounting for waste water / “grey water”**

- Provision of accounting of quantity of return flows disaggregated not only by source (specific economic sector) but also by type of sink...
- ...and combining this information with data on high number of different pollutant loads.
- Where no data are available application of modelling approaches.

## **Spatial and temporal dimension**

- From water management perspective, river basin or sub-river basin level data on a monthly basis would be the optimal spatial and temporal disaggregation level.
- Data availability might only allow national / annual data collection

# Conclusions

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## **Modelling emissions - indirect flows**

- Most of emissions from agriculture are indirect flows
- Very important pressure on the water quality
- Compilations require complicated models and different methods are used in different countries.
- Important to include definition how this has to be done. => Further in-depth comparison of existing approaches will be necessary.

## **Connecting physical and economic water accounts**

- Eurostat tables from 2003 encompass supply of distributed water and of wastewater services and use of distributed water and of wastewater services in monetary as well as physical values (two tables each).
- Enables direct connection between physical and economic aspects.



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**Thank you for your attention!**