Status of the Socio-Economic Scenarios project
CHR 50 years Jubilee

22 October 2021

Judith ter Maat
Socio-economics in hydrology Rhine basin

Figure: schematic representation of the Rhine’s socio-economic and hydrological system (by Astrid Björnsen-Gurung)

CHR seminar Bregenz, Austria
In 2014
Socio-economics in hydrology Rhine basin

I. Climate
- Rainfall – Runoff
- Snowmelt
- Extremes
- Variability
- Baseflow

II. Landuse > Evaporation
- Urban
- Nature
- Forestry
- Agriculture

III. Abstraction > Returnflow

IV. Impact assessment
- Navigation
- Hydro power
- Drinking water
- Ecology
- Flushing / Level control
- ....

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First integrated overview (2019) - expert workshops data

Yearly water use per sector under various scenarios

- Public water supply
- Industrial water use
- Cooling water use
- Lignite mining
- Irrigation

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Integrated Overview of the effects of socio-economic scenarios on the discharge of the Rhine (Ruijgh et al, 2019):

- Water consumption by **public water supply and industry** is small.
- Information on water consumption for **irrigation and cooling** – now and in future – is very scarce / unclear / uncertain.
- Under future scenarios, water consumption in the Rhine river basin could increase from **50-75 m3/s to 200-250 m3/s in summer**.
- Lakes and reservoirs are important factors in the redistribution of discharge in time. **Operation of reservoirs** might be adjusted due to the energy transition.
Set-up scenario planning tool for the Rhine catchment
Assessment of current situation - Global datasets and knowledge

https://deltasres.github.io/hydromt/latest/user_guide/data.html#suggested-global-datasets
Assessment of current situation
- Next step: local datasets and knowledge

Reference:
Wasserabgabe: FOEN 2021, data from Swiss Gas and Water Association SVGW
Assessment of current situation
- Next step: local datasets and knowledge

Täglicher Wasserverbrauch der Stadt Luxemburg (2016)

Source: Hansen H., 2021
Assessment of current situation
- Next step: local datasets and knowledge

Reference:
Rhine basin SES narratives

Shared Socio-Economic Pathways
- Global / European projections

National/Local/Sectoral knowledge
- National and stakeholder perspective
- Existing national scenarios

CHR / ICBR / CCNR / etc. knowledge
- Transboundary river basin perspective

Rhine basin SES Narrative
description of change in drivers
- Integrating stakeholder perspective with global/European projections
- Translation of scenarios narratives to model input

Sectoral needs and impact assessments
- Domestic
- Industry
- Agriculture
- Energy production
- Navigation
- Biodiversity
- Etc.
Work in progress

1. Mobilizing and harmonizing national data and knowledge for describing water availability and use
2. Developing scenario narratives for the Rhine basin
3. Impact assessment of future scenario’s on water availability and use

In co-creation with stakeholders – fit-for-purpose:
CCNR, ICPR, national experts and others

Start stakeholder consultations
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