

Aperitif talk: Climate change in developing countries: Problems and challenges

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Topic of the talk: Integrated Water Resource Management (IWRM) in developed vs. lesser developed countries

Developed countries: focus on long term quality of life and environment

Developing countries: focus on more immediate issues

Problems of IWRM in lesser developed countries:

General

- decisions are often made top-down
- few consideration of poor peoples' water needs
- major stakeholder disparities
- need for basic water infrastructure
- environmental issues have a lower priority

Successful implementation

- make use of indigenous knowledge
- involve local people
- collaboration with NGOs and government

Donor community problems

- few inter-country co-ordination
- lacking consideration of national initiatives
- financial dependency of host country
- selling own technologies
- lack of capacity building
- no maintenance

Table 1: Characteristics of IWRM in developed and lesser developed countries

developed countries	vs.	lesser developed countries
infrastructure		
Highly developed Improving Ethos of maintenance Data: available, accessible		Fragile Retrogressing Constructed and neglected Poor, inaccurate
economy		
Mixed, diverse Independent and sustainable		Land/climate dependent Aid/NGO dependent
socio-political		
Low/no population growth Etc.		Population pressure Etc.

Case study 1: Thukela Catchment

Lots of degraded land, income ~ 600€/year

Assessment of water scarcity:

- Where are water scarce areas located?
- What should be done there?

Assessment of water scarcity requires appropriate tools

Water poverty can be both impact on poverty & cause of poverty

→ The Water Poverty Index (WPI): combines resource, capacity, use, access and environment as components, see e.g. Sullivan et al. (2002) for WPI application
the average time in the Thukela Catchment for one trip to get water is ~ 32 minutes, on each trip 25 litres are transported, the women do 4 trips a day for the whole family
Water poverty already is acute in many Catchments, but it is likely to be intensified by Global Warming

Case study 2: Mbuluzi Catchment (Swaziland)

Climate change is likely to have severe impacts on both within-country water management and international flow obligations in lesser developed countries (especially on already stressed catchments, dominated by high water demanding irrigated crops)

Problems associated with hydrological modelling in lesser developed countries:

- Legitimacy of models is not yet established
- Better belief in measure and analyse
- Hydrological decisions are based on politics
- Modelling by donor organisations: no continuous support
- Little technical/conceptual leadership in modelling
- Bureaucracy prevails
- Few modelling experts
- Little teamwork

Practical problems:

- Data problems (input/verification)
- Models are developed in donor countries
 - o data demanding
 - o inappropriate process representations
 - o too complex
 - o don't answer the regional questions
- Power politics - who disseminates model output?
- Persistence with old models
- Lack of facilities

Potential climate change impact on the percentage of full supply capacity of the Mnjoli dam decreases under every scenario, either in every month or in more months during the year. The same counts for Mbulezi outflows to Mozambique → existing treatments do not consider climate change in the future, there are no storage systems etc.

Other climate change related water problems in lesser developed countries: issue of biological river health