IWRM Action Hub

RESOURCE

Climate change adaptation and Integrated Water Resource Management in the water sector

|

Author(s)
Ludwig, Fulco Van Slobbe, Erik Langendijk, Wim

Description / Abstract

Integrated Water Resources Management (IWRM) was introduced in 1980s to better optimise water uses between different water demanding sectors. However, since it was introduced water systems have become more complicated due to changes in the global water cycle as a result of climate change. The realization that climate change will have a significant impact on water availability and flood risks has driven research and policy making on adaptation. This paper discusses the main similarities and differences between climate change adaptation and IWRM. The main difference between the two is the focus on current and historic issues of IWRM compared to the (long-term) future focus of adaptation. One of the main problems of implementing climate change adaptation is the large uncertainties in future projections. Two completely different approaches to adaptation have been developed in response to these large uncertainties. A top-down approach based on large scale biophysical impacts analyses focussing on quantifying and minimizing uncertainty by using a large range of scenarios and different climate and impact models. The main problem with this approach is the propagation of uncertainties within the modelling chain. The opposite is the bottom up approach which basically ignores uncertainty. It focusses on reducing vulnerabilities, often at local scale, by developing resilient water systems. Both these approaches however are unsuitable for integrating into water management. The bottom up approach focuses too much on socio-economic vulnerability and too little on developing (technical) solutions. The top-down approach often results in an “explosion” of uncertainty and therefore complicates decision making. A more promising direction of adaptation would be a risk based approach. Future research should further develop and test an approach which starts with developing adaptation strategies based on current and future risks. These strategies should then be evaluated using a range of future scenarios in order to develop robust adaptation measures and strategies.

Publication year
2014

Publisher
Journal of Hydrology

Keywords
Global Warming Risk Assessment

Thematic Tagging
Climate
Language English
View resource
