



Panta Rhei – Everything Flows
Change in Hydrology and Society
IAHS Scientific Decade 2013-2022
www.iahs.info/pantarhei

Details of the Proposal

Title of the Research Theme

Water Footprint Assessment

Abstract of the research theme

Population growth, economic developments and changes in consumption patterns (towards more animal products and biofuels) result in increasing pressures on water resources, mostly indirectly through the consumption of goods that require water in their supply chain. The Water Footprint Assessment research theme embraces the investigation of the relation between consumption, production and trade patterns and freshwater appropriation, scarcity and management.

The research includes developing and comparing methods to quantify and map green, blue and grey water footprints (applying simulation models and/or remote sensing techniques), assessing resultant water scarcity and water pollution levels, analyzing uncertainties, studying the subject of maximum sustainable water footprint at catchment level, and analyzing water productivities and water footprints per unit of production (eco-efficiency). Particular attention will also be given to water footprint scenarios under changing consumer preferences, links between water footprint, global trade and local decision making, the (in)commensurability between water footprint assessment and neoclassic economics and the application of water footprint assessment in strategies of water governance and corporate water stewardship.

Panta Rhei research Targets and Science Questions addressed by the Research Theme

This research theme caters to science questions 2, 5 and 6 and research targets of 'understanding', 'estimation' and 'science in practice'.

Societal impact of the Research Theme

Water Footprint Assessment (WFA) is a quickly emerging research field, with increasing application in the public and private sector. WFA is a useful tool that helps governments analyze freshwater appropriation in a spatiotemporal explicit way, link this to final consumer goods to understand added value, and recognize the relation between water use and

international trade. WFA enriches the basis for decision making on water allocation and water resources protection, but it also shows the linkages of water policy versus agricultural, energy and trade policies. For companies, WFA helps to explore sustainability and efficiency of water use in their supply chains and thus informs the formulation of strategies towards good water stewardship. Society at large, especially in water scarce areas, aware of unsustainable water use practices, will find it useful to identify and replace practices that lead to high water footprints. Such interventions can be local, through changes in the portfolio of activities or technology or interregional through virtual water trade. The assessment may itself engender change in water footprint of various activities, possibly leading to net water savings and ameliorating anthropogenic pressure on hydrological change. Stakeholders in research include governmental bodies like River Basin Committees, National Environmental Agencies, companies that have shown activity in this arena (like Unilever, CocaCola) and ngo's like WWF and the Water Footprint Network.

Panta Rhei Working Groups referring to the Research Theme

We are also proposing at least one working group catering to one or more of its research questions.