



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 Working Group

Improving Hydrological Systems Knowledge

Abstract of the proposed research activity

For the target of Panta Rhei, purpose of the working group is to integrate Target 1 & Target 2 through developing hydrological system approach to improve our knowledge to understand hydrologic laws and related hydrological systems responses to changing environments (including anthropogenic) conditions, and in particular variability and indeterminacy. This is a key step in deciphering change and the interaction with society. Major approaches will focus on following aspects, i.e.:

- (a) Multiple scale hydrological observation from global, regional, basin and experimental point;
- (b) Understanding hydrological laws in the sub-basin, urban, rural and basin through water cycle process and its major element changing, such as precipitation, evapotranspiration, soil moisture, runoff from surface water, soil water and ground water ;
- (c) Water system inter-action and its de-coupling laws through natural hydrological process coupled with human dimension action, and
- (d) Water system modeling and predictions.

Panta Rhei Research Themes, Targets and Science Questions addressed by the Working Group

Water is essential for human life, the key of production, and the foundation of zoology. Water Security has become the most important issue on Global Water Security Strategies. However, for water Security, there are different means for different water sector problems/issues, such as the conflict between water supply & water demand, water disaster (floods & droughts), water pollution issue for drinking & water supply, and the trans-boundary water issue /international water and so on. What the most important for Water Security issue is to develop the Global and Regional Water Security Strategies that should be higher than the

traditional understanding on water security with perceptiveness (foresight), Scientificity and Comprehensiveness (integrity). Even global water system project (GWSP) was proposed, hydrological science should be strengthened and will play a key role on water security issue, and basis to integrate hydrological physical processes with human activity dimension and social demands for water security for our new proposal of working group.

Key science questions for this new working group:

- (1) What are interaction and feedback mechanism for hydrologic system to link hydrological physical processes with human activity, and impacted by changing environment?
- (2) How to deal with uncertainties to come from different hydrological scale issue ?
- (3) How to integrate hydrological science knowledge with water security issue to provide best adaptive water management decision?

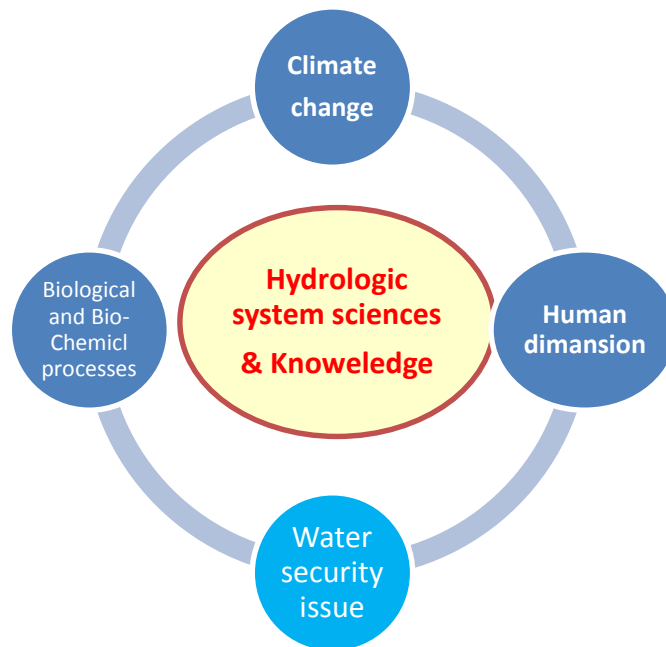


Fig.1 Research System Framework of the new Working Group for IAHS

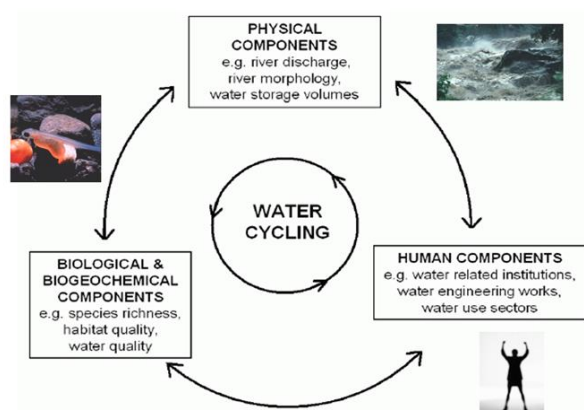


Fig.2 Framework of present Global Water System Project (GWSP)

List of Participants

Name of Participant	Affiliation (full address and email)	Role in Working Group (Chair or Member)	Main expertise
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