

## **Development of a National Water Security Atlas to Support Sustainable Water Governance in Iran**

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There are different definitions for water security. One term defines water security as sufficient, safe, affordable, and clean water to lead a healthy and productive life for all human beings, where communities are protected from floods, droughts, and water-borne diseases. Water security promotes environmental protection and social justice by addressing the conflicts and disputes that arise over shared water resources by providing common platforms for different disciplines and interest groups. This study presents the attempt to bring the concept of water security into practice to support sustainable water governance. In this methodological research, the complex concept of water security is measured by weighted indicators based on different socio-economic and environmental aspects of water such as livelihood, economy, health, environment, water-related hazards, and finally water diplomacy. The results are presented in the form of a National Water Security Atlas (NWSA) of Iran addressing different layers for each aspect of the water security concept. The D(driving forces), P(pressure), S(state), I(impact), R(response) conceptual model is used as the framework of the individual indicators to assist decision makers in using a multi-level information, to develop nation-wide policies, plans, and programs for water governance. Using variety of quantitative and qualitative spatial data to demonstrate different aspects of water security requires applying a broad range of spatial/temporal technical methods from geo-statistics tools to spatial multi-criteria decision analysis. The paper presents innovative methods applied through different procedures of preparing the Water Security Atlas. The Atlas is a multi-scale demonstration of the state of the country in water security from small sub-basins to the country level. To anticipate the future state, different scenarios are defined dealing with the future change in climate, population, socio-economic characteristics and technologic evolution. The consequent changes of different indicators are estimated as a projection of the expected state of water security accordingly. The water security Atlas plays a significant role as a tool for decision making towards sustainable development.