

Water Security Index: An Application to Ulaanbaatar, Mongolia

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(a) Purpose of study or research hypothesis

The objective of this research work is to set up a comprehensive water security assessment index for the city of Ulaanbaatar tailored to its geography, size, socio-economic system, and level of infrastructure development.

The proposed index can serve as a powerful instrument to provide a snapshot of the water security status of the targeted regions within the capital city, enabling policymakers, financing institutions, and planners to make more evidence-based, and informed decisions on how to improve their performance. The index can be set as a framework for the continued assessment, allowing the benchmarking of the water management performance to track the progress versus regress within the compared time frame. Moreover, it would be the basis for the development of a guiding principle that would comprise technical assistance, recommendations on the directions of the water sector investments and action plans for the decision-makers and the water authorities.

(b) Key issue(s) or problem(s) addressed

Ulaanbaatar's urban environmental issues are attributable to the mismanagement of the rapid urban expansion and it is rooted in its governance system. To have water security is to be confident in the quality and the quantity of the water and it is the most binding constraint to the economic development of Ulaanbaatar. As the pivotal point for reaching the Sustainable Development Goals, there is an urgent need for Ulaanbaatar governance to chart its own water management plans, which acknowledge the practical demands, values, and vulnerabilities of the community. For this, rigorous analytical methods for the routine assessment of the water security components, such as water access, sanitation, and infrastructure development is crucial for the sustainable utilization of the finite resource of water.

(c) Methodology or approach used

Determination of the components for the realization of water security is identified as a complex and multifold process encompassing political, economic, social, and administrative systems. For this, a Multi-Criteria Decision Making (MCDM) tool is proposed to be utilized. MCDM analytic hierarchy process (AHP) is suggested to be utilized as a basis for the model development. The technique provides a framework for structuring a problem, for representing and quantifying its elements, for relating those elements to overall goals, and for evaluating alternative solutions. After the hierarchy development, the elements are allowed to systematically evaluated to be compared in pairs.

(d) Results or conclusions derived from the project

Currently, the research work is on the initiation phase where the dimensions, criterias for the development of the Water Security Index are identified by reviewing the local regulations and guidelines with the comparison study with international paper. By the organization of the Water Congress the research work is expected to provide results and conclusions from the preliminary studies.

(e) Implications of the project relevant to congress themes

The objectives of the study is closely related to the Maximizing social, cultural and economic benefit theme. The water security index aims to provide comprehensive assessment on the current water management system to identify the gaps for the provision of efficient water supply and utilization on the consumption level. Moreover, the study area is developing country, Mongolia, which I believe is one of the most under reported geographies in the world, which would provide case studies and contribute to the development of the comprehensive assessment framework for other developing countries as well.

Keywords : Urban Water Security, Value of Water, Water Security Indicators.