



Water Scarcity: Opportunities and Challenges

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Abstract

The possible insufficiency of land and water resources to meet the needs of humanity, is a pressing issue. Projected future developments, such as population growth and increasing climatic and hydrologic variability, are likely to further aggravate resource scarcity. From the water management perspective, water scarcity is an unacceptable risk of facing water shortages to serve water demands in the near future. Precipitation, temperature, solar radiation, slope, land use and ground water level are the most important variables which affect water scarcity. Water scarcity may be temporary and related to drought conditions or other accidental situation, or may be permanent and due to deeper causes such as excessive demand growth, lack of infrastructure for water storage or transport, or constraints in water management. Drought is one of devastating natural hazards in the world and has extreme effects on society, environment, and economy. Four types of drought include meteorological (key factor: lack of rainfall), hydrological (key factor: river flows and dam capacities), agricultural (key factor: lack of soil moisture) and social-economic (key factor: social-economic damages). Among these the first three types relates to the lack of some hydrological characteristics, while social-economic type of drought is the consequence of other types of drought in monetary values.

Yet, the global community has been in a water crisis for many years. These issues are more critical in arid and semiarid regions such as Iran. The coming changes in climatic patterns, precipitation rates, and rising temperatures present significant challenges to people, communities, nations, and the environment in ways that have never been witnessed by humans. These changes will have an imprint on cultures, traditions, and lifestyles throughout the globe and will challenge humanity's ability to adapt. Unless nations and people realize these challenges, and cooperate and coordinate to change them to opportunities, some progress may acquire.

Keywords: Resource scarcity, Water crisis, Drought, Challenges, Risk