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An ecohydrological approach for the protection and enhancement of ecosystem services

Water is the only factor linking all ecosystem services – provisional, supporting, regulatory, and cultural. For this reason water resources are highly vulnerable to human pressures and become a cause of environmental insecurity in many regions of the world. The methods of coping with water-related problems were built on the conviction that the risk of losing water driven services can be, to a great extent, anticipated and diminished by policy and technical and technological measures. However, considering the number of factors regulating accessibility and quality of water, the risks associated with water scarcity should be considered as having higher damage potential, persistency, ubiquity and irreversibility, especially under increasing climate variability, than previously assumed. Handling risk is problematic also due to high uncertainty and severe outcomes associated with rising water needs, conflicting demands, and low awareness among citizens. Many important issues affecting water management are often rooted in the past, e.g. poverty, dramatic population growth, industrialization, land transformations, inefficient policy and overengineering. Unknown risk, damages difficult to assess, and low capacity for worldwide introduction of top, but expensive technologies led back to questions concerning a potential for using natural mechanisms to maintain ecosystem resilience and to mitigate human activities, which are handicapping. A proposed ecohydrology approach scrutinizes the interrelation between components of river catchments, focusing especially on those between biota and hydrology. It suggests using these relations for increasing an adaptive capacity of ecosystems and thus the stability and security of ecosystem services.

Keywords: Environmental risk; ecosystem services; ecohydrology; ecosystem functions; biotic structure

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