



water



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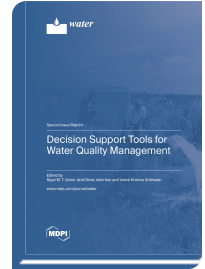
Decision Support Tools for Water Quality Management

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The sustainability of water resources worldwide is increasingly imperiled as climate change contributes to the human-induced problems of water supply scarcity and maldistribution. Environmental problems associated with water quality, such as aquifer depletion, land subsidence, the seasonal drying of river flows, waterlogging, the salinization of rivers and groundwater, and human health problems from the excessive use of fertilizers and pesticides will require a radical re-thinking of resource-management policy and new tools to help analysts and regulators craft novel solutions. Over the past several decades, with the advent and rapid progress of computational technology, watershed models have increasingly become important and effective tools for tackling a wide range of water resource and environmental management issues and for supporting regulatory compliance. Statistical and machine-learning methods are being used to support and even supplant more traditional simulation models to improve the estimation of the temporal dynamics and patterns of variability in pollutant concentrations and loads. With the advancements in modeling approaches for water quality, there have also been developments in decision-support tools for water quality management. This reprint describes innovative decision-support approaches from around the world and across sectors that can be applied by stakeholders, government entities, and regulators to reduce environmental pollution and effective and sustainable water management strategies.



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