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## Water Resource Allocation: Productivity, Equity, and Environmental Impacts

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### Abstract

As water scarcity and competition over the resource increase, there is a need for greater attention to water resource allocation—the assignment of water rights and decisions on when, how, and where water will be delivered. This goes beyond the focus on the physical process of delivering water, to deal explicitly with decisions on the use of water in different sectors, and leads to a greater emphasis on the rights and incentives of water users. This paper discusses the relative strengths and roles of state, user-based, and market allocation mechanisms in shaping the productivity, equity, and sustainability of water resource use, as well as the potential and challenges in reforming water rights and allocation mechanisms.

Most attention has been on water quantity allocation, but water quality is emerging as one of the most significant problems in water management. Most water allocation institutions are not well equipped to handle water quality. Incorporating water quality considerations into definitions of water rights is one of the major challenges for water resource management in this century.

**Keywords:** Water quality, market allocation