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**Abstract**

Safeguarding limited resources of water is the challenge for sustainable food production. The study analyses water uses and competition, identifies possible options to contribute to more efficient and equitable arrangements, and give recommendations to support policy-making for sustainable water resources management in agro-ecological zones within the Mekong delta. Rice farming and aquaculture development and institutional constraints are recognized as major driving factors of water competition among water users in and between three major agro-ecological zones: (1) upper delta irrigated, (2) acid sulphate soil (ASS) and (3) downstream coastal zones. In the upper delta, intensive rice development abstracts a large quantity of freshwater and then results in salinity intrusion in the downstream delta during low flow periods of the Mekong River. Aquaculture expansion contributes to further water pollution in the downstream areas through flushing pond/cage effluents during water exchange. The reclamation of ASS for food production pollutes water in canals and shallow ground water by acidic substances, aluminum, iron and other heavy metals. In coastal zones, water has multiple values. Rice and shrimp development causes conflicts over water among crop and shrimp production, fishing and mangrove forests. Water access and sharing is determined by a wide range of local bio-physical and socio-economic settings and institutional aspects at household and community scale. Efficient and equitable arrangements of water uses need both structural (technical) and non-structural (planning and institutional) solutions implemented at different spatial scales - from crop, field to community and regional levels. Water provides a wide range of goods and services, which greatly differ between users and locations. Possible options therefore need to consider the needs of all resource users at multiple scales rather than focusing on only one particular sector or scale. Strong evidence of water competition, however, is still inadequate in the Mekong delta. Further investigations are suggested to provide a clear picture of water conflicts, cause-effect relationships and guidelines to policy-makers and managers.

**Keywords:** *water use, water competition, water resources management, Mekong delta.*