



An economic framework for valuing information in water scarce irrigation districts

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Data and information plays a crucial role in quantifying the abundance of the available water resource and the demand placed on it in water scarce regions, and is central to decision making. This is particularly so for water allocation decisions in large irrigation districts. However, in most irrigation schemes data collection is normally limited due to the economic investments required. As a result, water allocation decisions are normally taken based on incomplete or uncertain data on the current or forecast situation, leading to less optimal decisions being taken in system planning and operation. Wrong water allocation decisions can lead to economic loss in agricultural production, implying low performance of the system and possible impact on the users' livelihoods. The objective of this research is to assess available frameworks in valuing information and to adapt these to support water allocation decisions in irrigation districts. Water allocation decisions made in the planning of irrigation districts as well as in their operation will be evaluated through a decision framework that considers a discrete set of options, each generating different agricultural production loss scenarios relative to uncertain water scarcity conditions. Additional information obtained from improved data can support better decision making and thus constitutes added value. This added value can be interpreted as the marginal benefit of the improved data. The marginal benefit of information will be determined following an economic framework based on the Relative Economic Value theory that is applied in making decisions in a Bayesian setting. Through this framework it is expected to provide economic values of information in support of water allocation decisions in vulnerable irrigation districts. This is an essential step to provide insight on the value of information in water allocation decisions in planning and operation, and ultimately to reduce agricultural production loss.