Decision-support models for efficient irrigation water management—a case study of middle Rio Grande

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Abstract. This paper will present results of ongoing research on the use of Decision Support Systems (DSS) in better managing irrigation water delivery and distribution among users in the Middle Rio Grande Valley in New Mexico. Efficient use of irrigation water is critical in this area, not only because is an arid region but also because of the environmental concerns for maintaining appropriate river flows for fish and wildlife habitats.

The Middle Rio Grande Conservancy District is investigating options for more efficient water delivery and distribution among its users. One of the identified options is to practice rotational water delivery, which can be better managed by developing and using Decision Support Models (DSS). In rotational water delivery, lateral canals receive water from the main canal by turns, allowing water use in some laterals while others are closed. The DSS helps determine how best to route water supply in the main canal to its laterals using a priority system so that the required water diversion from the river is at a minimum, while still meeting the demands of the laterals.