

## **Policy Tradeoffs: Development vs. Water Conservation**

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### **ABSTRACT**

The US population has grown at a rate of 6.4% since the beginning of this decade and recently reached 300 million people. In the Southwest the growth rates are much higher ranging from 7.5% in New Mexico to almost 25% in Nevada. Exacerbating the problem is that growth is not uniform but is occurring in pockets of desirable locations such as along the Middle Rio Grande. Growth of this magnitude begs the question; can population grow without constraint? The obvious answer is no. This places policy makers and planners in a quandary. Economic development is normally seen as a goal of policy makers but development encourages population growth which puts more stress on the natural resources. This paper models the planner whose objective is to maximize social welfare where welfare is positively correlated to economic growth but economic growth brings increased populations which increases water use. The planner has at his/her disposal choice concerning development patterns as well as water use policy. In recent years water use policy produced favorable results in terms of individual household conservation; Albuquerque use has fallen to 165 gallons per person per day. This model explores the effects of development choice in trade off to conservation. Using dynamic simulation and analysis this model provides insights to the trade off. While time horizons of planner decisions vary this model uses a fixed time horizon. This research is a departure from much of the literature in efficient water allocation. Instead of defining optimal water use at the household level this effort seeks to provide the social planner an optimal guide to development. At some point the consumer can only conserve "so much." Once reached it becomes incumbent on the social planner to recognize limits to conservation and incorporate development management in water decision making.