

**Oamek, G. E. 1988. Economic and environmental impacts of interstate water transfers in the Colorado River Basin. Ph.D. dissertation. Iowa State University. Ames, Iowa. 223 pp.**

Mathematical programming models of agricultural production in the Colorado River Upper Basin were integrated with a hydrology model of the Colorado River to assess the impacts of transferring water from irrigation uses in the Upper Basin to urban users in the Lower Basin. Two types of strategies were examined and discussed with regards to the changing institutional structure allocating Western water. One strategy involved a long term lease of irrigation water on an annual basis. The other assessed a lease-option strategy by the Lower Basin to take Upper Basin water only when needed. The economic impacts measured were changes in regional income, agriculturally generated income, crop production, land use, and input expenditures. Environmental impacts considered were changes in river salinity levels and increased hydropower production resulting from increased intervening flows.

Results indicated that, for an annual lease strategy, up to 400,000 acre feet (AF) of water transferred from agriculture had minimal impacts on Upper Basin land and input usage, and could potentially raise total basin income dramatically. Transferring this amount of water results in significant decreases in salinity and increases in hydropower--so significant that, according to valuations of these variables from other studies, they have possibly many times the value of the water in agriculture.

Results of a lease option strategy indicated that, in the near term, it may be less expensive alternative for urban users to acquire agricultural water. However, in the longer term, its relative expense and environmental impacts are difficult to ascertain since the amount of water to be transferred is largely unknown.