

# 40 ECONOMIC INCENTIVES AND AGRICULTURAL DRAINAGE PROBLEMS: THE ROLE OF WATER TRANSFERS

Bonnie G. Colby, University of Arizona, Tucson

## ABSTRACT

The opportunity to transfer water creates incentives for farmers to consider the value of water in off-farm uses when making farm management decisions. Water transfers can complement other policy approaches to agricultural drainage problems by prompting farmers to use less water for irrigation, recognizing its opportunity cost, and by providing water to mitigate drainage-related contamination and to replace and restore damaged wetlands.

## INTRODUCTION

Economic incentives have played a central role in contributing to drainage-related water quality problems, and incentives generated by the potential for water transfers can be an important contributor to solutions. Historically, the low subsidized cost of water in Federal irrigation projects has had several relevant effects. First, it has encouraged farmers to use more water than would be economical at unsubsidized water prices, creating increased agricultural runoff and decreased reserves of water for other current uses and for future uses. Second, subsidized water has made it profitable to farm lands that are marginal due to slope, soil quality and other characteristics--lands which would be unprofitable to farm if farmers paid the full cost of water provision (National Research Council, 1989, p. 5). Finally, subsidized water has created a political and institutional context in which the costs of agricultural input decisions are not fully borne by the agricultural sector--sending a message that it is acceptable for taxpayers, other water users, and the environment to bear costs resulting from farm management decisions. This makes it politically difficult to require farmers to account for these costs, including the costs of cleaning up drainage water.

The possibility for transferring water creates alternative incentive structures which can cause irrigators to consider the value of water in nonirrigation uses. Policies that send appropriate signals to farmers are a microlevel tool which can reinforce regulations and other policies that encourage farmers to incorporate drainage costs in their water use and farm management decisions. New pricing policies for Federal project water are one way of creating new incentives for farmers to adjust their water use, and these are discussed elsewhere in this volume (Willey and Weinberg, and Wichelns). This chapter evaluates the role of water transfers, including market transactions and other voluntary, negotiated water use arrangements.

Possible transfer arrangements include payments to retire particular fields from irrigation, payments to adopt different farm management practices or cropping patterns, conservation easements, and leases or purchases of land and water. Developed by the U.S. Bureau of Reclamation (Reclamation), U.S. Fish and Wildlife Service (FWS), and California Department of Fish and Game (DFG), and approved by the California Regional Water Quality Control Board, the recent mitigation plan for Kesterson Reservoir (Kesterson) includes purchase and transfer of land and water. The mitigation plan calls for creation of additional wetlands to replace losses due to selenium contamination. It would use water and land acquired from private owners and from existing Central Valley Project water supplies (Water Intelligence Monthly, 1990). Thus, voluntary transfers are already being incorporated into drainage management policies.

The institutional setting is crucial in facilitating voluntary water transfer arrangements. First, criteria and procedures for formal approval, implementation, and enforcement of agreements must be provided. Second, laws and policies can provide farmers and other parties with the incentive to negotiate, sending clear signals about the consequences of failure to adopt voluntary arrangements to mitigate drainage problems.

## MARKET TRANSACTIONS—AN OVERVIEW

“... (E)ngineer the forces of the market place into our environmental programs, using economic incentives (and disincentives) to make the everyday economic decisions of individuals, businesses, and the government work effectively for the environment . . . Market forces can supplement the regulatory power of the government and create a setting for private sector innovation and initiative in the pursuit of environmental quality.”

Project 88 Harnessing Market Forces to Protect Our Environment: Initiatives for the New President, pp. 1-2, 1988.