

ECONOMIC IMPACTS OF SHORT-TERM WATER
TRANSFER PROGRAMS-THE PALO VERDE LAND
FALLOWING PROGRAM CASE STUDY

Gerald M. Davisson¹

Fadi Z. Kamand²

ABSTRACT

The Metropolitan Water District of Southern California (Metropolitan) and the Palo Verde Irrigation District implemented a two-year test land fallowing program (Program) from August 1, 1992 through July 31, 1994. Under the Program, 20,215 acres of agricultural farm land in the Palo Verde Valley were fallowed. The saved water, approximately 186,000 acre-feet, was stored in Lake Mead by the United States for use by Metropolitan prior to the year 2000. Metropolitan compensated participating farmers \$620 per fallowed acre per year which equated to \$135 per acre-foot of water saved. Four surveys were conducted in the Palo Verde Valley during and after the Program to evaluate the economic impacts of the Program on the participating farmers and the community as a whole. Results showed that the Program was well received by the farmers and various community representatives, and that the Program contributed to a slight reduction in the average regional employment, approximately 1.3 percent. Participating farmers reportedly spent 93 percent of Program payments in excess of fallowing and maintenance costs on farm-related investments, purchases, and debt repayment. Although this Program had relatively small economic impacts, nevertheless it is a difficult task to quantify the positive and negative impacts of water transfer programs. Further details relating to the Program, third party impacts, and the regional economic impacts of the Program are presented.

INTRODUCTION

Metropolitan Water District of Southern California (Metropolitan) is a public agency which obtains water from the Colorado River and other sources and

¹ General Manger, Palo Verde Irrigation District, 180 West 14th Avenue, Blythe, California 92225

² Engineer, Metropolitan Water District, 350 South Grand Avenue, Los Angeles, California 90071

distributes it at wholesale rates to 27 member public agencies in southern California. These supplies account for 50 to 60 percent of the water used in southern California by nearly 16 million people, supporting a \$475 billion economy. Metropolitan's 5,200 square mile service area spans portions of six counties -- Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego. Metropolitan holds the fourth and fifth priorities to use of Colorado River water in California.

Faced with the prospect of future water supply shortages within its service area, Metropolitan is pursuing a full range of programs to increase its water supplies and to improve the reliability of these supplies. One of these programs is the Palo Verde test land fallowing program (Program).

Palo Verde Irrigation District (Palo Verde), headquartered in Blythe, California, delivers Colorado River water to about 93,000 irrigated acres in the Palo Verde Valley, of which 85,000 acres are valley lands that were eligible to participate in the Program. Palo Verde holds the first priority to use of Colorado River water in California for these lands. The Palo Verde Valley, located at the eastern edge of California and separated from Arizona by the Colorado River, is about 30 miles long and 9 miles wide. It lies primarily in eastern Riverside County with a small portion extending into northern Imperial County. Major crops grown include alfalfa, cotton, wheat, sudan grass, melons, and lettuce. Palo Verde's net annual Colorado River water diversions for the period 1981-91 averaged 420,793 acre-feet. Drainage water collected by a system of open channels flows southerly by gravity and is discharged back to the Colorado River at the southern end of the district.

In the mid-1980s, Metropolitan and Palo Verde began discussions related to certain water saving programs in Palo Verde which could be implemented in years when urban water supplies were limited. However, it was May 1992 when the two agencies finally reached agreement to implement the two-year test Program.

Under the Program, 20,215 acres of agricultural farm land in Palo Verde (approximately 22 percent of the total cropped acreage) were fallowed for two years saving approximately 186,000 acre-feet of Colorado River water. The saved water was stored in Lake Mead for use by Metropolitan prior to the year 2000. To evaluate the economic impacts of the Program on participating farmers and the community at large, three surveys of Program participants were conducted during and after the Program, and a fourth survey of the local community was conducted after the Program. The purpose of this paper is to present the results of these surveys.

In devising the Program, specific measures were taken to insure the equitability of the Program and to minimize its economic impacts on farming operations and the community at large. Only up to 25 percent of a participating farmer's farm land was allowed to be included in the Program. Metropolitan compensated participating farmers \$1,240 per acre over the two-year period. Participating farmers had to pay taxes on the farm land, water tolls, and land maintenance costs. Fallowed fields were not to be irrigated for the two-year period, and were required to be maintained weed free and managed in accordance with preapproved management plans for controlling dust and complying with existing wind erosion regulations.

Regional Economy Prior to Start of Program

The City of Blythe is the economic center of the Palo Verde Valley. Its population in 1994 was about 9,800. Other communities within the valley, including the small towns of Ripley and Palo Verde, account for an additional 8,400 people. In Arizona, the towns of Ehrenberg and Quartzsite lie approximately 6 and 20 miles east of Blythe, respectively. These two cities and southern La Paz County, Arizona account for an additional 4,900 people. The region's year-round population is approximately 23,100.

Prior to the start of the Program, several events had affected regional economic activity either positively or negatively. To assess the effects the Program had on the local economy, it was necessary to first identify the impacts of these other events. These events included the construction of two state prisons, a substantial increase in housing and commercial construction, a statewide economic recession, and a depressed agricultural economy.

The opening of the two state prisons created over 1,600 jobs. The Chuckawalla Valley State Prison was opened in November 1993, and the Ironwood State Prison was opened in October 1994. The new prisons were a significant source of income to the region and had invigorated the Blythe economy. They contributed to the significant increase in new construction in the region due largely to the additional demand for housing. Similarly, requests for new telephone service had increased significantly during the period from 1992 to 1994.

The Palo Verde Valley has been and continues to be founded in agriculture. However, between 1988 and 1991, the gross value of crops produced in the valley dropped from \$189 million in 1988 to \$79 million in 1991, a drop of 58 percent (all in 1992 dollars). In particular, the gross value of vegetable production fell by 86 percent during the same period resulting in significant impacts on the region's farm employment. This regional decline in vegetable

production and, consequently, the reduction in the region's farm employment was in no way related to the Program. There were three primary causes for this decline: (1) the whitefly infestation, (2) the collapse of the alfalfa market in 1991, and (3) the long-term decline in the region's vegetable production. The whitefly infestation started in 1986 and had a significant impact on the production of crops in the valley. Between 1990 and 1991, the average price per ton received for alfalfa in the valley fell by 36 percent while the average revenue per acre fell by 43 percent. The alfalfa market did not recover until 1993 after the Program had begun. Vegetable production within the valley had declined steadily since 1984. By 1992, vegetable acreage was 76 percent below its 1984 level. Other base economic activity in the region includes light manufacturing and tourism.

RESULTS

Economic Impacts of the Program

The net change in field crop production due to the Program was approximated using the Riverside Agricultural Commissioner's Acreage and Agricultural Crop Report data for 1992 and 1993. Wheat, sudan grass, and alfalfa were the crops most likely to have been affected by the Program. It was estimated that 1,521 acres of wheat, 2,413 acres of sudan grass, and 16,281 acres of alfalfa (for a total of 20,215 acres) were not planted due to the Program. Estimated changes in gross farm revenue as well as the purchase of farm inputs (such as seed, fertilizer, chemicals, and custom services) due to the Program were based on these estimated acres of unplanted crops.

Gross farm revenue was estimated to have declined by \$33.7 million (in nominal dollars) over the two-year Program period. Program payments of \$25.1 million partially offset this decrease resulting in a net reduction of \$8.6 million over the two-year period or \$4.3 million per year. This net reduction of \$4.3 million per year in gross farm revenue is 4.5 percent below what might have occurred absent the Program and assuming 1993 average prices and yields, i.e. \$96.1 million. It must be emphasized, however, that the Program altered the distribution of farm revenue within the valley.

To explore the effects of this altered distribution of farm revenue, the net change in farm input purchases was evaluated. It was estimated, based on the surveys conducted, that Program participants spent approximately \$862,000 and \$143,000 during the first and second years of the Program, respectively, to comply with fallowing, weed control, and wind erosion requirements. A net

decrease in farm input purchases over the two-year period was estimated to be approximately \$4.0 million per year. As a comparison the reduction in farm input purchases caused by the lettuce acreage reduction from 1988 to 1991 was estimated to be \$8.3 million per year, approximately 2.1 times greater than that caused by the Program.

Furthermore, three surveys of Program participants revealed that 93 percent of Program payments in excess of following costs were reinvested into the farm economy either to pay down debt (37%), make farm improvements (11%), or cover operating expenses and rent (45%). Evaluation of the economic benefits resulting from Program payments was beyond the scope of the conducted surveys.

Program participant surveys also revealed that the Program contributed to the loss of 27 full-time farm jobs. For comparison purposes, the decrease in demand for farm labor associated with the reduction in vegetable production between 1988 and 1991 was estimated at 1,400 full-time-equivalent jobs. The Program was assumed to not have any impact on seasonal labor since only field crops were not planted.

Results from the fourth survey conducted in the Blythe market area showed that the Program's negative economic impacts were concentrated within farm-related businesses providing services or supplies to the region's farmers. Three of four businesses surveyed providing farm services characterized the Program as causing a significant decrease in their revenues in 1993, while three of four respondents providing farm supplies characterized it as causing a minor decrease. These impacts were perceived to have had contributed to the loss of 25 full-time and 7 part-time jobs in these farm-related businesses. Based on the Employment Development Department employment counts for the region, the total employment losses associated with the Program (52 full-time and 7 part-time jobs) were estimated to be equal to approximately 1.3 percent of the average regional employment for 1991-92. Since it was beyond the scope of the conducted surveys to estimate the employment stimulus associated with regional spending of Program payments, estimated employment losses due to the Program may in fact have been less than estimated.

The Program was found not to have caused reductions in employment or revenues for non-farm-related businesses in the region. Surveyed and interviewed non-farm-related businesses indicated that the Program had no perceptible effect on their revenues, and did not cause them to adjust their employment. Businesses surveyed whose farm-related sales in the region comprised less than 20 percent of their total revenue also indicated that the Program did not affect their businesses in any significant way.

In conclusion, the Program was not found to have affected overall regional economic performance to any significant degree. City officials and local bank representatives characterized the state of the regional economy during the Program as improved relative to pre-Program conditions. Additionally, the Program was not found to have affected the region's property or sales tax bases, or the provision of governmental services. In fact, the Program provided for timely financial relief to the region's agricultural producers who had been under significant hardship due to a major pest infestation and low prices for key commodities such as alfalfa.