

# 7.3 Agricultural Social Issues

---

By improving water supply reliability and quality, the CALFED Bay-Delta Program would benefit the agricultural community but may result in localized adverse social effects.

7.3.1	SUMMARY .....	7.3-1
7.3.2	AREAS OF CONTROVERSY .....	7.3-2
7.3.3	AFFECTED ENVIRONMENT/EXISTING CONDITIONS .....	7.3-2
7.3.4	ASSESSMENT METHODS .....	7.3-9
7.3.5	CRITERIA FOR DETERMINING ADVERSE EFFECTS .....	7.3-9
7.3.6	NO ACTION ALTERNATIVE .....	7.3-9
7.3.7	CONSEQUENCES: PROGRAM ELEMENTS COMMON TO ALL ALTERNATIVES .....	7.3-11
7.3.8	CONSEQUENCES: PROGRAM ELEMENTS THAT DIFFER AMONG ALTERNATIVES .....	7.3-18
7.3.9	PROGRAM ALTERNATIVES COMPARED TO EXISTING CONDITIONS .....	7.3-21
7.3.10	ADDITIONAL IMPACT ANALYSIS .....	7.3-22
7.3.11	ADVERSE EFFECTS .....	7.3-23



## 7.3 Agricultural Social Issues

---

### 7.3.1 SUMMARY

Farms and ranches in the CALFED Bay-Delta Program (Program) study area provide hundreds of thousands of jobs. Besides the men and women who work directly in agricultural jobs, many others work in jobs that support agriculture—moving crops to market, processing them for consumption, and providing the equipment and materials needed to support the nation's most diverse agricultural economy. In turn, the wages earned by these workers and the taxes paid on agricultural property provide revenues that support local governments throughout the Program area. When farmers and farm workers are displaced, it is these local governments that must supply an array of services to support them until other employment can be found. For many of the state's growers and farm workers, the water supply reliability provided by the Program would ensure that the lands they work can continue to be irrigated. In some areas, Program actions would displace agriculture, in turn displacing the jobs of agricultural workers.

**Preferred Program Alternative.** Increased water supply reliability would reduce the potential for future irrigation water disruptions and resulting social dislocations throughout most of the Program area, a major benefit of the Preferred Program Alternative. In some areas, agricultural employment would increase as a result of higher quality, more reliable water supplies and better irrigation efficiency, allowing the planting of higher value or more labor-intensive crops. These benefits would result from actions under the Water Quality, Storage, Water Use Efficiency, and Conveyance Elements. In the Delta Region, Levee System Integrity Program actions would protect agricultural jobs and income from catastrophic loss due to levee failure.

In some localized areas, Program elements would cause a reduction in agricultural employment and an associated increase in social issue effects. Areas that export water through the Water Transfer Program may experience increased land fallowing, with a reduction in agricultural employment and a shift of water from agricultural to urban uses. Conversion of agricultural lands to Program purposes, including actions under the Ecosystem Restoration and Levee System Integrity Programs, and the Storage element, would adversely affect agricultural employment, as would retirement of lands with drainage problems under the Water Quality Program.

Where employment is reduced, local government would be called on to provide many safety-net services while simultaneously experiencing a reduction in tax revenues. Special

---

For many of the state's growers and farm workers, the water supply reliability provided by the Program would ensure that the lands they work can continue to be irrigated. In some areas, Program actions would displace agriculture, in turn displacing the jobs of agricultural workers.

---



districts, such as levee or flood control districts, also could face declining revenues in some areas.

**Alternatives 1, 2, and 3.** All three Program alternatives would result in adverse social effects similar to those described for the Preferred Program Alternative. Differences in adverse social effects between the alternatives would be minimal.

## 7.3.2 AREAS OF CONTROVERSY

Areas of controversy as defined by CEQA involve differences of opinion among technical experts or information that is not available and cannot be readily obtained. According to this definition, no areas of controversy relate to agricultural social issues. While many issues associated with the Program are controversial, the effects concerning agricultural social issues are well understood and have not caused a dispute among experts. However, the following issue is best discussed under this section.

**Significance of Adverse Effects.** It should be noted that neither CEQA nor NEPA treats social and economic effects as environmental impacts. CEQA requires a discussion of economic and social effects only if they will lead to physical changes in the environment. NEPA requires a full discussion of social and economic effects but, as with CEQA, does not treat them as environmental impacts in and of themselves. Consequently, this Programmatic document fully discusses social and economic issues, as required by NEPA, but consistent with state and federal law, does not treat adverse social and economic effects as significant environmental impacts.

## 7.3.3 AFFECTED ENVIRONMENT/ EXISTING CONDITIONS

### 7.3.3.1 ALL REGIONS

Farming and farm-related industries in the Central Valley are estimated to directly and indirectly create about 3 in every 10 jobs and about 30% of personal income. Statewide, agriculture and related activities account for about 1 in every 10 jobs.

**Social Well Being Related to Agriculture.** To describe the affected environment for social well being, this document relies on the grouping of counties for each region shown in Table 7.3-1. This grouping is necessary to aggregate racial, income, and population data from the U.S. Census.

The affected environment for social well being involves both community stability issues and environmental justice issues. Although community stability and environmental justice issues overlap in many respects (for example, income and poverty levels), they are

---

Farming and farm-related industries in the Central Valley are estimated to directly and indirectly create about 3 in every 10 jobs and about 30% of personal income. Statewide, agriculture and related activities account for about 1 in every 10 jobs.

---



discussed separately for organizational purposes. Additionally, community stability is described for the entire study area rather than on a regional basis.

*Table 7.3-1. Program Regions and Groupings of Counties*

PROGRAM REGIONS	COUNTIES
Delta Region	98% of Contra Costa, 45% of Sacramento, 46% of San Joaquin, 30% of Solano, and 20% of Yolo
Bay Region	Alameda, 2% of Contra Costa, Marin, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma
Sacramento River Region	Butte, Colusa, Glenn, Placer, 55% of Sacramento, Shasta, 70% of Solano, Sutter, Tehama, 80% of Yolo, and Yuba
San Joaquin River Region	Fresno, Kern, King, Madera, Merced, 54% of San Joaquin, Stanislaus, and Tulare
Other SWP and CVP Service Areas	Imperial, Los Angeles, Plumas, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura

**Community Stability.** The affected environment for community stability includes the following:

- Social groups in the Program study area
- Economic indicators of social well being
- Employment opportunities
- Community social structure

Several important social groups are related to agriculture in the study area: farmers, farm workers, and agribusiness.

Economic indicators of social well being include population demographics, median family income, per capita income, poverty rates, and unemployment rates. These indicators are summarized by region in Table 7.3-2.

This section summarizes the regional economic indicators of social well being in the study area as they apply to all social groups and communities. The following general conclusions were derived from review of the economic data presented in Table 7.3-2:

- In the study area, people living in predominantly rural areas have lower incomes, higher poverty rates, and higher unemployment rates than those living in the urban regions. However, San Francisco and Los Angeles Counties experience high income levels and some of the highest poverty rates in the state.
- In all regions, pockets of prosperity have an “averaging effect” of raising average personal income levels and lowering average poverty and unemployment rates.

Several important social groups are related to agriculture in the study area: farmers, farm workers, and agribusiness.



*Table 7.3-2. Existing Conditions: Regional Demographics and Economic Indicators of Social Well Being*

	DELTA	BAY	SAN JOAQUIN RIVER	SACRAMENTO RIVER	OTHER CVP AND SWP SERVICE AREAS
1996 Population <sup>a</sup>	2,362,614	6,498,964	3,004,222	1,666,650	19,159,450
<b>Economic Indicators</b>					
Median family income (1989) <sup>b</sup>	40,690	46,373	30,862	31,794	38,825
Per capita income <sup>c</sup> (1994)	21,991	28,079	16,475	18,313	20,358
Poverty rate	11%	9%	18%	13%	13%
1995 Unemployment rate <sup>d</sup>					
Average	7.8%	6.6%	13.3%	11.2%	10%
Range	5.8 to 12.3%	4.3 to 13.5%	8.2 to 16.9%	6.1 to 19.7%	5.1 to 28.8%

## Notes:

- <sup>a</sup> Source: California Department of Finance; county population data was aggregated into CALFED Regions according to Table 7.3-1.
- <sup>b</sup> Source: California Department of Finance; median family income for each county was averaged to show average median family income for each CALFED region.
- <sup>c</sup> Source: California Department of Finance; per-capita income for each county was averaged to show average per-capita income for each CALFED region.
- <sup>d</sup> Source: California Department of Finance; average of counties in each Program region.

Personal income is measured as family or per capita income, as shown in Table 7.3-2. Median family income is a measure of the annual income received by families living together in the same household. "Median" is a statistical term for the midpoint of a data set. The median family income in the study area covers a wide range. Per capita income in the study area ranges from \$10,000 in the Tulare Lake area in the San Joaquin River Region and Yuba County in the Sacramento River Region, to \$28,000 in Marin County in the Bay Region.

As shown in Table 7.3-2, existing unemployment rates are lowest in the Bay and Delta Regions, where more employment opportunities are available. Unemployment rates are presented as a range in areas with diverse economies, such as the urban and agricultural areas in the Sacramento Valley and San Joaquin Valley.

Poverty rates also range widely in the study area. The highest poverty rates in the study area occur in predominantly rural areas, and poverty rates are higher among minority ethnic groups. A 1986 study by the California Employment Development Department (EDD) estimated the poverty rates among races in California during 1980, as summarized in Table 7.3-3. Unemployment rates in the study area are higher among minority ethnic groups. The EDD estimated state-wide unemployment rates among races in California during 1980, as summarized in Table 7.3-4.

Existing unemployment rates are lowest in the Bay and Delta Regions, where more employment opportunities are available. The highest poverty rates in the study area occur in predominantly rural areas, and poverty rates are higher among minority ethnic groups.



*Table 7.3-3. Poverty Rate by Ethnicity*

ETHNICITY	POVERTY RATE (Percentage)
White	6
Black	21
Hispanic	18
Asian and other	11

Source: California Employment Development Department, 1986.

*Table 7.3-4. Unemployment Rate by Ethnicity*

ETHNICITY	POVERTY RATE (Percentage)
White	4
Black	7
Hispanic	7
Asian and other	4

Source: California Employment Development Department, 1986.

Average annual agricultural employment was about 400,000-435,000 jobs from 1987 to 1992. Approximately 420,000 people were employed in the agriculture industry in 1992. The relationship between the agricultural sector and the larger economy of the Central Valley is important in the assessment of social factors. Agricultural employment is becoming a less significant factor in measuring the viability of the local economy in all areas of the Central Valley. The economy of the Central Valley has grown and diversified, and nonagricultural employment opportunities are increasing. This general trend does not hold true for many smaller communities, where agriculture remains the dominant industry and economic force.

Factors affecting social well being include not only employment opportunities but also job guarantees. Job guarantees are affected by seasonal employment trends and economic trends and, in some cases, natural occurrences. Seasonal employment affects agricultural workers. Economic trends also may affect agriculture. Natural occurrences such as weather conditions can shorten or lengthen seasonal employment opportunities. For example, water shortages can reduce the number of acres farmed. Natural occurrences such as drought and flood conditions, and economic conditions are not under the control of the Program and, although they are not addressed further in this chapter, are important to consider in the assessment of existing conditions.

For the Program study area, the largest sectors of workers who may be affected by Program actions are seasonal farm workers and agricultural workers. Seasonal unemployment among farm workers and agricultural workers usually occurs during winter months following harvest. Changes in seasonal employment can affect the demand for social services. The demand for social services increases during periods of unemployment, such as requests for unemployment payments, health services, and other family support programs. The need to utilize family, health, and income support services can decrease social well being among persons who are employed during much of the year but are seasonally unemployed.

The largest sectors of workers who may be affected by Program actions are seasonal farm workers and agricultural workers.

Local communities provide a social base for people to access assistance and support during times of need. The social structure of a community may provide job training, educational opportunities, family support services, religious and cultural outlets for support and counseling, recreational opportunities, and monetary assistance. These services may be



available through community or county agencies, or from cultural and religious institutions in the community.

The local community also provides an identifying factor for all residents and a sense of belonging. When economic changes occur in an area, such as the loss or gain of a major employer, or drought or flood conditions, the local community can be affected significantly. This is especially true if the local economy is centered around one industry type, such as agriculture. The community is a crucial level of social organization. It is at this level that most social services are delivered, social networks formed, and values and beliefs confirmed.

---

When economic changes occur in an area, such as the loss or gain of a major employer, or drought or flood conditions, the local community can be affected significantly.

---

**Environmental Justice.** The analysis of potential environmental justice issues focuses on the farm worker population. Within the population potentially affected by the Program, this population is the most racially diverse. Table 7.3-5 indicates ethnicity by Program region, and Table 7.3-6 presents the racial distribution of farm workers by Program region.

Table 7.3-5. Ethnicity by Program Region

PROGRAM REGION	ETHNICITY (Percentage)			
	WHITE	BLACK	ASIAN	HISPANIC
Delta Region	68	8	9	14
Bay Region	61	8	15	16
Sacramento River Region	82	4	5	10
San Joaquin River Region	62	4	6	30
Other SWP and CVP Service Areas	52	9	9	30

Source:  
California Department of Finance 1993.

The vast majority of U.S. farm workers have been Mexican immigrants and their children since the Bracero Program, which operated from 1942 to 1964, brought in more than 4 million laborers from Mexico. Earlier decades saw substantial numbers of Chinese, Japanese, Filipinos, Native Americans, and African Americans working on farms. By 1983, an estimated 90% of the seasonal farm laborers in California were Mexicans or Chicanos, while nationwide the figure was 60%. Most migrant farm workers are either American citizens or are working in the country legally. The Department of Labor estimates that about 25% of migrant farm workers are illegal immigrants.

---

The vast majority of U.S. farm workers have been Mexican immigrants and their children since the Bracero Program, which operated from 1942 to 1964, brought in more than 4 million laborers from Mexico.

---



Table 7.3-6. Racial Distribution of Farm Workers by Program Region

PROGRAM REGION	HISPANIC	WHITE	BLACK	AMERICAN INDIAN/ESKIMO ALEUTIAN	ASIAN/ PACIFIC ISLANDER	TOTAL NUMBER OF FARM WORKERS
Delta Region	77%	15.1%	0.8%	0.3%	6.5%	5,470
Bay Region	82.2%	14.4%	1%	0%	2.2%	12,230
Sacramento River	58.9%	30.9%	0.4%	1%	8.2%	11,560
San Joaquin River	84%	11.9%	0.3%	0.2%	3.4%	74,220
Other SWP and CVP Service Areas	86.9%	10.1%	.9%	.2%	1.7%	<u>44,960</u>
<b>Totals</b>	<b>122,490</b>	<b>19,500</b>	<b>840</b>	<b>400</b>	<b>4,860</b>	<b>148,440</b>

Source:  
Census of Population and Housing 1990.

Additionally, the Department of Labor estimates that, at any given time, 12% (or at least 190,000) domestic farm workers are out of work nationwide. The majority of farm workers earn annual wages of less than \$7,500. Although wage rates for farm workers have increased over the last decade, when the rates are adjusted for inflation, real wages of farm workers have decreased 15-25% in that time.

Section 7.14, "Environmental Justice," analyzes environmental justice in greater detail.

Although wage rates for farm workers have increased over the last decade, when the rates are adjusted for inflation, real wages of farm workers have decreased 15-25% in that time.

### 7.3.3.2 DELTA REGION

Between 1944 and 1964, the number of farms in the Delta Region increased from 3,457 in 1944 to 4,502 in 1949, and then declined to 3,374 in 1964. The decline was due mainly to the accumulation of irrigated land into fewer and larger farms. As a result, the average farm size in the Delta Region increased from 58 acres in 1944 to 132 acres in 1964.

As shown in Table 7.3-2, the 1996 total population for the Delta Region was 2,362,514. The median family income was \$40,690 (1989), per capita income was \$21,991 (1994), the poverty rate was 11% (1990), and the unemployment rate ranged from 5.8 to 12.3% (1995).

### 7.3.3.3 BAY REGION

Between 1944 and 1964, the number of farms in the Bay Region increased from 5,581 in 1944 to 6,146 in 1954 and then declined to 4,103 in 1964. The decrease was partly due to the accumulation of irrigated land into fewer and larger farms, and partly due to urban encroachment.





As shown in Table 7.3-2, the 1996 total population for the Bay Region was 5,498,964. The median family income was \$46,373 (1989), per capita income was \$28,079 (1994), the poverty rate was 9% (1990), and the unemployment rate ranged from 4.3 to 13.5% (1995).

---

The number of farms in all Program regions have been decreasing, partly due to the accumulation of irrigated land into fewer and larger farms, and partly due to urban encroachment.

---

#### 7.3.3.4 SACRAMENTO RIVER REGION

Between 1944 and 1964, the number of farms in the Sacramento River Region increased from 9,948 in 1944 to 11,538 in 1954, then declined to 9,255 in 1964. The decline was mainly due to the accumulation of irrigated land into fewer and larger farms. As a result, the average farm size in the region increased from 64 acres in 1944 to 138 acres in 1964.

As shown in Table 7.3-2, the 1996 total population for the Sacramento River Region was 1,666,650. The median family income was \$31,794 (1989), per capita income was \$18,313 (1994), the poverty rate was 13%, and the unemployment rate ranged from 6.1 to 19.7% (1995).

#### 7.3.3.5 SAN JOAQUIN RIVER REGION

Between 1944 and 1964, the number of farms in the San Joaquin River Region increased from 30,212 in 1944 to 33,832 in 1949, then declined to 25,153 in 1964. The decline was mainly due to the accumulation of irrigated land into fewer and larger farms. As a result, the average farm size in the region increased from 78 acres in 1944 to 155 acres in 1964.

As shown in Table 7.3-2, the 1996 total population for the San Joaquin River Region was 3,004,222. The median family income was \$30,862 (1989), per capita income was \$16,475 (1994), the poverty rate was 18% (1990), and the unemployment rate ranged from 8.1 to 16.9% (1995).

#### 7.3.3.6 OTHER SWP AND CVP SERVICE AREAS

Between 1944 and 1964, the number of farms in the Other SWP and CVP Service Areas decreased from 33,715 in 1944 to 13,603 in 1964, mainly due to the accumulation of irrigated land into fewer and larger farms. As a result, the average farm size in the region increased from 30 acres in 1944 to 82 acres in 1964.

As shown in Table 7.3-2, the 1996 total population for the Other CVP and SWP Service Areas was 19,159,450. The median family income was \$38,825 (1989), per capita income was \$20,358 (1994), the poverty rate was 13%, and the unemployment rate ranged from 5.1 to 28.8% (1995).



### 7.3.4 ASSESSMENT METHODS

Social well being, for purposes of this analysis, is measured in terms of community stability. Community stability is a measure of a community's ability to absorb social and economic changes that may result from a proposed action. Assessment of community stability is based on changes in economic and social indicators that may occur as a result of a Program action. These indicators include median family income, per capita income, poverty rates, and unemployment rates, as summarized by Program region in Table 7.3-2.

Predicting the human behavior that could result from Program actions is a difficult task. Past studies of impacts on community stability and social conditions related to water supply projects have focused on social, economic, and land use changes resulting from short-term drought conditions. The actual effects of implementation of long-term water supply programs cannot be predicted with complete assurance but must be projected based on assumptions of human behavior, primarily the assumed actions of farm managers and land owners implementing long-term changes to farm operations. This analysis is based on the regional economics analysis and projected changes to regional employment. These findings have been applied to the analysis for farmers, farm workers, and agribusiness.

---

Past studies of impacts on community stability and social conditions related to water supply projects have focused on social, economic, and land use changes resulting from short-term drought conditions.

---

### 7.3.5 CRITERIA FOR DETERMINING ADVERSE EFFECTS

For this analysis, socioeconomic effects are measured in terms of adverse changes in community stability. Community stability is measured by several economic indicators, including median and per capita income, poverty rates, and unemployment. An adverse effect on community stability would occur if a Program action resulted in a change to any of these indicators that substantially exceeded historical fluctuations.

---

Socioeconomic effects are measured in terms of adverse changes in community stability.

---

### 7.3.6 NO ACTION ALTERNATIVE

#### 7.3.6.1 ALL REGIONS

Future agricultural social conditions under the No Action Alternative are expected to decline somewhat compared to existing conditions.

The key factors that would affect farmers under the No Action Alternative include changes in the markets for agricultural products, the supply and reliability of irrigation water, the development of water transfer markets, and the cost of water. Increasing demand for fruits and vegetables is expected to result in a shift toward production of these

---

The key factors that would affect farmers under the No Action Alternative include changes in the markets for agricultural products, the supply and reliability of irrigation water, the development of water transfer markets, and the cost of water.

---



commodities and away from field crops and grains. Decreases in water availability due to the CVPIA and the Bay-Delta Accord likely would be made up with groundwater supplies. However, depending on the size of the deficit, groundwater may not be able to completely compensate. Further, pumping groundwater could increase costs and decrease profits.

The number of agricultural jobs may increase in areas due to projected changes in crop production to higher value and more labor-intensive crops. However, agricultural employment would remain seasonal. Improved mechanization for picking and sorting crops, and other improvements could eliminate tasks that currently are labor intensive. Changes in irrigation technology also may occur that could change farm labor needs. Changes to the population, crop production, and technology resulting in a decrease in employment opportunities or the duration of employment may create an increased need for social services to provide food, health care, and housing for those facing economic hardship. These needs may be seasonal or year round, depending on the extent of the change and the education, training, and technical skills of the population in the area affected.

Statewide urbanization will continue to result in conversion of large amounts of agricultural land. As the need for agricultural labor in these urbanizing areas decreases, substantial social effects will occur. Conversion of agricultural lands would be the largest cause of adverse agricultural social effects.

### 7.3.6.2 DELTA REGION

The conversion of farmlands to other uses, particularly urban uses, under the No Action Alternative would continue to reduce farm production and farm worker jobs.

Proposed and potential habitat and storage projects, including the North Delta NWR and the Delta Wetlands Project, may convert existing agricultural land to other uses under the No Action Alternative. In addition, DWR has forecast that flooding due to levee failure will negatively affect agriculture in the Delta Region. Both these impacts would adversely affect agricultural employment in the region.

---

The conversion of farmlands to other uses, particularly urban uses, under the No Action Alternative will continue to reduce farm production and farm worker jobs in the Delta Region.

---

### 7.3.6.3 BAY REGION, SACRAMENTO RIVER REGION, AND OTHER SWP AND CVP SERVICE AREAS

No effects related to agricultural social issues beyond those noted under "All Regions" are anticipated for these regions.



### 7.3.6.4 SAN JOAQUIN RIVER REGION

Under the No Action Alternative, DWR has forecast that up to 45,000 acres of drainage-impaired lands in the San Joaquin River Region will be retired from production by 2040. This land retirement would result in the loss of jobs associated with these lands. In other areas of the region, a change to higher value agricultural production, such as the conversion of grazing land to vineyards in Central Valley terrace areas, would tend to increase the number of agricultural jobs.

---

Under the No Action Alternative, DWR has forecast that up to 45,000 acres of drainage-impaired lands in the San Joaquin River Region will be retired from production by 2040.

---

### 7.3.7 CONSEQUENCES: PROGRAM ELEMENTS COMMON TO ALL ALTERNATIVES

Because of the programmatic level of the analysis and the uncertainty of where Program projects will be sited, social effects cannot be predicted for specific cities or counties. Consequently, regions, rather than specific jurisdictions, were used to describe effects. The authors acknowledge that adverse social effects likely would occur in certain jurisdictions within a region, and that reliance on regional numbers for employment and other job-related statistics does not reflect the potential adverse social effects that may be experienced by a particular city or county. While socioeconomic effects in a region may be relatively minor, these same effects concentrated in a particular jurisdiction may be substantial. Additional assessment of social effects from individual project components on specific localities will be carried out during the environmental review process for the individual projects.

---

While socioeconomic effects in a region may be relatively minor, these same effects concentrated in a particular jurisdiction may be substantial.

---

For agricultural social issues, the adverse effects of the Ecosystem Restoration, Water Quality, Levee System Integrity, Water Use Efficiency, Water Transfer, Watershed, and Storage elements are similar under all Program alternatives, as described below. The adverse effects of the Conveyance element vary among Program alternatives, as described in Section 7.3.8.

#### 7.3.7.1 ALL REGIONS

##### *Water Use Efficiency Program*

During the drought of the early 1990s, many communities faced reduced employment resulting from significant reduction in irrigated acreage, which left farm laborers without jobs. To the extent that efficiency improvements would help increase water supply reliability, employment opportunities would be maintained. Water supply reliability would contribute to the stability of many local agricultural communities.



Job opportunities could be created by water use efficiency improvements. As irrigation management improves, so must the knowledge of those irrigating or scheduling irrigations. This development would result in the need for more skilled labor but at higher costs. In addition, the design and installation of new or improved on-farm or district water delivery systems would create more jobs for skilled laborers. It is conceivable that efficiency improvements, especially those that involve physical construction, would add to local employment.

---

Job opportunities could be created by water use efficiency improvements. Water use efficiency improvements could adversely affect farm labor but could result in improved crop yields.

---

However, water use efficiency improvements could adversely affect farm labor. A benefit of improved irrigation efficiency that may be experienced by farmers is a reduced need for labor, due either to less cultivation or a change in irrigation methods. The addition of pressurized irrigation systems would result in the most substantial effect on farm labor. With pressurized irrigation, the activities of several workers could be replaced by only one worker.

Possible methods of alleviating this adverse effect could include:

- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce.

Improved water use efficiencies often translate to higher crop yields and better quality of farm products. Such advances can increase on-farm direct income, benefitting the farmer's net income and often translating to additional economic activity. Increased income can help the overall economy in total sales and purchases, and in increased tax revenues that strengthen vital functions, such as schools, roads, and social and health services.

Water use efficiency improvements also could result in improved crop yields. Improvements in the yield per acre-foot of applied water, even with possible reductions in water supply, would result in greater production of food and fiber on the same land. As populations continue to increase—in the state, the nation, and globally—highly efficient food production would be an asset.

The preceding discussion applies to all Program regions, and the Water Use Efficiency Program is not included in region-specific discussions below.

### *Watershed Program*

No adverse effects related to agricultural social issues are associated with Watershed Program actions in any Program region. The program is not included below in region-specific discussions.



### 7.3.7.2 DELTA REGION

#### *Ecosystem Restoration Program*

Implementation of the Ecosystem Restoration Program in the Delta could result in the conversion of up to 112000 acres of important farmland to restored habitat. These conversions would result in reductions in the number of jobs for farmers, farm workers, and agribusiness. Actions associated with the Ecosystem Restoration Program could result in a regional loss of agricultural revenues of up to \$167 million per year. Approximately 8,350 jobs also could be lost, which is considered an adverse social effect. The severity of the effect depends on the magnitude of the job loss, the extent of strategies employed to reduce job loss, and the actual location of the projects.

The adverse effects would be most noticeable in the loss of jobs for farm workers with limited skills. Stress may be put on existing social services, such as welfare and job training, to help provide transitions for displaced farm workers. Because the Delta Region already is experiencing high levels of unemployment and the labor force is primarily farm workers, the social and economic structure of these communities could be adversely affected. Examples may include higher demand for social services; increased crime; and loss of local small businesses, requiring customers to travel further to purchase supplies. Less technically skilled workers and those lacking basic education levels and English language skills may have more difficulty finding new employment.

Per capita income for displaced farmers and families may decline. Farm managers may be required to travel farther to their place of employment or move to other areas to gain employment. The need to move or to be away from home and family for longer periods could add additional burden to family members.

It is anticipated that displaced farm managers and technicians eventually could find work in other regions or find other jobs related to agriculture. The need for social services to provide training or economic assistance for a portion of these displaced workers may temporarily increase.

Possible methods of alleviating these adverse effects could include:

- Supporting local governments and workers faced with increased demand for social services resulting from labor displacement.
- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce. Retraining efforts could be focused on restoration practices and technology to directly reduce job losses attributable to the Ecosystem Restoration Program.
- Including clauses in restoration and construction contracts that require use of the local workforce to the extent possible.

---

Actions associated with the Ecosystem Restoration Program could result in a regional loss of agricultural revenues of up to \$167 million per year. Approximately 8,350 jobs also could be lost. The most adverse effect would be the loss of jobs for farm workers with limited skills.

---



The Ecosystem Restoration Program may increase the need for unskilled and skilled labor in the Delta Region. Depending on project features and location, ecosystem restoration can be labor intensive, requiring substantial amounts of semi-skilled labor. The Ecosystem Restoration Program would tend to provide greater water supply reliability to farmlands, increasing the security of some agricultural jobs. Increased numbers of recreation jobs also may reduce the level of effects to some extent.

---

The Ecosystem Restoration Program may increase the need for unskilled and skilled labor in the Delta Region.

---

### *Water Quality Program*

No effects related to agricultural social issues are associated with Water Quality Program actions in the Delta Region.

### *Levee System Integrity Program*

The Levee System Integrity Program would convert up to 35,000 acres of important farmland in the Delta through larger and improved levees or setback levees. Up to 2,625 jobs could be lost from conversion of these farmlands, resulting in adverse social effects. The program also would preserve existing farm worker jobs that otherwise would be lost to flooding of Delta islands.

Adverse social effects from the Levee System Integrity Program are not anticipated in any region other than the Delta, and the Levee System Integrity Program is not included in discussions below for the remaining Program regions.

### *Water Transfer Program*

The transfer of water previously used for farming from one region to another could result in adverse social effects. If fields are fallowed because water is transferred for use elsewhere, the farm workers who provided labor for the transferring farming operation could lose their jobs, depending on groundwater availability and crop flexibility. If adjacent or nearby farms are affected by groundwater overdrafts as a result of groundwater pumping increases to make up for transferred water, those farmers and their labor force also could be adversely affected. Long-term transfers that reallocate water from local agricultural uses would result in greater adverse social effects than would short-term transfers.

---

The transfer of water that previously was used for farming from one region to another could result in adverse social effects.

---

Possible methods of alleviating these adverse effects could include:

- Supporting limitations on the amount of acreage that can be fallowed in a given area.



## Storage

The extent of Storage element effects would vary due to the variation in water yield and the opportunity to shift agriculture to various parts of the Delta. All Program alternatives could result in adverse effects on farmers, farm workers, and agribusiness as a result of the agricultural land conversion due to in-Delta storage options. Up to 15,000 acres of important farmland could be converted for storage in the Delta. This conversion could result in a reduction of up to 1,125 jobs for farmers, farm workers, and agribusiness. The intensity of this adverse effect would depend on the location and size of storage projects.

---

The extent of Storage element effects would vary due to the variation in water yield and the opportunity to shift agriculture to various parts of the Delta.

---

Possible methods of alleviating this adverse effect could include:

- Supporting local governments and workers faced with increased demand for social services resulting from labor displacement.
- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce.
- Providing opportunities for alternative industries to develop, such as recreation.

### 7.3.7.3 BAY REGION

#### *Ecosystem Restoration, Water Quality and Water Transfer Programs, and Storage*

No adverse social effects are anticipated on farmers, farm workers, or agribusiness in the Bay Region from any of these Program elements.

### 7.3.7.4 SACRAMENTO RIVER REGION

#### *Ecosystem Restoration Program*

The adverse social effects of the Ecosystem Restoration Program in the Sacramento River Region would be similar to those described for the Delta Region. Ecosystem restoration could result in conversion or idling of productive agricultural land in the Sacramento River Region. Conversion or idling of agricultural lands would result in a loss of jobs for farmers, farm workers, and agribusiness. It is estimated that up to \$51 million in agricultural revenues could be lost annually as the result of this program, resulting in a loss of up to 2,550 jobs. The actual severity of the social effects would depend on the magnitude of farm worker job loss and the extent of strategies employed to reduce job loss. Additional jobs would be created through restoration activities.

---

Ecosystem restoration could result in conversion or idling of productive agricultural land in the Sacramento River Region. Conversion or idling of agricultural lands would result in a loss of jobs for farmers, farm workers, and agribusiness.

---





Possible methods of alleviating these adverse effect could include:

- Supporting local governments and workers faced with increased demand for social services resulting from labor displacement.
- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce. Retraining efforts could be focused on restoration practices and technology to directly reduce job losses attributable to the program.
- Including clauses in restoration and construction contracts that require use of the local workforce to the extent possible.

### *Water Quality Program*

No adverse effects in the Sacramento River Region related to agricultural social issues are anticipated from Water Quality Program actions.

### *Water Transfer Program*

The adverse social effects from the Water Transfer Program in the Sacramento River Region are the same as those described for the Delta Region.

### *Storage*

The beneficial effects of additional water supply in the Sacramento River Region could include the development of additional acreage for agriculture, increased water supply reliability resulting in greater farm investments, and shifts to higher water use and higher value crops. Other beneficial effects include development of additional acreage shifted from the Delta due to land conversion, changes to higher water use and higher value crops, and the availability of additional farm worker jobs if additional acreage is developed. The extent of this beneficial effect would vary and would depend on the ultimate cost of the water.

Development of the storage facilities could require the conversion of agricultural lands in the Sacramento River Region, resulting in a potential adverse social effect on farmers, ranchers, and farm workers. This effect could be offset by shifting crops and grazing to other parts of the Sacramento River Region. Adverse effects on farm workers would depend on new acreage or new cropping patterns developed by farmers. All alternatives, depending on storage elements implemented, could result in a minimal to substantial number of new jobs.

---

The beneficial effects of additional water supply in the Sacramento River Region could include the development of additional acreage for agriculture, increased water supply reliability resulting in greater farm investments, and shifts to higher water use and higher value crops.

---



### 7.3.7.5 SAN JOAQUIN RIVER REGION

The Ecosystem Restoration Program could result in conversion of agricultural land in the San Joaquin River Region. Adverse social effects of the Ecosystem Restoration Program, and strategies to alleviate those effects, would be similar to those described for the Delta Region. Agricultural revenue losses are estimated at \$9 million in the region as a result of this program.

#### *Water Quality Program*

Retirement of lands with water quality problems in the San Joaquin River Region could adversely affect agricultural jobs in the region. These lands are forecast to be retired under the No Action Alternative. It is likely however, that the lands would be retired sooner under the Program than under the No Action Alternative. The loss of these irrigated lands would lead to an adverse social effect as the jobs they support are lost

Possible methods of alleviating this adverse effect could include:

- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce.

Increased irrigation water quality in other areas could lead to better yields or selection of higher-value crops, both of which could increase farm income and farm worker jobs.

---

It is likely that lands with water quality problems in the San Joaquin River Region would be retired sooner under the Program than under the No Action Alternative.

---

#### *Water Transfer Program*

The adverse effects and possible alleviation related to agricultural social issues in the San Joaquin River Region from Water Transfer Program actions would be similar to those described for the Delta and Sacramento River Regions. However, this region may also be the recipient of water transfers and would experience beneficial agricultural social effects. These benefits would result from increased agricultural production, incomes, and employment opportunities.

#### *Storage*

The beneficial effects of additional water supply could include the development of additional acreage and increased water supply reliability, which may result in greater farm investments and shifts to higher water use and higher value crops. A substantial number of jobs could become available if additional acreage or higher labor demand crops were developed.

---

A substantial number of jobs could become available in the San Joaquin River Region if additional acreage or higher labor demand crops were developed.

---



Development of the storage facilities, depending on the location, could require the conversion of agricultural lands, resulting in adverse social effects. This negative effect could be offset by shifting development of acreage to other parts of the San Joaquin River Region. Effects on farm workers would depend on new agricultural acreage developed by farmers. Depending on the storage elements implemented, all alternatives could result in from several to a significant number of new jobs. A beneficial effect could be experienced by farm workers and associated agricultural business.

### 7.3.7.6 OTHER SWP AND CVP SERVICE AREAS

#### *Ecosystem Restoration Program*

Effects on agriculture in the Other SWP and CVP Service Areas resulting from Ecosystem Restoration Program actions are expected to be small. Substantial conversion of agricultural land in the Delta Region could shift some production to desert areas in southern California, such as the Imperial Valley.

---

Substantial conversion of agricultural land in the Delta Region could shift some production to desert areas in southern California, such as the Imperial Valley.

---

#### *Water Quality Program and Storage*

No effects related to agricultural social issues are anticipated in the Other SWP and CVP Service Areas as a result of the Water Quality Program or Storage element.

#### *Water Transfer Program*

Water transfers would increase agricultural production, incomes, and employment opportunities associated with any transfer that uses the water for agricultural production outside the Central Valley. The net change in jobs in the Other SWP and CVP Service Areas is expected to be minimal, with only minor effects on community stability.

---

Water transfers would increase agricultural production, incomes, and employment opportunities associated with any transfer that uses the water for agricultural production outside the Central Valley.

---

## 7.3.8 CONSEQUENCES: PROGRAM ELEMENTS THAT DIFFER AMONG ALTERNATIVES

For agricultural social issues, the Conveyance element results in environmental consequences that differ among the alternatives, as described below.



### 7.3.8.1 PREFERRED PROGRAM ALTERNATIVE

#### *Delta Region*

This section includes a description of the consequences of a pilot diversion project. If the pilot project is not built, these consequences would not be associated with the Preferred Program Alternative.

Channel widening under the Conveyance element likely would convert up to 4,900 acres of important farmland, depending on project location. The reduction of agricultural jobs from such conversion would result in adverse social effects.

Possible methods of alleviating these adverse effect could include:

- Supporting local governments and workers faced with increased demand for social services resulting from labor displacement.
- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce.
- Including clauses in restoration and construction contracts that require use of the local workforce to the extent possible.

Changes in project operations are not anticipated to adversely affect agricultural social issues. Water supply to individual farms is not expected to be affected in this region; therefore, agricultural social issues would not be substantially affected.

Construction of a pilot diversion facility near Hood would require converting additional agricultural lands, thereby reducing the number of agricultural jobs. However, the number of construction-related jobs would increase.

#### *Bay Region*

No effects related to agricultural social issues in the Bay Region are associated with Conveyance element actions.

#### *Sacramento River Region*

Changes in project operations are not anticipated to adversely affect agricultural social issues in the Sacramento River Region. Water supply is not expected to be affected in the region; therefore, social effects would not be substantial.

---

Channel widening under the Conveyance element likely would convert up to 4,900 acres of important farmland, depending on project location. The reduction of agricultural jobs from such conversion would result in adverse social effects.

---



### *San Joaquin River Region*

Changes in project operations may affect agricultural social issues in the San Joaquin River Region. Any reductions in water supply caused by changes in the amount of water exported to the region could reduce agricultural jobs and associated businesses, and result in an adverse effect, depending on the magnitude of the reduction. Possible methods of alleviating this adverse effect could include:

- Supporting local governments and workers faced with increased demand for social services resulting from labor displacement.
- Supporting training and educational opportunities, job referral and placement services, and job retraining for unemployed individuals to reenter the workforce.

Any increases in water supply caused by changes in the amount of water exported to the region could increase agricultural jobs and associated businesses, and result in a beneficial effect, depending on the magnitude of the increase.

---

Any reductions in water supply caused by changes in the amount of water exported to a region could reduce agricultural jobs and associated businesses. Any increases in water supply caused by changes in the amount of water exported to a region could increase agricultural jobs and associated businesses.

---

### *Other SWP and CVP Service Areas*

Changes in project operations may affect agricultural social issues in the Other SWP and CVP Service Areas, but the effect is anticipated to be small. Any reductions in water supply caused by changes in the amount of water exported to the region could reduce agricultural jobs and associated businesses, and result in an adverse effect. Any increases in water supply caused by changes in the amount and timing of water exported to this region could increase agricultural jobs and associated businesses, and result in a beneficial effect.

#### **7.3.8.2 ALTERNATIVE 1**

Because Alternative 1 does not include constructing a pilot diversion facility near Hood, somewhat fewer acres of agricultural lands in the Delta Region would be converted for conveyance, resulting in an adverse social effect on agriculture and agricultural workers of less magnitude but nevertheless substantial. Effects associated with other conveyance features and possible methods of alleviating them would be similar to those described for the Preferred Program Alternative.

#### **7.3.8.3 ALTERNATIVE 2**

Social effects under Alternative 2 would be similar to those described for the Preferred Program Alternative.



#### 7.3.8.4 ALTERNATIVE 3

Social effects under Alternative 3 and possible methods of alleviating them would be similar to those described for the Preferred Program Alternative. Adverse effects would be somewhat larger due to the potential for a greater amount of agricultural land to be converted for construction of an isolated facility.

---

Adverse effects would be somewhat larger under Alternative 3 due to the potential for a greater amount of agricultural land to be converted for construction of an isolated facility.

---

### 7.3.9 PROGRAM ALTERNATIVES COMPARED TO EXISTING CONDITIONS

The analysis found that the beneficial and adverse social effects from implementing any of the Program alternatives when compared to existing conditions were the same effects as those identified in Section 7.3.7 and Section 7.3.8, which compare the Program alternatives to the No Action Alternative. Additionally, the comparison of the Program alternatives to existing conditions did not identify any additional agricultural social effects that were not identified in the comparison of Program alternatives to the No Action Alternative.

The analysis indicates that the Program proposed actions for levee protection, storage and conveyance, and ecosystem restoration could result in additional large-scale land conversions that would affect agricultural lands, particularly in the Delta. Adverse agricultural social effects could result from the Preferred Program Alternative when compared to existing conditions.

#### 7.3.9.1 PREFERRED PROGRAM ALTERNATIVE

The benefits to agricultural social conditions would be associated with water supply reliability actions from the Water Use Efficiency, Water Quality, Storage, and Conveyance elements, which could improve the availability and quality of water for agricultural purposes above the existing conditions baseline. The Program is expecting an overall improvement in water supply reliability for agriculture relative to the No Action Alternative.

The following potential adverse social effects are associated with the Preferred Program Alternative:

- Farm worker and other agricultural-related job losses
- Loss of revenues to local governments and districts



### 7.3.9.2 ALTERNATIVE 1

Agricultural social effects under Alternative 1 would be similar to those described for the Preferred Program Alternative, without the effects resulting from the conversion of agricultural lands for a pilot diversion facility near Hood.

### 7.3.9.3 ALTERNATIVE 2

Agricultural social effects under Alternative 2 would be similar to those described for the Preferred Program Alternative.

### 7.3.9.4 ALTERNATIVE 3

Agricultural social effects under Alternative 3 would be similar to those described for the Preferred Program Alternative but somewhat greater because construction of an isolated facility would require converting larger amounts of agricultural land. The isolated conveyance facility also would tend to increase salinity in south and central Delta areas. This decrease in water quality could negatively affect agricultural water users in these areas of the Delta, potentially reducing crop yields and crop flexibility. Both of these adverse effects associated with Alternative 3 could result in greater adverse agricultural social effects than the other Program alternatives.

## 7.3.10 ADDITIONAL IMPACT ANALYSIS

**Cumulative Effects.** For a summary comparison of cumulative effects for all resource categories, please refer to Chapter 3. A description of the projects and programs contributing to this cumulative impact analysis can be found in Attachment A.

As discussed in Section 7.1, "Agricultural Land and Water Use," the conversion of agricultural lands for Program purposes contributes to a state-wide trend of agricultural land conversion. Between 1994 and 1996, approximately 55,000 acres of important farmlands were converted to other uses in the state (in areas for which the DOC prepares important farmland series maps). Predictions run as high as 1 million acres of agricultural land to be converted to urban uses in the Central Valley by 2040. In addition, up to 51,000 acres of agricultural lands could be converted from Delta wildlife and habitat initiatives. The production and agricultural worker job losses associated with these conversions are substantial. Adding to these losses is the increasing use of technology to replace agricultural workers. The effects of production and job losses associated with the Program's conversion of up to 243,000 acres of important farmlands, when viewed along with the other effects noted above, is substantial.

---

The conversion of agricultural lands for Program purposes contributes to a state-wide trend of agricultural land conversion. The production and agricultural worker job loss associated with these conversions are substantial. Adding to these losses is the increasing use of technology to replace agricultural workers. Other potential cumulative effects include the increasing cost of food and the loss of food variety.

---



**Growth-Inducing Effects.** If improvements in water supply are caused by the Preferred Program Alternative, the Preferred Program Alternative could induce growth, depending on how the additional water supply was used. If the additional water was used to expand agricultural production or urban housing development, the proposed action would foster economic and population growth. Expansion of agricultural production and population could affect agricultural social issues, but the severity of the agricultural social effect would depend on where agricultural or population growth occurred and how it was managed.

**Short- and Long-Term Relationships.** The long-term productivity of up to 243,000 acres of agricultural lands could be eliminated by the Program. Long-term productivity of an undetermined number of acres of agricultural lands would be enhanced through better quality water, additional availability of irrigation water, increased irrigation efficiency, and protection from flooding. Jobs dependent on agriculture and the social well being of some localities in the affected regions would tend to be reduced by farmland conversion and tend to be increased by the other Program features noted above.

**Irreversible and Irretrievable Commitments.** All Program alternatives would directly and indirectly convert prime, statewide-important, and unique farmland for conveyance, storage, habitat, and levee improvements. These are, in most cases, irreversible and irretrievable commitments of land resources. Storage and conveyance features also could result in irretrievable commitments of resources, such as construction materials, labor, and energy resources.

### 7.3.11 ADVERSE EFFECTS

Farm worker and other agricultural-related job losses resulting from Program actions may result in adverse agricultural social effects. In some cases, jobs may be shifted to other areas, and new recreation or restoration jobs could mitigate for some of the agricultural jobs lost; however, jobs also may be eliminated with no replacement. Job loss is considered a substantial adverse agricultural social effect of the Program. The loss of revenues and increased services burdens on some local governments and districts also could present an adverse social effect.

---

The long-term productivity of up to 245,000 acres of agricultural lands could be eliminated by the Program.

---



---

Farm worker and other agricultural-related job losses may result in significant adverse unavoidable effects. The loss of revenues and increased services burdens on some local governments and districts also could present an adverse social effect.

---

