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EXECUTIVE SUMMARY & READER'S GUIDE: "COPING WITH COMPETITION FOR WATER: IRRIGATION, ECONOMIC GROWTH, AND THE ECOSYSTEM IN THE UPPER KLAMATH BASIN"

This report examines relationships between water and the economy in the Upper Klamath Basin, and explores win-win options for pursuing both a healthier ecosystem and a more prosperous economy.

CONFLICT OVER THE BASIN'S WATER STEMS FROM LONG-STANDING, INTENSIFYING COMPETITION

Recent events in the Basin, with farmers denied use of federal facilities to obtain water for irrigation, have caused farmland to remain dry, heightened the threat of economic ruin for farm families, and generated intense political controversy. Many characterize these events as unexpected and imposed by federal bureaucrats enforcing the Endangered Species Act. The economic analysis in this report, the bulk of which was prepared prior to these events, places them in a larger context and offers a more fundamental explanation:

- A crisis over farmers' use of water is neither surprising nor imposed by federal bureaucrats enforcing the Endangered Species Act, but an outgrowth of powerful competitive pressures to shift water away from irrigation to other, more valuable uses.
- The irrigation system, which typically accounts for 95 percent of all water diverted from streams and lakes, was initially developed a century ago. Since then, the economic value of irrigation has diminished. The 1997 farm census found that 37 percent of farms

in Klamath County with sales of at least $10,000 lost money, and prices for farm commodities generally have since fallen markedly. Once a mainstay of the local economy, farming now plays a small role, accounting for 0.5 percent of total personal income in Klamath County in 1998.

- The irrigation system's inefficient use of water has become less tolerable. So has its adverse impact on water quality. Data from the Oregon portion of the Basin show that 63 percent of the water entering the system evaporates, seeps into the ground, or, once applied to farmland, runs off unused by crops. In contrast, many irrigators elsewhere in the West have reduced inefficiencies to less than 20 percent. Few farmers in the Basin have adopted conservation practices to control the runoff of soil, nutrients, pesticides, and other contaminants into lakes and streams.
- Shifting water from irrigation to instream uses would boost the Basin's economy by restoring the ecosystem's ability to produce goods and services with greater value. Increased populations of waterfowl, salmon, and other species would generate jobs in the associated recreational and commercial industries and reinforce the economic strength of tribal communities. Environmental improvements would reduce the costs taxpayers and others incur to reverse past degradation. More natural streamflows would reinforce the Basin's attractiveness to families and investors seeking communities with high-quality natural amenities.

Competition for the Basin's water is not new

For a century, demands for the Basin's water have exceeded supplies, but there have been no market mechanisms to bring demand and supply into balance; for decades, irrigators have used water while other, higher-value uses have withered; and, for years, the economic values associated with irrigators' demands have weakened relative to those of competing demands. As pressures for change mounted, something had to give. Groups competing with irrigators for water triggered enforcement actions under the Endangered Species Act because they have been unsuccessful in having their demands accommodated via other mechanisms. Whatever the outcome from these actions, pressure for change in how the Basin's water is used will continue to come from economic, competitive forces.

Competition for the Basin's water comes from many groups and interests

Pressure for change comes largely from groups injured by the adverse impacts of irrigated agriculture on the Basin's ability to provide natural ecological services, such as higher streamflows, higher water

quality, and better habitat for fish and wildlife. These impacts arise from the conversion of wetlands to farms, the withdrawal of water from lakes and streams, and the introduction of pollutants into runoff from farmlands. Because of the reduced ecological productivity:

- Tribal members in the Upper Basin lost access to Lost River sucker and shortnose sucker, now endangered, that are unique to the Basin and important to their economic well-being and culture.
- Tribal members in the Lower Basin similarly suffered as they lost access to salmon, which the Basin once produced in great numbers, but are now listed as threatened.
- Participants in the commercial and recreational fishing industries along the Pacific coast lost jobs, incomes, industrial output, and recreational opportunities because of reduced salmon populations.
- Bird watchers and hunters have endured reductions in waterfowl populations.
- Residential, commercial, and industrial interests seeking to capitalize on the Basin's quality of life have been frustrated by the loss of native wetland habitat, reductions in populations of native species, and degradation of water quality.
- Electricity consumers have experienced higher rates because water that otherwise would pass through hydroelectric dams on the Klamath River instead went to irrigate crops.

Irrigation is not solely responsible for these and related impacts. But it has played a major role and the competition for water cannot be accommodated without a change in irrigation levels and practices.

Irrigation's demand for water is diminishing relative to others

At some level of use, water can be more valuable when used for irrigation than for other uses. Whatever this level in the past, however, it has declined, as market forces have reshaped farming in the Basin. In 1970, earnings in the farm sector accounted for 8 percent of Klamath County's total, but this figure had fallen to 0.5 percent by 1998. In 1997, 46 percent of the county's farms had sales less than $10,000 and, of those that exceeded this level, 37 percent experienced losses averaging $19,139. Prices for many farm commodities have tumbled since then and the structure of the agricultural industry is changing, making it ever harder for farmers to reverse the trend.

At the same time, economic values have increased for other water uses, especially those associated with high-quality, natural-resource amenities. Also, tribal members and others deprived of water have become more assertive in pressing their demands.

THERE ARE SOME WIN-WIN OPPORTUNITIES

Irrigators, and the other parties with an interest in resolving the conflict in the Basin, have several options. Many of these entail leaving the different, competing interests to slug it out in the courts, Congress, and the media in a winner-take-all contest. There are, however, some win-win opportunities. These entail:

- **Promoting sustainable practices by agricultural and other water users**. Sustainable practices can increase farmers' profits and lower urban water costs. Unfortunately, to date residents of the Upper Basin have adopted few of these practices, lagging behind their neighbors. The time may be ripe to pursue these opportunities.
- **Promoting the use of market mechanisms to shift resources from low- to high-value uses**. Mechanisms include water banking and conservation easements, which create incentives for farmers to produce both commodities and ecological services.

Farmers have essential roles to play in these activities, but there is much that community leaders, environmental groups, and others can contribute. Increasing the viability of farms *and* improving the environmental impacts of farming may be something that farmers, environmental groups, the tribes, and other groups can agree upon.

Experience elsewhere in the region during 2001 demonstrates the feasibility of these options. Many water users increased their profits with sustainable practices. Electric utilities compensated irrigators for leaving water in streams. Public programs provided incentives to reduce impacts on streams. Private organizations negotiated conservation easements, increasing farmers' income in return for enhanced environmental protection. Collaborative processes have found ways to improve streamflows with little acrimony. Similar actions in the Klamath Basin should yield similar benefits.

WHAT DOES THIS REPORT CONTAIN?

This report has three chapters. In the first we characterize the competing demands for the Basin's water. Demand, in this setting, refers not just to those seeking tangible possession of water but also to those with a more indirect interest. We aggregate the numerous demands into four groups, describe the salient characteristics of each, and describe how they interact.

In the second chapter we discuss four, strategic options for accommodating the growing competition for water in the Basin:

- Resist the reallocation of water.
- Develop new sources of water or water-storage infrastructure.
- Retain the general scale and pattern of current out-of-stream water uses, but reduce the ecological harm.
- Change the general scale and pattern of current water uses.

In the third chapter we discuss potential win-win opportunities for accommodating the growing competition. Our highest priority is to promote sustainable practices that would markedly reduce the adverse ecological impacts of farming and urban growth while increasing farmers' earnings and reducing taxes and utility rates for households and firms. Our second priority is to develop market mechanisms to shift water from low-value to high-value uses.

WHO PREPARED THIS REPORT?

Ernie Niemi, Anne Fifield and Ed Whitelaw are the authors. We are economists with ECONorthwest, the oldest and largest economics consulting firm in the Pacific Northwest. This report was prepared at the request of Public Interest Projects, a non-profit organization whose Klamath Project seeks to provide information to stakeholders interested in solving environmental controversies in the Klamath Basin. Public Interest Projects received funding to conduct this research from the Brainerd Foundation and the Harder Foundation. We greatly appreciate the assistance and patience afforded us by numerous individuals, especially the members of the board of the Klamath Basin Ecosystem Foundation (KBEF). Assistance from them and others notwithstanding, we remain solely responsible for the contents of this report, and the views expressed herein do not necessarily represent the views of the individuals who assisted us.

We have prepared this report based on our general knowledge of the economy of the Upper Klamath Basin, as well as information derived from government agencies and other sources believed to be reliable. Any statements nonfactual in nature constitute our current opinions, which may change as more information becomes available. As time passes, the results of this report should not be used without accounting for more recent data and relevant assumptions.

HOW CAN YOU GET ADDITIONAL INFORMATION?

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