

STATE APPROPRIATION OF
UNAPPROPRIATED GROUNDWATER:
A STRATEGY FOR INSURING
NEW MEXICO A WATER FUTURE

January 1986

New Mexico
Water Resources Research Institute and
University of New Mexico Law School*

Study Team

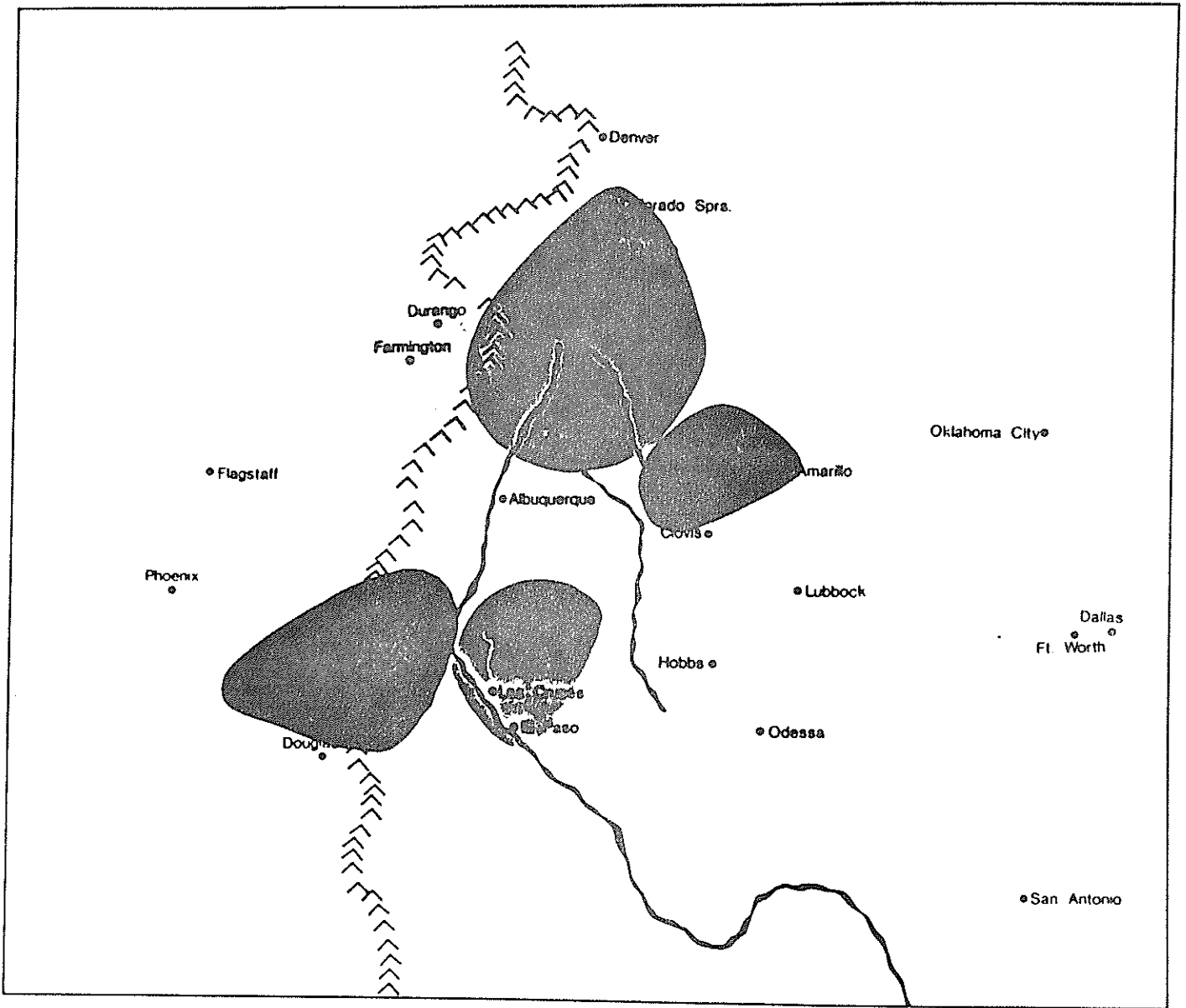
Charles T. DuMars
(Principal Investigator)
F. Lee Brown
Ronald G. Cummings
Robert Lansford
Ann Berkley Rodgers
Albert E. Utton

Advisory Board

Governor Jack Campbell
Robert B. Anderson
Carol Christiano
Les Davis
The Honorable Joe Galvan
Dr. Gerald Thomas

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The Interstate Market



EXECUTIVE SUMMARY AND RECOMMENDATIONS

This study has been conducted as a joint venture between the Natural Resources Center at the University of New Mexico School of Law and the Water Resources Research Institute at New Mexico State University. The study has been assisted by an advisory board consisting of the following persons: Governor Jack Campbell, Dr. Gerald Thomas, Robert B. Anderson, Les Davis, Carol Christiano and Judge Joe Galvan. These people have been directly involved with the preparation of this report and reflect a cross-section of political, economic and academic interests with respect to the state of New Mexico and its water resources. The State Engineer of New Mexico, Steve Reynolds, has also provided valuable information and critiques of various sections of the report.

The study team has evaluated New Mexico from three perspectives: (1) How much water is there and where is it located? (2) When will it become sufficiently scarce to cause concern for development and socioeconomic perpetuation of the regions of the state relying on those water supplies? (3) What can New Mexico do about the problem now?

This executive summary describes this report, sets out our findings concerning community opinion with respect to water problems, perceptions concerning state appropriation, data on overall supplies of unappropriated groundwater, data concerning the

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demand for that water supply and projections of future periods in which water will be increasingly scarce. Finally, it lists advantages that have led the study team to conclude that state appropriation could ensure a water future for New Mexico by assisting the various regions of the state to plan and control their water futures. Specific legislative recommendations are made.

I. ORGANIZATION OF THE REPORT

Chapter 1 explains the series of events giving rise to the need for this study. It explains the Supreme Court case of Sporhase v. Nebraska, the conceptual creation of an interstate water market and the concept of state market participation as an exception to that doctrine. Chapter 2 contains a hydrologic description of the kinds of groundwater in New Mexico and the impact of extracting that water on the overall hydrologic system. Chapter 3 describes the existing state institutions for water allocation and our system of water law and how the state as a market participant would fit into that system. Chapter 4 describes the legal limitations, based on New Mexico law, on the state's ability to participate in the water market, and Chapter 5 explores the federal limitations on the state's activity in this area. Chapter 6 details the demand for unappropriated groundwater in various regions of the state. Chapter 7 develops benchmarks for water scarcity in all the declared groundwater basins in the state, providing dates when agricultural and water-dependent economic activity in these areas will have to be cut back due to lack of water. Chapter 8 describes the methodology we used to calculate

possible costs for interstate water transfers as the first step to determine whether interstate transfers are economically feasible. Finally, Chapter 9 puts the economic feasibility data together with the potential demand for water from interstate users and describes the regional water markets that now exist in New Mexico's area of the Southwest. Chapter 10 describes the water problems encountered by us in different regions of the state. Chapter 11 describes the activities in other states in the area of state appropriation, and Chapter 12 discusses why the study team has tentatively concluded that the Interstate Streams Commission is the New Mexico institution most suited to administer a program of state participation in the water market.

II. COMMUNITY OPINION

With more than two hundred or so individuals having attended one or another of the community meetings organized by the research team, it is not surprising that a wide range of opinions were expressed, sometimes conflicting. It should also be made clear that no effort was made to scientifically catalog or weigh the relative strength of any particular opinion. The format for all meetings was the same. They began with a short presentation by Charles DuMars, as head of the study team, in which he outlined the origin of the study, its purpose, and the reason for the community meeting. Participants were asked to describe water problems faced by their communities and to comment, if they wished, on the concept of state appropriation as a policy for New Mexico. This open-ended structure led to many brief exchanges

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between participants and research team members or advisors on a wide range of water subjects, sometimes quite far removed from the immediate topic of state appropriation. As a consequence, the summary provided below encompasses more than just the strict subject of state appropriation. However, taken as a whole, the variety of opinions expressed provides a general reflection of just what is on the minds of many New Mexico citizens and leaders when they turn their attention to water.

To begin, water concerns in the state are much broader than single-minded preoccupation with out-of-state water demands. While this subject was understandably particularly prominent in the minds of southern New Mexicans, even in that region of the state local competition for water was also a major concern as represented in conflicting points of view among municipal, business, and agricultural interests. In general, there seemed to be as much concern statewide about the stresses caused by conflicting interests in water whether those conflicts were cast as rural/urban, Indian/non-Indian, big city/small city, or acequia/developer. There was little by way of a remedy suggested for these conflicts beyond noting the need for a remedy. Some participants seemed to imply that the development of a state plan could help, though there were others who feared any more bureaucratic "hurdles" in water administration. This widespread concern over local or regional water competition did not appear to affect opinion about the general desirability of a state appropriation policy, though it clearly colored the views about just how such a

policy might be implemented. They will be discussed more fully below.

The opinions voiced at the community meetings also reflected substantially different degrees of concern about water scarcity both across regions of the state and within them. In Gallup and Clovis not only were future water supplies a subject of serious concern, but identifying sources of financing to transport supplies was even more problematic. In other community meetings, such as in Taos and Las Cruces, there was less concern about actual scarcity of physical supplies and more about perceived threats to the existing supply.

Of course, in the southern part of the state demands upon the regional water supply have already been made explicit by El Paso. Concern was expressed in the Clovis area about water demand from West Texas.

Sentiment that physical supplies were presently adequate in an area, however, should not be mistaken for an eagerness, or even willingness, to see local supplies transported to water-short areas in other basins. While little absolute opposition to such notions was expressed, there was clear concern that local supplies should serve local populations first. In one of the few comments that clearly contemplated interbasin transfers, a strong sentiment was expressed that such projects should never go forward until the importing basin had met strong conservation criteria.

On the question of state appropriation, the reaction was broadly and even strongly positive. Paraphrasing one elected

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official, if state appropriation was what it would take to preserve New Mexico water supplies for the future, he did not see how anyone could oppose it. Some also saw it as a means for financing water projects by selling some portion of the physical supply at market rates to buyers whether they be in state or out of state. This broad support was not unqualified, however. The two most frequently mentioned reservations were: (1) that it would create additional bureaucracy and (2) that its implementation should allow a strong measure of regional or local control, presumably over the allocation of whatever water was involved and any revenues raised. The basis for the first concern seemed to be both philosophical and pragmatic. For some there was simply a basic wariness of strengthening state governmental power in principle; while for others the concern seemed to be practically directed at the additional delays that might result. One suggestion aimed at eliminating, or at least reducing, these concerns, was for a joint state/private organization with responsibility for water appropriation, allocation, and financing functions. The second qualification to the general support arose from the variety of local/regional concerns discussed above. Because of the significant differences from one region or locality to the next, there was large concern that each area have a strong share of power in making decisions relating to that area.

There were a number of other opinions expressed with varying degrees of frequency, but all germane to the manner in which the concept of state appropriation might be implemented. Since all

are generally self-explanatory, they are simply listed here without comment and in no particular order:

- (1) Any implementation of the concept should not adversely affect existing, privately held water rights.
- (2) Any plan to implement the concept should not adversely affect existing or prospective Indian water rights.
- (3) There would be a need for a state water plan at least with regard to whatever water was appropriated by the State and possibly for more general reasons.
- (4) Water quality considerations should be part of any implementation program.
- (5) Water conservation considerations should be part of any implementation program.
- (6) There is need for a broad program of public education generally about water and particularly about any state appropriation policy.
- (7) Any new water policy developed in the state should encompass both ground and surface water rather than being limited to the former.

If New Mexico were to adopt either a broad or limited policy of state appropriation, it seems clear that the above concerns would have to be addressed by one means or another.

III. FINDINGS CONCERNING WATER SCARCITY AND THE REGIONAL WATER MARKET

The body of this report and the endnotes to its chapters explain the study team's methodology for conducting its analysis of water scarcity conditions in the state and the prospective

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regional water market. In general terms, the economics chapters in this report address two questions in depth: (1) What is the likely nature of the state's future water situation? (2) What is the likely extent of the prospective regional water market for water resources within New Mexico? In answering these questions, two types of data are required: water supply and water demand. We first summarize the extent of unappropriated water in New Mexico based on information provided by the State Engineer's office.

The State Engineer estimated that there are around 25.93 million acre-feet of unappropriated groundwater in various declared underground water basins in which a mining situation exists. These are groundwater basins that are essentially independent of surface streams within the state. In addition, there are substantial physical stocks of water in these basins that cannot be termed "unappropriated" under the administrative rules set by the State Engineer, but which could be available for future use either through change in administrative rules or purchase of existing water rights in those basins.

For example, the State Engineer estimates that there are approximately 82.8 million acre-feet of water in the Mimbres, Animas, and Lordsburg basins in the thickness between 230 and 1000 feet even though administrative rules for determining the availability of unappropriated water only consider the physical supply above 230 feet. In other declared groundwater basins, the lower one-third of the basin is treated similarly to the "below 230 feet" volume of the Mimbres, Animas, and Lordsburg basins. Thus, there is a substantial volume of water that is available

for future users even though some of it has been administratively defined to be outside the appropriation system.

Another category of water available to future users combines the small amount of unappropriated surface flow with unappropriated water in what is termed stream-related aquifers. While technically complex to estimate and difficult to describe in non-technical terms, this category includes an amount of unappropriated water ranging from a lower range of 27 million acre-feet of water to an upper range of 46 million acre-feet, or even more, in the Rio Grande, Pecos, and San Juan stream systems.

Finally, there are large geographic regions of the state that have not yet been included with declared basins and for which there is little precise information on groundwater availability. In this last category, however, the State Engineer estimates supplies to be minimal.

A partial inventory of available supplies either unappropriated or administratively defined, currently, as outside the appropriation system, is somewhere between 135 million acre-feet and 155 million acre-feet. And this total does not include several categories for which no quantified estimates exist. To put this figure in perspective, that amount of water is around four hundred to four hundred fifty times the current annual consumptive use of water from the Rio Grande system in New Mexico, which is approximately 345,000 acre-feet. If this water were valued at \$250 an acre-foot (a value between agricultural and municipal and industrial prices), the value of unappropriated groundwater stocks in New Mexico would be between 33 and 38 billion dollars.

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Interestingly, the Annual Resources Report of the New Mexico Energy and Minerals Department (1984) concluded that our state oil reserves as of December 31, 1983, were 857 million barrels of oil, which, if valued at \$26.50 a barrel, would result in an asset worth \$22.7 billion—an amount less than value of our unappropriated water.

Turning to the question of water demand, we projected future demand based on three scenarios: Scenario A assumes that water demand will not be reduced through increased conservation efforts by water users. That scenario undoubtedly overstates the ultimate demand for water, but is included to show what could happen. The second two scenarios decrease projected demand based on assumed increased water conservation over time. Scenario B assumes water conservation will reduce water consumption in the different sectors by 10 percent over 50-year periods, and Scenario C assumes increased water conservation will reduce consumption by 25 percent over 50-year periods.

After Sporhase, however, the potential demand for water is regional and is not limited by state lines. For this reason, it was essential to try to define, at least in economic terms, the market for water supplies located in New Mexico. The key issue as to the geographic range for New Mexico's water market was determined by the ability of an area to pay to transport water. We calculated that agriculture could pay up to \$75 to \$125 an acre-foot per year to transport water and that the municipal and industrial sectors could pay as high as \$500 an acre-foot per year. Based on the ability to pay these amounts and on estimates of

economically feasible transportation costs, we were able to approximate the distances water could be transported both within and without the state of New Mexico, thereby defining the relevant geographic range of New Mexico's water market.

The findings of the scope of the water market, both in state and out of state are illustrated by the following charts, labeled Figures 1 through 6. They reflect the range of the water market at transportation costs per mile ranging from \$1 to \$2.50 a mile per acre-foot. Based on these charts, it is clear that the geographic scope from which water may be imported into New Mexico or exported from New Mexico is extraordinarily expansive. The potential for importation is probably slight due to present and potential shortages in neighboring states.

Indeed, virtually every groundwater basin is potentially part of the regional interstate market. While agricultural demand is quite limited by transportation costs, municipal and industrial demand can move water great distances.

The final task was to put the in-state demand figures with the in-state supply figures to determine when areas of the state would be affected by water scarcity. We did this by calculating what we called benchmarks of water scarcity. These benchmarks reflect three different events.

In the closed, non-tributary aquifers, designated as C-1, C-2, C-3 on the chart, when the first benchmark is reached it means that there is no more unappropriated groundwater—to acquire a water right one must buy and transfer someone else's right. When the second benchmark is reached, municipal and

Areas of Potential Water Transfer

(Cost = \$1.00 per acre-foot per mile)

Key

1. Municipal and Industrial Use Area

2. Agricultural Use Areas

Assuming 1 acre-foot produces \$ 75 in benefits
Assuming 1 acre-foot produces \$100 in benefits
Assuming 1 acre-foot produces \$125 in benefits

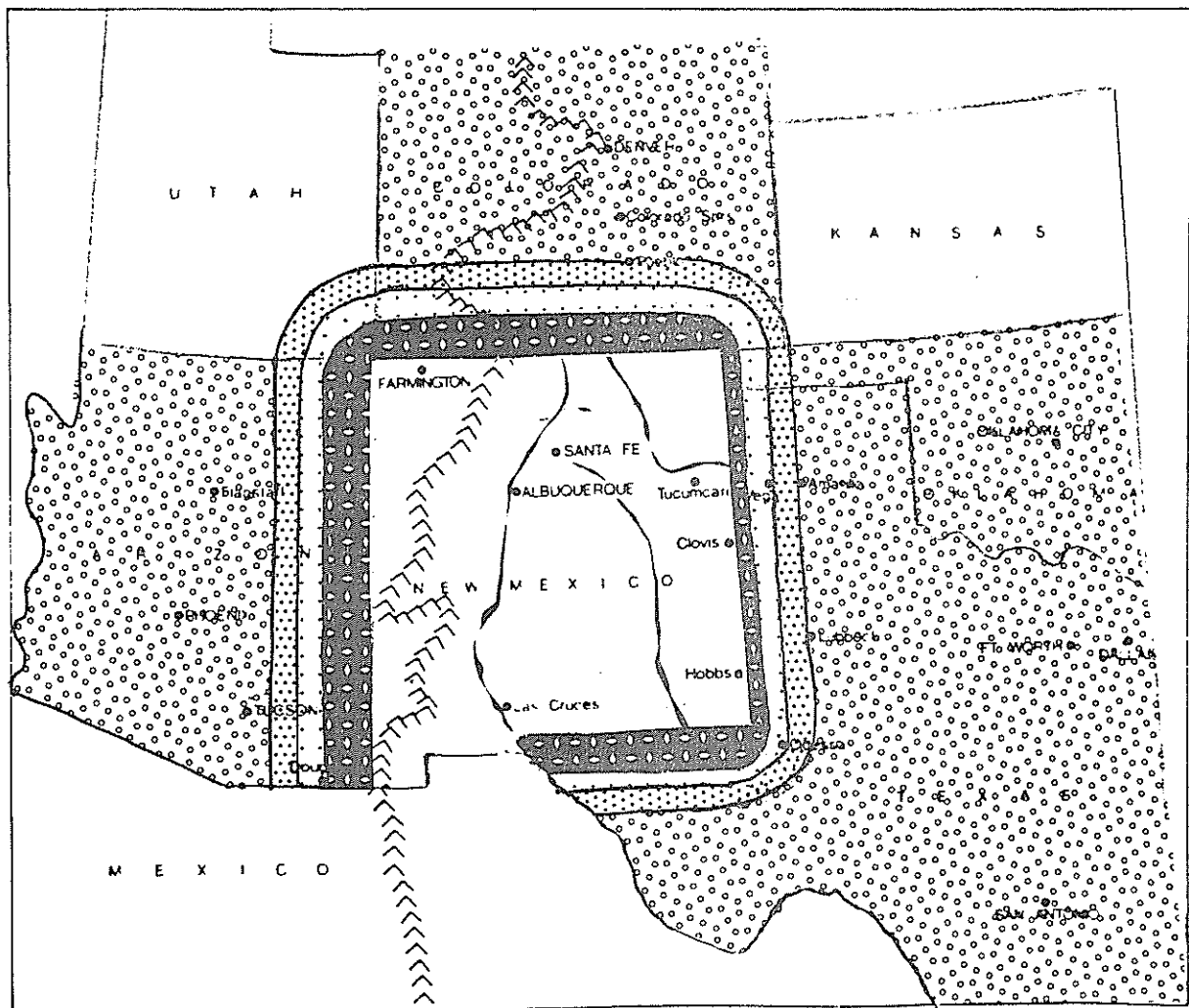







FIGURE 1

Areas of Potential Water Transfer

(Cost = \$2.00 per acre-foot per mile)

Key

-  1. Municipal and Industrial Use Areas
-  2. Agricultural Use Areas
-  Assuming 1 acre-foot produces \$ 75 in benefits
-  Assuming 1 acre-foot produces \$100 in benefits
-  Assuming 1 acre-foot produce \$125 in benefits

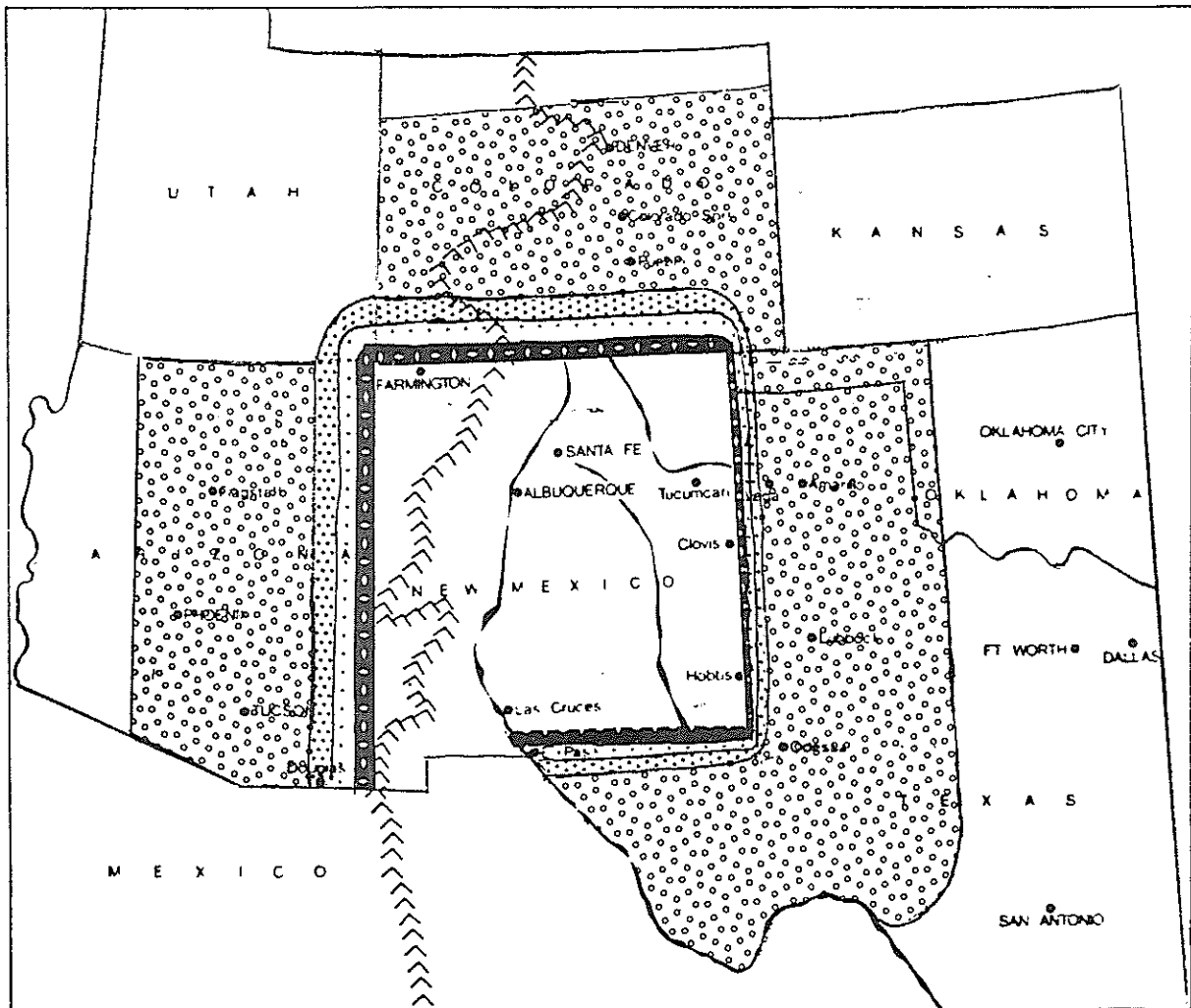


FIGURE 2

Areas of Potential Water Transfer

(Cost = \$2.50 per acre-foot per mile)

Key



1. Municipal and Industrial Use Area

2. Agricultural Use Areas



Assuming 1 acre-foot produces \$ 75 in benefits

Assuming 1 acre-foot produces \$100 in benefits

Assuming 1 acre-foot produces \$125 in benefits

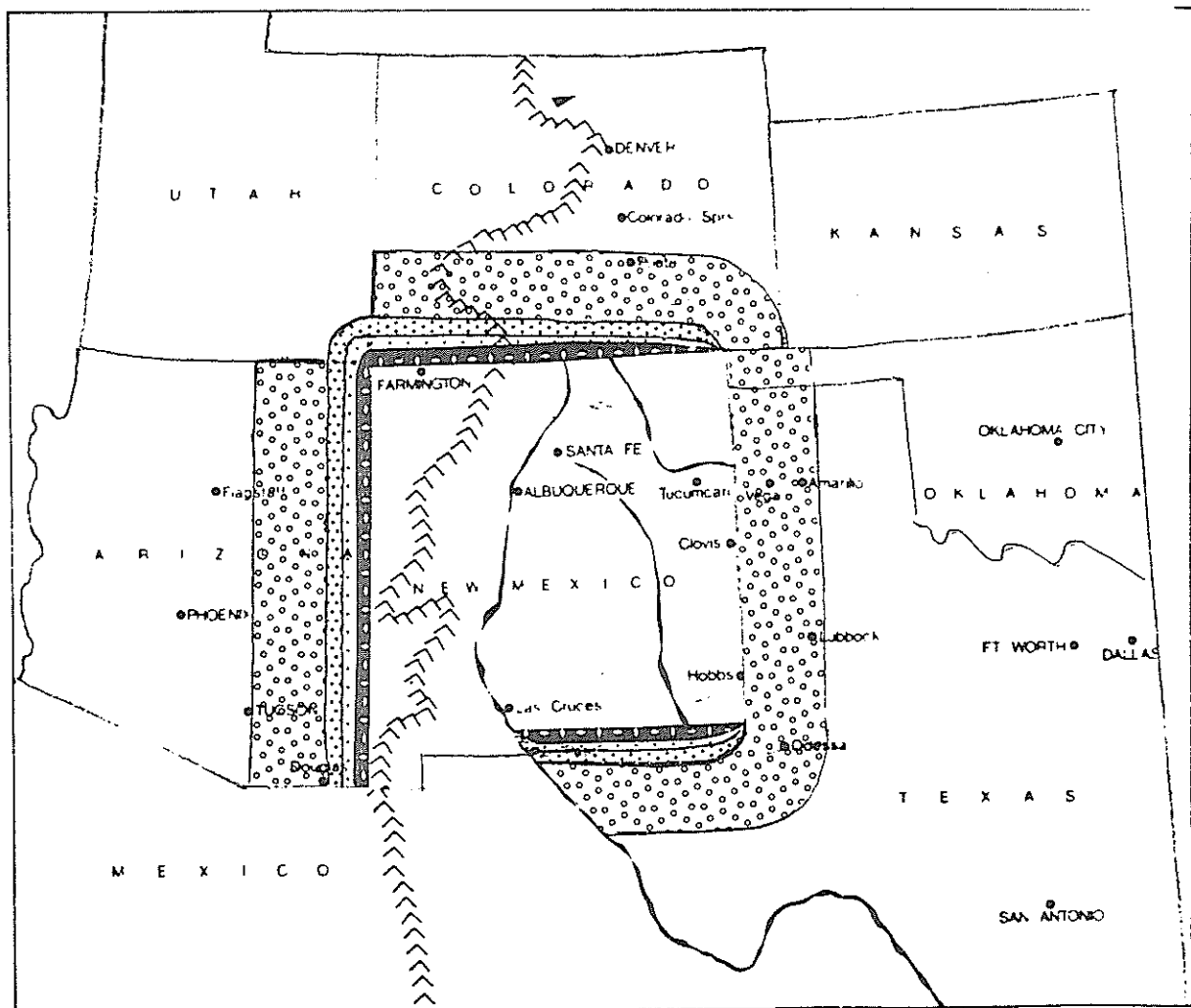
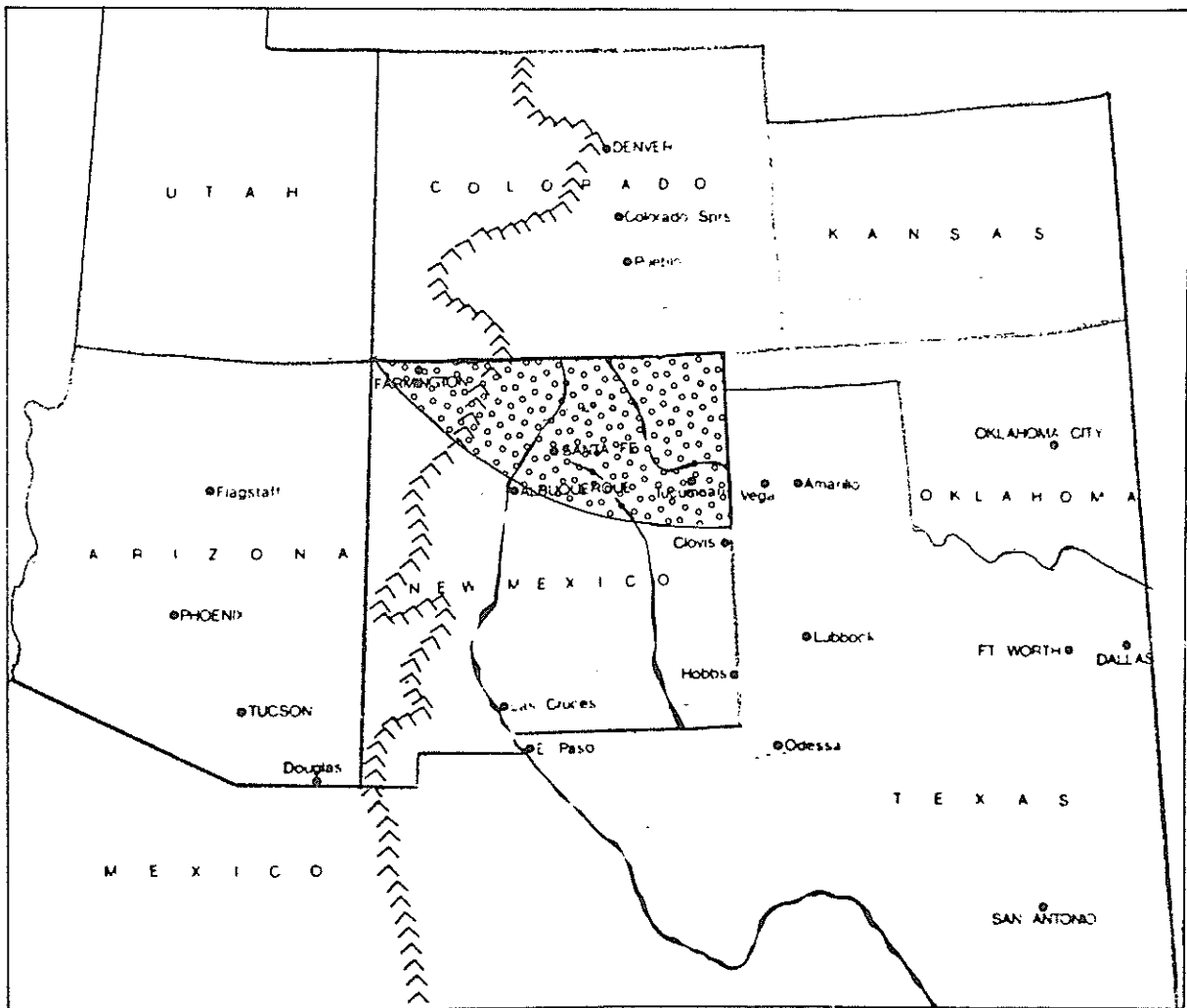


FIGURE 3

FIGURE 4

Areas of New Mexico Subject to Potential Water Transfers for M & I Use

(Cost = \$2.00 per acre-foot per mile)

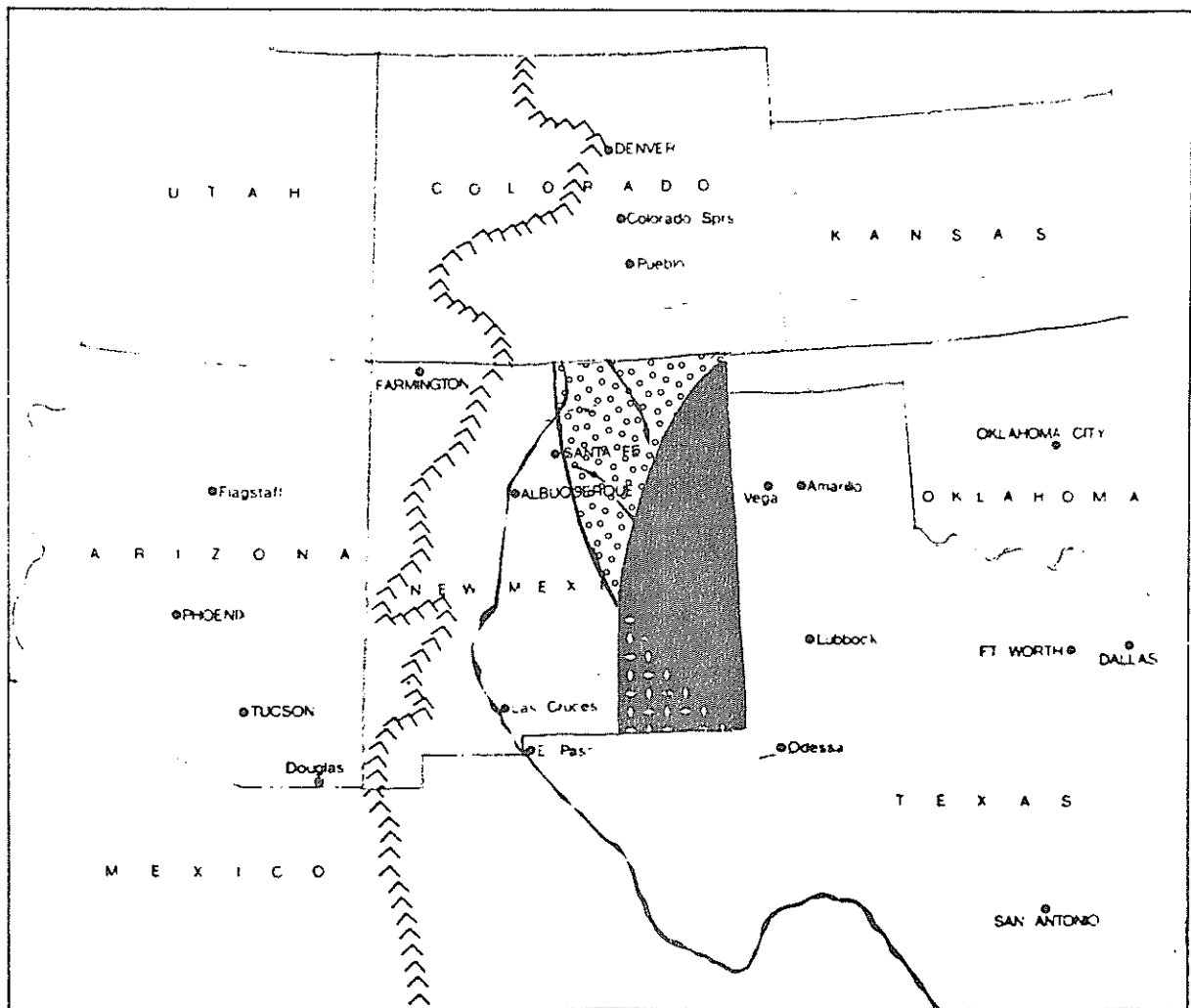


Pueblo, Colorado

FIGURE 5

Areas of New Mexico Subject to Potential Water Transfers for M & I Use

(Cost = \$2.00 per acre-foot per mile)



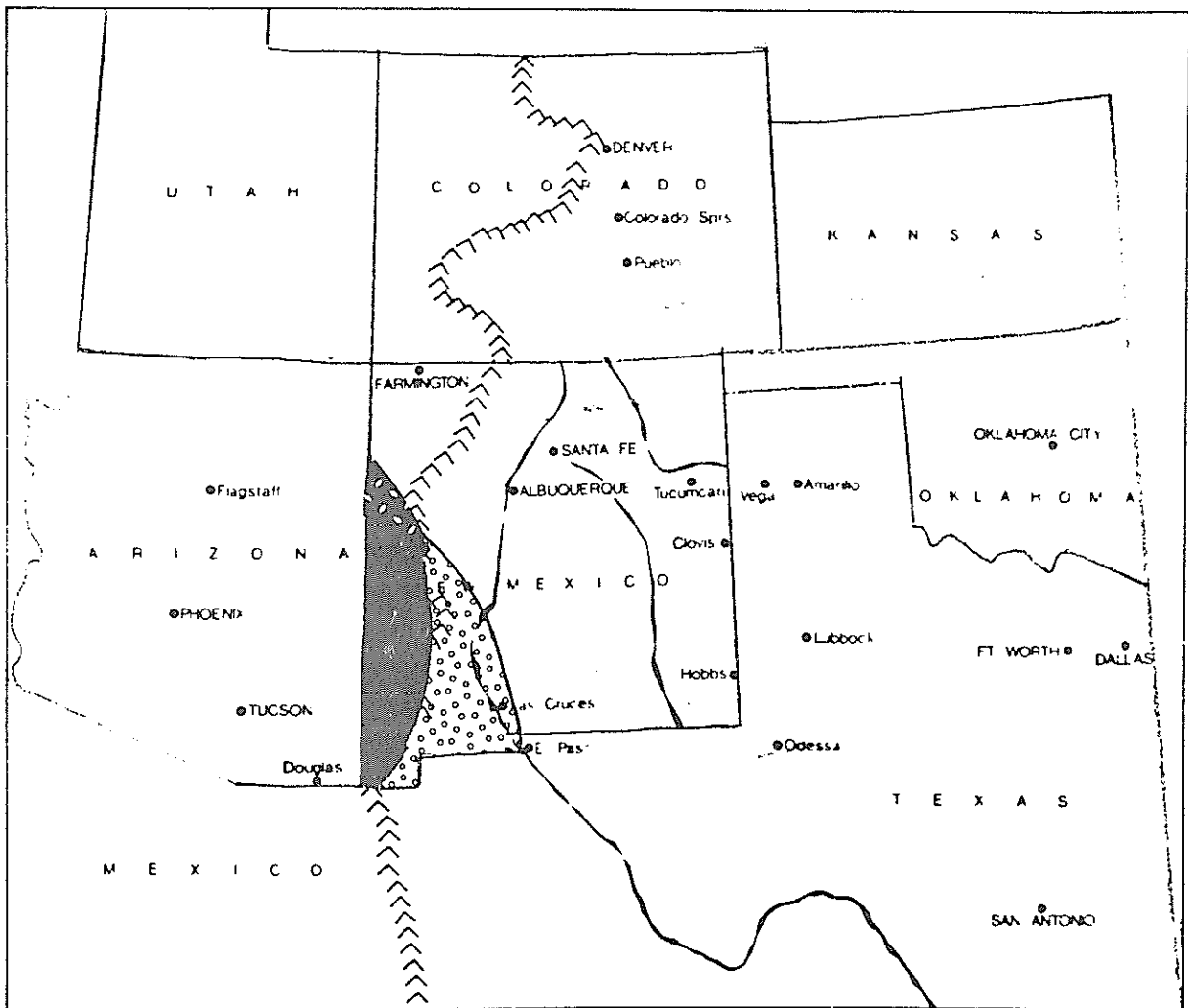
Amarillo, Texas



Lubbock, Texas

FIGURE 6

Areas of New Mexico Subject to Potential Water Transfers for M & I Use (Cost = \$2.00 per acre-foot per mile)



■ Phoenix, Arizona

● Tucson, Arizona

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industrial uses are taking 10 percent of the water that previously had been used by agriculture. It is assumed at this point that most of the agricultural sector remains viable through increased conservation measures. When the third benchmark is reached, it is assumed that agricultural water use is reduced by 25 percent. At this point, the agricultural tax base is reduced dramatically and basic life style changes must be made. These regions must seek solutions to these fundamental changes.

For tributary aquifers, the benchmarks are described as T-1, T-2, and T-3. We assume that acquiring a right in these tributary aquifers requires the immediate purchase of agricultural rights since surface streams are essentially already fully appropriated. When T-1 is reached it means that 10 percent of the agricultural rights are gone. T-2 means that 25 percent are gone. When T-3 is reached, 50 percent or more of the surface rights are no longer applied in irrigation.

The charts showing when these benchmarks may be reached in each groundwater basin follow. The benchmarks will be reached in the near future. In 7 of the 10 closed basins studied, estimated dates for benchmark C-1 (all water appropriated) are within 50 years. These include the Animas, Jal, Lea County, Lordsburg, Mimbres, and Nutt-Hockett Basins. In three of the tributary aquifers, Upper Rio Grande, Middle Rio Grande and San Juan Basins, the first benchmark will also be reached within 50 years. Furthermore, in the eastern High Plains, an area the size of some states, which is not included in any basin, extensive shortages are anticipated as early as the year 2010.

FIGURE 1
 ESTIMATED BENCHMARK DATES
 FOR ALTERNATIVE WATER DEMAND SCENARIOS
 BENCHMARK C-1 FOR CLOSED BASINS

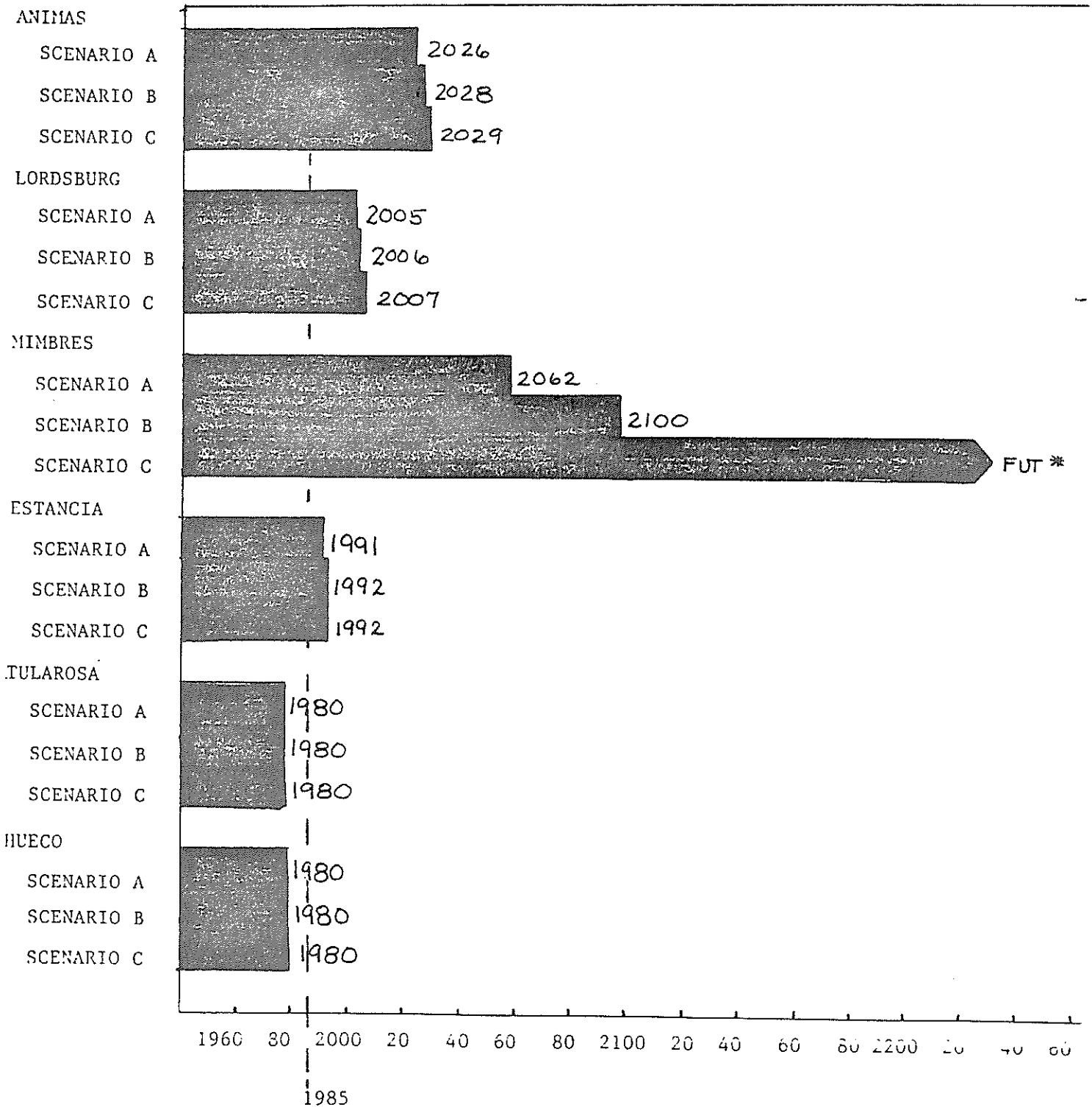


FIGURE 2

ESTIMATED BENCHMARK DATES

FOR ALTERNATIVE WATER DEMAND SCENARIOS

BENCHMARK C-2 FOR CLOSED BASINS

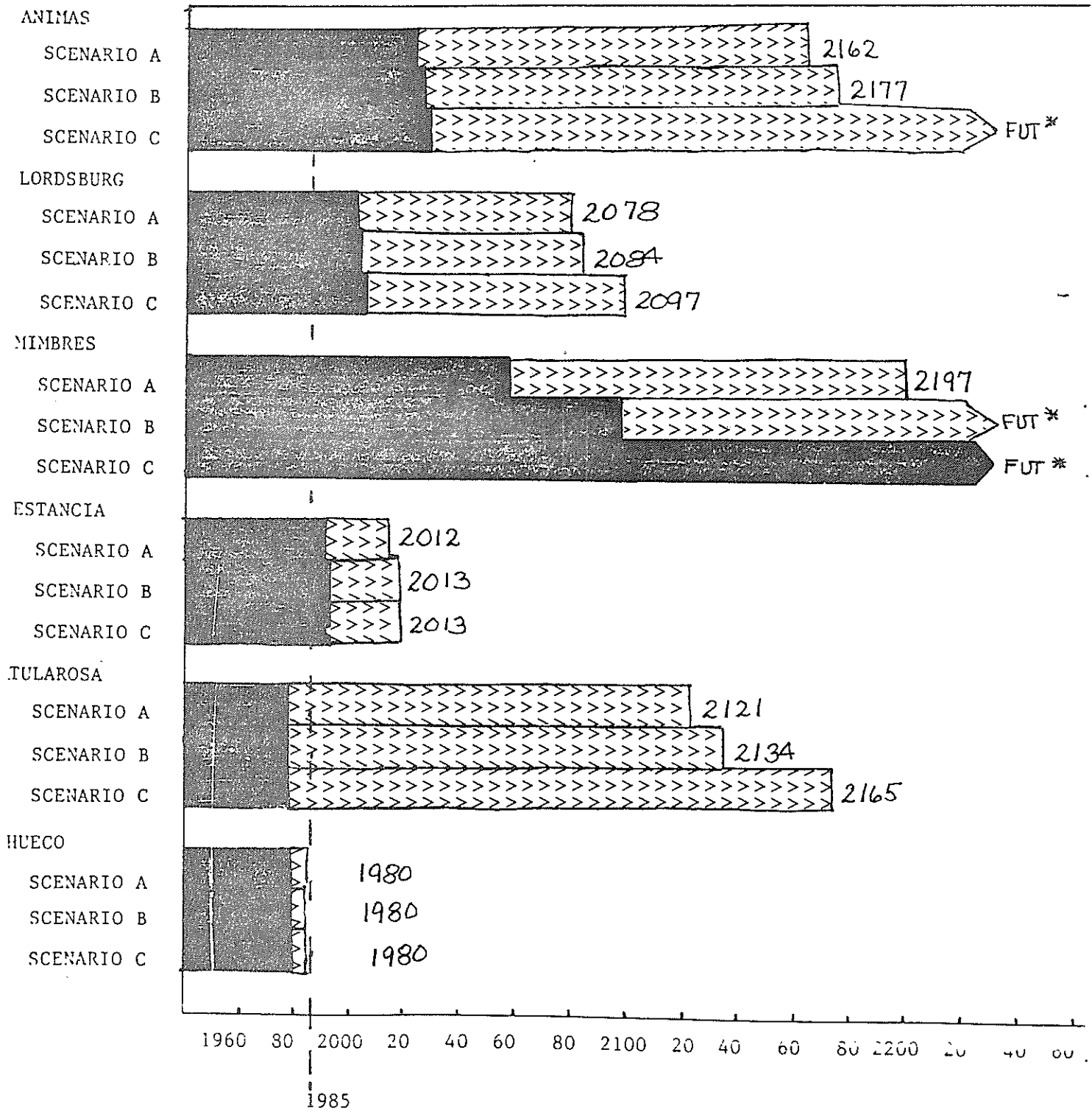


FIGURE 3

ESTIMATED BENCHMARK DATES
 FOR ALTERNATIVE WATER DEMAND SCENARIOS
 BENCHMARK C-3 FOR CLOSED BASINS

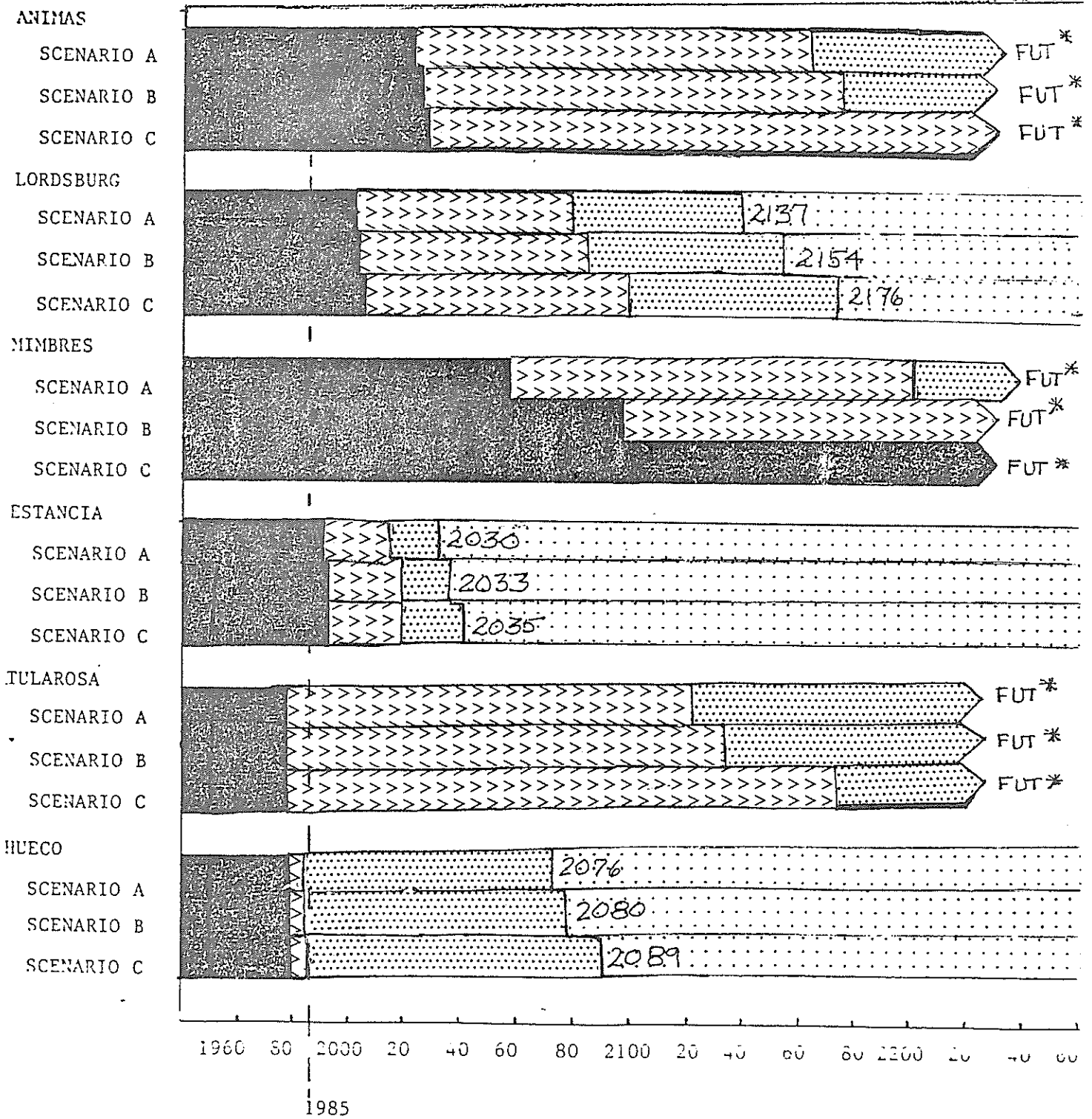


FIGURE 4
 ESTIMATED BENCHMARK DATES
 FOR ALTERNATIVE WATER DEMAND SCENARIOS
 BENCHMARK T-1 FOR TRIBUTARY BASINS

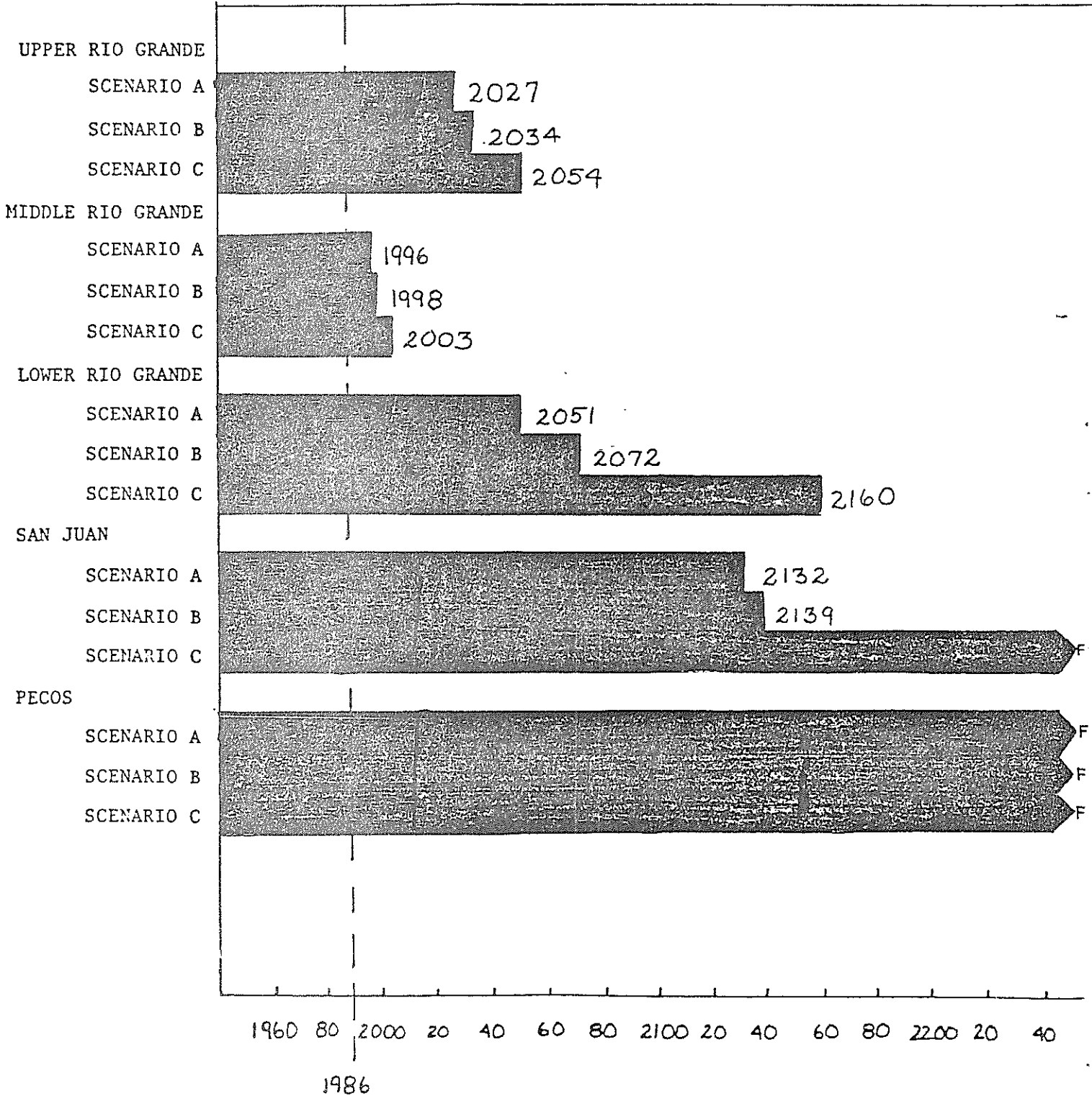


FIGURE 5

ESTIMATED BENCHMARK DATES

FOR ALTERNATIVE WATER DEMAND SCENARIOS

BENCHMARK T-2 FOR TRIBUTARY BASINS

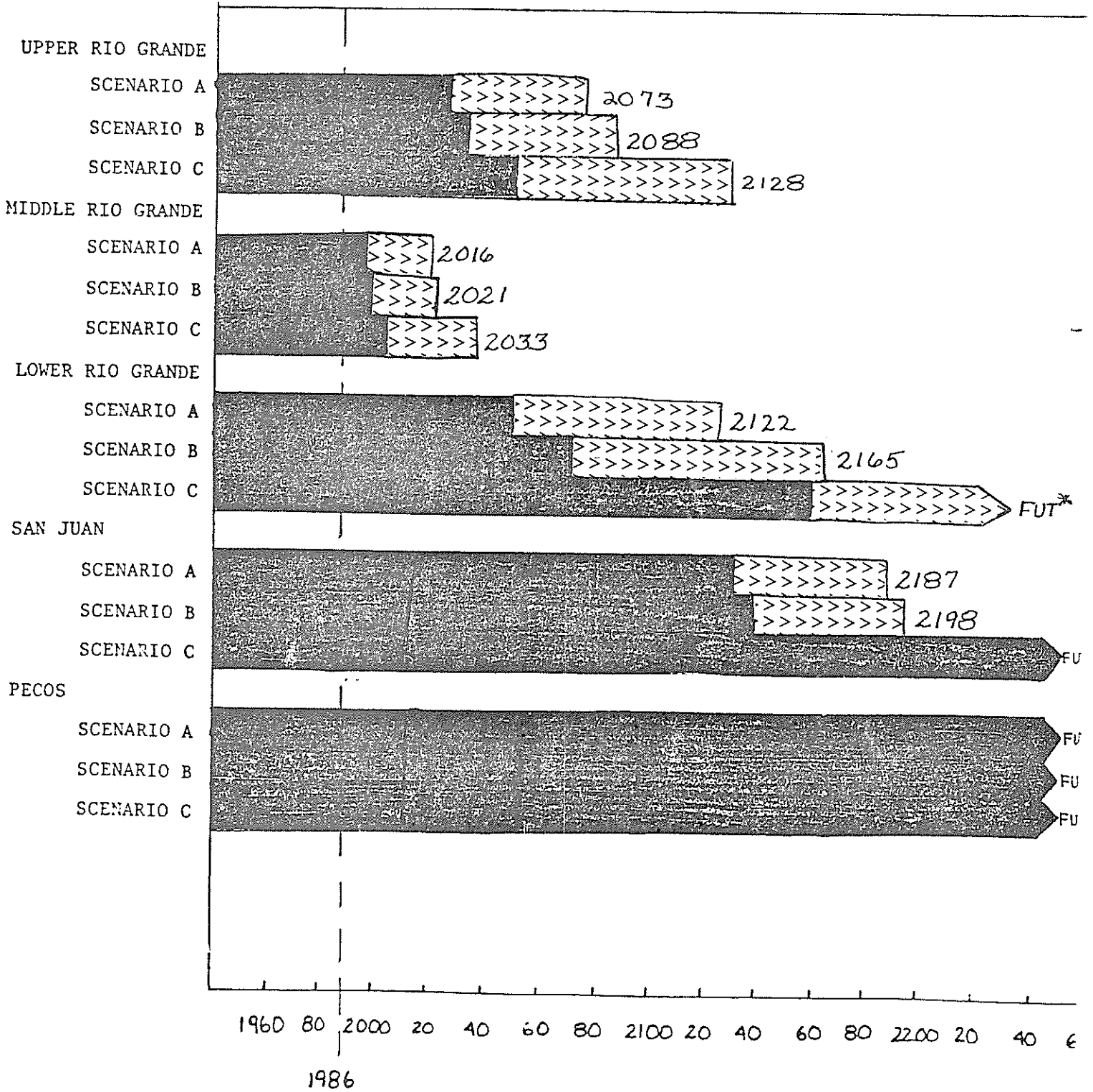
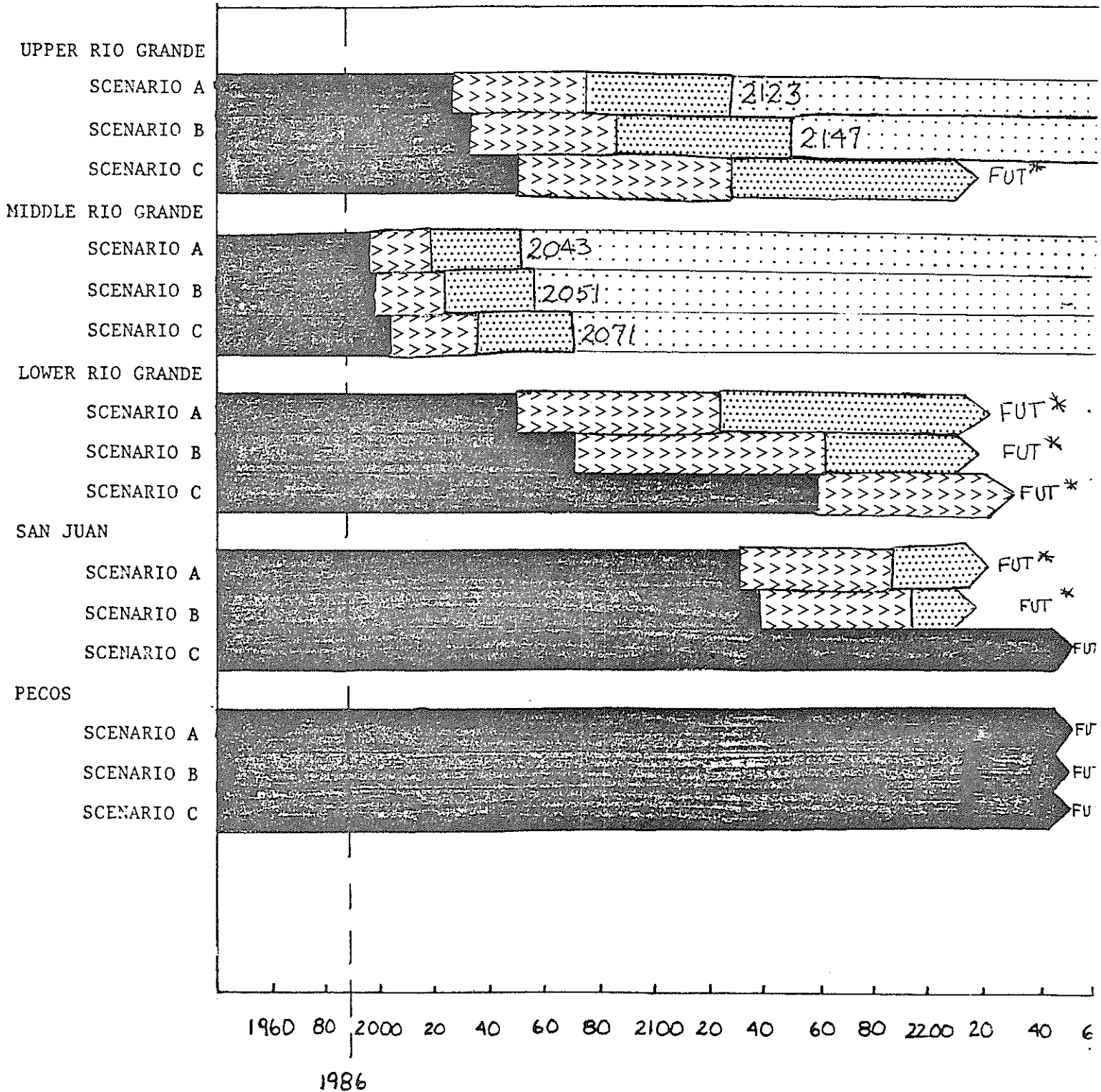


FIGURE 6

ESTIMATED BENCHMARK DATES

FOR ALTERNATIVE WATER DEMAND SCENARIOS

BENCHMARK T-3 FOR TRIBUTARY BASINS



Two obvious conclusions can be drawn from this: Water scarcity in New Mexico will cause basic lifestyle changes in the very near future, based strictly on in-state demand for water alone. Add to this conclusion the fact that we are now part of a regional water market covering virtually every region in the state and including Albuquerque, Las Cruces/El Paso, Lubbock, Amarillo, Tucson, and even parts of Southern Colorado, and the speed with which these benchmark dates are approaching is alarming and demands some action now.

IV. FINDINGS CONCERNING NEW MEXICO'S OPTIONS IN THE INTERSTATE WATER MARKET AND REGIONAL WATER PROBLEMS

As noted above, our overall study design has been to review the available literature with respect to the legal flexibility for regulating the state's water supplies and to review the existing literature with respect to the water supplies themselves. We have also traveled to various parts of the state to gain an overview of local perceptions concerning state appropriation and general water problems. Our findings are as follows:

- (1) There is and will be an interstate market for water, and water supplies in New Mexico are part of that market. No trick legislation will protect these water supplies from that market, and the Supreme Court is not likely to reverse itself on this issue.
- (2) It is legally possible, however, for a state to enter the market as a participant by appropriating and developing its own water supplies. By developing its own water supplies, a state may guarantee future water

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supplies for various regions of the state as a part of regional planning and may market water to other states to raise revenue for in-state water development projects. Numerous reasons argue for participation in the water market; they are set out below in the section entitled "Benefits from State Appropriation."

- (3) While New Mexico has developed a surface water plan through the State Engineer's office by construction of reservoirs, most of which have been completed, no provision has been made for guaranteeing regions of the state sufficient future water supplies from groundwater sources, for state support of the development of regional water supply systems, or for possible interstate exchanges.
- (4) In most rural areas of the state, people are unsure of their water future, unsure of the mechanisms to acquire water rights, unsure of the period of time their water supplies will last and unsure of the leadership provided by the legislature in this area. Individuals are beginning to speculate in water rights futures.
- (5) In the Dona Ana County area, the El Paso lawsuit and basic conflicts between agricultural and municipal uses have caused tremendous uncertainty about water availability. Many more applications have been filed for water than actually exists in the ground.
- (6) In Gallup, the physical shortage of water is of great concern. While studies have been done with respect to

the possibility of bringing water from the San Juan River, the cost of the project is high. Also, hydrologic studies are being conducted throughout the area.

- (7) Throughout the eastern part of the state, there is a great deal of concern over the declining groundwater table and the possibility of demand from Texas municipalities. This area of the state is studying its problem and is anxious to take action toward a solution, but the necessary capital is not available. There is much interest in water conservation and a desire to see that this area has a guaranteed quantity of water available to it in the future.
- (8) In the Taos area, there is a great deal of concern about the transfer of water rights from traditional acequia uses into other uses. There is a case before the Court of Appeals in which a district judge has ruled that a private person's water rights could not be sold to another because the sale would, in effect, be detrimental to the culture of the area and therefore not in the public interest.
- (9) In the Albuquerque area, the city of Albuquerque, with its San Juan/Chama water and its water rights purchase program is proceeding well with its water development plans, but areas outside the city and the smaller municipalities, in the long run, are going to have a difficult time competing with the City of Albuquerque for the surface rights needed to offset their groundwater

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pumping. There appears to be great concern about the inability to transfer water rights outside the conservancy district to facilitate new uses. In the area east of the Sandias, there is interest in establishing a long-term potable water supply without destroying water quality.

- (10) In response to the El Paso case, our system of water law appropriation and transfer has been fundamentally changed. An amendment to state law in response to the El Paso litigation has introduced into the initiation of every water right the criteria of the public welfare and water conservation. This may mean that with respect to every water right that has been purchased in the water market, the question whether that transfer is consistent with the "public welfare" and whether it should be allowed will have to be litigated and ultimately decided by the courts.
- (11) The policy of extracting tributary groundwater to provide short-term supplies for the state is not well understood. While many of our municipalities and industries may be able to survive for a period of years, maybe even hundreds of years, the only reliable supplies in the future are our surface supplies. Because of present pumping of tributary aquifers, in the future surface water in these areas will be taken exclusively through wells. This concept and its ultimate impact on

the environment of the river is little understood by hydrologists and lay people alike.

- (12) In most areas of the state, if new industry were to come in and ask the question, "Is there a reliable guaranteed supply of water and is there one agency I can go to get it without being involved in lawsuits?" the answer would have to be no. Possible exceptions are Ute Reservoir, where the state has developed water for commercial and other purposes, and the City of Albuquerque.

V. BENEFITS FROM STATE APPROPRIATION AND LEGISLATIVE RECOMMENDATIONS

The study team and the advisory board are of the opinion that state appropriation could assure a water future for the state by assisting the various regions of the state to plan and control their water futures. Therefore, this course of action should be adopted by the legislature of the state of New Mexico.

The study team has worked from certain basic assumptions: The first is that each area of the state is intrinsically valuable--the rural areas as well as the more economically developed urban areas. Therefore, as a matter of policy these areas cannot be allowed to languish or deteriorate for lack of financial and technical help to develop their water resources. Second, the state is interested in controlling its water future rather than being controlled by it. Third, the citizens of the state are willing to make necessary lifestyle changes in the area of water conservation to insure that we have enough water in the future.

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Fourth, our traditional and fundamental prior appropriation system of water law should be maintained with the minimum change possible.

Based on these assumptions, a review of the extensive literature on the subject, and discussions with water officials throughout the western United States, the study team, with substantial assistance from its advisory board, has isolated possible ways that New Mexico may control its water future by actively participating in the marketplace for water (state appropriation). The task for New Mexico is naturally divided into two distinct categories: (1) ensuring the rational use of water supplies for the long term future of the state, and (2) coordinating the timely development of water projects in those areas of the state in which water shortages already exist or will exist in the very near future.

A. Long-Term Benefits from State Appropriation

As demonstrated earlier, the demand for water resources in the United States is regional and not confined by state lines. Furthermore, no legislation aimed at embargoing a state's resources will survive constitutional challenges. Fortunately, however, states are free to participate in the interstate marketplace just as any other entity, and the state of New Mexico is certainly free to utilize its own resources to guarantee a future water supply if it chooses to do so. Therefore, the state is faced with a choice: watch the interstate marketplace allocate resources in the region and take no action, or compete in the marketplace for the benefit of its citizens. Using the market

participation technique, the state may achieve the following goals with respect to its long term water future:

1. State Appropriation of groundwater or purchase of groundwater rights could guarantee future long-term supplies.

The state may elect to appropriate a substantial amount of groundwater where available supplies exist, using a time horizon for development of 80-100 years. It would need to, concomitant with its application to appropriate water, develop a long-term plan for the use and development of the water resource and ultimately make the water available to actual water users for beneficial use. The most significant result of this strategy would be securing water supplies for future needs. In some areas of the state, the same result could be achieved through purchase by the state of existing rights with a lease-back arrangement to the owner until the owner no longer needed the rights. For example, in many areas of the state, the maximum depth to which a farmer can pump and still remain profitable is 230 to 250 feet. There may, however, be substantial amounts of water below that depth that could be put to other commercial uses in the future. Therefore, as noted above, in those areas of the state, the state may wish to act now to begin to purchase rights and give the farmer a lease-back (in a sense, purchase "water futures") so that the balance of the aquifer is available over the long term if and when the financial base of these agricultural communities changes to other types of industries.

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2. State Appropriation or purchase of groundwater may allow short-term marketing of water interstate to support New Mexico water projects.

The state may also wish to appropriate water in areas where the best market, at least in the near term, is out of state. Since water is an asset that can bring a high lease price and since the state needs revenues to develop other water projects throughout the state, leasing a portion of its water rights for use out-of-state or sale of water in bulk to out-of-state users could provide a source of badly needed revenues for areas of the state that need substantial funds to develop public supplies. The benefit of this solution is that it allows New Mexico to capture revenue from an asset that otherwise is made available for free on the interstate market under the Sporhase decision. It would, of course, have to be understood that when the water is needed in New Mexico, the out-of-state use would end.

3. State Appropriation or purchase of groundwater could permit the state to develop and coordinate water transfer projects.

There will be areas of the state that, notwithstanding full use of water conservation technologies, may need to import water from other sources in New Mexico. This type of project could conceivably create conflict between the source area and the area to which the water is being transported. The only entity with jurisdiction over both areas is the state. The state, as owner, could appropriate water in one area of the state for use in another while ensuring that: (1) the area from which the surplus water is taken is fully compensated for it, and (2) the area into which the water is being imported has met acceptable water

conservation standards in advance. If such water transfer projects are left exclusively to regional development, experience in other states teaches us that intrastate water conflicts can develop that waste time and the limited economic resources of the state.

4. State Appropriation or purchase of groundwater could permit the state to develop and coordinate water importation projects where such plans are economically and hydrologically feasible.

There may be areas of the state where the most rational source of a long term water supply is an out-of-state source that is proximate to a New Mexico community and distant from any water needs in a neighboring state. If the neighboring state has developed the water supply, the choice may be to purchase the water from that state. If the neighboring state has not developed these supplies, and it is not inconsistent with the public welfare of that state, then New Mexico may seek to develop the water supply and make it available not only for New Mexico users, but also for users in the other state.

B. Immediate Benefits from State Appropriation

1. State Appropriation or purchase of groundwater could aid in the creation of regional water development projects.

There are areas of the state that face water shortages now or in the very near future. Many of these areas rely on small water associations or small municipal systems for their domestic supply. Many areas lack the funding to do the necessary engineering studies and planning, and many may even lack the resources to put together the applications to appropriate or to purchase water rights in the water market for future use. The

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state has played an active role in developing the state's surface water resources through the construction of reservoirs with state and federal funds. It has compacted these surface resources with the hope of guaranteeing a future supply and, through the Interstate Streams Commission, has assisted in their development. Yet, there are areas of the state whose major source of water is groundwater. The state may elect to play a development role with respect to groundwater similar to its role with respect to surface water supplies. While the surface water infrastructure has been reservoirs, the infrastructure for groundwater may be engineering assistance, water rights acquisition systems and distribution.

2. State Appropriation or purchase of groundwater could provide certainty of water supply for new industry and thereby promote future economic development.

Every state in the arid Southwest is competing for new industry. High on the list of concerns for any industry that moves into an area are: (1) educational quality of the work force, (2) the ambience of the state as a place to live, (3) the stability of the state government, and (4) a reliable water supply. In New Mexico, when considering water we are often confronted with two basic uncertainties. The first uncertainty has to do with quantity. Simply stated, we don't always know exactly how much is available because we have not undertaken the costly hydrologic studies to find out. The State Engineer's office is working on this problem and is obviously capable of coming to grips with the task. It is, for example, currently updating the 1976 Assessment of Water Resources for Planning Purposes. The second kind of

uncertainty in the water arena is legal uncertainty. To acquire a water right in many areas of the state frequently requires a series of hearings before the State Engineer in which the transfer is protested by persons on all sides with differing interests, which produce a host of conflicting testimony and which is still subject to de novo review in district court. All of these steps are not only costly financially, but they also discourage economic development in the state since the legal uncertainty may be fatal. If the state were to appropriate water now for future industrial use consistent with a development plan that attempted to accommodate many of these conflicting interests, there could be a substantial improvement from an economic development perspective. Under these circumstances, when an entity comes to the state and asks the question, "Is there one entity I can go to and get the water supply I need without lawsuits and antagonism from the community?" the answer could be yes. If the water supply were already appropriated and placed in a water development bank, with plans for a specific beneficial use it could be more readily available.

3. State Appropriation or purchase of groundwater rights could assist the state in the promotion of water conservation.

It is inevitable that most, probably all, areas of the state will eventually have to engage in more stringent water conservation. The appropriation of water by the state would aid this process in three different ways.

First, since the bulk of the water resources in the state are currently used in agriculture, it is in this sector that

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water conservation could produce the greatest savings. The technology is expensive, however. Further, once water is saved or conserved, the question becomes: Saved for whom? Phrased another way: Even if the agricultural interests use less, how can we be sure that the water saved inures to the benefit of future generations? One example illustrating the coordination of benefits and costs from conservation can be drawn from California. It is a hydrologically unique example, but it is relevant to us here in New Mexico because of the incredible potential for water savings. The Metropolitan Water District of Southern California (MWD), has contracted to construct ten million dollars worth of water conservation capital improvements in the Imperial Irrigation District. In exchange, MWD receives one hundred thousand acre feet of conserved water. While this is an extreme and uniquely situated circumstance, the concept is worth exploring. If the state were to act now to provide water conservation technology to areas where it is needed in exchange for title to the water conserved and guarantee that the saved water would be used in those areas in the future, perhaps all would benefit.

Second, in those areas where the state may seek to appropriate water and develop it for use either in that area or other water-short areas, all potential users could, for reasons of fairness, be required to comply with reasonable water conservation standards. Finally, the state could use the revenues from its water development projects to fund experiments in water conservation.

4. State Appropriation or purchase of groundwater rights could, through the dissemination of good price information, aid the movement of water to higher economically valued uses.

Where water supplies are fully appropriated, the state may be purchasing water rights and leasing them back to the seller until the seller's use is no longer commercially feasible. In this process, the state would acquire price information about water rights. An additional function the state might serve could be to provide accurate price information on the value of water rights, available to all who are in the marketplace. Very rarely does that information exist today. If a farmer wishes to sell his water right to the state or a municipality or industry, he should know its value. Likewise, the potential buyers should have access to good price information. If the state were able not only to participate in the market, but also to act as a clearinghouse for price information for both buyers and sellers, perhaps all would benefit.

5. State Appropriation or purchase of groundwater rights could help coordinate regional and local water planning for the future.

If the state were participating in the water market in various parts of the state, it would, by necessity, obtain substantial hydrologic information about each region. In effect it could work in partnership with each region of the state to ensure its water future. This amounts to the development of a series of regional water plans. However, since the state would be in effect a partner with each region, when all these regional plans are put together, the state will have a state water plan. The critical fact is that it would be a plan developed from

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localities and regions rather than from Santa Fe. South Dakota has used a similar procedure to prioritize its water development projects, and Texas also adopted a similar approach during the past year.

6. State Appropriation or purchase of groundwater could aid local and private interests by coordinating water information-sharing throughout the state.

As the state developed water resources in various regions, it could make all of the data it acquired available through a clearinghouse such as the New Mexico Water Resources Research Institute which could then place it on computer for easy access. Oregon has begun a similar process of water data exchange.

7. State Appropriation or purchase of groundwater could preserve key sectors of the economy and areas of the state that make a singular contribution to New Mexico society and culture.

There may be areas of the state that need preservation because the culture or the land or both constitute irreplaceable assets. Certainly, it is unwise to allow the very best agricultural lands to go out of production. Continued use of water in agriculture in certain areas of the state may be critical for a variety of reasons. Agriculture may not be able to compete with municipalities and other industries for water from a strictly economic viewpoint. Yet, the long-term interest of the state may best be served by sustaining a healthy agricultural industry in selected areas. As discussed in Chapter 9, the value of the agricultural industry is far greater than any simple calculation based on the price of crops alone. And our unique cultures in the North, both Indian and Hispanic, create part of the ambience

that makes New Mexico unique. Further, no one seriously questions that the wildlife and fish resources of the state need protection, and protection of these resources need not be inconsistent with our market system of water rights. Because the state values its best agricultural lands, its unique cultures and other fundamental resources such as the bosques and the wildlife, it may have to acquire water rights in the marketplace to keep them. This is not a new or radical suggestion; the State Game and Fish department has consistently done this. In the view of the study team, if the citizens wish to maintain these values, the State should compete directly in the marketplace to support these special values.

8. State Appropriation or purchase of groundwater could aid the goal of protecting the water quality in the state.

If the state were a partner with a region of the state in the development of water supply systems, it could insist that those using the water systems comply with acceptable water quality standards. It would have access to groundwater quality information as it developed its own supplies, and it could coordinate the dissemination of this information statewide.

9. State Appropriation or purchase of groundwater resources could aid in the protection of our surface water resources.

In Chapter 2, we note that New Mexico has correctly decided that it is in the public interest to develop tributary groundwater in storage. As this water is developed, however, the stream systems of the state are eventually affected. Indeed, in some areas of the state, substantial amounts of stream flow will

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effectively be diverted into groundwater wells and no longer actually move through the stream itself. The environmental and economic impacts of this process are potentially immense. Environmentally, the lowering of the water table in the river area will have an impact on vegetation. Economically, persons will be buying up surface rights in order to have access to the groundwater. Finally, the location of wells is critical. In general, the farther from the river, the more groundwater can be taken. The hydrology of this phenomenon is far from clear as demonstrated in the testimony in El Paso v. Reynolds. A full understanding of the hydrologic implications of this process is extremely expensive to acquire. The state may ultimately assert some control over this process by purchasing surface rights to ensure that local needs are met and that the hydrologic facts are fully developed and understood. Indeed, if the impacts on the river are miscalculated, the state may have to use some of its previously purchased rights to offset these impacts.

C. Specific Legislative Recommendations

Because of the substantial need for regions of the state to plan for their water future and because state appropriation could go far in serving that need, the study team and advisory board recommend that the concept of State Appropriation of Unappropriated Groundwater be adopted in principle in the 1986 legislative session. The concept is one in effect of forming state-regional partnerships for water development and cooperation in promoting water conservation. The study team and advisory board recommend

further that the study team be funded to study implementation of state appropriation by examining three final specific issues:

- (1) How much would it cost to implement state appropriation in various regions of the state?
- (2) What is the best source of revenue for financing state-regional partnerships for appropriation of water?
- (3) What is the best administrative agency in New Mexico for implementing state appropriation?

The study team and advisory board are of the view that the Interstate Streams Commission appears to be the agency best suited to the task; however, great care should be taken to determine what legislative changes, if any, need to be made to ensure that this agency is politically and geographically representative and responsive to the needs of each of the distinct regions of the state.

The legislation funding the study should further provide that the study team make formal presentations of its findings to the appropriate standing committees of the legislature prior to the 1987 legislative session so that these committees are prepared to deal with the substantial policy questions presented by actual implementation of this concept. Legislation accomplishing these objectives is attached.

AN ACT

MAKING AN APPROPRIATION FOR A STUDY OF THE SPECIFIC COST OF IMPLEMENTATION OF STATE APPROPRIATION OF UNAPPROPRIATED GROUNDWATER, DESCRIBING THE MAKE-UP OF THE APPROPRIATING AGENCY AND IDENTIFYING SOURCES OF FUNDING FOR SUCH APPROPRIATIONS: DECLARING AN EMERGENCY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO:

Section 1. FUNDING AND IMPLEMENTING OF STATE APPROPRIATION OF UNAPPROPRIATED GROUNDWATER--STUDY.--

A. The legislature finds as a result of the report from New Mexico State University and the University of New Mexico regarding the feasibility of state appropriation of unappropriated groundwater that such state appropriation could assist the different regions of the state in planning and controlling their water futures. Unanswered questions remain, however, as to the type of agency that should operate such a program to ensure responsiveness to all regions of the state and how much such a program would cost and how such a program should be funded. It is therefore necessary to fund a study of these issues to be completed prior to the 1987 legislative session.

B. The office of the governor shall coordinate and contract with the New Mexico Water Resources Research Institute of New Mexico State University and the University of New Mexico School of Law in developing a study of the cost of implementing a program of state appropriation of unappropriated groundwater in New

Mexico, the possible sources of funds for such a program and the types of agencies that could operate such a program. The Interstate Streams Commission now appears to be the proper agency to appropriate unappropriated groundwater; therefore, the feasibility of that agency carrying out that function should be the principle focus of the agency analysis. Therefore, the study team will coordinate and work with the office of the State Engineer in carrying out this aspect of the study. The final study report shall contain an analysis of specific proposals with costs and benefits itemized under each proposal, recommendations concerning any modifications or amendments to New Mexico laws necessary to implement the proposals analyzed in the report. This report shall be submitted to the Governor and Legislative Council no later than January 20, 1987. Prior to the January 1987 legislative session, the results of the study will be presented to the Legislative Finance Committee, the Legislative Council and all other relevant committees so that these entities are fully aware of any legislative proposals before the legislative session.

Section 2. APPROPRIATION.-- _____ dollars (_____) is appropriated from the general fund to the office of the governor for expenditure in the seventy-fifth fiscal year to carry out the provisions of this act. Payments from this appropriation shall be made upon vouchers signed by the governor or his authorized representative. Any unexpended or unencumbered balance remaining at the end of the seventy-fifth fiscal year shall revert to the general fund.

Section 3. Emergency.--It is necessary for the public peace, health and safety that this act take effect immediately.