

THE FUTURE OF AGRICULTURAL WATER USE IN NEW MEXICO

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The great majority of men attend to what is necessary only when they feel a need for it -- the precise time when it is too late.

Napoleon Bonaparte

Clearly established at this and previous conferences is the fact that New Mexico's most obvious socio-economic problem is the meagerness of its water resources. With demand and potential demand being far greater than the available supply, its distribution and use are of exceptional importance in shaping the state's future. The question we ask this morning is, "Do we want an irrigated agriculture in that future?"

The nature of New Mexico's water law -- doctrine of prior appropriation is an important and useful system for recognizing right to, or changes in, the use of the water resources of the state. The concepts of "beneficial use" and "prior right" are key elements of that law.

In New Mexico, agriculture has put most of the state's water to beneficial use and has the prior right to most of the state's water. As we look to the future, the property right in water will

of necessity and of economic pressure shift both the nature of beneficial use and the use right away from agriculture.

Exactly which force will eventually play the dominant role in executing such a shift in use is not known, that is, be it by political decree, or by way of the market system. It will be assumed for this discussion that it will be the market system. Namely, that to cause a change in use, a price must be paid to a current water-right holder to transfer use privilege.

What is the market value of water for agriculture as compared to other uses such as in uranium production, coal gasification, electricity generation, municipal, or recreation? While we do not have good numbers for these values, it is safe to say that currently and in the projected future to 2000, agriculture will be the least able to compete in the market for water. That is to say, that even with the water currently in agricultural uses, it will be purchased away for the other uses as it is demanded.

Land and water use policies are inseparable. The rights in land and water -- property rights -- give value to each. Land without water has limited value (except in an urban development path). Thus, irrigated land, upon severance of its water right, regardless of the method used, drops dramatically in asset value.

Concerns over the decline in the water table in several areas of the state and projections of impact upon the resulting local economy reflect clearly this condition. If the Portales valley is drained by 2020, as estimated by others, and agriculture is abandoned, what

will be its replacement as an economic base for that community? Irrigation -- water or municipal water is a question already being vocalized.

Policies to preserve an irrigation agriculture in a given area should be established only with a knowledge of the condition of the water supply, namely a mining versus a recharge situation. The future of agriculture in mined water areas is at the best bleak, if we look to the long run.

To make predictions about the future for water in agriculture is no less than foolhardy, but to stand before you today with intent to do so for a third time in 12 years must qualify me as a fool of the first order. To make projections of the future, a good solid data base would normally be massaged and huge computers utilized to run out a series of alternative conclusions based upon a combination of assumptions. All such calculations assume some degree of credibility resulting from the tumbling of data through the machine -- which in my judgement, is not necessarily true. It is not possible to duplicate future social-political behavior in a computer.

Therefore, we are left to add our personal judgement -- and feelings about what we see as possible events and to draw our own conclusions to what such needed and helpful data analysis can tell us. Each of us will not draw similar conclusions after having examined the same data -- and that is, of course, where we are today: a wide variety of opinions as to what the future should be or will be.

My attempt through the years has been to provide thinking -- to prod the data manipulators to get on with their analysis of water requirements which could help us plan for the future, to urge decision makers to take all available information into account as futures are charted by their actions. Unfortunately, the same barrier exists today that has hampered decisions in the past, namely the political and economic expediency associated with political term of office and the individual drive to make the quick profit now. Welfare of a people 20, 50, or 100 years in the future gets lip service only, when these barriers carry so much influence on shaping current and future policies.

We are in a crucial time period insofar as planning and executing a policy for both land and water use in New Mexico. While progress has, in fact, been made in this effort over the past 30 years of my personal experience, I must charge that it falls pitifully short in accomplishing what needs to be done, and, as usual, time is our worst enemy.

Agriculture is easily forgotten in planning since it is not concentrated into great plants like steel, electronics, and autos. It creates no parking problems and farms are scattered across the countryside. Yes, the pure count of dollars generated causes most observers to conclude that agriculture is not economically important; therefore, let it fall by the wayside so that its land and water can be put to "higher-valued" uses.

How should our water be allocated to the many competitive higher-valued uses? Who will make those allocation decisions? How, or by what process will what players have voice in those decisions?

The public-choice process deals with the mechanics by which society makes decisions about their collective lives. It is not solely based on economics, but on a ranking of alternatives which assumes a personal knowledge of the well-defined alternatives or preferences. I suggest to you that while this is desirable, it is dangerous to assume the basic assumptions of public-choice theory. We must deal with a messy set of conditions and facts -- and the general public neither has the knowledge nor, in most cases, does it give a hoot about learning. Now before you charge me with suggesting a dictatorial decision-making process, let me quickly add that I do not favor such, but am suggesting that we collectively must examine the existing process and come up with some new strategy that does a better job -- not for our generation, but for generations yet unborn. If we do not, their future is in grave danger.

Now let me focus on water as a part of the grave danger I see in a future for agriculture. In New Mexico, we will face an absolute scarcity of water before 2000 in some production areas and in others soon thereafter.

Scarcity simply means that if other demands increase, even without a water-mining condition, agriculture will be the provider of that water. Importation schemes, though possible, are really not visible in the time future of 2000.

Our dwindling water supplies must somehow be stretched to meet an uncertain and growing demand. This we can surely agree upon.

Why do I express any feelings of grave concern for the continuance of irrigated agriculture in New Mexico? I wish now to briefly highlight just a few situations which exist currently and which will, in all likelihood, have major impact on the economic survival of irrigated agriculture.

Situation:

The current need to develop energy resources will bring national and even international pressures on New Mexico's water supply. Current and foreseeable future economic benefits to New Mexico from such development will be quickly accepted, for political and economic reasons, as the thing to do. Prices can and will be paid to shift water from agricultural uses to the "higher-valued" use.

Farmers had poor prices in 1979 for some crops, and disaster losses on others; and 1980 promises to be a year of significant decline in farm income. Under these and a complex set of other circumstances, farmers might well be inclined to sell their water. I foresee such a situation as being the probable course of action for several years to come. In the long run, I predict a reversal in the concept of higher-valued use, but that is too far away to attract even measurable concern in today's condition of an abundant food supply.

In 1968, four NMSU professors "imagineered" the future of water demands to the year 2060. Our projections at that time did not

include this recent new demand for water associated with energy development. (That demand was outlined earlier today and underscores the magnitude of the concern for agriculture.) We projected a strong likelihood that irrigation agriculture would be obsolete by the year 2060. It now appears safe to conclude that for the largest part of irrigation agriculture as we know it today, that date of obsolescence will come much earlier. The projected nonagricultural demands equaled or exceeded the total water depleted by agriculture in those estimates. Thus, it was a dismal future reported at that time, and I cannot honestly brighten that projection at this time.

We concluded at the 1968 Conference that there existed a critical need to establish a priority plan for water development. I conclude that same counsel could be emphasized even more so today.

Situation:

Farmers are staying in business at this point in time by heavy borrowing of short-term capital at high interest rates.

The Federal Intermediate Credit Bank of Wichita states in its 1979 Annual Report that loans for production purposes were up 32 percent over 1978 and at an all time high. The debt to asset ratio reflected an 18.7 percent erosion of assets in a one-year period.

Also, farmers are borrowing heavily on their long-term credit capacity and living off of appreciation. Such borrowing through the Federal Land Bank (FLB) of Wichita (the bank for New Mexico farmers) was up 56 percent in 1979 over 1978. This was through 10,155 new loans.

Locally, the FLB office loaned 232 percent more in 1979 than in 1978 (10.6 million to 4.6 million). In 1978, 500 borrowers had a \$39 million land debt to the bank, and in 1979, 514 borrowers had debt of \$47 million for a growth in such debt of \$8 million in one year.

Such record borrowing signals clearly that there is trouble down on the farm. If farm incomes were as good as some reporters and the federal government would have you believe, then why should that be occurring? Double, triple, or multiply the price of water 10 to 20 times, and what additional impact will that have on farmer's ability to continue in irrigation?

Situation:

Land values for irrigated agriculture are skyrocketing due to a number of pressures and social-economic factors. If you assume a land value of \$2,700 per acre in 1980, and an inflation rate of only seven percent, that same acre will have a value of more than \$10,000 in the year 2000. Shocking? Yes. But valley irrigated-land values have been increasing at a rate faster than seven percent, and the future certainly indicates no decline in that rate to a stable seven percent.

If farmers must pay such prices for land having water rights, what will farm prices have to be? Can a farmer borrow the money and even pay the interest on land debt? Also note that the projection in land value was for only 20 years in the future.

Will agriculture be the cause of the increased land prices? No, it will be pressures for that land and its accompanying water right from nonagricultural users. Agriculture will be forced off the land (through voluntarily selling to highest bidder) and away from its water.

Situation:

Most Indian water rights have not been clearly quantified and generally they tend to be prior to all other rights.

All water users are, therefore, somewhat vulnerable until the exact magnitude of such rights is determined.

A good series of articles regarding this important aspect of water rights and future use is in the January 1980 issue of the Natural Resources Journal. I recommend it to your reading.

The Navajo Indian Irrigation Project, (NIIP) is the latest and largest irrigation project in New Mexico, but with the water demands for energy developments in that corner of the state now and likely to occur, water may not necessarily be committed to a permanent agricultural use.

Situation:

A report published in the Des Moines Register on March 9, 1980 of a National Lands Study made for high government officials reflects another dimension that should cause us concern. By the turn of the century, it is reported that we will loose half or more of the prime farm land from five states. These are: Florida, all or nearly all; West Virginia, 73 percent; Connecticut, 70 percent;

Massachusetts, 51 percent; New Mexico, 50 percent; and Iowa will loose 345,000 acres, or the production equivalent of 41 million bushels of corn.

You ask what has this to do with a future for water in New Mexico agriculture? You say we have national surplus capacity in agriculture anyway; so what! Well, here is where Dawson's philosophy and continuing concern is about to be expressed again.

We have behaved like the ancient Romans at a harvest feast and orgy in our use of petroleum. I suggest that we are assuming that same posture about food. What would our attitude be today if the tables were reversed and we were told that our food supply was threatened like our oil supply -- not just because of volatile OPEC country policies, but in an absolute sense? Shock over \$1.30 gasoline is nothing compared to shock over what food prices can and will be in a similar setting. We are threatened by and afraid of a cutoff in imported oil. What if that threat should be over your food supply?

My point is, we can run out of land, and the water which makes that land productive. Nationally, in the next twenty years, we face losing about 40 million acres in total, including 20 million acres of prime farm land.

Will our children look back on what we opted to do with land and water with similar disgust as we currently do at the way we wasted the U.S. petroleum resource? I predict they clearly will.

Situation:

Latin America in the next 25 years will have a doubling of its labor force from 98 to 195 million people with unemployment as high as 45 percent. These people now have annual incomes of less than \$200; one child in four dies before age two; others will receive no more than three years of schooling, and most will not live past age 50.

Are these statistics unrelated to my topic? That region of the world, with its high rate of population growth has contributed to the overuse and misuse of land and added environmental problems that have reduced agricultural production. Are we immune from such a result?

Situation:

Four agricultural engineers have done some forward looking at farming in 2025. A few highlights of their predictions are:

1. Marked change in transportation restricting production flow, and a greater consumption closer to the point of production.
2. Processing, etc. will be more localized.
3. Economic entities will be more localized and regionalized.
4. Recycling will be a way of life.
5. Municipalities and surrounding areas will become more water-dependent.
6. Society will not compromise agricultural production.

7. First priority will be to supply food in quantities needed for U.S. consumption.
8. Minimizing of physical resource consumption.
9. Society will aggressively restrict the use of agricultural land for nonagricultural purposes and will insist that agricultural lands be well maintained.
10. Land will not be a variable in the U.S. agricultural equation.
11. Human efforts to produce food will increase.
12. Urban dwellers will use roof space and window boxes as garden space.
13. Shift to electricity from oil and natural gas.
14. Self-sufficient farms more common than today.

Such predictions are food for thought as we ponder the advisability of keeping a viable local agriculture for New Mexico. How valid are such predictions? How much example do we need to become believers that what happened to the Romans, to our oil supply, and to Latin America's food supply, can also happen here? For us, how we answer that question, is intimately tied to a commitment to preserve water for agriculture, rather than "flaring it" so to speak as we did in profiteering from our oil-consumption orgy.

In closing, the future of water for agriculture depends on a number of factors:

1. Extent of need for energy development.
2. Population changes and water demands.
3. A land-use plan to preserve irrigated lands.
4. Energy costs and competitive position of New Mexico vis a vis other producing regions.
5. Importation (not at all likely).
6. Water conservation -- across the board.
7. Legal and market conditions.
8. Utilization of saline and brackish waters.
9. Plant modification (less water, salt-tolerant, etc.).

To prescribe what water should be kept for agriculture requires that we predict what New Mexico will be like in the year 2000 and beyond. The trends are somewhat clear, but compounded by major national and international factors. We must resolve whether we believe a viable agriculture necessary in that distant future.

The distant future cannot be isolated from that future immediately ahead. Our capacity to deal with the water challenges of the next century will be determined in large part by the wisdom of our choices in the next two decades.

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