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**A RESPONSE TO KANSAS V. COLORADO**  
**Sustainable Use of the Arkansas River**

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Sustainable Use of the West's Water  
Natural Resources Law Center  
University of Colorado School of Law  
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A RESPONSE TO KANSAS V. COLORADO:  
Sustainable Use of the Arkansas River

I.           Introduction

On May 15, 1995 the Supreme Court handed down its opinion in the case of Kansas v. Colorado (1995 WL 283477 (U.S.)) At issue was how the Arkansas River Compact (C.R.S. §37-69-101; or Kan. Stat. Ann. §82a-520; or 63 Stat. 145, 1949) would be applied between the two states. At one level the case is a straightforward, although bitterly contested, dispute between the two states over the allocation of the right to use the water of the Arkansas River. There are not any endangered species or habitat issues being fought over yet, no anadromous fish, no tribal water claims, no federal reserved rights, nor any wild and scenic or wilderness claims. Nor are there any great cultural, ethnic, racial or even economic classes at war. It is just a case of one irrigation community versus another, thrown into opposing factions by the historical accident of an arbitrary geopolitical boundary.

The water resource itself is renewable. At issue is the right to the use of the surface water flow and the hydrologically connected alluvial ground water of the Arkansas River. Water is not being "mined" and its quality (while high in total dissolved solids near the state line) is not being further degraded to the point of unusability. The water originates again each year as precipitation, largely in the form of snowfall in the Colorado Rockies.

Thus, the sustainability of the water in the Arkansas is not at issue, nor for that matter the sustainability of the use of certain amounts of it. At first blush, it would seem that the Arkansas problems is not much of an issue at all outside the community of Arkansas water users, for whom it is obviously acute and critical. But what may be at issue is the sustainability of the agricultural community. The social and economic structure of the Arkansas Valley inhabitants, for them their very way of life, is up for grabs. And precisely because of the stark and simple nature of the conflict, it may provide an important laboratory.

In simplest terms, there is a water budget allocated (in an indirect way) between the two states' water users by the interstate compact. The total of the desired uses in the two states is greater than the whole. Use by means of ground water pumping has been "off-budget" until now. The fundamental effect of the Supreme Court case appears to be to put the ground water uses into the budget. Obviously, there will have to be some reduction of irrigation. That dry-up could be the difference for the sustainability of some communities in the basin who are dependent on the agricultural economy.

Most of the groundwork has been laid for integration of ground water uses into the water budget. At least on the books, Colorado law has required well regulation under the prior appropriation system for 25 years (Water Right Determination and Administration Act of 1969, C.R.S. §37-92-101, et seq. (1969 Act)). Plans for augmentation to allow pumping from otherwise junior wells is now a mature concept. The free market transfer of water rights in Colorado is traditional. The Arkansas itself is testament to that, with its infamous dry-ups of irrigated fields and small towns, resulting from municipal water transfers in Crowley and Otero counties. But the sheer scale and intensity of the challenge may stimulate some adaption or experimentation in the sustainability of the agricultural community worthy of discussion.

## II. Kansas v. Colorado in the Supreme Court

In 1985, after several years of wrangling in the Arkansas River Compact Administration, Kansas sued Colorado under the original jurisdiction of the United States Supreme Court. (State of Kansas v. State of Colorado and United States of America, In the Supreme Court of the United States, No. 105, original.) Initially focusing on perceived operational violation of the Trinidad Dam on the Purgatoire River, Kansas broadened the attack to also include the winter water storage program at Pueblo Reservoir and the widespread well pumping from the Arkansas River alluvial aquifer. The case was bifurcated into two phases, the first on whether there was liability for compact violations at all,

and the second on quantification and remedies. Starting in September of 1990, the Special Master appointed by the Supreme Court, Arthur L. Littleworth, took evidence and briefs on the liability phase throughout the next four years. In 1994 he issued his report, in effect rejecting any claim on the Purgatoire River and exonerating the operation of the winter water storage program at Pueblo Reservoir. But his report took direct aim at well pumping in Colorado. He found that well pumping that had come into operation after the Compact had caused material depletions to the usable flow of the river and he was highly critical of Colorado's efforts to regulate its users' ground water pumping.

The Supreme Court overruled all of the exceptions taken by the states and effectively ratified his report. Colorado had challenged the Master's rejection of its argument that liability for some of the well pumping should be barred by laches; it challenged his determination of the amount of pre-compact pumping as being too low; and it challenged his rejection of the 1980 operating plan for John Martin Reservoir as an offset to well depletions. Kansas challenged the way "usable" flow at the state line was determined. There was also argument about the proper burden of proof. The opinion from the Supreme Court clearly rejected all the exceptions, quoting extensively from the Master. Significantly, the fundamental ruling of the Master that ground water pumping in Colorado has caused a material depletion to usable flow was not directly challenged, and it is clear that it must now be regulated. Only the amounts and the remedy remain to be determined in the second phase.

### III. Ground Water Regulation in Colorado

Colorado has led the way among western states in integrating the legal administration of surface water and hydraulically connected ground water, although the implementation of that administration has been mixed. While replacement of depletions caused by new ground water uses is consistently required wherever senior surface water users would be affected, the retroactive

imposition of the augmentation requirement upon historically existing wells has been hit and miss.

In 1969, following the lead of the Colorado Supreme Court in Fellhauer v. People, 447 P.2d 986 (1968), the legislature adopted the 1969 Act requiring administration of wells to protect senior rights and creating a mechanism known as the plan for augmentation. It also explicitly authorized the State Engineer to promulgate rules and regulations to provide a uniform basis for this protection and to assure that the degree of well registration was sufficient but not more than necessary to place senior rights in the position they would have been in without well pumping.

In 1970 the State Engineer promulgated rules and regulations for the South Platte and the Arkansas, but these were immediately set aside by the South Platte water judge. The Supreme Court reversed and made it clear that there had to be well regulation and there had to be change. Kuiper v. Well Owners Association, 490 P.2d 268 (1971).

In 1973, the State Engineer again issued rules and regulations on both basins. Again, they were attacked on the South Platte, this time producing a more constructive result. By stipulation among the parties, rules and regulations were put into place requiring augmentation of all depletions by junior wells to the extent senior ditches were deprived of water they otherwise would have been able to divert. While the actual requirements for augmentation plans have been rather liberal, full-time augmentation is the practice on the South Platte. To be sure, life there is easier than on the Arkansas. Augmentation plans have taken advantage of the periodically available unappropriated flows to develop recharge facilities to help balance the equation, a luxury no longer remaining on the Arkansas since well before the time of the compact.

On the Arkansas, curiously, there was no protest to the 1973 rules and regulations and they remain standing in a form that today appears somewhat primitive. They allow pumping by wells in existence prior to 1972 for three days



a week without augmentation. Only pumping more than 3/7ths of the time requires augmentation. Plans for replacement of depletion were allowed and encouraged but only for the remaining 4/7ths of the impact. The apparent reason for the lack of protest at that time, observed by the Special Master as well as by others, is that when one got down to it, the wells and the ditches were very largely the same parties. Most farmers had both ditch water and well water. At the extremes were a couple of ditches with few or no wells, and some wells not under any ditch and not connected with any surface right. But with the generally non-aggressive nature of the 3/7ths rule, those parties weighted toward the wells did not have enough incentive to fight. And those ditches with little ground water did not want to go it alone to try to tighten down the regulations.

The idea at the outset was to phase-in well regulation and augmentation. Three days out of seven was to have been a foot in the door. Later amendments would ratchet down the free pumping to ultimately 7/7ths augmentation. But when the State Engineer started the amendment process on the Arkansas in 1974, there was a howl of protest by the wells, represented principally by the well associations (even though most of the individual owners were also ditch right owners). The wells were successful in pointing out that there had not been incremental research and evidence based on the operation of the 1973 rules and regulations showing that more regulation than the 4/7ths was needed. The data offered in support of the ratcheting down was the same that was available prior to 1973. No incremental evidence, no incremental regulation. The Supreme Court upheld the rejection of the 1974 rules and regulations, Kuiper v. Atchison, Topeka and Santa Fe Ry. Co., 581 P.2d 293 (1978).

Thus, the 1973 rules still stand. Wells in existence prior to 1972 may pump three days out of seven without curtailment. Post-1972 wells are supposed to be curtailed seven days out of seven unless there is an approved replacement plan. Wells that can, may operate in priority as an alternate point of diversion for surface rights to which they are connected, or wells can operate pursuant to an approved plan of replacement.

Concurrently with the promulgation of the 1973 rules and regulations, the State Engineer was actively involved in encouraging the formation of well user groups and encouraging plans for augmentation. In the lower Arkansas he was directly involved in procuring state and federal money for the construction of large wells under the Buffalo Canal near the state line. Referred to as the Buffalo Demonstration Project, those wells pumped into the Buffalo, Colorado's downstream-most calling water right, and gave upstream ditches some relief from well depletions by reducing the call. During this same period, the State Engineer was freely granting new well permits to applicants in the reach downstream from John Martin Reservoir to the Kansas state line. Some 50 to 60 additional wells were permitted in this area, even though new well permits were closed-off elsewhere in the Arkansas.

It was this practice on the Buffalo and on post-1972 well permits that particularly drew the criticism of the Special Master. That and the fact that there was not any real measurement of pumping in Colorado. He observed with irony that Colorado measures with great detail, and reports over the satellite network in 15-minute intervals, the diversions by ditches, yet did not at the time of the trial require well pumping measurements. He seemed to believe that Colorado acted at least with disregard for Kansas' interests.

It is now clear from the state of the case, that there will be great change in the regulation of well pumping on the Arkansas in Colorado. The Buffalo Demonstration Project is now dismantled, and the well user groups are scurrying to come up with options for new operating plans. Meetings are being held among all interest groups to try to come up with proposals for change, and the State Engineer is indicating that in the next year or so there will be new rules and regulations certainly addressing depletions to the usable flow at the state line. It is now also likely that any such change to address the state line issue will also precipitate further regulation to address depletions to flows otherwise divertable by senior surface rights in Colorado.

In 1994, the State Engineer promulgated rules and regulations over some mild protest, requiring all wells either to be metered or to be pump tested and a power factor determined by engineering to allow an accurate pumping of wells based on power consumption records. These rules have now produced the early returns on the first good ground water pumping measurements on the Arkansas. It looks like the wells are at last being brought into the water budget.

IV. Water User Responses

The natural response of the water users caught in this transition has begun to pass beyond denial and grief and into the early stages of acceptance and action. The two long-standing well organizations, the Colorado Water Protective and Development Association (CWPDA) and the Lower Arkansas Water Management Association (LAWMA) have continued their augmentation service. A new organization, Arkansas Groundwater Users Association (AGUA) splintered off from CWPDA and is also serving well members. The organizations have been performing feasibility studies with the help of money from the Colorado Water Conservation Board, looking for water rights and mechanisms to provide much greater replacement of well depletions. In addition, the organizations have functioned to provide the well measurement and testing required by the State Engineer's new regulations.

LAWMA with support from CWPDA initially suggested that there be a "valley-wide" augmentation program put into place, lumping the responsibility of all wells and providing full replacement for usable flow at the state line and for depletions to Colorado ditches. While the later may not be immediately required, the associations suggested it might be best to determine at the outset the full extent of the obligation, and to move directly to 7/7ths replacement. The program would involve state financing to be repaid by well users, would integrate as much transmountain return flow as possible (even if only on an interim basis while not needed by the owners), and would involve the acquisition

and dry-up of significant amounts of senior ditch water rights. While the concept seems to be evolving significantly away from a single valley-wide plan, its central elements seem to be continuing in the more recent proposals.

The most dramatic new development is the emergence of a proposal that the Southeastern Colorado Water Conservancy District (SECWCD) organize an enterprise fund or other suborganization to provide augmentation service within the District's boundaries, which are principally above John Martin Reservoir. This concept has been endorsed by CWPDA and the Arkansas Valley Ditch Association (AVDA), the principal surface water group, although not, as of this writing, by AGUA. It offers significant organizational advantages, including particularly the direct control of Frying Pan-Arkansas Project water and return flow which will need to be integrated into any plan for the above-John Martin Reservoir segment. (The author wishes to modestly remind readers that this approach was previously advocated in a seminal article in 1972, Harrison and Sandstrom, 43 Univ. of Colo. Law Rev. 1, 1971. Evidently, the idea didn't make much of an impression at the time.)

The most important next step is that of acquiring additional water rights. The organizations are pursuing available options. LAWMA recently announced the signing of an option to acquire the XY Ranch water rights near the Kansas state line, which would provide a significant portion of its needs for full augmentation.

#### V. Dealing with the Full Range of Concerns; Third Party Effects

The problem of well regulation and augmentation does not occur in a complete vacuum. For several years there has been an interest in developing wildlife and recreation resources in southwest Colorado, particularly in the Arkansas Valley. Proposals have emerged for a permanent pool in John Martin Reservoir and the redevelopment of the Great Plains Reservoirs for recreation and wildlife areas. Both ideas would require substantial amounts of water and would have to be factored into the water budget.

In addition, the State of Colorado is facing a probable serious judgment in the Kansas case, possibly requiring the payback of some past damages. It is unknown whether such payback would be in the form of money or water. Some discussion within Colorado has assumed that it would probably be water. This would also impose a strong demand on the water budget, although this would be temporary for a fixed number of years, and not a permanent charge against the budget. In effect, there are three concurrent demands on the water budget: future augmentation, payback and wildlife/recreation.

At the same time, the question of sustaining irrigated agriculture in the Arkansas Valley has taken on a highly visible position in public policy debate. Impacts in the Rocky Ford and Ordway communities have sensitized people both inside and outside the Arkansas Valley to the socioeconomic effects of the dry-up of irrigation. Municipal transfers from the Twin Lakes-Colorado Canal system and the Rocky Ford Ditch have left people nervous about future dry-up. When a proposed sale of water from the Fort Lyon Canal emerged a couple of years ago there was great alarm. The county commissioners and other public representatives have been meeting since that time to consider policy options. A commission was formed known as the Lower Arkansas River Commission (LARC) to look at ways to develop wildlife and recreation resources and at the same time protect irrigation resources.

With the emergence of the Kansas case issues, another group was convened by the Governor to consider all these issues together. The Arkansas River Coordinating Committee (ARCC) co-chaired by the State Engineer and the Director of the Water Conservation Board brings together county commissioners, municipal representatives, surface and ground water users, and wildlife and recreation interests. ARCC has been meeting regularly since last fall and has formed subcommittees on augmentation, water acquisition and recreation. The hope is to produce consensus recommendations on new rules and regulations, which water rights to be acquired, how to finance the simultaneous demands for water and how to mitigate socioeconomic impacts.

One of the most significant early products of ARCC was the emergence of a proposal for state financing. Included in this year's construction fund bill for the Colorado Water Conservation Board passed in the legislature in May, is \$1.5 million available to loan to qualified entities for water rights acquisition for augmentation. One interesting condition attached to the financing is that ground water users agreeing to take the benefit of the financing are subject to curtailment if they fail to continue their share of payment. This curtailment would be enforced directly by the State Engineer. Thus, the legislation gives an important additional tool to the State Engineer, assuming most water users accept the carrot of state financing, in enforcing augmentation even without the amendment of the 3/7ths rules and regulations.

VI. Augmentation Requirements

While it is not practical to try to provide a quantification of ground water depletions and augmentation requirements pending the remedies phase of the Kansas case, there are a few points that should be touched upon. First, the ultimate amount of replacement cannot be predicted for certain, because the ultimate amount of well pumping cannot be predicted. It is likely that as the amount and cost of augmentation increases, the amount of well pumping will decrease. One can envision a market process similar to the following analogy. Well pumpers (most of whom are also ditch owners) write two numbers on a piece of paper: one the price they would be willing to pay per acre-foot for well water in order to cover augmentation; the other the price they would be willing to sell some of their ditch water per acre-foot of consumptive use credit. Both numbers are submitted to some central clearinghouse where the cheapest ditch water is bought to match willing augmentation buyers until there is a balance. At some point the cost of augmentation produces more irrigators selling ditch water than buying augmentation water and a balance is struck. The result is likely to be a significant reduction in well pumping.

It is apparent already that the replacement necessary is only that necessary to replace actual injury. At the state line this means the replacement of depletions to the flow that is usable by Kansas. The Special Master found that a portion of the water flowing to Kansas is in the form of flood flows, often resulting from summer thunderstorms, that are not usable by Kansas. Depletion to that portion of the flow not usable by Kansas does not require replacement. This is a significant discount on the state line obligation.

Replacement to compensate for depletions of flows otherwise divertible by Colorado ditches may also be qualified. Replacement is not to place ditches in a position better than they would have been absent well pumping. Just how much water must be replaced to avoid injury is not yet determined. Indeed, whether to move beyond the 4/7ths currently prescribed by regulation is not uniformly agreed to. Certainly the entire amount of consumptive use from well pumping does not need to be replaced, only that portion that actually depletes the stream. The effect of well pumping taking some water from ground water storage and phreatophyte evapotranspiration are also discount factors.

The question of timing of replacements is apt to be a big one. The usual standard that has evolved for augmentation plans dealing with new uses requires day-by-day accounting. Indeed, the Arkansas is usually so tight that there is almost always a call, and one which frequently shifts from one ditch to another. Replacement of a depletion at some other time than its actual occurrence is likely to miss the mark of compensating the affected water right. But the situation of the state line is a far cry from daily accounting. The tools available to either Kansas or Colorado do not allow for that level of precision. In fact, the Kansas Hydrologic and Institutional Model (H-1 Model) can only predict general trends in changes to state line flows. It cannot replicate actual flows, even on a year-by-year basis, let alone day-by-day. Moreover, neither Kansas nor Colorado ditches below John Martin Reservoir require day-by-day accounting because of the effect of the conservation storage in John Martin as administered and delivered under the 1980 Operating Plan. Each has a

separate storage account and can take the water when needed. In Kansas' case, it also has extensive ground water pumping capacity from its own unchecked well development. This well pumping is generally integrated with the ownership of surface ditch water rights, as in Colorado. Thus, as long as replacement is sufficient in overall quantity, Kansas can readily meet its demands by a combination of John Martin releases and aquifer pumping.

It seems clear that John Martin Reservoir will need to play a key role in the future integration of ground water and surface water. Indeed, John Martin occupies the key role in the compact itself. Rather than specifying volumetric delivery requirements, as is done in some other compacts, the Arkansas River Compact basically provides for a sharing of conservation storage in John Martin and a prohibition on future material depletions to usable flow. It is logical that replacement on Kansas' behalf would be made in part at John Martin. Whether Kansas will agree to this or whether the Special Master will be inclined to order it in any event remains to be seen. Certainly the sustainability of agriculture in both states will require some practicality in the remedies phase.

#### VIII. Some Recommendations with an Eye Toward Sustainability

The one inescapable conclusion is that a good deal of water is going to be acquired and converted from present uses. How it will be financed and paid for will be critical. And how the effects on the larger community will be dealt with will determine to a large degree the survival of individual agriculture communities.

A possible fit is between the future supplies of water, largely transmountain, held by the municipalities of Pueblo and Colorado Springs for future uses, and the temporary fixed-term need for "payback" water to Kansas. The State of Colorado may be able to satisfy much of any "payback" obligation from these sources.

Another proposal suggested by several people is to recognize a fit between that temporary need for "payback" purposes and the longer term but not



immediate need for water for wildlife and recreation. The State of Colorado would acquire perpetual water rights. In the payback period the water would be used for delivery to Kansas. Thereafter, it would be taken over by the Division of Wildlife or Parks and serve the ongoing habitat or recreation area function. The cost would be allocated to water-related appropriations in the interim years and game cash funds or Great Outdoors Colorado funds for the later years.

Recently another proposal has surfaced. The state would acquire permanent water rights to be used for "payback" to Kansas during the interim period and then later sold for use by well users for future augmentation, probably via some trust mechanism. This plan assumes that the temporary excess municipal water from transmountain sources would be used for augmentation by well users. As the availability of this water gradually diminishes as the municipalities take it back to supply their growth, the well users will take over the purchase obligation of permanent water held in the trust.

However these ideas for coordinating the several demands for the purchase of water are resolved, it appears certain that a significant amount of permanent acquisition and dry-up will be required. The following suggestion is offered for an orderly and optimal way of proceeding with that acquisition.

First, there must be an overall central and accessible data set on qualified, legally irrigated acres in the whole valley. The State should produce this from aerial photography and remote sensing images. It will in fact be an extension and update of the work produced in the Kansas case.

Second, a general tender offer would be put out for irrigation owners willing to sell a portion of their operation. Each seller would be entitled to sell any part of his irrigated acreage and associated water rights which he selects, not to exceed a certain percentage of each farming unit. For illustration perhaps not more than 25% of each farm could be offered (borrowed from the Palo Verde Irrigation District following program of the Metropolitan Water District on the lower Colorado River). This is designed to ensure that

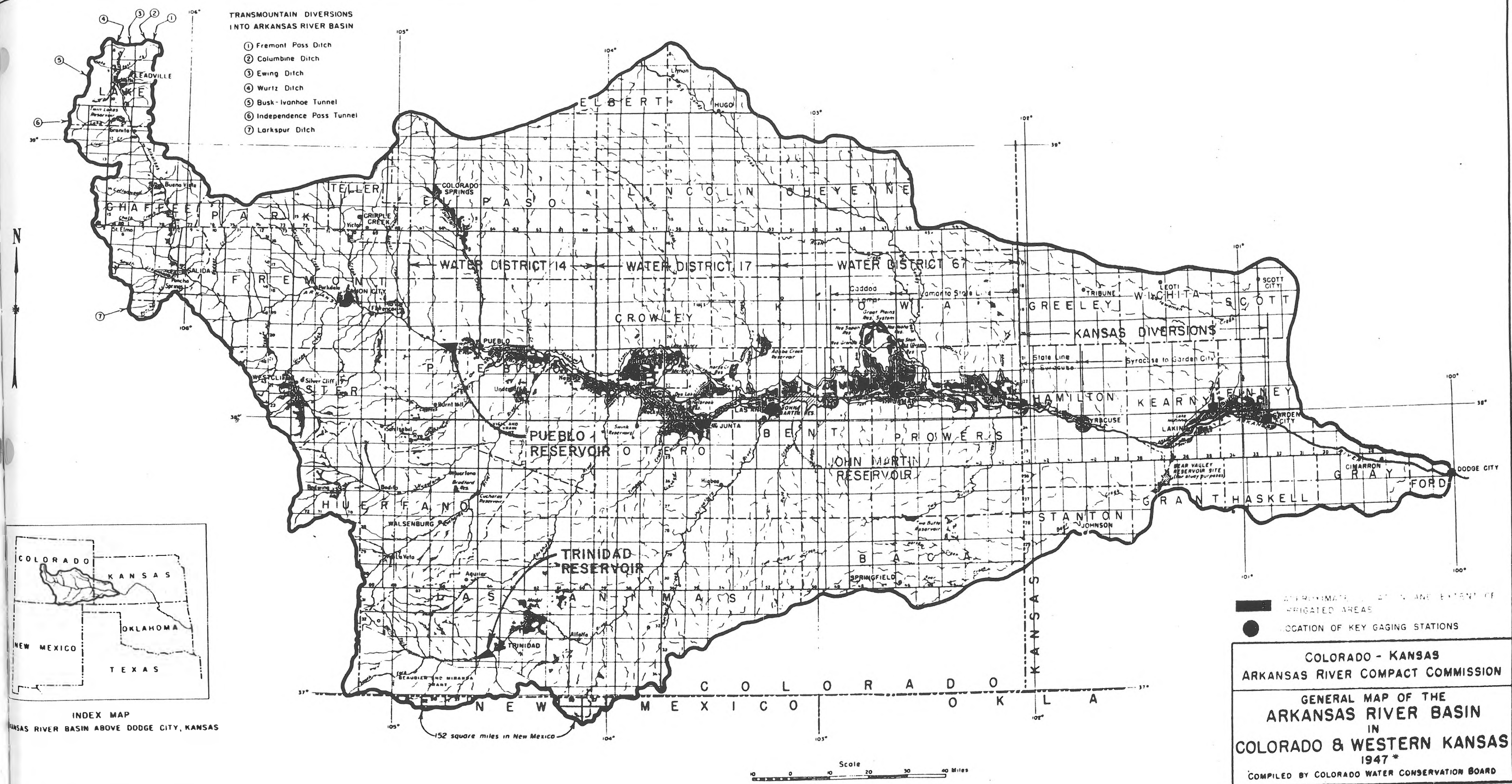
each farm continues in operation and that the dry-up is distributed more or less uniformly over the whole valley.

Probably a minimum acreage must be offered for sale. Small fragments less than 5 or 10 acres may not be practically verifiable as to historic use and future dry-up. All the acreage would have to be found within the central database. In such a collective sale of multiple, fragmentary interests, there could be no practical room for the usual dispute and argument on historical use credits that are associated with water transfers.

All the offers for sale would be taken in a bid process. After reviewing the bids against the central historic use database for compliance with the maximum and minimum standards, the lowest bids would be aggregated up to the total amount of water needed to be acquired.

The intent obviously is to both spread out the impact and to attract the least efficient fragments of irrigation on as many farms as possible throughout the valley. The farmers and cattlemen on the ARCC referred to these fragments as the "hooves and ears". The idea is to pursue efficiency by finding appropriate uses for all the least valuable, left over parts. It is submitted that this process would optimize the amount of water acquired against the least loss of agricultural productivity and the least acquisition cost.

By this means I believe that the water budget might be rebalanced with virtually no loss of overall agricultural economic impact. And by some such means, the people in the Arkansas Valley will have to pursue sustainability of their agricultural community.



U.S. Geological Survey state base maps - 1:500,000