Workshop Reports - Comparative Legal Systems

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WORKSHOP REPORTS

Comparative Legal Systems

JOHN U. CARLSON,* MODERATOR
THOMAS OLIVER,** MODERATOR
IAN BIRD, REPORTER
JOSEPH McMAHON, REPORTER

The workshop discussion centered on the traditional problems of limited resource allocation and the relative efficacy of legal systems in guiding such allocation. With aridity as the source of the problem in Colorado, the system of water allocation has its underpinning in traditional concepts of property rights. The applicability of such a system to countries where the ideas of individual property rights are not dominant may be questioned. Those who would champion the attributes of the doctrine of prior appropriation note its ability to adjust to the times and needs of the users, when coupled with a strong judiciary. Comment was made on the fact that forces arguing for stronger environmental control and limitation on growth may now find some comfort in the more conservative elements of the allocation of water by the priority system. Opposing such a view, is the idea that the Colorado doctrine, granting such import to the time of appropriation, has imbedded in it an element of waste: the first user not necessarily being the most efficient.

In countries where some form of permanent allocation of resources is possible, the same treatment of water may result in a system similar to prior appropriation for water distribution. The current conflicts in Colorado among water users were seen as adjustments to various elements of the market and reactions to governmental searching for reallocation of water.

Questions were raised as to the idea of a more rational system, one based on economic analysis rather than legal rights. One such concept is that of Natural Resource Units. Other ideas included some form of quasi-governmental organi-

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** Executive Director, United Nations Water Conference, at Mar del Plata, Argentina, Spring 1977.
izations or private "corporations" with powers to allocate resources by use or need.

In viewing Colorado water problems, comment was made that often the proper solutions have been hampered by the parochial nature of the representation in the advocacy system for resource allocation. The result is often treatment of the symptoms rather than the disease. Criticisms of the advocacy system include: (1) complete representation is often not possible; (2) settlements in these situations may compromise future uses, often of a public nature; and, (3) the arguments are often over factual rather than legal issues. Those in support of the Colorado position would cite the great advantages of the alienability of a water right in letting the market make the fundamental decisions with regard to use.

Concern was expressed as to the eventual results of such a market system. In Colorado, energy development for the needs of the nation may require taking water used for irrigation of crops. Indeed, some argue that Colorado is not suited for agricultural water use as better soils and situations are available elsewhere in the United States.

With regard to international applications, discussion focused on the Sahel region's use of international corporations to manage Senegal River water. Here relative independence of the authority and ability to be flexible in water use tends to mitigate nation state disputes and put water to its best use. It was felt that this type of solution was not too dissimilar from the interstate solutions attempted in the United States through regional basin authorities. The problem in both situations is seen as that of determining what the "constituency" desires and the best method of attaining such desires. In all systems of allocation, there is a threat that the influential or vocal minority may have inordinate influence on decisions.

Reference was made to the concerns of the United Nations World Habitat Conference regarding the global nature of water supply limitations. References by Mr. Oliver to water problems in every part of the globe indicate the vastness of the problem and the common nature of the scarcity of useable water supplies.

Citing some examples of water problems in Mexico City, Mr. Oliver noted the surprise with which some nations receive
news of American-Mexican agreements on water quality measures for the Colorado River. As an example of the severity of shortages in a developed area, the plight of Great Britain in the last summer was discussed.

In summary comments, members of the workshop were in agreement that water quality and supply is basic to a vast number of global problems. In the solutions to local problems of property rights, resource allocation, judicial as opposed to administrative systems, and physical solutions, parties must keep in mind the global nature of the problems. The potential exchange of ideas at the United Nations Water Conference of 1977 may provide some movement toward realizable solutions.

**Interstate Compacts and Basin Authorities**

Hamlet J. Berry III, * Moderator  
Margie Stroock, Reporter  
Debra Rogers, Reporter

The workshop identified and discussed three existing problems associated with water distribution under interstate compacts: first, the effect of use under compact allocation; second, the resolution of conflicts between established rights under state law and compact requirements; and third, the effect of water quality laws on compact allocations. The common denominator of these three problems is that all are a result of circumstances unforeseen at the time of the compact and are not directly addressed by the compact. These problems are either currently being resolved by litigation or will probably be the subject of litigation in the future. It was suggested that such unforeseen circumstances could be handled by a permanent administrative body, such as the Delaware River Commission. However, since the problems are a result of unknown elements at the time of the compact, such administrative body would of necessity operate without substantial guidelines. Whether such a body was preferable to the current method of resolution was left unanswered.

* Director of Water Resources Projects, Colorado Department of Natural Resources.
The discussion of the first problem—whether interstate compact allocations can be lost through lack of use—centered around the Colorado River Basin. While most agreed that the purpose of the Colorado River Compact was to abolish the prior appropriation principle, at least between states, several participants described circumstances under which use might become a determinative factor. A fear expressed initially was that if the compact does not hold up, then the guiding principle in interstate water decisions is based on existing uses. In response it was stated that interstate compact allocations are established under the doctrine of equitable apportionment, which may consider use. However, once the compact has determined allocations, amending or rescinding the compact through litigation is extremely difficult. This is particularly true in the Colorado River Basin where several federal projects and other plans have relied on the compact.

Another participant asked if use was not important in interpreting the compact. For instance, does use affect the question of whether or not the Gila River is included in the Colorado River Compact allocations? In 1968, the Central Arizona Project (CAP) was authorized in the federal Colorado River Projects Acts, which also provided for five projects in western Colorado. The authorizing statute contemplates that these projects will be governed by the terms of the interstate compact. However, CAP might begin to use water before the Colorado projects are completed. Furthermore, CAP might exceed Arizona’s allocation under the compact, if one assumes that the Gila River is included in that allocation. If Arizona needs the water, is using the water, and has developed an economy based on that use, will not these factors be an aid to Arizona when the time comes for a decision on whether or not the Gila actually is included in Arizona’s allocation? Similarly, will not lack of use put the upper basin states in a poor position to argue that the Gila River is not part of Arizona’s compact allocation?

The second principal topic of discussion focused on a problem currently under litigation, involving the Rio Grande Compact. The issue is whether the compact or state law controls when intrastate use must be curtailed in order to meet a state’s compact obligations. The 1938 Rio Grande Compact made allocations among Colorado, New Mexico, and Texas based on engineering studies conducted during the ten years prior to
1938. During that ten-year period the system was saturated to an extent that has not occurred since. Under the Compact, Colorado must deliver to the New Mexican border a certain amount of water, from the Conejos and the Rio Grande Rivers, based on tables developed during the high water years. The Compact contains separate tables for the Conejos and Rio Grande but the confluence of these two rivers is within the state of Colorado. Because there is not enough water in the system to protect all of the uses that existed at the time of the Compact and still meet Colorado’s delivery obligation, some Colorado uses must be curtailed. The rights along the Conejos and the Rio Grande have developed separately but the senior rights are on the Conejos and the junior rights are on the Rio Grande. Holders of the junior Colorado rights argue that the Compact is supreme over state law and as a result of the separate tables for the Conejos and the Rio Grande, Colorado must meet its obligation by a curtailment on each river system. Holders of the senior Colorado rights argue that, regardless of the Compact’s separate tables, the obligation to deliver is Colorado’s as a unit and the junior rights on the Rio Grande must be curtailed before any senior rights on the Conejos. Thus, does the Compact provide that Colorado owns some of the water in the Rio Grande and some of the water in the Conejos or merely that Colorado must deliver a certain amount to the New Mexican border regardless of its source?

The third area of discussion focused on the effect water quality legislation may have on compacts. Very few compacts say anything at all about water quality, or if they do it is in vague and general language. The question was raised whether a state could lose its right to use its allocation as a result of an obligation to deliver a certain quality as well as quantity of water.

The participants cited many examples where diversion increases salinity. If the federal quality standards are imposed on compact delivery obligations, those allocations which increase salinity may have to be curtailed. Discussion centered on the Colorado River Basin Compact, which makes no mention of water quality standards. Current upper river basin uses include substantial irrigation, among other uses which increase the salinity of the water delivered downstream. If salinity levels must be decreased in order for the Compact to conform with
the federal water quality statutes, such uses would either have to be curtailed or some other method of reducing salinity employed.

Seven of the western states have already met with the EPA and the Bureau of Reclamation to develop plans to line irrigation ditches with concrete, or implement other methods of reducing salinity. However, many methods of reducing salinity would require federal money, which in turn requires Congressional approval. As one participant pointed out, the western states are outnumbered in Congressional representation and unless they join together the likelihood of obtaining federal money to reduce salinity in any one state is slim. The possible alternative to projects which reduce salinity is that existing allocations be reduced in each state until water delivered at the border meets federal water standards. This would force curtailment of use below compact allocations.

Thus, this workshop illustrated that compact provisions are under considerable scrutiny and that uses under compacts are subject to substantial uncertainty. The conflicts discussed will have to be decided by applying compact provisions to situations that were not contemplated at the time of drafting. It was suggested that the Delaware Commission could serve as a model to be followed and that compact commissions could resolve interpretation conflicts on a regular basis. It is questionable whether the creation of such a commission is politically feasible in the western area. It is difficult to convince state legislatures to give their state's water control to a multistate commission with broad authority. The Delaware Basin does not have a water scarcity problem and thus conflict resolution is easier. The basins discussed herein are not as fortunate.

In conclusion, the workshop raised three basic problems which must concern holders of water rights subject to interstate compacts. The workshop left open the question of how the problems of compact interpretations based on use, conflict of laws, and water quality should or can be resolved.
Allocation and Conflicting Needs

DENNIS GALLAGHER,* MODERATOR
ANTHONY TRUMBLY, REPORTER
MARK MILLER, REPORTER

Chairperson Dennis Gallagher initially asked each person to participate in a “Water Game.” This Game consisted of listing five water-use categories (agricultural, domestic, industrial, energy, and recreation) and posing two questions: If, due to a water crisis in Colorado, you, as a Governor’s appointee, were forced to sacrifice one of these categories for one year, which one would you choose? In what priority of use would you rate the others? Recreation was chosen to be sacrificed by the majority of the workshop participants; domestic and agricultural uses were given the first and second priorities; while industrial use of water was rated lower than energy production by nearly all of those present. A post-discussion repeat of the Game was planned but was not held because of time constraints.

Senator Gallagher next posed several questions as a discussion guideline:
1. What is allocation?
2. What are some of the problems arising out of our current allocation process as set down 100 years ago in the State Constitution and our laws?
3. Should the current allocation process be changed to meet different demands for water?
4. If so, who should set up the allocation process? Who should pay if we change the process? Who should set allocation priorities? What should the new process be?
5. Can we set priorities on conflicting demands?

During the workshop, there was a great deal of overlap in the discussion of these issues. The following is a breakdown of the various issues as they were examined.

I. WHAT IS ALLOCATION?

Allocation was defined simply as a method for distributing the available water. Water allocation is a property right according to the Colorado Constitution: “The right to put water to beneficial use shall not be denied.” The Constitution estab-

* Colorado State Senator; Professor of Classics, Regis College.
lishes a list of use priorities: domestic first, agricultural second, and industrial third. Though this listing has served the state for a century, it now poses several problems. Foremost among these problems is the emergence of recreational water use as an entirely new category. In addition, energy production will in the near future become a highly important concern in Colorado. Overlap between energy production and industry may cause problems in the priority use system, such as whether energy production should be accorded the same priority as industry or defined as a separate category.

In the current process of allocation, higher priority uses have precedence over lower ones if a compensation requirement is met. One remedy is that courts are available to deal with the establishment of water rights and the process of eminent domain.

II. PROBLEMS OF CURRENT ALLOCATION PROCESS

The allocation process has failed to accommodate changing demands in the various priority areas and the growth of entirely new major consumptive fields. Differences of opinion as to the order of priorities were presented by the workshop participants.

A major problem of the current legal allocation arrangement is the "use it or lose it" legal presumption which exists in Colorado. This presumption dictates that allocated water rights which are not used may be lost to a competing water consumer. Rather than lose water rights, many individuals put water to nonbeneficial use year after year solely in order to maintain their claim to it. Waste of Colorado's limited water resources usually results.

III. CHANGING THE CURRENT ALLOCATION PROCESS

Growth in water demand and the changing needs of the State suggested to the workshop participants that the current allocation process should be overhauled. Although the water situation is not drastic at the present time, the immediate future will place demands on the process which it may not be able to handle adequately. Among these demands is a conflict between the needs of upcoming energy production activities and the more traditional needs, particularly those of industry. A visualized need for long-range planning of water use and
priority reassignments has been unsatisfied under the present system. Successful planning to avoid disputes and maximize the efficient use of Colorado's water was emphasized by several of the participants.

IV. NATURE OF THE CHANGED ALLOCATION PROCESS

Three areas of Colorado's allocation process were the subject of suggestions for change: the austerity program, the expanded leasing program, and the marketplace dependence program. All three emphasized greater flexibility in legal and distributional arrangements. As one participant pointed out, this discussion itself was a prime example of the difficulty of reaching a consensus on the water issue.

The proposed austerity program would ask water consumers to reduce nonessential and wasteful water use. Through economic incentives and some form of official management, attempts would be made to limit water usage to the most productive purposes. The first response to this proposal was an objection that it would engender massive bureaucracy and impersonal decisionmaking. In the alternative, the objecting speaker suggested increased reliance on the marketplace for allocative decisions. This dependence would be more efficient and reduce the growth of bureaucracy. However, the probability exists that monetary concerns would overpower efficient allocation. In addition, it is difficult to reach agreement among interest groups as to what constitutes a marketable surplus. Finally, the fact that an austerity program would be difficult to implement does not necessarily mean that it should not be attempted.

An expanded and more flexible program for short term redistribution of water rights was brought to the attention of the workshop. The concept received general approval with the stipulation that some method of guaranteeing the return of leased rights be implemented as part of the proposal.

V. CAN WE SET PRIORITIES ON CONFLICTING DEMANDS?

Redetermination of the use priority scale was seen as only a small part of a large policy-planning vacuum. Other issues such as growth, urban sprawl and the agriculture-domestic-industrial-energy production economic mix must be addressed prior to or concurrently with the water problem. Prerequisite
to any policy planning for the State is a growth in cooperation and trust between interest groups.

The complexity of the allocation question was demonstrated by the discussion of the priority to be accorded to energy production. Several participants felt that energy production should be given a heightened priority. Yet, allocating more water for this purpose would instigate demand growth in the other use categories in some of the driest areas of Colorado. In addition, water invested in coal and oil shale is generally exported and thus lost by the State.

The problem of long term compatibility between agricultural and other uses was addressed momentarily by the workshop participants. Agricultural needs were considered in the context of world food shortages. Two particular topics of interest were the desirability of continuing technological research and development and the misallocation of prime farming land to other uses, which forces agricultural use of marginal land and lowers productivity.

The widely varying viewpoints of the workshop participants contributed to the discussion and pointed out the need for policy planning and development in the areas of allocation and conflicting demands.

Water, Growth, and Planning

ROBERT C. McWHINNIE,* MODERATOR
PETER B. NAGEL, REPORTER

Water has historically been a key to growth; in the East, navigation hastened settlement, as did irrigation in the West. Water has at the same time traditionally been free, readily available to those first able to appropriate it. Unhampered by those market forces which allocate scarce resources, water has thus not functioned in the past to regulate, much less restrain, growth. Even so, the maxim, often repeated through the Conference, that “water flows to where the money is” perhaps implicitly recognizes that our society may not be allocating its

* President, URS Co.; former Director of Planning, Denver Water Board.
adequate supplies of water to its best advantage. Accordingly, while the participants in the Water, Growth, and Planning Workshop reached neither consensus nor conclusions, discussion largely focused on the relative desirability and effectiveness of planning mechanisms based on water and on other devices, such as zoning, as tools for controlling growth.

Several participants observed that utilities frequently promote development in order to create customers for projects long since planned and completed. Because those responsible for providing water generally initiate these projects on the basis of projected demands, cooperation with or regulation of water utilities may lend the planner a long-range means of channeling growth into desired patterns. Zoning, by way of contrast, is a short term mechanism, one that functions largely through ad hoc variances.

Water management may be incapable of limiting growth in quantitative terms. Because it is not yet a scarce resource, regulation of water can only transfer growth from one location or from one economic activity to another. In Boulder, Colorado, for example, a system of tap-on fees did indeed slow the growth of that community, but only because developers moved their operations to more competitive communities which had not yet imposed such a system. But to the extent that the success of efforts designed to control growth is measured not in terms of population increases or urban sprawl, but rather in terms of improving the quality of life, water management may prove to be effective. In this light, the residents of Boulder may have considered the results of their regulatory scheme highly satisfactory; that attitude, of course, may not be shared by the surrounding communities. Nonetheless, if it is true that water is currently allocated between various economic sectors according to their willingness to pay, so that industry profits at the expense of cities and cities at the expense of agriculture, then sensitive water planning may achieve a proper balance between industry, urban areas, agriculture, recreation, and environmental concerns.

Because water has been free and abundant, citizens may be more willing to accept limitations on its use. Limitations on the use of land, on the other hand, through zoning or other means are frequently resisted, since land is acquired only with greater effort and expense. This observation, however, serves
two sides of the argument. First, restrictions on water may in fact control growth with less social dissatisfaction. But secondly, such restrictions may not limit growth at all. The experience of a number of suburban communities demonstrates that people will either pay whatever is necessary for available water or do without when supplies are inadequate. Similarly, industries may pass on increased costs to the consumer or alter production processes. Water policies and projects stimulate public involvement, and we, as a citizenry that expects water, may be expected to clamor before elected officials until the tap, so to speak, is turned back on.

Much of the effectiveness of a planning program depends on the selection of those who are to administer it. General agreement exists that water engineers and consultants have no right to make planning decisions and that such decisions should ultimately be made by the people or their elected representatives. If, as a matter of practice and convenience, planning responsibilities must be conceded to governments, then controversy arises concerning the proper level of government. Local governments, fearing an encroachment on their autonomy, are understandably reluctant to relinquish any control over their water policies. Their position is justified by the fact that it is local citizens and governments which are most acutely affected by water projects. Yet localities tend to act in their own self-interest; their decision makers decide in favor of their constituencies, and broader goals may be neglected. From the premise that water management can only distribute growth, it follows that conflicts are best avoided and broader goals best served through regional planning agencies. Ideally, such agencies should maintain a sensitivity to local needs and demands and yet avoid the dangers of creeping incrementalism, a hazard which arises when decision makers accommodate limited interests and adjust to momentary exigencies. In theory, at least, only such an agency can formulate a coherent planning scheme.

Clearly, any efforts designed to control growth must recognize the interrelationship between water management and land use planning. Too often in the past planners in these two areas have worked in isolation, if not in opposition. There was, however, a strong feeling expressed in the workshop that water considerations should be ancillary to land use planning. Regu-
lating growth through zoning, for example, generally proves more responsive to local interests. More importantly, zoning appears to address more directly what is perceived as the principal factor responsible for growth—unrestrained use of land. Legislative regulation of land use, integrating water policies, promises the best means of achieving planned growth.

**Water and the Environment**

**John Ragsdale, Moderator***
**Gilbert D. Porter, Reporter**
**Wendy Sneff, Reporter**

The discussion of this workshop reflected the diverse and intangible nature of the problems presented when formulating an economically and ecologically balanced evaluation of competing water demands.

A concern was initially expressed about the feasibility of divesting appropriated water rights in favor of alternative uses and needs. However, it was generally conceded that this problem was not significant, except to the extent that the method employed weighted the costs and benefits of the various proposals. For instance, if water rights could be obtained through condemnation proceedings, the cost of obtaining these rights might nonetheless be prohibitive.

The primary barrier in the path of sound, environmentally-aware water management was recognized to be the ascertainment of an accurate valuation to be ascribed to the contending interests. In an effort to establish a practicable scale, the workshop participants engaged in listing various criteria considered relevant to any such decisions.

The workshop agreed that effective water management is an indispensable first step in resolving conflicting demands. Rather than attempt to save and appropriate an unnecessarily limited water supply, the orientation must be to prevent the waste of these resources. The tasks of allocation and determining environmental priorities should be performed after the po-

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* Editor, Eco-Logos, Denver.
tential of available resources is maximized. In this context, it was noted that Colorado has delivered more water than required under the Colorado-Nebraska compact due to effective management and efficient recycling of the waters.

Given this initial premise, the workshop attempted to establish priorities for uses. It was determined that the best gauge by which priorities could be measured was the extent to which such a use was essential to the life processes.

The drinking of water was listed as the most essential use. In particular, concern was directed to the presence of refractory organics in the drinking water supply. Thus, several speakers during the conference had alluded to the fact that in years to come we would be drinking our own reprocessed sewage.

Agriculture was agreed to be the second most essential use by virtue of the importance of food production in the United States. In this regard it was noted that in many areas in Colorado there is a lively conflict between agricultural and municipal users of limited water supplies.

However, even this fundamental approach did not simplify the problem. While the presence of refractory organics in drinking water bothered some participants, it did not concern others to the same extent. Several important questions remained unanswered. What quantity of refractory organics renders water undrinkable? To what degree is taste an element of potability?

Similarly, agricultural uses are subject to numerous variables. Should a farmer be limited to growing certain crops which require less irrigation in deference to other water needs? If so, then which lands would be used to grow which type of crops? How would such a rationing system affect the crop market and, more importantly, the crucial world food supply?

In conclusion, the workshop noted the impracticability of accurately balancing environmental concerns with existing needs under present formulas. The prior appropriation system of allocating water is inadequate in that it fails to account for the environmental and practical need to save water. The system is premised on an assumption of excess water, and thus is not suited to the present shortage. A democratic appropriation by majority vote is dubious as to its viability since such a system would probably conflict with the necessary manage-
ment of the waters. Additionally, it is unclear whether majority vote is an accurate measure of public needs and interests.

Professor Freeman’s proposed method of evaluating these many concerns was discussed briefly without the benefit of his paper. While the method presented was of benefit in its approach, uncertainty was expressed whether the mode of analysis resolved the ambiguity present in evaluating the relative merits of alternative uses. Rather, the ambiguity, although lessened, was shifted to determination of the intensity of certain losses. Nonetheless, the approach adopted by Professor Freeman did appear to discover and clarify the relation of different concerns in the decisionmaking process.

In summary, the workshop dealt with and analyzed the inherent problems present whenever existing water needs are in competition with the relatively intangible environmental concerns posed by our daily water uses. The intangible nature, and therefore uncertain valuation, of environmental concerns and needs pose the greatest obstacle in the path of environmentally-aware water management.

Water and Technology

DAVID W. HENDRICKS, * MODERATOR
GERALD FISHER, REPORTER
DOUGLAS TRIGGS, REPORTER

Professor Hendricks opened the workshop by presenting three classifications of water technology applications:

1. supply-oriented technology: for example, that relevant to the Narrows and Two Forks dam projects;
2. treatment-oriented technology: including sewage plants and water distribution systems; and,
3. conservation-oriented technology: for example, ditch lining and water conservation plumbing.

These classifications must not be viewed as all-inclusive but should be noted as part of a broad framework of technology that bears an impact on water. A number of alternative energy systems, such as fossil fuel and nuclear or solar energy, have radically different impacts on water use. The phrase “water
and technology” includes both the traditional technology of water movement and the multiple technologies of water use and reuse.

A central theme of the discussion was the interface between law and the technological underpinnings of water problems. Groundwater exhaustion through extensive well activity was the first example mentioned. An experienced groundwater expert discussed some of the engineering complexities and alternative approaches to managing the problems. For example, extensive pumping from the South Platte aquifer diverts water that would otherwise be available to surface water users. The legal priorities of surface water allocation holders creates obvious difficulties for the groundwater users.

The societal decision process that results in laws impacting on water has not only technological inputs but also social underpinnings. These social factors include ecological disruptions, esthetic disharmony, and recreational opportunities. The participants in the workshop stressed that good water planning requires the factoring of social variables in engineering equations. Specific reference was made to the impact of environmental factors on decisions regarding the use of high altitude reservoirs in Colorado and on the diversion of water from Colorado’s Western Slope. In addition, there was considerable discussion about the impact of water on growth policies and the converse—the impact of growth trends on water policies and technology.

The technological availability of alternative uses of water and the policy decisions that must precede certain water uses were discussed extensively. Right now, for example, the technology exists for low-volume toilets that would conserve water, yet effective use of this technology will require alteration in both social and legal norms. Likewise, strong public commitments to present energy forms, such as nuclear reactors which make heavy demands on water resources, and to relatively low water rates preclude the application of presently-available technology and conservation methods for more efficient water use. Mention was made of the Northglenn, Colorado, project, which is a cooperative water use project between municipal and agricultural users. By allocating water of varying quality to its most appropriate use, the Northglenn region is seeking to maximize its water resource potential while avoiding poten-
tial priority conflicts and the application of costly and redundant technologies. This is an outstanding example of what has been termed "agripolitan" cooperation. This same agripolitan cooperation is used in Arizona, where a different legal framework makes such cooperative endeavors easier to accomplish.

In sum, the effective application of technology to water problems is interrelated with a host of factors—economic, social, political, and legal. The basic long-range policy choice is whether future research and development should be concentrated on the supply side of the water equation, thereby providing more effective delivery systems, or whether emphasis should be placed on the demand side, resulting in more efficient use of the water that can be delivered. No doubt the ultimate solution will necessarily incorporate elements of both.