



Winter 1961

The Rural-Urban Transfer of Water in California

Stephen C. Smith

Recommended Citation

Stephen C. Smith, *The Rural-Urban Transfer of Water in California*, 1 NAT. RES. J. 64 (1961).
Available at: <https://digitalrepository.unm.edu/nrj/vol1/iss1/4>

This Article is brought to you for free and open access by the Law Journals at UNM Digital Repository. It has been accepted for inclusion in Natural Resources Journal by an authorized editor of UNM Digital Repository. For more information, please contact disc@unm.edu.

THE RURAL-URBAN TRANSFER OF WATER IN CALIFORNIA†

STEPHEN C. SMITH*

The institutions used to bring water under control and to put it to beneficial use have been condemned for standing in the way of economic change. One reason for this contention is that the institutional structure inhibits the transfer of water from uses with a low productivity to uses with a higher productivity. The purpose of this paper is to examine a portion of this transfer process: namely, the transfer from rural to urban uses. The "institutional machinery" as it functions in this particular transfer process will be given special attention. Thus the focus will be upon water rights and water development organizations as they operate in situations where water use is changing from rural to urban use—in situations generally conducive to economic growth.

The "institutional machinery" will be delineated in Part I. As a point of view, this machinery is not considered as fixed. It is subject to change and has changed since California's earliest days. On the other hand, changes are generally not made capriciously. They evolve and grow as the result of a continual state of conflict which surrounds their creation.

The operating characteristics of water rights will be examined directly in Part II. This system of rights is viewed with a questioning frame of mind. However, the question is not how the system may be sweepingly reorganized. Rather, the approach is incrementalist—how does the system really work and how may it be improved? Improvement may mean both abandonment in part or additions to other parts.

The role of organizations in this transfer process will be increasingly important in the future. Consequently, the organizations of water development and management will be dealt with in Part III. These organizations are mainly governments—public districts, municipalities, state and federal. In saying this, the activities of private electric utilities, private water companies, and mutual water companies are not being ignored. But in dealing with questions of organizing water supply, public efforts are dominant.

I. INSTITUTIONS OF WATER TRANSFER

Part of the "institutional machinery" pertinent to the transfer process is California's system of water rights, public districts, municipalities, state govern-

† Giannini Foundation Paper No. 203. Ideas presented in this paper were developed earlier for the American Farm Economics Association, August 7-9, 1960 and the Irrigation Districts Association of California, December 7-9, 1960.

* Department of Agricultural Economics, University of California, Berkeley. Appreciation is acknowledged for comments to earlier drafts by Wells A. Hutchins, M. F. Brewer, and S. V. Ciriacy-Wantrup. Also, discussions with Leland K. Hill, Leslie C. Jopson and L. C. Spencer of the California Water Rights Board have been helpful.

ment and the federal government. A large literature exists which details many facets of each of these;¹ consequently, only selected points will be noted for purposes of clarity.

An initial point is that water rights are real property, and appropriative rights are transferable either with or without the land. The concept of a water right has an important economic content. For over one hundred years the draftsmen of western statutes and the courts have been struggling to define rights to water to be consonant with our economic precepts. California's appropriative rights to surface water are "diversionary" rights developed within our property system. The courts have "uniformly . . . [held] . . . that the appropriative water right is real property."² The water tenure system they prescribe is usufructuary in character. The body of the water in the stream is not subject to private ownership, but "is the property of the people of the State."³ After diversion and capture, the water may become private, real or personal property under California law, depending on whether contact of the water with land is maintained or is severed.⁴

The appropriative right may be conveyed; its appurtenance to land may be separated. This conveyance must be in writing, as that of other real property.⁵ The old fundamental rule for distinguishing between appropriators is to rank them with a time priority—"first in time, first in right." Under this rule, in general, preferences as to use play their important role on only a limited number of cases having equal status in time. However, important exceptions to this rule are made by statute. For example, the Water Code states that the application for a permit by a municipality for domestic purposes "shall be considered first in right, irrespective of whether it is first in time."⁶

Riparian rights are also of economic importance and interest in California. The stream-land relationship is familiar, as is the general inability to separate the right from immediately riparian land. Consequently, a land transfer is needed to accomplish the conveyance of the riparian right. These rights in their classical form were not subject to precise definition; however, the pressure of increased water use has circumscribed these rights in application, thus giving greater definition. Appropriators, would-be preemptors, and other riparians keep a careful

1. The following illustrate some of this literature: Hutchins, *The California Law of Water Rights* (1956) and many other writings; Brewer, *Water Pricing and Allocation with Particular Reference to California Irrigation Districts*, in *University of California Mimeo Report 235* (1960); Ciriacy-Wantrup, *Concepts Used as Economic Criteria for a System of Water Rights*, 22 *Land Economics* 4 (1956); Smith, *Problems in the Use of the Public District for Ground Water Management*, 32 *Land Economics* 3 (1956); Smith, *The Role of the Public District in the Integrated Management of Ground and Surface Water*, 5 *Cal. Comm. on Economics of Water Resources Development* at 81-91 (1956).

2. Hutchins, *op. cit.* supra note 1, at 121.

3. *Cal. Water Code* § 102.

4. Hutchins, *op. cit.* supra note 1, at 38-40.

5. *Id.* at 126-30.

6. *Cal. Water Code* § 1460.

watch on each other; and these rights are stated in quantitative terms following an adjudication.

The correlative rights doctrine is relevant to ground water and has an analogy to the riparian system. Overlying landowners have coequal rights to pump and to use the water on the land. These rights are not quantitatively defined, except by adjudication. Pumpers of water for use on nonoverlying land, and municipal or other pumpers for public use either within or outside the ground water area, are technically appropriators. If their pumping interferes with the ability of overlying landowners or prior appropriators to produce water a court may award damages or issue an injunction limiting the defendant's pumping rights to specific volumes of water and, in some instances, both remedies may be available.⁷

The last general water rights concept to be noted at this point is that of beneficial use. In this connection the Water Code states that "water of the state, both surface and underground, should be developed for the greatest public benefit"⁸ and that they be "put to beneficial use to the fullest extent of which they are capable . . . in the interest of the people and for the public welfare . . ."⁹

Water rights may be held by individuals or groups legally capable of owning property. Individuals and mutual and private companies have been important owners, particularly in early development, but the large diversions in terms of acre-feet have been accomplished by municipalities, public districts and the federal government. For the future, particular attention needs to be given to these organizations—both their internal structure and their external relationships. These agencies will have rights to large volumes of water. Of course, these rights will be for specified major uses. But to a greater degree than at present, the decision of which major uses to satisfy over time will be an organizational decision.

For this reason, the structure for making these decisions will be of paramount importance. Through this structure the various interests in water use will find representation. When questions of changing the structure are at issue, the conflicts will center over the form of structure to be approved. The formation of public districts or the authorization of a federal project are frequently such points.

State government has played a significant role in the past, but a projection of California's past trend does not shed light on all of the relevant areas of its operations during the coming decades. With the voters' approval of a one billion seven hundred and fifty million dollar bond issue in November, 1960, as a start in state financing of water facilities, the capacity of state government as a large-scale operating water development and management agency is yet to be tested.

7. Hutchins, *op. cit.* supra note 1, at 488-502 (includes a long discussion on correlative rights with adjudication and injunction).

8. Cal. Water Code § 105.

9. Cal. Water Code § 100.

As an operator of a water development system, the state will be the owner of important water rights. Major state filings date back to 1927. The state's applications must be made in connection with "a general or coordinated plan looking toward the development, utilization, or conservation of the water resources of the state . . . Applications filed pursuant to this part shall have priority, as of the date of filing, over any application made and filed subsequent thereto . . . [D]iligence shall not apply to applications filed under this part . . ." ¹⁰ According to current opinion such filings have precedence over Sec. 1460. These rights need not remain unused; they may be assigned or released for use in accordance with an over-all plan of development.

In short, the machinery of transfer is composed of water rights and the parties—especially organizations—which own them.

II. WATER RIGHTS IN THE RURAL-URBAN TRANSFER OF WATER USE

Appropriative water rights, their administration, and their status before the courts have been condemned as not conducive to the transfer of water from rural to urban uses. The argument singles out agriculture as having a favored legal position which blocks the more productive municipal uses. I should like to examine this contention.

The character of California's early economy was dominantly mining and agrarian. These interests readily observed that water was a key factor limiting economic development. In the turmoil and battles over water allocation, both the appropriative and the riparian doctrines were incorporated into California's law of surface water rights ¹¹ These battles were physical acts of violence and more enduringly legal and organizational struggles, with the establishment of policy as a result. Competition for water existed during the first fifty years of the state's development.

For the most part, the early water contests pitted miner against miner, miner against farmer, and farmer against farmer, with only occasional rural-urban competition. Major rural-urban competition for water did not arise until after the turn of the century. At the center of these controversies were issues of transferring water rights. The contest behind the Sierra is familiar. The voters of Los Angeles in their quest to establish a firm economic base voted in 1905 a one million five hundred thousand dollar bond issue to purchase water rights in the agricultural Owens Valley. Areas of origin still hold the embers of resentment from this flaming controversy. Even so, the rural-urban transfer was made at the source of physical supply. ¹²

10. Cal. Water Code § 10500.

11. Many fascinating stories focus on the development of western water. For example, the struggle for water played an important role in the life of Henry Miller (Miller and Lux). See Treadwell, *The Cattle King* (rev. ed. 1950). It was in *Lux v. Haggin* that the appropriative doctrine became imbedded in the California law of water rights.

12. The term rural refers to the general rural economy. Thus, merchants in a rural economy would be classed as a rural interest in a similar fashion to the farmer.

Cases such as these illustrate the basic nature of water rights as real property, with a legal definition which permits economic transfer. Direct water transfers—from rural to urban—are not common. Those that I have been able to track down are largely of a minor and incidental character.¹³ The fact that this type of direct transfer is not common implies there has been no strong economic pressure to consummate such transactions. The alternative of developing “new,” unappropriated water, available in most situations, has been chosen instead of attempting to buy water rights whose value has been capitalized into going concerns. Since the development cost of subsequently captured water has been higher, the pressure has been to create development and management organizations with larger financial resources.

Of course, the transfer, and also abandonment, of old mining water rights to more productive uses are more prevalent, but these are not of the nature which hold our prime attention. Both situations, however, make it clear that water rights can be and have been transferred from low to higher productive uses.

The transfer of water rights that has taken place in the supersession of one economic activity or organization by another is more important for the present discussion. As one organization became inefficient and outmoded, a more productive system purchased the old organization. The succession of water rights transfer was from individual diverter of surface flow, to ditch company, to large district. This chain of succession generally did not involve major rural-urban transfers, but the transfers were in the direction of increased productivity. In a very real sense, the early enterprises laid the foundation for later expansion—for the development of more expensive and more productive water.

The water rights purchase and exchange contract between the Miller and Lux interests and the Central Valley Project is not of the preceding type, but the transfer is of interest. The private interests were paid two million four hundred and fifty thousand dollars, plus a specified annual delivery of exchange water.¹⁴ This transaction was instrumental to the construction of the Central Valley Project which forestalled the use of certain potential dam sites by the City of Fresno.¹⁵ The main point in the present context is that the transfer did take place, thus enabling the water to be used more productively. The water was put to productive use in agriculture in the absence of immediate urban development. Frequently, urban growth has taken advantage of water developed by agriculture, as will be noted.

The rural-urban competition for water may affect water rights in another

13. Minor cases do exist. For example: State Water Rights Board Application No. 10011, Permit 5685, License 2581, Gaston and Urrutia, City of Portola; Application No. 8496, Graeagle Land and Water Company.

14. H.R. Doc. No. 246, 85th Cong., 1st Sess. (1957) at 577.

15. California State Water Rights Board, Decision No. D935, June 2, 1959, at 21: “Applications . . . of the City of Fresno as filed in 1930 and 1931, envisioned a 490,000 acre-foot capacity storage dam on the San Joaquin River in the approximate, if not the exact, location of the present Friant Dam. . . .” It should be pointed out that the City of Fresno did not utilize these dam sites following its 1930-31 applications.

way. In this case, no transfer of right takes place. The process is different. Suburbia gradually "floods" the agricultural plain and transforms the irrigation district into a municipal water supply agency.¹⁶ As far as water rights are concerned, the principal effect is to change the purpose of use. In terms of volume of water, little change may be evidenced, except that new standards of quality must prevail and the timing of demand is somewhat modified. Quite certainly the management problems are different, but they are not the main focus of this paper. If anything, "the average acre" of urban use, at present levels of prices and assessments, demands somewhat less volume of water than an acre devoted to agriculture.¹⁷ For purposes of planning, the term "water requirement" is used frequently in this context with misleading results. Such requirements usually are defined in physical terms under assumed conditions of usage. Among these assumptions are cost-price relationships and social pressure as to acceptable standards of efficiency which should prevail. As the scarcity of water increases, these relationships change, thus changing the so-called "requirement."

So long as the "new" urban demand is basically a replacement involving only a change in land use, the appropriative right generally would not inhibit the change. The shift, however, may call for an examination of the wording of the water right to amend the purpose of use. In fact, more than one purpose may be stated on the license.¹⁸ Since the rural-urban shift is from a highly consumptive use to a less consumptive use, problems have been rare, although in terms of administrative processing, they are handled in much the same way as a new application.

Urban expansion may require "new" water and thus create competition if non-irrigated land is developed for urban use and if the supersession of irrigated agriculture by urban land use pushes the agricultural demand to a different geographic location. In the first instance, the urban water supplier may seek to develop "new" water; while in the second, the location of competition has shifted. Also, the competitors themselves may have shifted. But in either case, the appropriative right per se is not an obstacle.

Mass rural-urban competition for surface water rights has not been pressing, in part because of the relationship of the ground water reservoir. Agriculture in many sections of the state has developed on this base. As the city expands into

16. See the proceedings of the Dec. 7-9, 1960, meeting of the Irrigation Districts Association of California, Los Angeles, for an excellent discussion of this transition as it took place in the Helix Irrigation District.

17. For example, in the Santa Ana River area south of Los Angeles, urban consumptive use ranges from 1.31 to 1.75 acre-feet in the valley and .14 to .72 in the hills while agriculture in the same area ranged from 1.85 to 2.77 and .89 to 1.61 acre-feet per acre per year. 15 Cal. Dept. of Water Resources 60 (Feb., 1959). Similar reports for other areas show comparable results.

18. For example, in the decision D935, *supra* note 15, at 108, the purpose of use was amended to read, "irrigation, domestic, municipal and recreational." Cal. State Water Rights Board, Rules, Regulations and Information in California, at 39, states that major uses may not be consumptive and non-consumptive in one application.

the irrigated areas, the farm wells are abandoned and municipal service is supplied by a large utility district or the city from surface sources. The ground water reservoir may be left to the remaining farmers or a program of integrated surface-ground water management may be initiated. Again the water rights have not stood in the way of the transfer.

A reversal of this situation exists in other localities where the regime of water management is different. Irrigating farmers have developed the surface sources as well as ground water, while the urban population depends upon municipal wells. Competition has centered upon the ground water reservoirs rather than focusing on surface water rights. As yet, the traditional solution has been to develop more distant water for importation. Quantitative restriction is not in accord with the correlative rights doctrine except by adjudication or injunction. Both have been used in only a limited way. Generally, the more productive uses have not been denied access to water by the law.

The fear of a transfer from rural to urban uses also is imbedded in the county and watershed of origin laws. Casting this within the frame of reference of a rural-urban conflict is, in part, a matter of timing. Smaller urban and agricultural communities hope that, by limiting the physical transfer of water from their region, the total growth within the state will continue unabated but will be directed to their locality because of the availability of water. The conflict is mainly over the expectations of future urban growth. Since uncertainty in these expectations exists, organizational procedures should be developed to take it into account.¹⁹

The conclusion, so far, is that California's appropriative water rights system has performed the economic function of defining a transferable property right. Because of water availability, it has not blocked the transfer of water from rural to urban use. Of course, if the public interest demands, municipalities have the power of eminent domain as the last resort.

But, what of the future? The big shift will center the competition on inter-agency and intra-agency conflict. To a degree, water rights will be involved, but the main focal point will be over the terms of organization.

Two items should be mentioned, however, in the emerging pattern of inter-agency conflict with a water rights component. The state can file and has filed for specified quantities of water, as can other corporate entities.²⁰ This practice was begun on a large scale in 1927 in anticipation of a Central Valley Project. But there is a great difference between these state filings and other filings—

19. The recent settlement of the East Bay Municipal Utility District with Calaveras and Amador Counties, counties of origin, is a case in point. The Utility District received a release from these counties' right to exercise a priority with respect to specified state filings. The Counties received \$2,000,000 each plus 27,000 acre-feet of water for Calaveras County and 20,000 acre-feet for Amador County. See Blanchard, *Municipal and Domestic Use in the Competition for Water Quantity*, Water Resources Center Conference, University of California, Davis, Jan. 11-13, 1960.

20. Cal. Water Code §§ 10500 through 10507.

the state is not held to the requirement of due diligence in perfecting its right. These rights are kept until someone wants to use them in accordance with the over-all plan.

At times the state takes the initiative in filing; at other times it may be done upon request and with consultation of local groups. When the rights are to be used, the state assigns the filing to the party in question. For example, part of the rights held by the United States Government have been assigned by the state and are being developed by the federal government. In other cases, the rights are released in favor of filings of others who propose a development at variance with the state application but which would nevertheless serve the general purpose of the state filing. With an assignment, priority runs from the date of state filing; with a release, priority runs from the date of the developer's application. The state merely agrees not to assert its earlier priority against it. Thus, the state can be in an important controlling position in water project development by the use of this power.

To date, one important rural-urban conflict has resulted from this process. The California Water Code says that applications of municipalities for domestic purposes shall be "first in right, irrespective of whether they are first in time."²¹ However, in 1959 the State Water Rights Board denied the 1930-31 application of the City of Fresno in favor of an assignment to the Bureau of Reclamation of a 1927 state filing.²² The basis for this action was the priority of the state filing.²³ This position was reinforced by a concept of public interest.²⁴ Thus, one concludes that the maintenance of the large, predominantly agricultural Central Valley Project which had priority of right, and in furtherance of which one hundred and forty-five million dollars had been expended for dams or conveyance works, was more in the public interest than granting a permit to the City of Fresno, which had spent or obligated nothing for works.²⁵ Yet, the city is not left without the ability to obtain water necessary for its future growth, as will be shown. This case has not run the gauntlet of courts, but its force

21. Cal. Water Code § 1460.

22. Cal. State Water Rights Board Decision No. D935, June 2, 1959.

23. Cal. Water Code § 10500, "Applications filed pursuant to this part shall have priority, as of the date of filing, over any applications made and filed subsequent thereto."

24. California State Water Rights Board, Decision No. D935, *op. cit.* supra note 22, at 56, "We are not constrained to resolve the issues before us on the narrow basis provided by a comparative construction of Section 1460, 10500, and 10505. The rule that conflicting applications shall be determined on the sole basis of statutory priority has been modified and in large part superseded by an entirely different concept, that of public interest, which is next discussed." and at 62, "We therefore conclude that in the public interest Application 234, 1465, and 5638 of the United States should be approved in order that the project may function as now envisioned by the United States. . . ."

25. *Id.* at 62, "The narrowest interpretation of the Board's discretion in the public interest would require that commanding consideration be given to these expenditures. [Previous paragraph cites expenditures of the Federal government and local water development agencies.] Any action that might substantially impair the investments thus represented should be avoided, if reasonably possible."

appears to place the responsibility for providing water on those agencies with a capacity for such service, and a willingness to initiate contracts for service within a reasonable time.

III. ORGANIZATIONS AND RURAL-URBAN TRANSFER

During the next several decades, the importance of organizations in making major water allocation decisions will be heightened. This will be true as the water supply function moves increasingly into the province of large scale operations carrying out complex engineering and economic activities.

The allocation of water to rural and urban uses will be inter- and intra-organizational. Rural and urban forces will compete within this frame of reference. Two points of conflict will be given special attention. One focuses upon the plan for action. The other centers on the terms of organization. These conflicts may arise during the formal act of organization or through the continual process of organizational adaptation which is necessary for viability over time. In either case, basic decisions concerning who will get the water are made during these periods of organization rather than in a market context.

Most obviously, rural-urban competition takes place in planning the services to be supplied by the physical system. Thus, elements of allocation are built into the system. To what extent shall both rural and urban interests be serviced by the same organization? Competition centers upon the inclusion or exclusion of facilities as well as the inclusion or exclusion of territory within the boundary. As previously noted, plans for exporting water from areas of origin (frequently rural) to other areas (frequently urban) have been major issues and are still important. Elements in the recent California water bond campaign may be interpreted in this light.

Where a common interest is being sought on a plan and boundary, experience from districts and municipalities is instructive. A common practice is to prepare for discussion a plan with boundary. If the constituents find it unacceptable, incremental (small) changes are made in the plan and boundary, followed by another try. The choice is one at a time, over time. At any given time, each decision is made on a nothing or all basis. But if one attempt fails, all is not lost; otherwise many projects never would have been built. The plan is changed and considered again at a later time. The constituent voters, however, do not consider alternative plans. An important observation should be made concerning this process. The heavy responsibility of examining alternatives falls upon the project leaders. In other words, it is important that the various interests in water planning be heard early in the planning process.

Effective competition for water also is evidenced *over* the terms of organization. These terms are familiar. They specify relationships of one internal constituent to another, internal to external interests, as well as the relationship of the constituent to the service rendered. To the extent that rural and urban interests are competitive, disagreements often arise over the nature of the repay-

ment plan, method and level of service charges, the procedures through which the project is controlled, and the ability to incorporate new values into the organizational structure over time. These are all terms which have been and will continue to be points of conflict.

All of these issues cannot be examined within the present limitations of space, but the way in which the competitive process takes place can be illustrated. Back in the late 1920's, the urban residents of Santa Clara County refused to accept an assessment upon buildings to help pay for a ground water recharge program which benefited both city and farm. The terms finally agreed to provided for assessment of land exclusive of improvements.

The "cooperative" nature of most public water development programs dictates that water charges should be based upon costs. In such situations, competition centers upon methods of allocating costs. Each of the major methods, *e.g.*, separable costs remaining benefits, proportional use of facilities or proportional increments of design capacity—distribute the costs—and thus the charges—differently between rural and urban users. We should recognize that the method selected is often the result of a bargaining process over the equity of the incidence of cost. Economically, the argument over this term of organization is an argument over the pricing complex for water. The issues would be faced in a clearer fashion if the price were discussed directly.

The dynamic character of California's economy has been previously noted. The demands of an organization's constituents often change over time. Districts supplying irrigation water in 1948 may find subdivisions "lining" their canals and demanding service. In this situation organizational conflicts may arise over control of the board of directors. Such a transition may be orderly or heated, as farm business men are replaced by urban business men. New interests become evident or a necessity. Public health standards of water quality are not the same for children and alfalfa. Water acceptable in a factory may be quite different from water usable on the land. In addition, the spreading of housing developments over the valley floors frequently creates serious flood and drainage problems. These new interests may attempt to find representation through a new or different organization with the result of inter-organizational conflict often involving the same assessment base.

As large inter-regional transfer agencies become more predominant, the pertinent questions become ones of internal policy. In the conflict between the City of Fresno and the United States Government, the municipal uses of the City of Fresno were subordinated to the priority of the predominantly agricultural interest of the Central Valley Project. Yet, the city will not become dry. Rather than the water right which it would prefer,²⁶ a contract has been approved with the Bureau of Reclamation.²⁷ Since the primary mission of the Bureau, as stated in the 1939 Act and elsewhere, has been to promote an irrigated agriculture,²⁸

26. Cal. State Water Rights Board Decision No. D935, *supra* note 22, at 104-06.

27. San Francisco Chronicle, Jan. 8, 1961, p. 3.

28. Federal Reclamation Project Act of 1939, 53 Stat. 1187 (1939).

you could argue that such a ruling by the State Water Rights Board might be standing in the way of the transfer of water to a use with a greater productivity. On the other hand, it can be argued that a recognition of public responsibility has been given to such organizations, which are carrying on programs of inter-regional water transfer. Likewise, in other localities circumstances may require organizations developing water to accept this public interest of water supply.

The Central Valley Project has assumed responsibility to transport municipal and industrial water since its inception, with the first water being delivered through the Contra Costa Canal in 1940.²⁹ Pressures to expand this type of service may well increase so that greater recognition will have to be given to this role in all Bureau of Reclamation activities. This same role is being taken in the proposed Feather River Project, with municipal and industrial service receiving major attention in all considerations—from design to financing.

A greater shift in this direction will have significant impact upon the organizational structure used to represent these new interests. For example, as California develops an action program, the roles of the governor and the legislature will be greatly different from those in the past. The water right will be held by the large organizations, with the service contract being a point of prime interest. These water service contracts are basic to investment programs by the water users. The contracts and investment programs become interdependent, since the asset markets are characterized by numerous imperfections. Our interest at the moment is not in this aspect but upon the structural impediments to changing these contractual relationships. Economic conditions change. "Revolutions" of many kinds may take place within the span of four decades. Towns grow; technology changes; economics is dynamic. These and other factors may affect the demand for water. In view of this dynamic character of the economy, such practices as subcontracting or the purchasing of contracts as well as the ability to renegotiate specific terms should be explored as avenues to maintain elements of flexibility within the organization. Such flexibility may result in developmental economies due to better asset utilization.

The use of organizations to "produce" water raises a question that is always present but is handled differently when dealing with property relationships than with organizations, namely, integrity and competence of management. Of course, these elements are important to other subjects than the rural-urban transfer of water, but their importance here is not insignificant. Does the planning and development process insure that all facets of the problem are considered—not only the immediate partisan interests which have the power to be heard in any event, but the public whose voice is less articulate? An insistence upon professional standards may assist in this process. Of course, the granting of responsibility to act with a clear line of public accountability can be helpful to maintain integrity.

29. Smaller projects in the same Bureau of Reclamation region in California also provide municipal service; for example, the Cachuma Project will service Santa Barbara.

For the future, rural-urban competition will be expressed through and over the institutions of water organization. Ingenuity and insight based upon research will be required to provide avenues for water interests to express themselves in water organizations.