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The Two-Tiered Market In Western Water

I. INTRODUCTION

Federal and state constraints on the transferability of water controlled by Bureau of Reclamation projects and state conservancy districts insulate this water from market pressure from both municipalities and industry. This market insulation would appear to have the two-fold effect of maintaining water for farming interests (those able to purchase water in what is referred to as the "project market") at an artificially low price, while keeping the price for industry and municipal interests (those forced to purchase in what is referred to as the "native market") artificially high. The disparity in the price of water between the "project markets" and "native markets" is aggravated by the fact that the price of water in the native market is often artificially high because of transaction costs incurred as a prerequisite to the transfer of the native water rights.

Farming interests have considerable legal authority for maintaining project water exclusively for irrigation purposes and examples at both the federal and state level demonstrate this. Absent congressional action, project water will remain insulated from the native market. When the federal protections are finally lifted and these two markets are merged, the market price for irrigation water rights may increase dramatically, making farming suddenly unfeasible in numerous areas because of a lack of self-imposed conservation measures. Although no immediate solution at the federal level is apparent, this article will offer a model for reducing the disparity between the two markets by eliminating some of the confusion surrounding the transfer process when "native" water rights are involved.

II. HISTORICAL DEVELOPMENT OF THE PROJECT MARKET

At the turn of the century, from a line east of the Rocky Mountains to the Pacific Ocean and from the Canadian border to the

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boundary of Mexico—an area greater than that of the original thirteen states—there existed “a desert, impossible of agricultural use without artificial irrigation.”¹ Those who fought to turn this desert into irrigable farm land

found the State's rivers and streams in their natural state to present the familiar paradox of feast or famine. With melting snow in the high mountains in the spring, small streams became roaring freshets, and the rivers they fed carried the potential for destructive floods. But with the end of the rainy season in the early spring, farmers depended entirely upon water from such streams and rivers until the rainy season again began in the fall. Long before that time, however, rivers which ran bank full in the spring had been reduced to a bare trickle of water.²

Western farmers did not have the resources to finance construction of the reservoir and irrigation works needed to harness these wild watercourses. Demands were made for a partnership between the irrigation farmers and the federal government and it was proposed that loans should be made by the federal government to the local irrigators. These federal loans were to be secured by the irrigation works, the waters of the area, and the property of the farmers. Federal and state legislative enactments were necessary to cement this partnership—a federal law establishing the loan program to finance the reclamation of the arid lands and a state law establishing a vehicle for receiving the proceeds of the loan. Federal and state laws soon emerged. First came the federal Reclamation Act of 1902,³ and by the late 1920's state conservancy and irrigation district laws were being enacted.⁴

1. *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 156 (1935).
2. *Salyer Land Co. v. Tulare Lake Basin Water Storage Dist.*, 410 U.S. 719, 722 (1973).
3. The Federal Bureau of Reclamation was the political solution at the federal level. For an excellent summary of the federal reclamation laws from their inception, Reclamation Act of 1902, ch. 1093, 32 Stat. 388 (codified at scattered sections of 43 U.S.C. ch. 12 (1970)), to date, see Sax, *The Federal Reclamation Law*, in 2 *WATERS AND WATER RIGHTS* 111 (R. Clark ed. 1967). See also E. WARNE, *THE BUREAU OF RECLAMATION* (1973).

The following materials contain information related to the subject of this article: COMMITTEE ON WATER OF THE NATIONAL RESEARCH COUNCIL, NATIONAL ACADEMY OF SCIENCES, *WATER AND CHOICE IN THE COLORADO BASIN* (1968); L. HARTMAN & D. SEASTONE, *WATER TRANSFERS* (1970); J. HIRSHLEIFER, J. DEHAVEN & J. MILLIMAN, *WATER SUPPLY* (1969); Anderson, *Windfall Gains From Transfer of Water Allotments Within the Colorado-Big Thompson Project*, 43 *LAND ECON.* 265 (1967); Castle & Stoevener, *Water Resources Allocation, Extramarket Values, and Market Criteria: A Suggested Approach*, 10 *NAT. RESOURCES J.* 532 (1970); Dewsnup, *Assembling Water Rights for a New*

III. FEDERAL CONDITIONS LIMITING THE TRANSFERABILITY OF WATER IN RECLAMATION PROJECTS

Carved and wedged into the language of any law creating a federal program are the provisions that insure achievement of the federal purpose. Those who borrow from the federal agency are bound by the contours of its authorizing legislation. The Reclamation Act of 1902⁵ presents a classic example.

The Reclamation Act had from its inception the primary goal of promoting irrigation farming.⁶ Those who wish to transfer or

Use: Needed Reforms in the Law, 17 ROCKY MTN. MINERAL L. INST. 613 (1972); Gaffney, *Economic Aspects of Water Resource Policy*, 28 AM. J. ECON. & SOC. 131 (1969); McHugh, *Allocation of Water from Federal Reclamation Projects: Can the States Decide?*, 4 ECOLOGY L.Q. 343 (1974); Sax, *Selling Reclamation Water Rights: A Case Study in Federal Subsidy Policy*, 64 MICH. L. REV. 13 (1965); Trelease, *Changes and Transfers of Water Rights*, 13 ROCKY MTN. MINERAL L. INST. 507 (1967); Trelease, *Policies for Water Law: Property Rights, Economic Forces, and Public Regulation*, 5 NAT. RESOURCES J. 1 (1965); Trelease, *Transfer of Water Rights—Errata and Addenda—Sales For Recreational Purposes and to Districts*, 2 LAND & WATER L. REV. 321 (1967); Trelease & Lee, *Priority and Progress—Case Studies in the Transfer of Water Rights*, 1 LAND & WATER L. REV. 1 (1966).

4. In projects prior to 1926 the Bureau would obtain water rights from a state and then enter into a water delivery and repayment contract with an individual farmer. After 1926, the Bureau contracted with some form of public district called an irrigation or conservancy district. For a good general description of this contracting process, see C. MEYERS & R. POSNER, *MARKET TRANSFERS OF WATER RIGHTS: TOWARD AN IMPROVED MARKET IN WATER RESOURCES* (National Water Commission 1971); NATIONAL WATER COMMISSION, *WATER POLICIES FOR THE FUTURE* 264-70 (1973); Sax, *supra* note 3, at 136-71.
5. Reclamation Act of 1902, ch. 1093, 32 Stat. 388 (codified at scattered sections of 43 U.S.C. ch. 12 (1970)).
6. For an excellent discussion of the history of the Reclamation Act and the importance of the development of small irrigation farms, see *United States v. Tulare Lake Canal Co.*, 535 F.2d 1093, 1118 (1976) and *Ivanhoe Irr. Dist. v. McCracken*, 357 U.S. 275, 292 (1958). Both Sax and Warne note that the Bureau's function as a water provider presently goes far beyond the irrigation of small farms:

Because of the large quantities of irrigation water necessary to produce a crop, the basic purpose of reclamation still overshadows all other uses of reclamation project water. In 1969, approximately 27.4 million acre-feet of water were provided by reclamation project facilities: 25.4 million acre-feet for irrigation, 1.8 million acre-feet for municipal and industrial purposes, and 149,000 acre-feet for other non-agricultural purposes.

The importance of other services introduced as incidentals to the original purpose of reclamation is shown by the facts that in 1969 project power plants sold 45.6 billion kilowatt-

sell their reclamation water rights to a buyer who intends to put the water to domestic or industrial use may be barred entirely by the claim that these uses are contrary to the purposes of the Reclamation Act. While many new projects are intended to meet municipal and industrial demands as well as irrigation,⁷ absent specific statutory language, irrigation must be viewed as the use most consistent with the legislative history of the Reclamation Act.⁸ The requirement that water cannot be used to irrigate a farm exceeding 160 acres⁹ is another, more specific, condition on the use of project water. There are still other federal conditions: the "ap-

hours of electrical energy for \$157.3 million, that an estimated \$27.7 million in flood damages were prevented by project dams, and that the project reservoirs provided 54.5 million visitor-days of recreation.

E. WARNE, *supra* note 3, at 53-54. See Sax, *supra* note 3, at 121.

7. For a good discussion of the project planning process and statutory modifications for specific projects, see Sax, *supra* note 3, at 147-57, 215-17.
8. Pring & Edelman, *Reclamation Law Constraints on Energy/Industrial Uses of Western Water*, 3 NAT. RESOURCES LAW. 297 (1975) (outlining the argument that absent a specific statutory exception, reclamation project water must be used for irrigation).

9. See § III-B of text *infra*. The original provision is Act of June 17, 1902, ch. 1093, § 5, 32 Stat. 389 (codified at 43 U.S.C. § 431 (1970)).

Good general discussion of the problems of landownership in reclamation law is contained in two government publications: BUREAU OF RECLAMATION, *ACREAGE LIMITATION POLICY* (U.S. Gov't Printing Office 1946), and the DEPT. OF INTERIOR, *LANDOWNERSHIP SURVEY ON FEDERAL RECLAMATION PROJECTS* (U.S. Gov't Printing Office 1946).

See E. GRAHAM, *SOME ASPECTS OF FEDERAL-STATE RELATIONSHIPS IN CALIFORNIA WATER RESOURCES DEVELOPMENT* 146 (1961). See also R. DE ROOS, *THE THIRSTY LAND* (1948); DOWNEY, *THEY WOULD RULE THE VALLEY* (1947); Fuller, *Acreage Limitation in Federal Irrigation Projects With Particular Reference to the Central Valley Project of California*, 31 J. FARM ECON. 976 (1949); Graham, *The Central Valley Project: Resource Development of a Natural Basin*, 38 CALIF. L. REV. 588 (1950); Maass, *Administering the CVP*, 38 CALIF. L. REV. 666 (1950); Taylor, *Central Valley Project: Water and Land*, 2 WEST. POL. Q. 229 (1949); Taylor, *Destruction of Federal Reclamation Policy? The Ivanhoe Case*, 10 STAN. L. REV. 76 (1957); Taylor, *Excess Land Law: Calculated Circumvention*, 52 CALIF. L. REV. 978 (1964); Taylor, *Excess Land Law: Secretary's Decision? A Study in Administration of Federal-State Relations*, 9 U.C.L.A. L. REV. 1 (1962); Taylor, *Excess Land Law on the Kern?*, 46 CALIF. L. REV. 153 (1958); Taylor, *The Excess Land Law: Execution of a Public Policy*, 64 YALE L.J. 477 (1955); Taylor, *The Excess Land Law: Legislative Erosion of Public Policy*, 30 ROCKY MTN. L. REV. 480 (1958); Taylor, *The Excess Land Law: Pressure vs. Principle*, 47 CALIF. L. REV. 499 (1959); Taylor, *The 160-Acre Water Limitation and the Water Resources Commission*, 3 WEST. POL. Q. 435 (1950); Trelease, *Government Ownership and Trusteeship of Water*, 45 CALIF. L. REV. 638 (1957); Comment, *The*

purtenance requirement";¹⁰ the requirement that all water users must be residents of an irrigation district;¹¹ the vague requirement that water be applied only to beneficial uses;¹² and the requirement that the water not be used in a manner which will deteriorate lands by "improper use."¹³ Finally, the Secretary of the Interior's power to make general rules and regulations governing the use of water in the irrigation of lands¹⁴ within any project raises the specter of even more federal conditions.¹⁵

Ivanhoe Decision: The Validity of Contracts Containing the 160 Acre Limitation, 45 CALIF. L. REV. 763 (1957); Note, *Acreage Limitation: Policy Considerations*, 38 CALIF. L. REV. 728 (1950).

10. Reclamation Act of 1902, ch. 1093, § 8, 32 Stat. 390 (codified at 43 U.S.C. § 372 (1970)).
11. In referring to the sale of rights to the use of water delivered through federal reclamation projects to private landowners, the Act provides, in part, that "no such sale shall be made to any landowner unless he be an actual bona fide resident on such land, or occupant thereof residing in the neighborhood of said land." Reclamation Act of 1902, ch. 1093, § 5, 32 Stat. 389 (codified at 43 U.S.C. § 431 (1970)).
12. *Id.*
13. Act of August 4, 1939, ch. 418, § 6, 53 Stat. 1191 (codified at 43 U.S.C. § 485e (1970)). Requirements have been upheld which limit users to a certain quantity per irrigated acre as a means of preventing waste. See *In re Bridger Valley Water Conservancy Dist.*, 401 P.2d 289 (Wyo. 1965).
14. Act of August 13, 1914, ch. 247, § 8, 38 Stat. 688 (codified at 43 U.S.C. § 440 (1970)). See also Reclamation Act of 1902, ch. 1093, § 10, 32 Stat. 390 (codified at 43 U.S.C. § 373 (1970)).
15. Sax describes the broad powers of the Secretary:

Of course these broad powers could be narrowly construed. For example, the Secretary could be held to be barred from enforcing rules that interfered with established uses which were valid when initiated; such rules could be interpreted as being enforceable only if they were included in water-right applications or contracts for service at the time such applications or contracts were first made. But it is to be expected that these powers will be viewed as a partial grant to the Secretary of the general police power over project users, and thus that the power will not be required to respect existing uses any more than does the state's police power.

Whatever rights users may have in their existing uses, a separate question is raised when they seek to initiate a right to the use of project water. Here again the problem has not been faced by the courts, although it was raised at least once. It has been traditional, of course, to view one at this stage as a mere supplicant—a seeker after a "privilege"—who has virtually no rights to assert against an unexplained denial, a grant with odious conditions attached, or an absence of any procedural safeguards. These old, simplistic views have begun to give way to notions of a "new property" which must have some protection against such cursory dispositions, though the bounds are just beginning to be formulated. The development of such rights could be nowhere more appropriately tested than in the context of distribution of great natural re-

Since Bureau of Reclamation projects are generally operated through contracts with a state agency, and under these contracts consent must be obtained before project water can be sold or leased, these federally imposed conditions may be enforced by the Secretary of the Interior either as a matter of contract or as mandated by federal law.

There are three primary reasons for the great potential for litigation over these federally imposed conditions. First, water is a scarce resource increasingly demanded by industrial and domestic users. When the demand for water for non-agricultural uses gets high enough to economically justify litigation, law suits will be filed both to break and to enforce these federal conditions. Pressure will mount to bring about changes through federal legislation. Second, when a lawsuit is brought, it ideally should be brought against a single defendant—one against whom a judgment can have far-reaching effects. The Secretary of the Interior is such a defendant. He is far from "judgment proof" on the issue of water since he controls an irrigation water supply of over twenty-seven million acre-feet. Third, the Secretary is governed by vague, poorly compiled, confusing statutes and administrative regulations.¹⁶ Those who have followed litigation in the areas of federal welfare,¹⁷ federal housing,¹⁸ and the National Environmental Policy Act¹⁹ are well aware that successful statutory arguments can be made once there is sufficient commitment to litigate the parameters of a federal bureaucrat's authority.

These vague federal statutes and regulations can be used by farming interests both as a shield against proposed federal action which would allow the transfer of water rights out of irrigation, and as a sword to compel the Secretary of the Interior to enforce existing legislation which preserves the *status quo*.

sources harnessed by the expenditure of vast sums of public funds.

- Sax, *supra* note 3, at 184-85 (footnotes omitted; emphasis added).
16. Sax notes that the Congress has not specifically stated to what degree certain federal enactments supplement or amend the original reclamation law. Nor, has Congress repealed certain older enactments which no longer have any application. Sax, *supra* note 3, at 123.
17. See, e.g., *King v. Smith*, 392 U.S. 309 (1968) (construing a federal welfare regulation to invalidate more restrictive state statutes).
18. See *Housing Auth. of Omaha v. United States Hous. Auth.*, 468 F.2d 1 (8th Cir. 1972), *cert. denied*, 410 U.S. 927 (1973) (upholding a federally imposed model lease and grievance procedure over local, federally funded housing authority).
19. See generally Hanks & Hanks, *An Environmental Bill of Rights: The Citizen Suit and the National Environmental Policy Act of 1969*, 24 *RUTGERS L. REV.* 230 (1970). Litigation over the Federal Water Pollu-

A. The Environmentalists' Use of the Secretary of the Interior's Lack of Authority as a Shield

On December 10, 1976, a group of environmentalists²⁰ filed an action in the United States District Court for the District of Columbia against Cecil Andrus, Secretary of the Interior.²¹ The complaint alleged that the Secretary had violated the National Environmental Policy Act of 1969,²² and the Fish and Wildlife Coordination Act.²³ The complaint was amended to add an allegation that the Secretary also exceeded his authority under the reclamation law establishing an irrigation project on the Navajo Indian Reservation.²⁴

The complaint sought an injunction against the continued construction of a twenty-three megawatt power plant on the San Juan River in northern New Mexico. The plant was designed to provide the electrical power for the Bureau of Reclamation Navajo Indian Irrigation Project.²⁵

tion Control Act, 33 U.S.C. §§ 1251-1376 (Supp. II 1972), illustrates the amount of litigation that can be generated under the assertion of federal rights. In promulgating the first non-point source standards under the Act, 40 C.F.R. pt. 125 (1973), the Environmental Protection Agency (EPA) excepted many significant non-point sources, greatly reducing the regulations' effectiveness. A federal court invalidated those regulations. *Natural Resources Defense Council v. Train*, 396 F. Supp. 1393 (D.D.C. 1975). As a result, the EPA promulgated a new set of regulations, 41 Fed. Reg. 7963 (1976) (to be codified in 40 C.F.R. § 125.53), which many groups view as inadequate. The failure of the EPA to establish and enforce effective standards has since prompted another lawsuit seeking to require the EPA to take a more active role in efforts to reduce the salinity of the Colorado River. *Environmental Defense Fund v. Costle*, [1977] 8 ENVIR. REP. (BNA) 714 (D.D.C., filed August 22, 1977) (No. 77-1436).

20. The complaint was filed by the National Wildlife Federation and the New Mexico Wildlife Federation, Trout Unlimited, and the New Mexico Council of Trout Unlimited. The New Mexico State Game Commission and the New Mexico Department of Game and Fish were allowed to intervene.

21. *National Wildlife Fed'n v. Andrus*, [1977] 8 ENVIR. REP. (BNA) 348 (D.D.C. June 21, 1977) (No. 76-2266).

22. 42 U.S.C. §§ 4321, 4331-4335, 4341-4347 (1970 & Supp. V 1975).

23. 16 U.S.C. §§ 661-666 (1976).

24. Although this is not an example of an irrigator's attempt to preserve the *status quo*, since the power plant would have ultimately provided power to promote irrigation farming on the Navajo Reservation, it, nevertheless, illustrates the method by which small interests can use a bureaucrat's lack of authority to great advantage. 43 U.S.C. §§ 615ii to 615oo (1970).

25. This project was authorized June 13, 1962. 43 U.S.C. § 615ii (1970). It is part of the Colorado River Storage Project designed to irrigate 110,630 acres owned by the Navajos of northwestern New Mexico.

Even though 3.6 million dollars had been spent for equipment and the plant was ten percent complete, the court enjoined further construction, relying primarily on the fact that the Secretary of the Interior had exceeded his authority under the reclamation law.²⁶

In rejecting the arguments of the Secretary, the court limited the Secretary to doing only those acts spelled out with precision in the statute: "Clearly the appropriate officials have some discretion to modify aspects of the various programs within the Colorado River Storage Project. But such modifications must occur within the statutory authority granted by Congress."²⁷

When the 'environmentalists' commitment to preserving the quality of the river below Navajo Dam justified the expense of litigating the Secretary's absence of authority, the suit was brought.

B. The Small Farmers' Use of Existing Reclamation Statutes as a Sword

As recently as 1971 a report of the National Water Commission quoted Bureau of Reclamation officials as stating that the residency and appurtenance requirements of federal law applicable to Bureau projects were of "minor" importance.²⁸ Economic and political pressures, however, have a way of resurrecting old and rarely used laws.²⁹ As a result of litigation against the Bureau of Reclamation, both the 160-acre limit and the residency requirement of reclamation law now have the potential of dramatically affecting project water rights in the West.

The enforcement of the 160-acre limit has and will continue to cause extensive internal conflict between large and small farmers.

26. *National Wildlife Fed'n v. Andrus*, [1977] 8 ENVIR. REP. (BNA) at 348. The court also held that the federal action violated the National Environmental Policy Act and the Fish and Wildlife Coordination Act. The court determined that no authority for constructing the plant existed, even though the report of a Senate Committee studying the matter specifically stated that the project included a power plant at Navajo Dam. S. REP. NO. 363, 91st Cong., 1st Sess. 2 (1969). The court also found unpersuasive the fact that a 1966 reevaluation report available to a house subcommittee also mentioned the power plant. *Proposed Amendments to the Act of June 13, 1962, with respect to the Navajo Indian Irrigation Project: Hearings on H.R. 13001 Before the Sub-comm. on Irrigation and Reclamation of the House Comm. on Interior and Insular Affairs*, 91st Cong., 2d Sess. 41 (1970).
27. *National Wildlife Fed'n v. Andrus*, No. 76-2266, slip op. at 7 (D.D.C. June 21, 1977) (footnote omitted; emphasis added).
28. C. MEYERS & R. POSNER, *supra* note 4, at A3-4.
29. See, e.g., *Jones v. Alfred H. Mayer Co.*, 392 U.S. 409 (1968).

However, whether a 160-acre farm is economically feasible in 1978 is well beyond the scope of this article. Rather, the 160-acre limitation and the residency requirement will be used to illustrate the insulated nature of the project water market and how these and other restrictions can be enforced to further that market insulation.

A brief explanation of the 160-acre limitation and the residency requirement is necessary for a full understanding of the surrounding litigation.³⁰ The acreage limitation, or "excess land" provisions of reclamation law, limit to 160 acres the irrigable land held in single ownership which can be supplied with project water. If a husband and wife own irrigable land jointly, water can be supplied to 320 acres. Although there have been exemptions and modifications for certain projects, the limitation of water delivery to 160 acres owned by a single individual has remained unchanged since the inception of the Reclamation Act in 1902.³¹

All lands served by reclamation projects may be categorized as either "excess" or "nonexcess." All irrigable land that is supplied project water but does not exceed 160 acres beneficially owned by one individual, or 320 acres jointly owned by a husband and wife, is categorized as nonexcess. Excess land is all the irrigable land within the project area which exceeds the 160-acre or 320-acre entitlement.³² An excess landowner must designate that portion of his irrigable land which he wishes to be classified as nonexcess and, therefore, entitled to receive project water.³³

Excess lands are not eligible to receive project water unless they are sold under a "recordable contract." The recordable contract must provide for disposition of excess lands to an eligible nonexcess landowner within a designated time period at a price that is independent of the value of the project benefits. The Secretary of the Interior must approve the selling price. Failure to dispose of excess

30. Since no formal rules have as yet been adopted by the Bureau, this discussion of Bureau of Reclamation policy with respect to both the 160-acre limit and the residency requirement is drawn from the memorandum of law distributed by the Bureau of Reclamation in connection with the proposed hearings on the Department of Interior regulations regarding acreage limitations, 42 Fed. Reg. 43,044 (1977) (proposed; to be codified in 43 C.F.R. §§ 426.1 to .14). Memorandum, *The Acreage Limitation Provisions of Reclamation Law*, Sept. 1977 (unpublished paper on file at University of Nebraska Law Review).

31. Memorandum, *supra* note 30, at 2. See 42 Fed. Reg. 43,046 (1977) (proposed; to be codified in 43 C.F.R. § 426.4(b)).

32. Memorandum, *supra* note 30, at 3. See 42 Fed. Reg. 43,046 (1977) (proposed; to be codified in 43 C.F.R. § 426.4(d)).

33. Memorandum, *supra* note 30, at 3. See 42 Fed. Reg. 43,047 (1977) (proposed; to be codified in 43 C.F.R. § 426.9(a)(1)).

lands within the designated time period will result in the Secretary of the Interior obtaining a power of attorney to sell the land. If a recordable contract is entered into, however, project water can be supplied to the excess land during the disposal process.³⁴

It is not necessary that land be held in individual ownership to establish eligibility for project water. Permissible land ownerships include joint tenancies, corporations, trusts, partnerships, and tenancies in common.³⁵

The acreage limitation was directed at land ownership and did not limit the size of a particular farming operation. It was permissible for a farm operator to evade the acreage limitation because the 160-acre limitation did not extend to land supplied with project water which was leased from other landowners. Many of the large farms that exist on reclamation projects were, therefore, able to irrigate in excess of the 160-acre limitation by leasing land.³⁶

The Reclamation Act required that in order to become eligible for project benefits a landowner had to live on or near the land he wished to irrigate. This residency requirement remained in effect until the landowner had been issued a final certificate declaring his water right. However, once he had received the water right certificate, the landowner was not required to maintain this residency; it was said that "the lien created by the water right application had been satisfied."³⁷ The Bureau of Reclamation has taken the position that by virtue of the Omnibus Adjustment Act of 1926³⁸ (the present basis for the administration of the acreage limitation provision) the irrigation districts and not the individual landowners assumed liability for the payments due the federal government. Since the residency requirement was not contained in the 1926 Act, the Bureau of Reclamation has not enforced this requirement since 1926.³⁹

34. Memorandum, *supra* note 30, at 3-4. See 42 Fed. Reg. 43,046 (1977) (proposed; to be codified in 43 C.F.R. § 426.5(a)).

35. Memorandum, *supra* note 30, at 5. See 42 Fed. Reg. 43,047 (1977) (proposed; to be codified in 43 C.F.R. § 426.7(b)-(e)).

36. Memorandum, *supra* note 30, at 5. But see 42 Fed. Reg. 43,047 (1977) (proposed; to be codified in 43 C.F.R. § 426.8)).

37. Memorandum, *supra* note 30, at 5-6. See also Reclamation Act of 1902, ch. 1093, § 5, 32 Stat. 388, 389.

38. Omnibus Adjustment Act of 1926, ch. 383, 44 Stat. 699 (43 U.S.C. § 423e (1970)). The Bureau apparently no longer maintains this view. For a good discussion of the Bureau's previous contention, see Yellen v. Hickel, 335 F. Supp. 200, 203 (S.D. Cal. 1971), *vacated and remanded with instructions to dismiss for lack of standing sub nom. United States v. Imperial Irr. Dist.*, 559 F.2d 509 (9th Cir. 1977).

39. Memorandum, *supra* note 30, at 6.

1. *The National Land for People Litigation*

In May of 1976, National Land for People, Inc., a non-profit membership organization composed predominantly of farmers and farmowners, filed an action seeking to compel the Bureau of Reclamation to fully enforce the Reclamation Act of 1902 by promulgating rules for provision for sale of excess lands in a manner consistent with the Act.⁴⁰ In entering a preliminary injunction requiring the formal adoption of rules, the court in *National Land for People, Inc. v. Bureau of Reclamation*⁴¹ held:

The legislative history of the reclamation laws indicates a purpose of the Federal Government to create small tracts of privately held farm land available at nonspeculative prices in areas irrigated by Federal projects. . . .

An important aspect of the sale of excess lands is the determination of its fair market value by the Bureau without project enhancement. A recent publication of the General Accounting Office concludes that the Bureau's appraisal techniques should be improved and that written guidelines are needed setting forth the criteria and procedures used in evaluating the reasonableness of the sales price of those lands.⁴²

2. *The Yellen Litigation*

In a related case, *Yellen v. Hickel*,⁴³ filed much earlier, the Secretary of the Interior was sued by farmers seeking a writ of mandamus to force him to comply with the residency provisions of the federal reclamation law. The United States District Court for the District of California held that all projects constructed pursuant to the Reclamation Act of 1902 were subject to the residency requirement. It rejected the Bureau's contention that all projects since 1926 were exempt.⁴⁴ The court also noted that completion of payments to the Bureau of Reclamation for construction of the project works would not relieve the obligation to comply with the residency requirement.⁴⁵ The action was appealed.

40. *National Land For People, Inc. v. Bureau of Reclamation*, 417 F. Supp. 449 (D.D.C. 1976).

41. *Id.*

42. *Id.* at 452 (citations omitted).

43. 335 F. Supp. 200 (S.D. Cal. 1971), *vacated and remanded with instructions to dismiss for lack of standing sub nom.* *United States v. Imperial Irr. Dist.*, 559 F.2d 509 (9th Cir. 1977). See also *Bowker v. Morton*, 541 F.2d 1347 (9th Cir. 1976).

44. See note 39 and accompanying text *supra*.

45. It has been argued that this result unnecessarily restricts the "market" for water rights, since repayment of the federal obligation ends the federal government's interest:

On appeal the ninth circuit consolidated *Yellen* with an action brought by the United States against the massive Imperial Irrigation District.⁴⁶ In the action against the district, the Bureau sought a declaration that the 160-acre limit was applicable.

The residency action was reversed, the ninth circuit holding that the individual plaintiffs lacked standing to bring the action. The court, however, reaffirmed that the 160-acre limit was adopted to "accomplish the redistribution of large privately owned tracts at prices substantially below the actual value of such lands at the time of sale,"⁴⁷ and concluded that the excess land provisions are "an important cornerstone of the reclamation laws."⁴⁸ It then held the acreage limitation applicable to the Imperial Irrigation District. The court stated that the opinion letters of the Secretary of the Interior regarding the meaning of the 1902 Act were entitled to no deference, nor was the failure to enforce the Act in the past an administrative determination to which the courts should defer.⁴⁹

As an outgrowth of this litigation, on August 25, 1977, pursuant to the Court order in *National Land for People*,⁵⁰ the Department of the Interior published a proposed federal regulation for enforcement of the acreage limitation.⁵¹ The regulation states that regulations for enforcement of the residency requirement will be forthcoming.

With respect to projects that have paid out fully, where the distribution works have been turned over to the irrigators or their associations, and where no rehabilitation or other Bureau loans are outstanding—in short, where the Bureau no longer has any financial interest in the project—its consent to a transfer should not be required. Although the original purpose of the reclamation program—to develop the West with family-size farms—is impaired if the farmer can transfer project water to non-farm uses, that purpose has been overtaken by events. The increasing importance of municipal and industrial uses in reclamation projects indicates tacit acceptance of changed economic conditions that make efforts to perpetuate outmoded forms of economic organization futile and inefficient.

C. MEYERS & R. POSNER, *supra* note 4, at 20-21.

46. *United States v. Imperial Irr. Dist.*, 322 F. Supp. 11 (S.D. Cal. 1971), *rev'd*, 559 F.2d 509 (9th Cir. 1977). The Department of Interior had chosen not to appeal the adverse decision of the district court. The court of appeals, however, allowed several small farmers to intervene and prosecute the appeal.

47. 559 F.2d at 521.

48. *Id.* at 527.

49. *Id.* at 537.

50. 417 F. Supp. 449 (D.D.C. 1976).

51. 42 Fed. Reg. 43,044 (1977) (proposed; to be codified in 43 C.F.R. pt. 426).

The proposed regulation would have the following general effects:⁵²

1. It would limit a landowner to only one 160-acre farm, rather than allowing him to have 160 acres in several different irrigation districts.⁵³
2. It would require that all future purchasers of excess land in *any* project have their principal place of residence within a radius of fifty miles of the land receiving project water. Additionally, the Secretary has now determined that the residency requirement should be enforced on *all* projects receiving reclamation project water. Additional rules enforcing this law are said to be forthcoming.⁵⁴
3. In the past multiple ownership arrangements have been acceptable if a loose family relationship existed among all members, or if the multiple ownership had resulted in the break up of large landholdings. The proposed rules tighten these requirements by limiting multiple ownership arrangements in future purchases of excess land to situations in which a direct lineal family relationship exists among the members. Thus, tenancies in common, corporations, partnerships, or trusts would be allowed only if the required family relationship exists. Direct lineal family relationships are defined as those between parents, children, grandchildren, or grandparents.⁵⁵
4. The proposed rules and regulations would change current leasing practices by prohibiting the purchaser of excess land from leasing back to the seller of excess land, and by limiting the number of acres an individual can lease to the number he would be entitled to own.⁵⁶
5. In addition to the requirements that the purchaser of excess land obtain price approval from the Secretary of the Interior and prove he is not an excess land owner, the pur-

52. This brief summary is derived from a general reading of the regulation as well as the explanatory memorandum distributed by the Bureau of Reclamation. Memorandum, *supra* note 30, at 9-12.

53. Memorandum, *supra* note 30, at 9; 42 Fed. Reg. 43,046 (proposed; to be codified in 43 C.F.R. § 426.4(1)(2)).

54. Memorandum, *supra* note 30, at 9; 42 Fed. Reg. 43,046 (proposed; to be codified in 43 C.F.R. § 426.4(k)).

55. Memorandum, *supra* note 30, at 10; 42 Fed. Reg. 43,047 (proposed; to be codified in 43 C.F.R. § 426.7).

56. Memorandum, *supra* note 30, at 10-11; 42 Fed. Reg. 43,047 (proposed; to be codified in 43 C.F.R. § 426.8).

chaser will be chosen by lottery or other impartial means with preference given those with family relationships to the seller.⁵⁷

6. In order to avoid the excess land provision, an individual had previously been able to obtain project water for a ten-year period by showing a "recordable contract" taking effect ten years in the future. For all new contracts, the regulation imposes a five-year disposition period.⁵⁸
7. Under the proposed regulation, any purchaser of excess land could not resell the land for a period of ten years without approval of the Secretary as to price. After this ten-year period and until half of the total construction costs allocated to irrigation are paid, the Secretary will "monitor" resales to prevent unreasonable profit from accruing to the seller.⁵⁹

The possible impact which will result from enforcement of this regulation is immense as the following chart reflecting excess lands by state illustrates:

EXCESS LANDS BY STATE AS OF DECEMBER 1976

	Ineligible for Project Water Served	
	No. Owners	Acres
Arizona	26	3,822
California	42	6,699
Colorado	5	672
Idaho	62	5,589
Kansas	0	0
Montana	99	12,625
Nebraska	90	8,619
Nevada	0	0
New Mexico	63	7,436
North Dakota	11	752
Oklahoma	3	434
Oregon	62	7,924
South Dakota	47	2,799
Texas	98	22,637
Utah	4	509

57. Memorandum, *supra* note 30, at 11; 42 Fed. Reg. 43,048 (proposed; to be codified in 43 C.F.R. § 426.10).

58. Memorandum, *supra* note 30, at 12; 42 Fed. Reg. 43,046 (proposed; to be codified in 43 C.F.R. § 426.5(a)(2)). For an explanation of "recordable contract," see note 34 and accompanying text *supra*.

59. Memorandum, *supra* note 30, at 12-13; 42 Fed. Reg. 43,047-48 (proposed; to be codified in 43 C.F.R. § 426.9(b)).

- (i) East Bench Unit (bench lands only), Missouri River Basin Project, Montana, Act of July 24, 1957 (71 Stat. 309).
- (3) *Land equivalent to 160 acres of Class 1 land.*
 - (i) Seedskadee Project, Wyoming, Act of August 28, 1958 (72 Stat. 963).
 - (ii) Savory-Pot Hook Project, Colorado-Wyoming, Act of September 2, 1964 (78 Stat. 852, 43 U.S.C. 616jj).
 - (iii) Bostwick Park Project, Colorado, Act of September 2, 1964 (78 Stat. 852, 43 U.S.C. 616jj).
 - (iv) Fruitland Mesa Project, Colorado, Act of September 2, 1964 (78 Stat. 852, 43 U.S.C. 616jj).
 - (v) Animas-La Plata Project, Colorado-New Mexico, Act of September 30, 1968 (82 Stat. 885).
 - (vi) Dolores Project, Colorado, Act of September 30, 1968 (82 Stat. 885).
 - (vii) Dallas Creek Project, Colorado, Act of September 30, 1968 (82 Stat. 885).
 - (viii) San Miguel Project, Colorado, Act of September 30, 1968 (82 Stat. 885).
 - (ix) West Divide Project, Colorado, Act of September 30, 1968 (82 Stat. 885).
 - (x) Riverton Extension Unit, Missouri River Basin Project, Wyoming, Act of September 25, 1970 (84 Stat. 861).
 - (xi) Polecat Bench Project, Wyoming, Act of March 11, 1976 (90 Stat. 205, 43 U.S.C. 615kkkk).
 - (xii) Pollock-Herried Project, South Dakota, Act of March 11, 1976 (90 Stat. 208, 43 U.S.C. 615llll).
 - (xiii) Kanapolis Unit, Pick-Sloan Missouri Basin Project, Kansas, Act of September 28, 1976 (90 Stat. 1324).
 - (xiv) Oroville-Tonasket Unit Extension, Chief Joseph Dam Project, Washington, Act of September 28, 1976 (90 Stat. 1325).
 - (xv) Unitah Unit, Central Utah Project, Utah, Act of September 28, 1976 (90 Stat. 1327).
 - (xvi) Allen Camp Unit, Central Valley Project, California, Act of September 28, 1976 (90 Stat. 1328).
- (d) *Use of interest payment for excess lands.*
 - (1) Washoe Project, California-Nevada, Act of August 1, 1956 (70 Stat. 775, 43 U.S.C. 614).
 - (2) Small Reclamation Projects, Act of August 6, 1956 (70 Stat. 1044, 43 U.S.C. 422a-1), as amended.
 - (3) Mercedes Division, Lower Rio Grande Rehabilitation Project, Texas, Act of April 7, 1958 (72 Stat. 82).
 - (4) La Feria Division, Lower Rio Grande Rehabilitation Project, Texas, Act of September 22, 1959 (73 Stat. 641).
- (e) *Delivery of project water to certain categories of excess lands.*
 - (1) Involuntary acquisition of excess land
 - (i) Act of July 11, 1956 (70 Stat. 524, 43 U.S.C. 423e, 544).
 - (2) Surviving spouse
 - (i) Act of September 2, 1860 (74 Stat. 732, 43 U.S.C. 423h).

eleven million acres of land in the seventeen Western states,⁶¹ the impact of *National Land for People* and *Yellen* is certainly mind-boggling.⁶²

3. State Conditions Limiting Transferability

The states are not to be outdone by the federal government in imposing conditions restricting the transferability of project

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- (3) Columbia Basin Project, Washington, Act of October 1, 1962 (76 Stat. 678, 16 U.S.C. 835-1, 835c).
 - (4) States, their political subdivisions and agencies thereof, Act of July 7, 1970 (84 Stat. 411, 43 U.S.C. 425).
 - (5) Naval Air Station, Lemoore, California, Act of August 10, 1972 (86 Stat. 531).
 - (f) *Excess Land Provisions Modified by Acts of Congress Authorizing Execution of Specific Contracts Negotiated Pursuant to Section 7 of the Reclamation Project Act of 1939* (53 Stat. 1187, 43 U.S.C. 485f).
 - (1) Kittitas Reclamation District, Kittitas Division, Yakima Project, Washington, Act of May 6, 1949 (63 Stat. 64).
 - (2) Prosser Irrigation District, Yakima Project, Washington, Act of October 27, 1949 (63 Stat. 943).
 - (3) Roza Irrigation District, Yakima Project, Washington, Act of June 30, 1954 (68 Stat. 359).
 - (4) Vale Oregon Irrigation District, Vale Project, Oregon, Act of October 27, 1949 (63 Stat. 943).
 - (5) Frenchtown Irrigation District, Frenchtown Project, Montana, Act of June 23, 1952 (66 Stat. 153).
 - (6) Owyhee Irrigation District, Gem Irrigation District, Ridgeview Irrigation District, Advancement Irrigation District, Payette-Oregon Slope Irrigation District, Crystal Irrigation District, Bench Irrigation District, and Slide Irrigation District, Owyhee Project, Idaho-Oregon, Act of June 23, 1952 (66 Stat. 152).
 - (7) Gering and Ft. Laramie Irrigation District, Goshen Irrigation District, and Pathfinder Irrigation District, North Platte Project, Nebraska-Wyoming, Act of July 17, 1952 (66 Stat. 754).
 - (8) Hermiston Irrigation District and West Extension Irrigation District, Umatilla Project, Oregon, Act of June 18, 1954 (68 Stat. 254).
 - (9) North Unit Irrigation District, Deschutes Project, Oregon, Act of August 10, 1954 (62 Stat. 679).
 - (10) American Falls Reservoir District No. 2, Minidoka Project, Idaho, Act of August 21, 1954 (68 Stat. 762).
 - (11) Black Canyon Irrigation District, Boise Project, Idaho, Act of August 24, 1954 (68 Stat. 794).
 - (12) Tululake Irrigation District, Klamath Project, California-Oregon, Act of August 1, 1956 (70 Stat. 799).

42 Fed. Reg. 43,045-46 (1977) (to be codified in 43 C.F.R. § 426.3) (authors' outline structure).

61. The Bureau of Reclamation has not recently published any statistics on the impact of the residency provision.

62. In December of 1977 the large farming interests demonstrated that

water. State irrigation and conservancy districts are routinely given power to determine who can use project water and under what conditions the water should be apportioned in times of shortage.⁶³ These delegations of power create internal state conflicts over who has the power to approve a water right transfer. The state engineer or state water board may wholeheartedly approve a transfer of water right from one location to another and a change in use from agriculture to industrial use, with such approval based on the lack of impairment to junior appropriators. The irrigation district, on the other hand, under its statutory authority may seek to veto this transfer as inconsistent with the best interests of the irrigation district. The unanswered and murky⁶⁴ legal question concerns who has paramount authority over the allocation of water rights within the district's boundaries.⁶⁵ Until this question is answered, the potential for transfer of water rights within the boundaries of an irrigation district is limited, since the transferor and transferee are caught in a crossfire between the two state agencies.⁶⁶

C. State Statutory Provisions that Restrict the Transfer of Project Water Rights

The Middle Rio Grande Conservancy District was formed to provide flood protection and improve irrigation along the Rio Grande River in central New Mexico.⁶⁷ The project is similar to projects

they, too, can use federal law to advantage. The United States District Court for the Eastern District of California issued an injunction against the proposed federal regulation until an environmental impact statement is prepared. *County of Fresno v. Andrus*, [1977] 8 ENVIR. REP. (BNA) 1247 (E.D. Cal. Dec. 7, 1977) (Civ. No. 77-202). The Secretary of the Interior has elected not to appeal this decision. Preparation of this statement is expected to take about a year. [1977] 8 ENVIR. REP. (BNA) at 1382-83.

63. See, e.g., N.M. STAT. ANN. § 75-28-28 (1968). For a discussion of general local laws, see C. MEYERS & R. POSNER, *supra* note 4, at A1-1. Citations to all of the state and local irrigation and conservancy district laws can be found in A SUMMARY-DIGEST OF STATE WATER LAWS (R. Dewsnap & D. Jensen eds., National Water Commission 1973).

64. See C. MEYERS & R. POSNER, *supra* note 4, at 25.

65. See § III-C of text and accompanying notes *infra*.

66. For a good general discussion of these types of conservancy district controversies, see NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 266-71 (1973) and C. MEYERS & R. POSNER, *supra* note 4, at 25.

67. N.M. STAT. ANN. ch. 75, art. 28 (1968 & Supp. 1975). The Middle Rio Grande Conservancy District extends from the Cochiti Indian Pueblo on the Rio Grande River north of Albuquerque, New Mexico, to the village of San Marcial at the northern end of Elephant Butte

throughout the West. Its irrigated lands amount to approximately 55,000 acres. The construction of the project works was made possible by a loan from the United States through the Bureau of Reclamation. As security for the loan, all project works were deeded to the United States.⁶⁸ The Conservancy District Board contends that it has the power to veto any transfer of surface water rights within its boundaries. The state engineer contests this jurisdiction and the water users of the district are by and large bewildered.⁶⁹

The district's need to assert authority over transfers stems from pressure from non-agricultural water users who wish to purchase water rights and transfer them outside the district.⁷⁰ The district, and all those who wish to see the district lands remain irrigable, advance the following arguments:

1. There are no longer any private waters free from regulation by the district. Persons who had water rights which pre-date the district maintained their right only to "such use as could be made of such waters *if the improvements of the district had not been made.*"⁷¹ Irrigable acreage decreased in the area every year until the project was constructed. If nature had taken its course, by 1977 no irrigable acreage would have existed. Therefore, if one is entitled only to the private water rights that would exist today if the project had not been

Reservoir near Truth or Consequences, New Mexico. It measures approximately 150 miles in length and varies in width from one to five miles.

68. Copies of these deeds are on file in the Middle Rio Grande Conservancy District office in Albuquerque, New Mexico.
69. Interview with Albino Elóisa Escamilla, ditch water users and community leaders in the south valley of Albuquerque, New Mexico (Sept. 1977).
70. The pattern of increasing market values for water rights is documented in R. Khoshakhlagh, F. Brown & C. DuMars, *Forecasting Future Market Values of Water Rights in New Mexico* (Final Report to N.M. Water Resources Research Inst., WRRRI Project No. 3109-209, July 1977).
71. The position is supported by N.M. STAT. ANN. § 75-28-26(3) (1968) which provides:

The rights of persons or public corporations and of other users of water, to the waters in and of the district for irrigation, water supply, industrial purposes, water power, or for any other purposes, *shall extend only to such rights as were owned by them or their predecessors prior to their inclusion in the district; and to such use as could be made of such waters if the improvements of the districts had not been made.*

Id. (emphasis added).

- built, then there would be no private water rights because there would have been no land to irrigate.
2. Even if prior rights do exist, the district's power to control all waters within the district stems from a state statute which provides: "Persons, public corporations and others desiring to secure such use of the waters or watercourses of the district, or of the district rights therein, may make application to the board for permission to lease, or purchase for such use."⁷² This statute clearly confers power to regulate not only "district [water] rights" but also all other private rights in the "waters or watercourses" within the district.⁷³
 3. Although the state legislature recognized there may exist vested irrigation rights within the district, nevertheless, in the proper operation of such districts, and especially in time of droughts, it is essential that the districts have the specific and unquestioned power to distribute the water remaining available for irrigation and to properly allocate the same for the purposes most essential for the welfare and economy of landowners within the district.⁷⁴
 4. Because the district has a "perpetual lien" on all of the real property of the district⁷⁵ and because the conservancy statute includes water rights within the definition of "real prop-

72. *Id.* § 75-28-26(9).

73. *Id.*

74. *Id.* § 75-28-28 (emphasis added). This statute provides in its entirety: It is recognized that in conservancy districts heretofore or hereafter organized under New Mexico law that certain land therein has or may have vested irrigation water rights. While fully recognizing such rights, nevertheless, in the proper operation of such districts, and especially in time of droughts, it is essential that the districts have the specific and unquestioned power to distribute the water remaining available for irrigation and to properly allocate the same for the purposes most essential for the welfare and economy of landowners within the district. To this end, the legislature deems it of manifest importance that conservancy districts have the unquestioned power to make such distribution and allocation of irrigation waters. While such power is present in existing laws, the method of enforcement is doubtful. To avoid any question in the future, this act [sections 75-28-28 to 75-28-32] is enacted, with the aforesaid legislative intent and policy in mind.

Id. (emphasis added). This statute is supported by *id.* § 75-28-29, which authorizes the district to distribute all of the waters of the district; *id.* § 75-28-30, which allows the district to promulgate written regulations for the allocation procedures, and *id.* § 75-28-32, which makes it a misdemeanor to violate these regulations.

75. This position is supported by *id.* § 75-32-10 which provides: All assessments levied to meet any indebtedness due or to become due to the United States pursuant to the reclamation law, rules and regulations, a reclamation contract or notices or statements issued by the Secretary of the Interior there-

erty,"⁷⁶ its consent must be obtained before any transfer of water rights.

All of these arguments are being tested in a recent and potentially explosive New Mexico case.⁷⁷ If these arguments prevail, Western state conservancy and irrigation district laws will add yet another layer of statutory maze which the potential purchaser must work through to acquire a water right in a project funded by the Bureau of Reclamation and operated by a state conservancy district.

IV. IMPACT OF THE FEDERAL AND STATE CONDITIONS ON THE MARKET FOR WATER RIGHTS

All of the legal battles which have been fought, or which will be fought, give encouragement to those concerned about future em-

under, together with all interest on all assessments and penalties for default in payment of the same, and all costs in collecting the same, shall from the date on which there is filed in the office of the assessor of the county in which is situated the property upon which such assessment is made a certified copy of the resolution of the board determining the amount of money to be raised, fixing the rate of such assessments and making a levy therefor, shall constitute a perpetual lien upon all the district real property against which such assessments shall be so levied, to which only the lien for general or special state, county, city, town, village or school taxes shall be paramount, and no sales of such property to enforce any general or special state, county, city, town, village, school tax or other lien shall extinguish the perpetual lien of such assessments nor extinguish the liability of such property to future assessment for payment of any indebtedness to the United States provided for in a reclamation contract; and every other assessment hereafter levied upon any real property within the district, under the provisions of this act [sections 75-32-1 to 75-32-24], is and shall be a lien upon the property against which such assessment is levied. All such assessments shall be collected, and all such liens shall be enforced in the same manner as assessments of taxes for state and county purposes are collected and the liens thereof are enforced.

Id. (emphasis added). See also *id.* § 75-32-19; *id.* § 75-4-11. Section 75-4-11 provides:

In all cases where the rights of owners of land in this state to which water rights on interstate streams are appurtenant have been the subject of litigation in the state or federal courts of an adjoining state, it shall be the duty of the state engineer to assume control of all or any part of such interstate stream and of the diversion and distribution of the waters thereof and to administer the same in the public interest. *Provided, however, that this section shall not apply to conservancy districts, irrigation districts or federal reclamation projects in this state.*

Id. (emphasis added).

76. *Id.* § 75-28-3. The state engineer bases his argument on *id.* § 75-5-2 which requires that he approve all surface water transfers.

77. *In re Cox*, No. 7147 (D.N.M. filed Sept. 5, 1977), *appealing* No. 02377A

ployment for lawyers. But what impact will they have on those people who need water for domestic, municipal, and industrial uses?⁷⁸

Water will probably never be traded in a "perfect market" with "perfect information" resulting in "pareto-optimal" market allocations⁷⁹ where all water is placed in its most efficient use. However, the exact opposite circumstance exists with reclamation water.⁸⁰ The legal impediments built around irrigation uses make it impossible for water to reflect its true market value.⁸¹

& RG-10591 (Office of N.M. State Engineer, filed Dec. 4, 1975). The Middle Rio Grande Conservancy District filed a protest against the Cox application to change the point of diversion, and the place and purpose of an irrigation water right to an underground use.

78. In the past, the problem of allocation of water in the Rocky Mountain states and in the West was considered a regional problem not worthy of national concern. In the 1970's, however, a number of events and movements have combined to change this situation. What formerly seemed important only in a parochial, regional context has become important nationally, as well.

The most dramatic event precipitating this change in status was the oil embargo of 1973, which focused national attention on the West as the location for large, domestic deposits of energy fuels—uranium, coal, and oil shale. Since virtually all processing of these fuels into subsequent energy forms requires large quantities of water, the attention of national strategists was drawn to the water resources of the region.

79. d'Arge, *Coase Theorem Symposium: Introduction*, 13 NAT. RESOURCES J. 557 (1973). A pareto-optimal or "pareto efficient" market is one in which "no one can be made better off without simultaneously making someone else worse off, given initial endowments of all parties." *Id.* at 557. In simple terms, this means a market in which all commodities are sold at the highest price that the free market can bring.
80. The West is approaching a condition in which the renewable supplies of water are fully utilized and the geological stocks of groundwater have become financially more expensive to obtain. The emerging pattern is that of a scarce resource whose low cost supplies have been fully allocated among a variety of competing uses and whose remaining physical stocks are steadily increasing in economic costs. Yet, most of the West is growing rapidly, both in terms of population and in economic activity. Energy development alone will provide a sustained stimulus to the region for the remainder of this century and well into the next. Associated with this increased movement of people and industry into the West will be an increase in the demand for water. As these new water uses are superimposed upon the emerging pattern of full appropriation, stresses are inevitable. In the absence of new additions to the water supply of the region, new uses can be accommodated only by retiring old uses or by turning to other, more costly, sources. However, project uses cannot be retired to meet this demand.
81. Some would argue "true market value" should not be at issue. It is true that any time water is involved there are fundamental ques-

The residency requirement and the 160-acre limitation, if enforced, will operate to exclude domestic and industrial bidders from the market. Without looking much further than the natural gas controversy one can see the negative impacts of over regulating natural resource development.

Many deep-well irrigation farmers in southern New Mexico rely on natural gas as their exclusive fuel for powering their irrigation pumps. Over the past three years the Federal Power Commission price for natural gas has increased dramatically. The farmers now

tions of equity that must be answered; none are answered by treating water as a commodity to be traded on the open market. Conversely, these issues are not addressed by the maze of overlapping state and federal laws that currently regulate reclamation water. The following questions are a matter of concern: why should proximity to a natural resource confer a greater share of the benefits from its use; why should historical priority in the use of a natural resource confer a continuing role as primary beneficiary of the use of the resource; and should the fact that some resource claimants are in an economically inferior condition to others bear upon the resolution of the equity issue? These are profoundly difficult questions, and no attempt will be made to resolve them here. But in considering different possible solutions to the equity issue surrounding water in the West, the importance of these ethical questions requires that some consideration be given them.

Some are adamantly opposed to free and open market transfers of water on philosophical grounds. There is a certain philosophy of a rural agrarian life, which has many strong adherents in the West and elsewhere. To proponents of this view, the value of maintaining a strong agricultural way of life cannot be captured by any formula which purports to establish a greater economic value to be gained from shifting water to non-agricultural uses. This point of view is most illuminating, and finds its broadest base of support, when it points to the transient nature of energy activity within the region.

The argument is made that each of the principal energy resources of the region—oil, natural gas, coal, uranium and oil shale—are non-renewable and therefore exhaustible. Extending this argument, it would be foolish to allow the withering of the region's permanent economic base in pursuit of a rich, but short-lived, transient industry. It would be better to mandate that new water demands be met from the unused stocks of groundwater even with the higher cost incurred.

On the other hand, the population of much of the region is economically poor, as measured by per capita income and other indicators. A common aspiration of many of these people is for substantial economic improvement, which has the implicit requirement that a scarce resource, such as water, should move to its most economically valuable use. For proponents of this view, an inflexible system of water allocation may be a serious obstacle to fulfillment of their aspirations. From this perspective, the existing system for managing water allocation is excessively cumbersome and complex, and perpetuates economic inefficiency by maintaining existing patterns of water use when economically more attractive re-allocations could be made.

argue that they cannot stand a higher natural gas price and remain in business. Under current irrigation practices the cost to switch to another fuel or to change irrigation practices is extremely high. The farmers contend that had they known the Federal Power Commission would allow the price of natural gas to rise to such a high level they would not have made the substantial capital investment they presently have. On the other hand, the municipal interests and residential consumers contend that they will pay too much if the farmers' subsidy is not ended, and new supplies are not developed.

The present status of reclamation water can be summarized as a situation in which (1) certain bidders are excluded from the market, and (2) the market value of the commodity is extremely unclear because of potential for future litigation at both the federal and state level.

This type of market insulation like the past Federal Power Commission control of natural gas will maintain water for those protected at an artificially low price. As the West approaches full appropriation, with continued restrictions on market operation, a number of results may be expected.

First, there are not likely to be sufficient incentives for the introduction of water conserving technologies into agriculture, or for the development of new supplies. Nor can it be expected that industrial or domestic users will plan wisely, since they have no real idea of what the price for water will be, when and if the market restrictions are lifted.

Second, when the restrictions are finally lifted, by legislation or court decision, the dramatic price increase will have far reaching ramifications for a suddenly failing irrigation industry unable to compete for its one essential ingredient—water. Neither the agricultural economy of the West nor the municipal and industrial users can stand the market-wrenching effects of this type of price fluctuation.

V. PRIVATE OR NATIVE WATER⁸²

The market for project water is increasingly insulated, resulting in artificially low prices. In sharp contrast is the market for non-

82. Private water or native water is defined as nonproject water. Water that has been appropriated under state law is not subject to the restrictions of the Bureau of Reclamation or any state or local water districts.

project water which is inefficiently carrying high transaction costs and thus greatly inflated prices.

Considered separately, the problems of each of the two markets are serious. The insulation of one market and great inflation of the other, together have a strong tendency to worsen the problems of each. The inflation of the native water market is increased because for most purchasers project water is not available at any price.⁸³ Furthermore, the higher the prices for available water are driven, the greater the danger if the insulation around project waters is suddenly removed (either by litigation or congressional enactment).

Although some might argue that inflation in the native water market is good because it will force a breakthrough that will open up reclamation waters to all purchasers,⁸⁴ a different view seems more appropriate.

The higher the price of native water, the greater the hardship created by suddenly excluding land from the project water market. The high price of water to industry and municipalities may enable that sector to increase its litigation and lobbying activities, but the same high price destroys all alternatives for present users of project water should their market be suddenly opened to the high bids of industry and municipalities.

There will be less waste of congressional time and less risk of sudden changes bringing drastic and destructive price fluctuations if the two disparate water markets can each be brought closer to pareto-optimality⁸⁵—thereby reducing the discrepancy between them. Not only would this benefit each market considered separately, but it would greatly reduce those unique risks caused by the mounting tension between the two.⁸⁶ The wasteful inflation

83. See § III of text *supra*.

In October, 1977, Charles DuMars interviewed, in confidence, a major water broker in Albuquerque, New Mexico, who stated that the jurisdictional conflict between the state engineer and the Conservancy Board had totally destroyed the market for conservancy district water rights. The market price in his view was zero. R. Khoshaklagh, F. Brown & C. DuMars, *supra* note 70, at 101, however, show the market value of water rights outside the conservancy district to be \$786.16 per acre foot.

84. It is argued that those excluded from the project water market will have no economically feasible alternatives, and will thus use their political power to induce Congress to make needed changes in the Reclamation Act, whereas less expensive alternatives will delay the modernization of reclamation laws.

85. See note 79 *supra*.

86. The unique risks are the sudden large upward swing in the price of project water if Congress should suddenly remove restrictions, to-

in the native water market should be reduced in any case. But it is all the more important to do so now that the courts and the Department of the Interior seem about to exclude some 95,000 acres of irrigated land from the project water market.⁸⁷

The problems of the two markets are very different. The problem of the project water market is, of course, the absolute exclusion of most potential buyers. The problem of the native water market is high, even enormous, transaction costs. A significant amount of research on the problems of the native water market has already been published.⁸⁸ Meyers and Posner have observed that, unlike the native market, the project water market operates without high transaction costs.⁸⁹ Their analysis furnishes valuable insight into the kind of changes needed to reduce transaction costs in the native water market.

A. Improving the Market Allocation of Native Water

Project water is usually sold to or controlled by conservancy districts or irrigation districts. These districts allocate to the individual irrigators. Generally, the water rights allocated by a single district are completely fungible. They can be easily and inexpensively transferred to any other irrigator in the same district. As Meyers and Posner note, "mutualization or unitization of a shared water resource avoids problems of quantification and of return flow—the chief difficulties in most attempted transfers."⁹⁰

The more a state's water allocation system can be made like that of a mutual ditch company or conservation district, the more transaction costs will be reduced and the more efficiency will be promoted. The two sources of almost all the huge and avoidable transaction costs in Western native water right transfers are *quantification* and *return flow problems*.⁹¹ It is, however, possible to substantially reduce quantification costs and avoid return flow problems altogether.

gether with resulting hardships to irrigators using such water.

87. See table accompanying note 60 *supra*.

88. See L. HARTMAN & D. SEASTONE, *supra* note 3; J. HIRSHLEIFER, J. DEHAVEN & J. MILLIMAN, *supra* note 3, at 32-82; C. MEYERS & R. POSNER, *supra* note 4; Ellis, *Water Transfer Problems: Law*, in *WATER RESEARCH* 233 (A. Kneese & S. Smith eds. 1966); Trelease, *Changes and Transfer of Water Rights*, 13 *ROCKY MTN. MINERAL L. INST.* 507 (1967).

89. See C. MEYERS & R. POSNER, *supra* note 4, at 36.

90. *Id.* at 35.

91. *Id.* These two concepts are taken from Meyers and Posner. Quantification refers to the process of defining the quantum of the transferred right.

The reasons these two enemies of market efficiency came into existence will be briefly set out. In water scarce areas, it was felt necessary to grant firm property rights in the water supply in order to induce financial and other forms of reliance in those who it was hoped would invest their lives and fortunes in settling and developing the area.⁹² It was thought important to change that aspect of Eastern riparian water law that allowed those coming later to have as good a right as those who had developed and first relied. Only a seemingly inexhaustible supply could induce reliance without protection from unknown future claimants. The Western water supply was patently exhaustible.

The answer to these needs was the system known as prior appropriation. It made reliance possible by creating a priority list. The would-be developer was told that under state law no future claimant could infringe his ability to obtain water. Therefore, he could examine the source of supply and the claimants ahead of him on the priority list and make a rational decision whether or not to invest his time and money.⁹³

It is desirable to protect past reliance and to continue to make such reliance possible. Therefore, in seeking ways to make market transfers of water rights more efficient, the basic reasons for prior appropriation water law must continue to be served. With this understanding, the arch enemies of market efficiency—expensive quantification and return flow problems—can be considered.

B. Quantification

The best examples of both good and bad quantification are found in *Green v. Chaffee Ditch Co.*⁹⁴ The fact that *Green* is one of the most analyzed of water law cases, and yet no previous analysis has disclosed its worst evils (including an analysis by one of the authors⁹⁵), is a humbling demonstration of where much of the problem lies.

Green is the conclusion of a story that began when the city com-

92. See Ciriacy-Wantrup, *Water Economics: Relations to Law and Policy*, in 1 *WATERS AND WATER RIGHTS* 397, 413-30 (R. Clark ed. 1967). The author discusses the "dichotomy of criteria (security and flexibility)." *Id.* at 413.

93. For a general discussion of the reasons underlying the development of Western prior appropriation water law, see F. TRELEASE, *WATER LAW* 24-26 n.1 (2d ed. 1974) (quoting McGown, *The Development of Political Institutions on the Public Domain*, 11 *Wyo. L.J.* 8, 14 (1956)).

94. 150 Colo. 91, 371 P.2d 775 (1962).

95. See Ellis, *supra* note 88, at 237, 241, 246. *Green* is discussed throughout the article.

missioners of Fort Collins, Colorado, talked Milton Hoffman and Lydia Hoffman Morrison into selling part of their water right. A judicial decree stated they were entitled to a sixteen cubic foot per second water right to irrigate seventy-two acres of described land. Hoffman delivered a deed assigning Fort Collins a right to divert eight cubic feet per second. Hoffman planned to continue irrigating a portion of his seventy-two acres.⁹⁶

Fort Collins began the routine procedure necessary to transfer the water right it had purchased to its intake pipes, thirteen miles upstream from the Hoffman-Morrison farm. The Colorado Supreme Court approved the method by which the trial court had quantified the Hoffman water right, that is, had determined just how much water the right allowed its owner to consume.⁹⁷ For this purpose the court (like virtually all courts and agencies today) used the Blaney-Criddle formula.⁹⁸

The Blaney-Criddle formula ignores the size of ditches and does not employ any water measurement inputs. The formula calculates how much water *should* (in good husbandry) be used on a specific soil by considering the distance from the stream, the altitude above sea level, the length of growing season, and the type of crops grown on the soil.⁹⁹

Using the formula, the trial court found that the amount of water historically consumed by the Hoffman-Morrison farm was ninety-five acre feet per year. The court then found from the evidence that Fort Collins would consume fifty percent of the water it diverted out of the stream; the other fifty percent would return to the stream as return flow. The trial court concluded that Fort Collins could divert 190 acre feet (twice ninety-five).¹⁰⁰ This quantification was necessary to be certain that the net effect of Fort Collins' use of the Hoffman right after transfer was no more damaging to the stream than the Hoffman's use had been before the transfer.¹⁰¹

This is the positive aspect of quantification; the guarantee of the prior appropriation system was maintained by the courts. Late-

96. This is an important point and is clearly established in the literature. See L. HARTMAN & D. SEASTONE, *supra* note 3, at 28. The authors state, "[i]t was found during court proceedings that Hoffman intended to continue irrigating his land with the remaining 7.815 c.f.s." *Id.*

97. 150 Colo. at 105, 371 P.2d at 782.

98. The Blaney-Criddle formula is fully explained in Blaney & Criddle, *Determining Water Requirements for Settling Water Disputes*, 4 NAT. RESOURCES J. 29 (1964).

99. *Id.* at 32-33.

100. 150 Colo. at 101, 371 P.2d at 780.

101. *Id.* at 103, 371 P.2d at 781.

comers, including subsequent purchasers, could not adversely affect the rights already perfected.

The negative aspect of quantification is that Fort Collins was forced to employ experts to examine the Hoffman farm and apply the Blaney-Criddle formula if it wanted to know how much water Hoffman had for sale.¹⁰² This is a transaction cost that does not exist in any but the Western water market. Furthermore, Fort Collins had the expense of litigation. In quantification the cost of experts to determine consumptive use is always present, and the cost of litigation is frequently present.

Green also discloses the potential for unfairness that lurks in the problem of quantification. In the course of the trial, protesting neighbors brought out the fact that at no time had an amount of water in excess of eight cubic feet per second been applied to beneficial use on the Hoffman-Morrison land.¹⁰³

Since the deed to the city specified eight cubic feet, it was concluded by everyone (apparently even Hoffman's attorney) that the entire water right had been sold, even though it is clear that at the time he signed the deed Hoffman thought he was selling only part of his right.¹⁰⁴ This result appears to be an injustice to Hoffman, brought about by basic confusions within the legal system.

At the time Hoffman executed the deed and delivered it to Fort Collins no one knew the quantum of the Hoffman water right. The only official document in existence was a judicial decree, issued in 1882, which mistakenly described the Hoffman right as a "16 cubic feet per second" water right.¹⁰⁵ The phrase "16 cubic feet per second" describes only a rate of flow; it does not describe a quantity of water. The effect a sixteen-second-foot right will have on a stream depends entirely upon how often and long the headgate is left open.

This inadequate description did not cause a problem in an agricultural setting because the decree also stated that Hoffman could only irrigate a described seventy-two acres with his water right.¹⁰⁶ It was probably impossible for Hoffman to consume much more than ninety-five acre feet on his seventy-two acres because the rest would return to the stream.¹⁰⁷

102. L. HARTMAN & D. SEASTONE, *supra* note 3, at 29.

103. 150 Colo. at 104, 371 P.2d at 782.

104. See note 96 *supra*.

105. 150 Colo. at 100, 371 P.2d at 780.

106. L. HARTMAN & D. SEASTONE, *supra* note 3, at 27.

107. This method of controlling the quantum of an irrigation water right is called the doctrine of enlarged uses and is discussed briefly in Beck

Despite the popular belief of farmers and lawyers alike, the quantum of the Hoffman water right was not described by the feet per acre language of the decree; it was described by the seventy-two acres of specifically described land language of the decree.¹⁰⁸ And of course the description of the land did not reveal the quantum of the right until the Blaney-Criddle formula was applied. The carrying capacity of the ditch is immaterial in that formula.¹⁰⁹

When the number on the decree is sixteen and the deed specifies eight, it is difficult to avoid the conclusion that the parties intended to transfer one-half of the water right. For centuries the legal profession has dealt with the problem of ambiguity in a deed.¹¹⁰ Why was it not recognized in Hoffman's case?

In addition to market inefficiencies, the prior appropriation system holds great potential for unfairness of the type suffered by Mr. Hoffman. Almost all transfers today are from irrigation to industry or municipalities. The vague way of describing the quantum of a right that was appropriate for irrigation is inadequate and often misleading in any other context. If Hoffman had sold his right to a neighbor who intended to irrigate seventy-two acres, he would have known full well that he was selling all of his water right. If it had been his intention to sell only half he would have specified that he was selling enough of his right to irrigate thirty-six acres. But in dealing with a city, Hoffman could not use this traditional method of limiting the quantum of irrigation water rights. It was unfortunate that at the time the deed was signed no one knew the quantum of the Hoffman water right in terms meaningful for municipal use, but a greater unfairness arose because everyone apparently thought they knew.

The limitations of the water right records presently available must of course be understood. Beyond this, however, ways should be sought to reduce these limitations by making reasonable improvements in the records that define water rights.¹¹¹

C. Reducing the Cost of Necessary Quantification

Today, when most transfers of water are from irrigation to industrial and municipal uses, quantification by rate of flow and de-

& Clyde, *The Colorado Doctrine: Surface Water Rights by Appropriation Only* § 410.2, in 5 *WATERS AND WATER RIGHTS* 131 (R. Clark ed. 1972).

108. L. HARTMAN & D. SEASTONE, *supra* note 3, at 27.

109. See Blaney & Criddle, *supra* note 98.

110. See generally 3 *AMERICAN LAW OF PROPERTY* § 12.86 (A. Casner ed. 1952).

111. See R. DEWSNUP, *IMPROVEMENT OF STATE WATER RIGHTS RECORDS* 1-10 (National Water Commission 1971).

scription of the land irrigated is inadequate. The State of New Mexico has for decades officially defined water rights in terms of the number of acre feet that can be diverted each irrigation season or year.¹¹² This figure has been determined in the New Mexico State Engineer's Office by use of the Blaney-Criddle formula.¹¹³ Most irrigators have been willing to accept the accuracy of the engineer's determination, so that transfer protests are usually limited to the question of whether or not water has actually been put to beneficial use on the seller's farm.

It could well be that states that have not historically determined the quantum of irrigation water rights in any reliable way would be spending more money to do so than the resulting increase in market efficiency would justify. However, the process may not be as expensive as it first appears. Instead of analyzing every farm in the state, the New Mexico State Engineer has successfully applied the Blaney-Criddle formula to entire drainage basins that have common soil types, cropping patterns, etc.¹¹⁴

New Mexico has adopted an additional, if small, efficiency. Unlike the Colorado courts,¹¹⁵ the New Mexico State Engineer has not individually calculated the losses from each ditch. All farms in a given area are allowed the same carriage loss whether their ditches are long or short. The result is that carriage losses do not have to be calculated in defining the seller's property right. In analyzing an irrigated river valley, the New Mexico State Engineer ignores the length of ditches as long as they are not unreasonably wasteful.¹¹⁶ The New Mexico method can reduce the cost of quantification significantly.

D. Return Flow—The Intractable Problem

Return flow problems cannot be solved. They are not solved by state engineers who reduce the transferred right by half (or by

112. Letter from Richard Simms, General Counsel, N.M. State Engineer & N.M. Interstate Stream Comm'n, to W.H. Ellis (Feb. 6, 1978) (on file in the library of Willis H. Ellis).

113. *Id.*

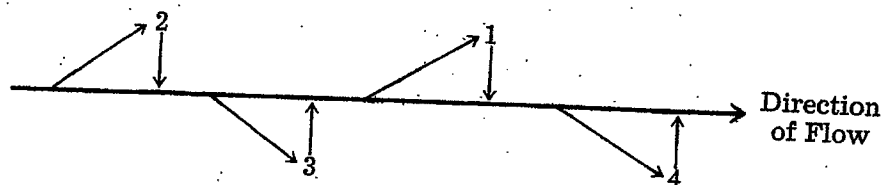
114. *Id.*

115. See *Green v. Chaffee Ditch Co.*, 150 Colo. 91, 371 P.2d 775 (1962). The courts added five acre feet to the transferred water right because the trial court found "[t]hat in addition to the 90 acre feet of water consumed on this land, five acre feet are lost by evaporation and seepage while the water is in transit from the headgate of the Coy Ditch to the Hoffman-Morrison farm." *Id.* at 101, 371 P.2d at 780.

116. Letter from Richard Simms, General Counsel, N.M. State Engineer & N.M. Interstate Stream Comm'n, to W.H. Ellis (Feb. 20, 1978) (on file in the library of Willis H. Ellis).

any other factor),¹¹⁷ and they cannot be solved by letting buyers sell the increased return flow created by their transfer.¹¹⁸

It is necessary at the outset to understand what a return flow problem is. All return flow problems involve a physical sequencing of water rights on a stream in such a way that a junior right will receive water when one or more rights senior to it do not. This can occur only when the junior is just below the return flow of a very senior right and the senior rights not receiving water are all higher (above) on the stream.



Each number on this chart represents that right's position on the priority list—1 having the highest priority. When stream flow is small, rights 2 and 3 will have to let all the flow go by to 1, but 4 will be able to take all of 1's return flow. If this situation was created voluntarily as a result of the order in which rights 1 through 4 were originally perfected, it does not constitute a problem. The guarantees of the prior appropriation system are maintained even though 4 gets water when 2 and 3 do not. When 2 and 3 made their decisions to risk time and money on their respective locations, 1 was already there and they knew full well that they would have to allow water to flow down to 1 when the stream was low enough.

If, however, the situation described above is created by a transfer, a return flow problem is brought about because rights 2 and 3 are impaired *vis-a-vis* 4. Similarly, if historical development of the area created the described situation and a transfer takes right 1 and its return flow away so that right 4 no longer receives its benefit, a return flow problem is brought about because right 4 is impaired *vis-a-vis* 2 and 3. In each case the recognition of a return flow problem is deemed necessary to protect junior right own-

117. It is frequently asserted in the literature that state administrators "solve" the return flow problem by reducing the transferred right so that after transfer the purchaser can divert as much as his vendor had consumed. L. HARTMAN & D. SEASTONE, *supra* note 3, at 19. In most irrigation settings this would be a 50 percent reduction.

118. This "solution" is suggested in L. HARTMAN & D. SEASTONE, *supra* note 3, at 11, and C. MEYERS & R. POSNER, *supra* note 4, at 36, 47.

ers who have relied upon the conditions in existence when they perfected their rights.

There is no really satisfactory solution for this problem within the prior appropriation system. Some state engineers try to protect impaired junior rights by reducing the quantum of the transferred right.¹¹⁹ If efficient allocation of water is an important desideratum of a water law system (and it certainly is), this solution may be worse than the problem. The purchaser must buy (and the seller sell) twice as much water as he is allowed to take his place of use.

Furthermore, any attempt to solve a return flow problem by reducing the quantum of the transferred right is not only destructive of market efficiency, it is not an accurate method of protecting the injured junior right. The return flow deficit suffered by a junior right is not a constant. It varies inversely with stream flow.¹²⁰ The state engineer who reduces the transferred right by fifty percent is overcorrecting part of the time and undercorrecting part of the time.

Hartman and Seastone have suggested that efficiency can be restored by allowing the purchaser to sell the amount of his purchase which he is not permitted to use,¹²¹ or more precisely, the additional water that is in the stream because of his transfer.

It is true that after such a transfer there is sometimes more water in the stream because the transferred right is curtailed to protect those who are bypassed. However, it is unlikely that any state engineer will ever allow a sale of increased return flow because the amount of surplus water left in the stream as a result of the transfer is also not a constant; it changes in direct proportion to the stream flow.¹²² If the means to accurately measure stream flow exist, the state engineer could presumably calculate the extra water available at that moment. The problem would be in administering a priority right that is constantly changing in amount. Even if an administrative agency were willing to take on such a job, the irrigation season would be over before it really knew how much return flow could be safely sold. It might also be difficult to explain to prospective buyers what it was that was being offered for sale.

E. Avoiding Return Flow Problems

Quite by accident, New Mexico has largely avoided return flow problems, and by some changes in law could avoid them altogether.

119. See note 117 *supra*.

120. See Ellis, *supra* note 88, at 245.

121. See L. HARTMAN & D. SEASTONE, *supra* note 3, at 11.

122. See Ellis, *supra* note 88, at 246.

The New Mexico law of surface water is nominally prior appropriation law. However, priorities in most instances are not enforced in New Mexico. The original reason for this state of affairs is that fewer than half the water rights in the state have ever been adjudicated, so that the state engineer does not have an authoritative priority list on which to base enforcement. The New Mexico State Engineer rarely shuts junior headgates to make water available for senior ditches. What happens instead is a hodge-podge of local customs, proration agreements between ditches and, in some areas, simple, raw taking by those in a physical position to do so.

The only thing that has kept this situation from disintegrating into mayhem or civil war is the fact that—unlike some Western states—New Mexico from an early date has limited the number of rights to water from a given stream.¹²³ The developer's risk of time and money has not been protected in New Mexico by guaranteeing him a specific place in a priority list; it has been protected by limiting the number and quantity of water rights to a level that the stream could satisfy.

It would seem, at least in theory, that such a system could not exist in a state like Colorado. In Colorado no limitation has ever been placed upon the number of surface rights.¹²⁴ The reliance of Colorado water right owners has been protected by immediate administrative enforcement of priority. Setting aside constitutional questions, one would fear that prorating shortages in Colorado would let all the hundreds of rights on the bottom of the priority list take water and thus destroy the senior rights and the agricultural economy of the state. However, it must be the case in Colorado that all those hundreds of rights at the bottom of priority lists have long ago partially or entirely ceased to exist under the doctrine of abandonment. These rights exist only on paper.

One thing is certain. Riparian states that experience water shortages in the future have a different allocation method to consider than just the additional prior appropriation system. The system suggested by the New Mexico experience is a better system for arid and water short regions than prior appropriation.

The characteristics of the system advocated are:

1. There would be a limit on the number and size of the rights

123. A permit to acquire surface water rights has been required in New Mexico since 1907. 1907 N.M. Laws ch. 49 (codified at N.M. STAT. ANN. §§ 75-5-1 to -37 (1968 & Supp. 1975)).

124. See G. RADOSEVICH, K. NOBE, D. ALLARDICE & C. KIRKWOOD, *EVOLUTION AND ADMINISTRATION OF COLORADO WATER LAW: 1876-1976*, 27-29 (1976).

to take water from each surface stream in the state. The limitation should be such that the worst foreseeable shortage when prorated would still furnish enough water to each right owner to have *some* economic value.

2. There would be no priority between rights. Instead all rights would share equally in the burden of shortage—proration.
3. The economic effects of shortage would be buffered. Under prior appropriation a senior right owner who cannot stand shortage need purchase no water to augment his supply until shortages reach the point at which his headgate is closed and then he must purchase enough to replace his entire right. Under proration, the same owner would have to purchase additional water more often, but he would never have to replace his entire right.
4. Because the effects of shortage are buffered, proration is more appropriate in areas where temporary, high water use, energy developments are taking place. There is less likelihood that the temporary energy development will destroy the agricultural basis of the area.

In all other respects the new water rights would be like prior appropriation rights and unlike riparian rights: they would be usable near or far from the source of supply, they could be transferred with or separate from the land upon which they are used, and they would be limited in amount diverted and amount consumed.

When all rights share the burden of shortage equally, no one is above or below a senior right. One right's return flow is as good as another's, and the classic return flow problem does not arise.