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A WESTERNER LOOKS AT EASTERN WATER LAW: RECONSIDERATION OF PRIOR APPROPRIATION IN THE EAST

George A. Gould*

I. INTRODUCTION

The riparian doctrine, which until recently held a monopoly in eastern states, is a doctrine predicated on relative abundance and infrequent conflict.¹ Historically, this predicate existed chiefly in the East. Nature has been generous to the East with regard to water, at least in comparison to the arid West, and irrigation, the voracious drinker of western water, was not widely practiced. Thus, supply was high, demand was low, and conflict was infrequent. However, increasing competition for water, greater sensitivity to environmental needs, the desire for more active management of water resources, and other factors, have given rise to a widely held perception that the common law riparian doctrine is no longer adequate to meet the needs of the East.²

Critics identify a number of deficiencies in the riparian doctrine. First, they charge that it does not provide secure, well-defined rights necessary to encourage investment in water development and in water dependent enterprises.³ Under the doctrine, each riparian landowner has a right to a "reasonable use" of water.⁴ Reasonableness depends primarily on an ad hoc balancing of the interests of the plaintiff and the defendant.⁵ Reasonableness is also relative; a given use of water can be reasonable when compared with

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1. Although it is common to speak of "riparian rights," the doctrine is more appropriately described in terms of liability rules. Owners of riparian lands are given a broad privilege to use water and are subjected to liability only when their use of water injures others. RESTATEMENT (SECOND) OF TORTS § 850 note (1979) (Introductory Note on the Nature of Riparian Rights and Legal Theories for Determination of the Rights) [hereinafter RESTATEMENT]; Eric T. Freyfogle, *Water Justice*, 1986 U. ILL. L. REV. 481, 499-503 (1986).

2. See Joseph W. Dellapenna, *Regulated Riparianism*, in 1 WATERS & WATER RIGHTS § 9.01 & n.8 (Robert E. Beck ed., LEXIS Repl. 2001).

3. *Id.* § 9.01; Freyfogle, *supra* note 1, at 488-92; T.E. Lauer, *Reflections on Riparianism*, 35 MO. L. REV. 1, 14-15 (1970).

4. See RESTATEMENT, *supra* note 1, §§ 850-850A; Joseph W. Dellapenna, *The Right To Consume Water Under "Pure" Riparian Rights*, in 1 WATERS AND WATER RIGHTS, *supra* note 2, § 7.02(d); Lauer, *supra* note 3, at 3-4. A competing theory, the natural flow doctrine, has been almost entirely eclipsed by the reasonable use doctrine. See RESTATEMENT, *supra* note 1, § 850 note, at 209-16; Dellapenna, *supra*, § 7.02(c).

5. See RESTATEMENT, *supra* note 1, § 850A (listing nine factors to be considered in determining reasonableness); Dellapenna, *supra* note 4, § 7.02(d)(1); Lauer, *supra* note 3, at 7-11.

one competing use and unreasonable when compared with another.⁶ Similarly, reasonableness is dynamic; a use once considered reasonable can become unreasonable because of changes in social and economic values or new demands for water.⁷ In addition, riparian users do not have a right to a set quantity of water, but are usually required to share available supplies during times of shortage.⁸

Second, the riparian doctrine is criticized because it depends on litigation for the enforcement of rights.⁹ Litigation is expensive, time-consuming, and often unpredictable.¹⁰ In addition, litigation resolves only the rights of the parties to the litigation, leaving rights vis-a-vis other riparians unresolved.¹¹ Finally, litigation can only resolve disputes not prevent them; in modern vernacular, it is reactive, not proactive.¹²

A third criticism centers on the geographic limitations that the riparian doctrine places on the use of water.¹³ Riparian rights attach only to lands that are adjacent to streams and rivers constituting riparian lands.¹⁴ While water may be used on non-riparian lands if no harm is done to other riparian uses,¹⁵ non-riparian uses are even less secure than riparian uses.

Lack of protection for environmental and other public values is yet another criticism of the riparian doctrine.¹⁶ While public values are theoretic-

6. Peter N. Davis, *Eastern Water Diversion Permit Statutes: Precedents for Missouri?*, 47 MO. L. REV. 429, 436-37 (1982); Lauer, *supra* note 3, at 13.

7. See Davis, *supra* note 6, at 436-37; Lauer, *supra* note 3, at 14. Theoretically, a judicial decree determining that a use is reasonable is good only between the parties to the litigation and only for the day it is issued.

8. NAT'L WATER COMM'N, *WATER POLICIES FOR THE FUTURE* 280 (1973); Dellapenna, *supra* note 4, § 7.03(c)(1).

9. NAT'L WATER COMM'N, *supra* note 8, at 280-81.

10. *Id.* at 280-81; Richard Ausness, *Water Rights Legislation in the East: A Program for Reform*, 24 WM. & MARY L. REV. 547, 553 (1983) (quoting Lauer, *supra* note 3, at 13-14).

11. Davis, *supra* note 6, at 437; Lauer, *supra* note 3, at 13.

12. Robert H. Abrams, *Water Allocation by Comprehensive Permit Systems in the East: Considering a Move Away from Orthodoxy*, 9 VA. ENVTL. L.J. 255, 263-64 (1990). A litigation driven model has advantages over an administrative model when conflict is infrequent, primarily in terms of cost. See *id.* at 264-65; see also NAT'L WATER COMM'N, *supra* note 8, at 280-81; Lynda L. Butler, *Allocating Consumptive Water Rights in a Riparian Jurisdiction: Defining the Relationship Between Public and Private Interests*, 47 U. PITT. L. REV. 95, 100-02 (1985).

13. See Freyfogle, *supra* note 1, at 488-92; William L. Ziegler, *Water Use Under Common Law Doctrines*, in *WATER RESOURCES AND THE LAW* 49, 70-72 (1958). But see JOHN E. CRIBBETT, *ILLINOIS WATER RIGHTS LAW* 18 (1958).

14. Dellapenna, *supra* note 4, § 7.02(a).

15. See N.Y. ENVTL. CONSERV. LAW § 15-0701 (McKinney 1997) (protecting non-riparian uses that do not harm riparians); *Stratton v. Mt. Hermon Boys' Sch.*, 103 N.E. 87, 89 (Mass. 1913); RESTATEMENT, *supra* note 1, § 855.

16. See Davis, *supra* note 6, at 438-39; Dellapenna, *supra* note 4, § 7.05.

cally relevant in determinations of reasonableness,¹⁷ the riparian system is dependent on private parties to vindicate such values. Experience has shown that adequate protection of public values usually requires government intervention. Similarly, public management of water resources is impossible under the doctrine.¹⁸ In addition, one writer has suggested that principles developed for private disputes do not accommodate the needs of municipalities and other public water supply entities.¹⁹

In response to these criticisms, most eastern states, in an effort to reform water law, have studied or adopted an administrative permit system.²⁰ Such reforms draw the eastern states closer to the western states. Beginning with Wyoming in 1890,²¹ the use of administrative permit systems is an almost universal feature of western water law.²² Despite the western precedent, there has been a general reluctance to incorporate appropriation principles in eastern permit systems. Indeed, much eastern scholarly commentary is hostile to the application of appropriation principles in the East.²³

17. See RESTATEMENT, *supra* note 1, § 850A(d) & cmts.

18. See Abrams, *supra* note 12, at 261–65.

19. Butler, *supra* note 12, at 102–03.

20. Approximately one-half of the eastern states have adopted comprehensive permit systems. Dellapenna, *supra* note 2, § 9.01. Interest in reform tends to increase when drought conditions are present and decrease as water supplies return to normal. See Butler, *supra* note 12, at 101 n.12. Eastern permit systems are not universally seen as needed. Professor Dan Tarlock calls the need for eastern permit systems an “untested hypothesis.” A. Dan Tarlock, *Introduction to Water Rights Symposium*, 24 WM. & MARY L. REV. 535, 538 (1983). He argues that most eastern water law problems are land use problems, that “nonconsumptive uses are at least as important as consumptive uses” in the East, and that “managerial discretion [is] only minimally constrained by the need to protect private water rights” because of the abundance of water in the East. *Id.* at 537–38. He suggests that the recognition of public use rights may be the most needed reform in the East. *Id.* at 538. Professor Robert Abrams, while proposing a permit system of his own design, has argued that eastern permit systems are rigid, tend to overregulate, and lack articulated policy objectives. See Robert H. Abrams, *Replacing Riparianism in the Twenty-First Century*, 36 WAYNE L. REV. 93, 98 (1989); Abrams, *supra* note 12, at 284–85. Noting the high cost of permit systems, the National Water Commission recommended that states introduce such systems only to those water basins experiencing sharp competition for water. NAT’L WATER COMM’N, *supra* note 8, at 280.

21. See *Wyo. Hereford Ranch v. Hammond Packing Co.*, 236 P. 764, 768 (Wyo. 1925).

22. Only Colorado does not utilize a permit system to administer the appropriation doctrine. Colorado administers water rights through specialized “water courts” that function much like an administrative agency. See GEORGE A. GOULD & DOUGLAS L. GRANT, *CASES & MATERIALS ON WATER LAW* 121–22 (6th ed. 2000). The water courts lack one important power possessed by administrators in other western states—the power to deny or condition water rights to promote the “public interest.” See *In re Application for Water Rights of the Bd. of County Comm’rs*, 891 P.2d 952, 971–73 (Colo. 1995).

23. See, e.g., FRANK E. MALONEY ET AL., *A MODEL WATER CODE* 75–81 (1972); Abrams, *supra* note 20, at 93–98; Joseph W. Dellapenna, *Dual Systems*, in 1 *WATERS & WATER RIGHTS*, *supra* note 2, § 8.05.

This article calls for reconsideration of prior appropriation principles in the East.²⁴ It will argue that framing the debate as a choice between a market-driven system of private property (appropriation systems) and a system of public property (eastern permit systems), as is often done, is erroneous. Rights to water in both systems, in their contemporary forms, are based on administrative permits that provide the basis for regulation of water use to protect and promote the public interest. Additionally, both systems create a form of "private property,"²⁵ although appropriation systems create a more secure, enduring form than eastern permit systems. Instead of a debate between private property and public property, the debate between appropriation and riparian systems involves a few details, albeit important ones, in the nature of the permits that are the core of both systems.

This article will also argue that assertions in opposition to prior appropriation often misconstrue or misrepresent the doctrine and the doctrine's effects, or the assertions are based on anachronistic caricatures of the doctrine. Further, it will argue that appropriation principles produce results that are economically superior to those produced by eastern permit principles and that appropriation principles can be applied to protect environmental and other public values associated with water resources.²⁶

II. COMPARISON OF WESTERN AND EASTERN PERMIT SYSTEMS

Neither western nor eastern permit systems are monolithic; there is substantial variation in detail between states. Nevertheless, both systems contain core features which make it possible to characterize and compare the two systems.

Features of western systems:²⁷

24. The doctrine of prior appropriation states that "beneficial use of water is the basis of the right to use water, and that priority of use is the basis of the division of water between appropriators when there is not enough for all." RESTATEMENT, *supra* note 1, § 850 note, at 213.

25. See Freyfogle, *supra* note 1, at 508-09; Charles Reich, *The New Property*, 73 YALE L.J. 733 (1964).

26. See *infra* Part III.A. In the interest of full disclosure, it should be noted that these arguments are not new ones. The late Frank J. Trelease, prominent authority on American water law for much of the last half of the twentieth century, made many of the same arguments almost thirty years ago at the dawn of the era of eastern permit systems. See generally Frank J. Trelease, *The Model Water Code, the Wise Administrator and the Goddam Bureaucrat*, 14 NAT. RESOURCES J. 207 (1974). In addition to expanding and restating many of the points made earlier by Frank Trelease, this article hopes to remind eastern legislators and policy makers of the virtues of prior appropriation.

27. See generally C. Peter Goplerud III, *The Permit Process and Colorado's Exception*, in 2 WATERS AND WATER RIGHTS, *supra* note 2, ch. 15.

- A. An administrative permit is required for the use of water.²⁸
- B. Permits are based on the “beneficial use” of water.²⁹
- C. The administrator has discretion to deny or condition permits to protect “public interest.”³⁰
- D. Permits are not limited in duration; rights created by a permit endure indefinitely (perpetual permits).³¹
- E. Temporal priority—first in time, first in right—determines the allocation of water in times of shortage.³²
- F. Water is reallocated to new uses by the “market” (voluntary transfers).³³
- G. The use of water is not restricted to riparian lands.³⁴

Features of eastern systems:³⁵

- A. An administrative permit is required for the use of water.³⁶

28. *Id.* §§ 15.01–.02. Technically, in most western states, a permit merely authorizes the permittee to undertake the work necessary to appropriate water. *See id.* § 15.03(d)(1). Upon completion of appropriation, by applying water to a beneficial use, another document, frequently called a “certificate of appropriation” or a “license” is issued adjudicating or evidencing completion of the appropriation. *Id.*

29. Robert E. Beck et al., *Elements of Prior Appropriation*, in 2 WATERS AND WATER RIGHTS, *supra* note 2, § 12.02(c)(2). “Beneficial use is a core principle of the appropriation doctrine.” GOULD & GRANT, *supra* note 22, at 32 n.1.

30. *See* Goplerud, *supra* note 27, § 15.03(c)(3).

31. *Arizona v. California*, 283 U.S. 423, 459 (1931) (describing an appropriation as a “vested right to take and divert from the same source, and to use and consume the same quantity of water annually forever.”) (emphasis added). *Contra* MONT. CODE ANN. § 85-2-141(5) (2001) (providing for leases of water having a maximum term of 50 years). Rights can be lost by non-use, such as forfeiture or abandonment. *See* GOULD & GRANT, *supra* note 22, at 179–92.

32. Beck, *supra* note 29, § 12.02(e).

33. *See* Owen L. Anderson et al., *Reallocations, Transfers and Changes*, in 2 WATERS AND WATER RIGHTS, *supra* note 2, ch. 14.

34. Doctrinally, the appropriation doctrine places no geographic restrictions on the place of use. Some states have enacted statutes restricting diversions of water from one geographic area to another. *See, e.g.*, CAL. WATER CODE §§ 10505, 11460–11463 (West 1992) (restricting diversions of water outside watersheds or areas of origin).

35. *See generally* Dellapenna, *supra* note 2, ch. 9.

36. *Id.* § 9.03(a).

- B. Permits are based on "reasonable use" of water, which includes "public interest" considerations.³⁷
- C. Permits are limited in time (term permits).³⁸
- D. The administrator determines the allocation of water in times of shortage.³⁹
- E. Water is allocated to new uses by the administrator.⁴⁰
- F. The use of water is not restricted to riparian lands.⁴¹

Thus, both systems require permits, give administrators substantial discretion to deny or condition permits to protect the public interest, and do not restrict the use of water to riparian lands. The systems differ in the duration of rights, allowing perpetual rights in the West versus term rights in the East; in the mechanism for reallocation of water to new uses, establishing market transfers in the West versus administrative reallocation in the East; and in the mechanism for allocation of water during shortages, allowing temporal priority in the West versus administrative allocation in the East.

III. MYTHS OF PRIOR APPROPRIATION

This section examines several myths or misconceptions regarding the appropriation doctrine. These myths are frequently asserted to justify the rejection of appropriation principles in eastern states.

A. Myth Number One: Prior Appropriation Commodifies Water

Commodification refers to situations in which resources are allocated primarily through market rules.⁴² The doctrine of prior appropriation is sometimes criticized on this ground.⁴³ Conversely, the doctrine is also criticized by market proponents on the ground that it does not adequately commodify water resources.⁴⁴ Whether one views commodification of water

37. *Id.* §§ 9.03(b), 9.05 (discussing "reasonableness" concepts and protection of the "public interest").

38. *Id.* § 9.03(a)(4).

39. *Id.* § 9.05(d).

40. *See id.* §§ 9.03(a)(4), 9.03(d).

41. Dellapenna, *supra* note 2, § 9.03(a)(2).

42. *See* Margaret Jane Radin, *Market-Inalienability*, 100 HARV. L. REV. 1849, 1859-70 (1987).

43. *See generally* Harrison C. Dunning, *Reflections on the Transfer of Water Rights*, 4 J. CONTEMP. L. 109 (1977).

44. *See* Jerome W. Milliman, *Water Law and Private Decision-Making: A Critique*, J.L. & ECON. 41, 46, 58 (1959).

resources as a good or a bad thing, the truth is that contemporary prior appropriation does not commodify water.

Appropriation as applied in most western states is no longer primarily a doctrine of private property. Perhaps it was such a doctrine as originally developed—when water was “appropriated” in its truest sense by the simple expedient of diverting water and applying it to beneficial use. That doctrine began to disappear in 1890 with the adoption of the permit system in Wyoming.⁴⁵ Reviewing the trend toward administrative control over water rights in western states, Moses Lasky declared in 1929: “Today prior appropriation is the law nowhere in the West.”⁴⁶ Although Lasky may have been premature in announcing the death of prior appropriation, his observation, nevertheless, demonstrates that the erosion of prior appropriation as a system of private property was well underway early in the twentieth century.

The directive to water officials to protect the “public interest” in issuing permits for the appropriation of water has been a fundamental force in eroding property rights in water. Among appropriation states, only Colorado and Oklahoma do not require some form of public interest review in connection with new appropriations.⁴⁷ At first, regulation to protect the public interest was exercised primarily to advance the goal of maximum economic development of water resources.⁴⁸ However, over time, the content of public interest regulation has been greatly expanded to include concerns with the environment, public, recreational use of water, and other broad social values.⁴⁹

Until relatively recently, consideration of the public interest was expressly authorized only when new permits were being issued.⁵⁰ Transfers of existing rights were not subject to limitations protecting the public interest.⁵¹ Today, at least ten states have statutes providing for some degree of public interest review in the transfer process, and in two states, courts have required such reviews without express statutory authority.⁵²

45. Wyo. *Hereford Ranch v. Hammond Packing Co.*, 236 P. 764, 768 (Wyo. 1925).

46. Moses Lasky, *From Prior Appropriation to Economic Distribution of Water by the State—Via Irrigation Administration*, 1 ROCKY MTN. L. REV. 161, 170 (1929).

47. Douglas L. Grant, *Public Interest Review of Water Right Allocation and Transfer in the West: Recognition of Public Values*, 19 ARIZ. ST. L.J. 681, 683 & n.16 (1987).

48. *Id.* at 688.

49. *Id.* at 689–90, 695–703.

50. *See id.* at 684.

51. *Id.*

52. *Id.* at 684–85. The ten states listed by Professor Grant as having statutes requiring public interest review of transfers are California, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, and Wyoming. *Id.* at n.21 & n.22. Professor Grant notes that the Texas Supreme Court and a New Mexico trial court ordered such reviews without express statutory authority, although the New Mexico decision was over-

Government regulation of ongoing water use is also increasing in the West.⁵³ Restrictions on waste of water, pursuant to the principle of beneficial use, provide a recognized avenue for regulation of existing rights. For example, in 1984 the California Water Resources Control Board ("Board") used its authority to prevent waste to order substantial modifications in the use of water rights by the Imperial Irrigation District (IID).⁵⁴ This order was upheld by the California Court of Appeal, despite claims by the IID that the Board had no authority to interfere with its "vested rights."⁵⁵ The failure to better regulate wasteful uses of water is a frequent criticism of western water law, but failure has resulted primarily from a lack of political will rather than inherent flaws in the appropriation doctrine.⁵⁶ It seems quite possible that the political backbone to regulate waste more aggressively will be stiffened as water supplies become more critical.

The public trust doctrine provides another basis for reconsideration and modification of ongoing water use to promote environmental and other public values in water. In a celebrated application of the doctrine, *National Audubon Society v. Superior Court of Alpine County*,⁵⁷ the California Supreme Court held that the City of Los Angeles could be ordered to reduce its diversions of water to protect environmental resources, in spite of Los Angeles's claim of "vested rights."⁵⁸ Application of the doctrine ultimately required Los Angeles to reduce diversions of water from the Mono Basin by eighty-five percent temporarily and sixty-three percent permanently.⁵⁹ While reallocation of water pursuant to the public trust doctrine has been limited to California to date, several other states have embraced the doctrine in dicta.⁶⁰

ruled by a higher court. After Professor Grant wrote the article, the Utah Supreme Court also required public interest review of transfers without express statutory authority. See *Bonham v. Morgan*, 788 P.2d 497 (Utah 1989).

53. Regulation and readjustment of vested water rights to promote the public interest has proceeded farthest in California. See Eric T. Freyfogle, *Contest and Accommodation in Modern Property Law*, 41 STAN. L. REV. 1529, 1546-47 (1989); Clifford W. Schulz & Gregory S. Weber, *Changing Judicial Attitudes Towards Property Rights in California Water Resources: From Vested Rights to Utilitarian Reallocations*, 19 PAC. L.J. 1031, 1109-10 (1988).

54. *Imperial Irrigation Dist. v. State Water Res. Control Bd.*, 275 Cal. Rptr. 250, 254 (Cal. Ct. App. 1990).

55. See *id.* at 259-61, 267-68.

56. See Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 978-91 (1998).

57. 658 P.2d 709 (Cal. 1983).

58. *Id.* at 712.

59. See CAL. WATER RES. CONTROL BD., *MONO LAKE BASIN WATER RIGHTS DECISION* 1631, at 164 (1994); Michael C. Blumm & Thea Schwartz, *Mono Lake and the Evolving Public Trust in Western Water*, 37 ARIZ. L. REV. 701, 719 & nn.138-39.

60. See Blumm & Schwartz, *supra* note 59, at 735-38.

Regulation of water rights may also be required by general environmental statutes. For example, in *United States v. State Water Resources Control Board*,⁶¹ a California Court of Appeal held that the California Water Resources Control Board has authority to modify water rights in order to protect water quality.⁶² Similarly, in the summer of 2001 the Bureau of Reclamation substantially limited water deliveries to farms of the Klamath Project in Oregon to provide water for fish listed under the Endangered Species Act (ESA).⁶³

Arguably, prior appropriation is still a system of private water rights, but it is a far cry from the laissez faire, market-driven system sometimes portrayed. In short, there is extensive government regulation when water is appropriated, when it is transferred, and during normal use. The trend is in the direction of more regulation, not less. Furthermore, claims of commodification are often overstated. For example, a recent report by the Pacific Institute,⁶⁴ purports to explore the “new idea” that water is an “economic good” and states that there has been a “headlong rush toward private markets in water.”⁶⁵ In fact, the report is primarily concerned with an alleged trend toward privatization of public water systems (e.g., municipal water delivery systems) and not, as its title suggests, with the privatization of “fresh water.”⁶⁶ Because of the monopoly usually enjoyed by operators of public water supply systems, privatization of such systems is the antithesis of commodification.⁶⁷ While the report expresses many legitimate concerns

61. 227 Cal. Rptr. 161 (Cal. Ct. App. 1986).

62. *Id.* at 166. *But see* City of Thornton v. Bijou Irrigation Co., 926 P.2d 1, 91–95 (Colo. 1996) (holding that water diversions cannot be curtailed to meet water quality standards).

63. See Robert E. O'Rourke & Stephen M. Bloom, *Endangered Species Act Halts Delivery of Water to Irrigators*, 24 WATER L. NEWSLETTER (Rocky Mtn. Mineral L. Found., Denver, Colo.), no. 2, 1 (2001); see also *Riverside Irrigation Dist. v. Andrews*, 758 F.2d 508 (10th Cir. 1985) (combining the ESA and Section 404 of the Clean Water Act, 33 U.S.C. § 1344, to protect the habitat of endangered whooping cranes); *United States v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126, 1135 (E.D. Cal. 1992) (requiring the modification of water diversion facilities to protect fish listed under the ESA). Noting the strong correlation between areas of extensive surface water irrigation and ESA listed species, one article concludes that there is a high potential for disruption of irrigated agriculture because of the ESA. Michael R. Moore et al., *Water Allocation in the American West: Endangered Fish Versus Irrigated Agriculture*, 36 NAT. RESOURCES J. 319, 332–33 (1996); see also Deborah L. Freeman & Carmen M. Sower, *Against the Flow: Emerging Conflicts Between Endangered Species Protection and Water Use*, 40 ROCKY MTN. MIN. L. INST. § 23.01 (1994); Mary Christina Wood, *Reclaiming the Natural Rivers: The Endangered Species Act as Applied to Endangered River Ecosystems*, 40 ARIZ. L. REV. 197, 242 & n.329 (1998).

64. PETER H. GLEICK ET AL., *THE NEW ECONOMY OF WATER: THE RISKS AND BENEFITS OF GLOBALIZATION AND PRIVATIZATION OF FRESH WATER* (2002).

65. *Id.* at i.

66. See generally *id.*

67. See Joseph W. Dellapenna, *The Importance of Getting Names Right: The Myth of*

about privatization of public water supply systems and contains many thoughtful recommendations regarding that topic, it provides scant evidence of a "headlong rush" toward commodification of water.⁶⁸

B. Myth Number Two: Prior Appropriation Is a Nineteenth Century Anachronism

The appropriation doctrine is sometimes criticized as outmoded and ill-suited to contemporary needs.⁶⁹ Indeed, Professor Charles Wilkinson wrote an obituary for prior appropriation in 1991.⁷⁰ However, the excesses and deficiencies attributed to the doctrine, most notably environmental degradation, reflect nineteenth century values, not inherent flaws in the doctrine. In other words, if the doctrine is viewed as a tool, the alleged excess and deficiencies are not the result of a poor tool but merely of its improper use, at least as seen from a contemporary perspective.

Nineteenth century values regarding nature and water reflected a different ethic: nature was to be subjugated and harnessed to human use, not respected and valued; water was for "working" not "playing"; any drop of water that entered the ocean unused was considered wasted; environmental, recreational, and aesthetic benefits associated with flowing water were considered of no real value, or at best, were to be sacrificed to human progress.⁷¹ The ethic reflected in such views, not the doctrine of prior appropriation, produced the excesses and deficiencies now complained of. The appropriation doctrine did not require that every drop of water be taken from a stream. Blaming the doctrine for lack of adequate instream flows is like blaming the fee simple for the lack of sufficient public parks. The problem lies not with the doctrine but with its use.

Contrary to the implicit charge of its critics, the appropriation doctrine has proven quite progressive and adaptable. As noted earlier, the use of ad-

Markets for Water, 25 WM. & MARY ENVTL. L. & POL'Y REV. 317 (2000). The one genuine example of widespread commodification of water given in the report, the sale of bottled water, is too trivial from a water policy perspective to be of real concern. GLEICK, *supra* note 64, at 11-13.

68. GLEICK, *supra* note 64, at 1.

69. See, e.g., John D. Leshy, *The Prior Appropriation Doctrine of Water Law in the West: An Emperor with Few Clothes*, 29 J. WEST 5, 5-6, 11-12 (1990); Charles F. Wilkinson, *Western Water in Transition*, 56 U. COLO. L. REV. 317, 344-45 (1985).

70. See generally Charles F. Wilkinson, *Prior Appropriation: 1848-1991*, 21 ENVTL. L., at v (1991).

71. See *Empire Water & Power Co. v. Cascade Town Co.*, 205 F. 123 (8th Cir. 1913) (rejecting an appropriation of water to preserve the scenic beauty of a water fall and explaining "[t]he state laws proceed upon more material lines.") For general discussions of nineteenth century attitudes regarding water development, see MARC REISNER, *CADILLAC DESERT* 1014 (1988); MARK REISNER & SARAH BATES, *OVERTAPPED OASIS* 73-76 (1990); Wilkinson, *supra* note 68, at 317-22.

ministrative regulation of the appropriation process began in 1890. This was a scant three years after the creation of the Federal Interstate Commerce Commission, an event that signaled the beginning of the modern administrative state.⁷² More recent modifications include the expansion of “beneficial use” to include uses for environmental, recreational, and aesthetic purposes; the recognition of instream appropriations and other devices to protect water in place; and greater sensitivity to environmental concerns within the doctrine and through the application of general environmental statutes.⁷³

The continued viability of the doctrine seems likely. In a recent article examining the future of the doctrine, Professor Dan Tarlock suggests that the rule of temporal priority will increasingly play only an indirect role in water allocation as markets and negotiated settlements become the primary forces shaping water allocation.⁷⁴ Nevertheless, he predicts that the rule will continue to provide a “shadow or framework” allocation rule for future adjustments.⁷⁵ Similarly, as a westerner who pays some attention to water matters, I am aware of no organized effort to replace the doctrine anywhere in the West; rather, most efforts are directed toward adjustments to reflect new needs, new social values, and new knowledge. If the past is a guide, the doctrine will evolve and new institutional arrangements may emerge, but core elements of the doctrine—beneficial use, temporal priority, and transferable rights—will remain.

C. Myth Number Three: Water Transfers Are Not Effective in Reallocating Water

Critics charge that water markets do not presently exist and that externalities (third-party effects) will prevent the development of water markets. For example Professor Joseph Dellapenna argues that the much noted California Water Bank, which operated in 1991 and 1992, should not be touted as an example of a water market because all sellers and buyers of water had to deal with a single entity, the California Department of Water Resources (“Department”).⁷⁶ That is sellers could only deal with one buyer—the De-

72. See LAWRENCE M. FRIEDMAN, *A HISTORY OF AMERICAN LAW* 384 (1973).

73. See, e.g., COLO. REV. STAT. § 37-92-103(4) (2001) (defining beneficial use to include the use of water for environmental and recreational purposes); IDAHO CODE § 67-4307 (Michie 2001) (same); Idaho Dep’t of Parks v. Idaho Dep’t of Water Admin., 530 P.2d 924 (Idaho 1974) (recognizing the appropriation of water for instream purposes); Neb. Game & Parks Comm’n v. The 25 Corp., 463 N.W.2d 591 (Neb. 1990) (same); GOULD & GRANT, *supra* note 22, at 549–604 (examining the affect of general environmental statutes on water rights).

74. A. Dan Tarlock, *The Future of Prior Appropriation in the New West*, 41 NAT. RESOURCES J. 769, 785 (2001).

75. *Id.*

76. Dellapenna, *supra* note 67, at 358–65.

partment; buyers could only deal with one seller—again the Department; and prices and terms of sale in both cases were set by the Department. He further charges that the bank should be described not as a market but as state management hiding behind the facade of a market.⁷⁷

There is some truth to charges regarding water markets in the West. Few, if any, markets exist if one has in mind a setting in which water rights are transferred from anonymous buyers to anonymous sellers at prices set by the invisible hand of the market. A variety of factors impede the development of such markets for appropriation water rights, including the uniqueness of each right,⁷⁸ the existence of externalities (third-party effects),⁷⁹ the lack of facilities to transport large quantities of water, deficiencies in information, and institutional resistance to transfers.⁸⁰ The term “water marketing,” however, is seldom used in a strict sense in the West; instead it typically refers to any transfer of water rights from a willing seller to a willing buyer.⁸¹

The development of additional supplies, the traditional western response to new needs, is frequently difficult or impossible because of lack of water to develop, high costs of development, environmental damage of large development projects, and social and political resistance.⁸² As a result, the West increasingly relies on reallocation to meet new needs, and some observers have dubbed the present “the Era of Reallocation.”⁸³ Reallocation

77. *Id.* at 363. Professor Dellapenna also asserts that the bank was a wealth transfer mechanism, transferring wealth from poorer farmers to wealthier urban dwellers. *Id.* at 364. This charge is hard to understand. Participation in the bank was voluntary: no one forced poorer farmers to sell. If there was a wealth transfer, it probably went the other direction—the price offered for water in 1991 was so high that the bank ended up with a substantial amount of unsold water. See Martha H. Lennihan, *The California Drought Emergency Water Bank: A Successful Institutional Response to Severe Drought*, in WATER LAW: TRENDS, POLICIES, AND PRACTICE 127, 132–33 (Kathleen M. Carr & James D. Crammond eds., 1995). In any case, any wealth transfer associated with the bank was less dramatic than would have been experienced under an aborted proposal by the Water Resources Control Board to reallocate water during the drought by administrative orders without compensation. See Robert G. Potter, *Meeting California's Growing Water Needs in Today's Environment Regulatory Network: The DWR Perspective*, 1 CAL. WATER L. & POL'Y RPTR. 107, 112 (1991).

78. The uniqueness of appropriative rights is problematic because it contributes to high transaction costs. When rights are homogeneous, transactions costs are low because buyers and sellers can easily determine what is being bought and sold. When rights are unique, the need to investigate and evaluate each right increases transaction costs. In addition to its unique priority date, appropriative rights are further defined by the rate of diversion, the point of diversion from a particular source, and the place and purpose of use.

79. See discussion *infra* Part IV.

80. See generally George A. Gould, *Water Rights Transfers and Third-Party Effects*, 23 LAND & WATER L. REV. 1, 19–25 (1988).

81. *Id.* at 1.

82. See *id.* at 1–5.

83. See, e.g., Steven J. Shupe et al., *Western Water Rights: The Era of Reallocation*, 29

in the West is achieved almost exclusively through voluntary transfers, i.e., through markets.

A few illustrations may be useful in demonstrating western efforts to implement water transfers. The California Water Bank, although not without its critics, is generally considered a success.⁸⁴ In 1991 the bank transferred almost 400,000 acre-feet of water to meet critical water needs in a severe, multi-year drought.⁸⁵ Most of the water was purchased from farmers, who fallowed ground or substituted groundwater for surface water, and was primarily sold to large urban entities.⁸⁶ The bank operated on a smaller level in 1992 because of lower demand for critical water needs.⁸⁷

Building on its experience, the Department has developed a standby "Drought Water Bank Program," which can be activated in drought years.⁸⁸ In 2001 the Department also implemented a "Dry Year Supply Program," which facilitated the transfer of 138,000 acre-feet of water from willing sellers to willing buyers.⁸⁹ Unlike the Drought Water Bank Program, the Department's Dry Year Supply Program did not set the selling and purchase prices, but acted as a broker to facilitate transfers.⁹⁰

A study of transfers in six western states from 1975 to 1984 found that there were 3853 applications for changes in use in Utah, 1133 in New Mexico, and 858 in Colorado.⁹¹ At the other extreme, the study found only three applications in California during this period, but noted that this number understates transfer activity in California because a large number of water rights⁹² are not subject to the jurisdiction of the state water agency.⁹³ The study also noted that the water supply in California is dominated by large supply agencies and that transfers within and between such agencies are

NAT. RESOURCES J. 413, 413-14 (1989).

84. See Lennihan, *supra* note 77, at 130-36; Kevin M. O'Brien & Robert Gunning, *Water Marketing in California Revisited: The Legacy of the 1987-92 Drought*, 25 PAC. L.J. 1053, 1074-77 (1994).

85. Lennihan, *supra* note 77, at 131.

86. O'Brien & Gunning, *supra* note 84, at 1075-76.

87. CAL. DEP'T OF WATER RES., STATE DROUGHT WATER BANK, DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT at 6-7 (1993).

88. *Id.*

89. California Department of Water Resources, *2002 Dry Year Water Purchase Program*, at http://watersupplyconditions.water.ca.gov/dry_yr_program.htm (last visited Sept. 6, 2002).

90. *Id.*; see also California Department of Water Resources *Announces 2002 Dry-Year Water Purchase Program*, 12 CAL. WATER L. & POL'Y RPTR. 90, 90 (2002).

91. LAWRENCE J. MACDONNELL, THE WATER TRANSFER PROCESS AS A MANAGEMENT OPTION FOR MEETING CHANGING WATER DEMANDS 47 (1990).

92. Water rights not subject to the agency's jurisdiction include riparian rights, appropriations made prior to 1914, and groundwater.

93. See MACDONNELL, *supra* note 91, at 47, 50-51, 66. The study found twenty-four applications between 1981 and 1989. *Id.* at 66.

often outside the jurisdiction of the water agency.⁹⁴ Although many of these transfers involved small amounts of water, particularly in Utah, New Mexico, and Colorado, the level of activity illustrates that water transfers are a viable mechanism for reallocation in many western states.

Transfers from agricultural use in the Imperial Valley in southern California are a critical component in meeting the water needs of the great municipalities in the southern coastal area. Approximately 110,000 acre-feet of water annually is currently being transferred pursuant to a 1988 agreement between the Metropolitan Water District and the IID.⁹⁵ Additionally, transfers of another 200,000 acre-feet annually from the Imperial Valley to the south coast, said to be the largest agriculture to urban transfer ever, is being implemented pursuant to a 1998 agreement between the IID and the San Diego County Water Authority.⁹⁶ These transfers are the linchpin of California's Colorado River Water Use Plan,⁹⁷ a blueprint for reducing California's diversions of Colorado River water. California has historically diverted more than five million acre-feet of water per year from the Colorado River, although it has a firm legal entitlement to divert only 4.4 million acre-feet.⁹⁸ Until recently, California's excess diversions were possible because the other states in the lower Colorado River Basin, Arizona and Nevada, were not using their shares of the river.⁹⁹ Those states are now using all or nearly all of their shares.¹⁰⁰ Consequently, California must reduce its draw on the river.¹⁰¹

94. *Id.* at 66; see also Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 673, 713 n.159 (1993) (noting that "relative number and volume of statutory and institutional transfers in any particular state will depend to a large degree on the number and size of water institutions," which in California is quite large).

95. See CAL. COLO. RIVER BD., CALIFORNIA'S COLORADO RIVER WATER USE PLAN 34-37 (2000) [hereinafter COLORADO RIVER WATER USE PLAN].

96. *Id.*

97. *Id.* at 32.

98. *Id.* at 16; see also *Arizona v. California*, 373 U.S. 546, 564-95 (1963), amended by 383 U.S. 268 (1966).

99. Section II(B)(6) of the decree in *Arizona v. California*, 376 U.S. 340, 343 (1964), authorizes the release of unused apportionment to other states in the lower basin. COLORADO RIVER WATER USE PLAN, *supra* note 95, at 16.

100. United States Bureau of Reclamation, *Annual Colorado River Water Use Since 1906*, at <http://www.lc.usbr.gov/g4000/use.txt> (last visited Sept. 6, 2002) [hereinafter *Colorado River Water Use*].

101. Although there is little unused apportionment in the lower Colorado River Basin, California is being given time to reduce its use of Colorado River water. In January 2001 the Secretary of Interior ("Secretary"), who controls the water in the lower Colorado River, adopted criteria providing standards for determining whether there is a surplus of water in the Colorado River. Colorado River Interim Surplus Guidelines, 66 Fed. Reg. 7772, 7772-82 (Jan. 25, 2001). Under the "law of the River," the Secretary can allow uses in excess of authorized apportionments if there is a surplus. COLORADO RIVER WATER USE PLAN, *supra* note 95, at 9. One of the conditions of continuing application of the criteria, however, is demon-

Interstate transfers of water have also begun to occur. Arizona and Nevada just completed a historic agreement which will permit 1.2 million acre-feet of Colorado River water to be transferred from Arizona to Nevada.¹⁰² Nevada's current diversions from the Colorado River slightly exceed its apportionment.¹⁰³ Southern Nevada, unlike California, cannot meet new urban demands by intrastate transfers of water from agriculture because there are no significant agricultural uses of water in southern Nevada. Thus, the Arizona transfer is critical to continued growth of Las Vegas and other urban areas in southern Nevada.¹⁰⁴

Finally, transfers between users within irrigation districts and other water supply entities are very common and are accomplished with relative ease.¹⁰⁵ Factors which contribute to the frequency and ease of such transfers include the homogeneous nature of the rights, the brokering role of the supply entity in matching potential buyers and sellers, the existence of distribution facilities to redirect water from sellers to buyers, and the fact that intra-institution transfers typically do not require approval by state water officials.¹⁰⁶

Legal and institutional reform to facilitate transfers is a characteristic of the Era of Reallocation.¹⁰⁷ To a large degree, the West has been in a learning phase. While transferable rights are a historic attribute of the appropriation doctrine,¹⁰⁸ not much attention was focused on making the transfer process efficient when new needs could be easily met through water development. Though reform and experimentation has produced few instances that would be considered a market under a strict definition, market transfers are now an important feature of western water law. Much remains to be learned, but much progress has been made.

D. Myth Number Four: New Users Have No Security

The effect of temporal priority on new water users is frequently misunderstood. Indeed one of the underappreciated virtues of the appropriation doctrine is the opportunity it provides to water users to manage water supply risks. A new user can manage the risk inherent in a junior appropriation

strated progress by California in implementing the California Colorado River Water Use Plan. Colorado River Interim Surplus Guidelines, 66 Fed. Reg. at 7781-82.

102. See James W. Johnson & Margaret Gallogly, 34 WATER L. NEWSLETTER (Rocky Mtn. Mineral Law Foundation, Denver, Colo.), no. 3, 1 (2001).

103. See *Colorado River Water Use*, *supra* note 100. This is permitted under the interim surplus criteria. See discussion, *supra* note 101.

104. See *Colorado River Water Use*, *supra* note 100.

105. See Thompson, *supra* note 94, at 712-13.

106. *Id.* at 710, 712-13.

107. Shupe, *supra* note 83, at 413.

108. See, e.g., *Maeris v. Bicknell*, 7 Cal. 261 (1857).

in several ways.¹⁰⁹ First, a junior appropriator can engage in activities that are compatible with a high level of risk. For example, a farmer with a very junior priority can raise an annual crop rather than establishing an orchard or vineyard. If the farmer's water supply occasionally proves inadequate, the farmer may lose a crop, but will not suffer the loss of the large capital investment that is associated with an orchard or vineyard. If predictions of inadequate supplies are made before planting, a farmer may further minimize losses by not planting, thereby eliminating expenditures for seed, fuel, and fertilizer.

Second, a junior appropriator can adjust to a poor priority by constructing facilities to store water. Storage rights often provide more security than a more senior appropriation for direct diversions of water. For example, a reservoir with a very junior priority on a stream that regularly experiences acute shortages may, nevertheless, fill every year or nearly every year if there are regular periods of surplus due to high flows and/or low demand. This situation is typical on many western streams. In July or August streams are typically over-appropriated—natural stream flows are insufficient to satisfy the rights of all irrigators who wish to divert water from the stream. On the same streams, however, there may be a surplus during the winter when demand for irrigation water is low or during the spring when flows are high due to heavy precipitation and melting snow. Risk may be further reduced if a reservoir has the capacity to carry over water from years of abundance to years of shortage.

Third, a new user needing a secure supply can acquire it by purchasing a right with an early priority. As noted earlier, transferable rights are an attribute of prior appropriation. The need for a secure supply is usually the reason for water rights transfers.

IV. REJOINDER TO ARGUMENTS FOR REJECTING PRIOR APPROPRIATION IN THE EAST

This section examines and responds to various arguments that have been advanced for rejecting the principles of prior appropriation in the East.

109. See generally Frank J. Trelease, *Climatic Change and Water Law*, in CLIMATE, CLIMATIC CHANGE, AND WATER SUPPLY (1977). The rule of temporal priority (first in time, first in right) results in an ordering of rights on a stream or river from the earliest appropriation (most senior) to the latest appropriation (most junior). Water may be diverted pursuant to an appropriation only after the demands of all those having an earlier priority have been satisfied. Thus, when the flow of water is insufficient to satisfy all rights, those appropriations with the latest temporal priority are not permitted to take water.

A. Argument One: The “Failed” Mississippi Experiment with Prior Appropriation

In 1956 Mississippi established a permit system based on prior appropriation; in 1985 the system was repealed.¹¹⁰ A number of permits were issued under this law, but there were no reported cases and apparently no trial court cases involving the law. Critics charge that this episode demonstrates that prior appropriation is not suited to the East.¹¹¹

I believe this episode more likely demonstrates that common law riparian rights were adequate for Mississippi’s needs during this period and that a government permit system, whether based on appropriation principles or other principles, was not required. The appropriation statute was adopted following a severe drought during the years 1952 and 1953.¹¹² A 1967 analysis of the statute states, “[s]ince [the drought], however, the supply of surface water has apparently been sufficient for all competing users . . . [and no] requests for water allocations have been rejected due to insufficiency of supply.”¹¹³ Finally, the system was not repealed because of demonstrated deficiencies but because a commission appointed to make recommendations with regard to groundwater, which was not subject to the 1956 statute, recommended that both groundwater and surface water should be regulated under the same statutory scheme.¹¹⁴ In other words, in response to an emergency, a statute was enacted that proved to be unnecessary in normal times. It is not surprising that the statute was not the subject of litigation—priority is not important when there is sufficient water to satisfy the needs of all. And, to the extent that judicial activity is the indication of the need for a particular statute, the current Mississippi permit statutes do not appear to have been the subject of any reported cases either.

B. Argument Two: It Is Impractical for Eastern States To Move to Prior Appropriation Because There Presently Exists a Mature System of Rights Based on Riparian Principles

This argument, advanced by Professor Joseph Dellapenna, relies on the following specifics: (1) most conflicts will arise between riparians and would continue to be governed by riparian principles; (2) in conflicts between riparians and appropriators, the appropriators will always lose; (3) in acute shortage, appropriators will get no water; (4) the uncertainty created

110. Al Sage, *Mississippi*, in 6 WATERS AND WATER RIGHTS, *supra* note 2, at 445–46.

111. Dellapenna, *supra* note 23, § 8.05(a).

112. William M. Champion, *Prior Appropriation in Mississippi—A Statutory Analysis*, 39 Miss. L.J. 1, 1 (1967).

113. *Id.* at 1–2.

114. See Sage, *supra* note 110, at 446.

by the presence of both riparian and appropriative rights will prevent the development of markets to remedy bureaucratic errors; and (5) little would be gained in terms of rational water management, at a cost of establishing and operating an extensive bureaucracy to administer appropriative rights.¹¹⁵

Before addressing the specifics of this argument, it is important to note that Professor Dellapenna seems to assume that adoption of a prior appropriation permit system in an eastern state will result in a dual system in which riparian rights and appropriative rights are both recognized. Effective implementation of appropriation principles, however, involves more than simply adding appropriative rights to existing riparian rights. Effective implementation should result in a system which is almost wholly appropriative in character. Essentials of effective implementation¹¹⁶ include termination of unexercised riparian rights¹¹⁷ on a date set by statute (termination date) and quantification of exercised riparian rights based on actual uses on the termination date.¹¹⁸ After the termination date, all new uses require an appropriation, and exercised riparian rights are subject to most appropriative principles, including restrictions on enlarging diversions and procedural and substantive limitations on changes in use. In effect, quantification converts riparian rights to appropriations, albeit appropriations that all have the same priority date.¹¹⁹ Each exercised riparian right, like each appropriation, is defined by a source of water, a place of diversion, a quantity which can be diverted, a place and purpose of use, and a priority date.¹²⁰ The fact that a right was originally riparian is largely a historical artifact.¹²¹ This process was used in Oregon and most other western states that once recognized riparian rights.¹²² Almost all disputes in these states are now governed by appropriation principles.

115. Dellapenna, *supra* note 23, § 8.05.

116. See RICHARD S. HARNSBERGER & NORMAN W. THORSON, *NEBRASKA WATER LAW AND ADMINISTRATION* 134-42 (1984).

117. Unexercised riparian rights refers to the theoretical right of a riparian landowner to begin using water at any time.

118. Quantification refers to a judicial or an administrative process to establish the parameters of actual use, including the point of diversion, the quantity diverted, the place of use, and the purpose of use.

119. Typically, the priority date for all exercised riparian rights is the termination date; thus, all such rights have the same priority date. See Dellapenna, *supra* note 23, § 8.04(a).

120. Because all exercised riparian rights receive the same priority date, the priority date is mainly relevant with regard to later users. See *id.*

121. However, the origin of rights under the riparian doctrine is not wholly a historical artifact. Riparian principles would still be relevant to some water disputes between former riparians. See *infra* note 123 and accompanying text.

122. See HARNSBERGER & THORSON, *supra* note 116; Dellapenna, *supra* note 23, § 8.04(a).

Turning to specifics, the first specific mentioned above is premised on the assumption that most disputes would be between riparians. This seems questionable. While data on conflicts between riparian users is hard to obtain, it does not appear that widespread conflict currently exists in riparian jurisdictions.¹²³ Adoption of permit systems in the East appears to be primarily prophylactic, not remedial—the purpose is to prevent future problems, not to remedy existing ones. Adoption and implementation of prior appropriation will not effect existing uses of water and, thus, will not effect the level of conflict that exists at the time of adoption. If the conflict level is relatively low, as it now appears to be, disputes between riparians should be limited.

After implementation of an appropriation model, conflicts that arise between riparians are not necessarily, or even primarily, governed by riparian principles. As noted above, if prior appropriation is effectively implemented, riparian users essentially become appropriators. Disputes involving beneficial use, waste, changes in use, expansions in use, forfeiture or abandonment, and most other matters will usually be governed by appropriation principles. However, because all rights based on riparian uses have the same priority date, riparian principles might control in disputes between riparians when shortages exist. If the move to appropriation is implemented before shortages become commonplace, disputes requiring the application of riparian principles should be rare.

The second specific states that an appropriator will always lose in a dispute with a riparian. While appropriators (all uses initiated after appropriation is adopted) would frequently lose in conflicts with exercised riparians, this criticism has little force because the loss of appropriators to riparians results from an inherent attribute of prior appropriation—being junior in time to riparian uses, appropriators are junior in right. Importantly, the risks to appropriators are fixed. Unexercised riparian rights are abolished and, thus, pose no risk to appropriators; exercised riparian rights are quantified and cannot be expanded or changed to the detriment of appropriators. An appropriator’s “place in the queue” is secure; new riparian uses will have to go to the end of the line.

The third specific charges that appropriators will get little water in times of acute shortage. This statement will often be true, but again is beside the point. The purpose of priority is not to eliminate risk but to fix it. As just noted, if appropriation principles are effectively implemented, unexercised riparian rights pose no risk to appropriators and exercised riparian rights are quantified so that the risk they pose can be assessed and calculated. Furthermore, as also previously noted, adjustments can be made in response to

123. See Tarlock, *supra* note 20, at 535.

the risks inherent in a low priority, such as the construction of storage facilities.

The fourth specific charges that the duality of the system ensures that markets will not develop to remedy bureaucratic defects associated with administration of appropriative rights. But, as noted above, duality—the existence of riparian and appropriative rights—will be eliminated if there has been an effective transition to an appropriation system. Riparian rights that survive the transition will have effectively become appropriations. Thus, the development of markets in such a system should not confront any problems not confronted in a pure appropriation system. Indeed, experience in California demonstrates that markets (voluntary transfers) can develop under a true dual system.¹²⁴ In any case, the charge that markets cannot develop to correct bureaucratic defects seems a strange criticism from a proponent of eastern permit systems. Under eastern systems, the development of markets to correct the bureaucratic defects is impossible because the transfer of permits is generally not allowed in such systems.¹²⁵

The last specific asserts that adding appropriative rights in an eastern state adds little in terms of rational water management. This allegation might be accurate if appropriative rights are merely added and riparian rights remain unaltered. But as explained above, an effective transition to appropriation should extinguish most differences between riparian and appropriative rights. In addition, experience in California suggests that much rational management can be achieved in a dual system. Most new uses in California require an appropriation, providing an opportunity for the California Water Resources Control Board to implement water policy through the permit system. Such opportunities could be enhanced in an eastern state by requiring a permit for all new uses.¹²⁶

Admittedly, the use of perpetual rights rather than term rights may make it more difficult to implement some changes in water policy. As discussed below, authority to make adjustments in perpetual permits in certain situations can minimize this disadvantage. In the end, the important question is whether gains in water management which result from a permit system are worth its costs. This question is not limited to appropriation systems.

124. See *supra* notes 84–90 and 95–101 and accompanying text discussing California transfers.

125. See Dellapenna, *supra* note 2, § 9.03(d).

126. In California, some new uses can be initiated by persons having riparian rights without a permit. See GOULD & GRANT, *supra* note 22, at 316 n.2.

V. PERPETUAL PERMITS VERSUS TERM PERMITS

As noted earlier, one of the fundamental differences between appropriation permit systems and eastern permit systems is in the duration of the rights created by each. The appropriation system creates perpetual rights, while eastern systems create rights of a set duration.

Each type of right has inherent advantages and disadvantages. Perpetual rights provide a great deal of legal security, which in turn encourages investment and development of water resources and activities requiring such resources. The disadvantage is the loss of flexibility; water once allocated cannot be later reallocated by the state to meet new needs. If such rights are transferable, however, market transfers can provide flexibility. Indeed, the use of permanent, transferable rights is the mechanism used to allocate most resources in American society.

Term permits, on the other hand, provide flexibility. Water can be reallocated to new uses when permits expire. More commonly, renewal of expired permits provides administrators with an opportunity to make adjustments in the use being renewed to address unforeseen problems or advance new goals.¹²⁷ Somewhat paradoxically however, term permits reduce flexibility during the term, unless the permits are transferable,¹²⁸ a topic discussed below.

The flexibility provided by term permits comes at the expense of security; there is less incentive to invest in water development and water dependent enterprises when the water right may be lost at the end of a term. The longer the term, the greater the security and vice versa.¹²⁹ Finding the right balance between flexibility and security in setting the length of the term is problematic. Some writers have recommended set terms; others have preferred to give administrators discretion to set the length of the term.¹³⁰ In general, the goal has been to give the permittee sufficient time to amortize investment in capital facilities. However, as the late Frank J. Trelease noted, this approach does not adequately address the value of a going concern that may be lost if a permit is not renewed.¹³¹

Administrative authority to modify permits during their term further reduces security. Some eastern states grant such authority during periods of severe shortage or pursuant to vague, general standards, such as protection of health, safety, or the public interest.¹³² One scholar has suggested that

127. See Freyfogle, *supra* note 1, at 515.

128. See Trelease, *supra* note 26, at 220.

129. See Ausness, *supra* note 10, at 584–87.

130. See MALONEY ET AL., *supra* note 23, at 173–77; NAT'L WATER COMM'N, *supra* note 8, at 286–87; Ausness, *supra* note 10, at 584–87; Dellapenna, *supra* note 2, § 9.03(a)(4).

131. Trelease, *supra* note 26, at 220.

132. See Dellapenna, *supra* note 2, § 9.03(d).

permittees should receive assurances of administrative noninterference for specified periods of time if necessary to provide sufficient security.¹³³ Another scholar has suggested that compensation might be required when renewal is denied in order to allocate water to a new user.¹³⁴

Transferable permits can provide a partial solution to the term length dilemma—long-term permits can be issued to provide security; transfers can be allowed to create flexibility. Most eastern permit systems do not address the question of transferability, but a few states expressly or inferentially authorize them.¹³⁵ However, transferable permits provide only a partial answer to the problem of flexibility because the attractiveness of transfer diminishes over the life of the permit—a thirty-year permit in its last five years is no more attractive than a permit initially issued for a five-year term. At some point, a permit becomes practically unsalable, thereby freezing water use until the end of the permit. In addition, the initial permittee under a term permit has little incentive to spend money for maintenance near the end of the permit period if the expenditures cannot be amortized before the permit expires.¹³⁶ These problems could be somewhat mitigated if a permittee or prospective transferee is allowed to surrender the remainder of the permit term in exchange for a new long-term permit.

In my view, the loss of security associated with term permits makes perpetual rights the preferred alternative, particularly because increased flexibility is only partially achieved with term permits.¹³⁷ In addition, the opportunity term permits provide to make adjustments in the use of water at the time of renewal, a reason often advanced for their use, can be achieved by giving administrators the authority to make specified adjustments in perpetual rights, as discussed in the next section. If properly limited, authority to make adjustments can provide flexibility to address unforeseen circumstances while largely preserving legal security.

133. Freyfogle, *supra* note 1, at 515.

134. Ausness, *supra* note 10, at 568. *But see* NAT'L WATER COMM'N, *supra* note 8, at 175–77 (discussing but rejecting compensation when a permit is not renewed).

135. Dellapenna, *supra* note 2, § 9.03(d).

136. *See* Ausness, *supra* note 10, at 585–86 (suggesting that a farmer might be reluctant to replace an expensive irrigation system near the end of a permit term).

137. Professor Dellapenna argues that there is little empirical evidence that the use of term permits seriously inhibits investment in water development. Dellapenna, *supra* note 2, § 9.03(a)(4). He suggests that this is because investors and financiers believe the permits are usually renewed in the absence of serious wrongdoing. *Id.* One suspects that there is not much empirical evidence that term permits do not seriously inhibit investments in water development. In any case, if permits are renewed except in cases of wrongdoing, it would seem less inhibiting and more direct to issue perpetual permits which are subject to cancellation for wrongdoing. In addition, if permits are, in fact, renewed unless there has been serious wrongdoing, the greater flexibility that term permits are supposed to provide seems to be an illusion.

VI. MARKET REALLOCATION VERSUS ADMINISTRATIVE REALLOCATION

As suggested earlier, market reallocation refers to reallocation of water to new uses through voluntary transfers of water rights.¹³⁸ Administrative reallocation, in contrast, refers to reallocation that results from an administrative decision.¹³⁹ Market transfers are essential if perpetual rights are granted; otherwise there would be no mechanism for reallocation, and water use patterns would be frozen. On the other hand, the expiration of rights in a system of term permits provides the principal opportunity for most administrative reallocations of water.¹⁴⁰

In general, the reasons for reallocation can be separated into two general groups: (1) reallocation for economic reasons; and (2) reallocation for non-economic reasons.¹⁴¹ The first group is concerned with reallocation to economically more valuable uses; the second is concerned with reallocation to address social, environmental, and other non-economic needs. Arguably, a third group, reallocation for mixed economic and non-economic purposes, also exists. This last group involves transfers to a new economic use, which, although not economically superior to the existing use, provides such non-economic gains that reallocation is desirable. From an analytical standpoint this situation should be identical to transfers for non-economic purposes. The following sections will discuss economic and non-economic allocations in terms of market and administrative reallocation and the effect of reallocation on society. To fully explore these effects, however, one must first understand and consider the relationship of externalities to water rights transfers.

A. Externalities and Water Rights Transfers

Market transfers of water rights are complicated by the existence of third-party effects or externalities. An externality is a cost or benefit, most often a cost, resulting from the decision to use a resource, which is ignored by the decision-maker.¹⁴² The cost or benefit is ignored because it is felt by, or conferred on, some other party, hence a "third-party effect" or "spill-over effect." Economists consider externalities to be bad because they can cause

138. This article includes voluntary transfers within the condemnation of water rights. While not consensual, and therefore not strictly a market transfer, condemnation resembles a market transfer because the condemnee is compensated.

139. There is, of course, a necessary relationship between the mechanism for reallocation and duration of rights. See discussion, *supra* Part V.

140. Unlike condemnation, compensation is generally not paid in such cases. Dellapenna, *supra* note 2, § 9.03(a)(4).

141. The National Water Commission identified these as reallocation for "monetary" and "nonmonetary" purposes. See NAT'L WATER COMM'N, *supra* note 8, at 286-87.

142. See ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 40-42 (3d ed. 2000).

a misallocation of resources.¹⁴³ Consider, for example, a transfer of water from agricultural to municipal use which requires moving the point of diversion upstream some distance, thereby destroying a valuable fishery between the old and new points. Assume also that the value of the fishery exceeds the net economic gain resulting from the transfer. From a broad economic perspective, the transfer is bad—it results in a net loss to society as a whole. However, if the value of the fishery is an externality, the transfer is good from the perspective of the farmer—it results in a net gain to him.

Externalities result from market failure. In a perfect market, the farmer in the preceding example would consider the value of the fishery in making a decision regarding the proposed transfer to municipal use even if the law does not protect the fishery. Fishermen who derive value from the fishery would offer the farmer money not to make the transfer. Under the assumptions of the above hypothetical, the offer should be somewhere between the gain to the farmer if he accepts the city's offering and the value of the fishery to the fishermen. If so, the farmer will accept the offer of the fishermen, no transfer will be made, and a net loss to society will be avoided.

In reality, however, no offer may be made by the fishermen because of market imperfections, primarily transaction costs. Assume the example involves a recreational fishery, whose value to any individual fisherman is quite small, but whose collective value exceeds the net gain of the transfer because the number of fisherman is large. No individual fisherman will make an offer sufficient to deter the transfer; it will be deterred only if a collective offer is made. However, organizing a collective offer is difficult, expensive, and must overcome several problems, such as free-riders, fishermen who will benefit but refuse to pay their share. The expense, the difficulty, and the other problems may doom the offer.

Third-party effects to other appropriators frequently accompany water transfers.¹⁴⁴ The most common externality associated with the transfer of an irrigation right¹⁴⁵ is a reduction in return flows (tailwater), which decreases the amount of water available for diversion and use by downstream appropriators. Other externalities sometimes affecting appropriators include increases in conveyance losses, changes in the time of diversions,¹⁴⁶ loss of bank storage,¹⁴⁷ and changes in diversion and return flow patterns.¹⁴⁸

143. *Id.* at 169–70.

144. Gould, *supra* note 80, at 19.

145. Water rights transfers in the West almost always involve a transfer of irrigation water because eighty to ninety percent of the water in the West is presently used for irrigation. WAYNE B. SOLLEY ET AL., UNITED STATES GEOLOGICAL SURVEY CIRCULAR 1200, ESTIMATED USE OF WATER IN THE UNITED STATES IN 1995 10–11 (1998), available at <http://water.usgs.gov/>.

146. Changing the time of diversion can injure other appropriators by increasing competition for water at the new time of diversion even though the total quantity diverted is not

Water rights transfers can also generate economic, social, and environmental externalities which are not felt by other appropriators. These indirect externalities include negative changes in the aquatic environment, illustrated by the hypothetical transfer discussed above, and negative social and economic effects in the community from which the water is being transferred, such as loss of tax base, reduction in business activity, loss of jobs, and increased welfare costs.

Indirect externalities can greatly complicate water transfers. The proposed San Diego/IID transfer referred to above is an example.¹⁴⁹ IID proposes to make water available for the transfer by instituting various conservation measures. Conservation will minimize the economic and social impacts that would occur if IID were to instead make the water available by taking land out of production (fallowing land). Thus, the proposal appears to be a win for all situations—San Diego gets water, the farmers make money, and the community does not suffer the negative social and economic effects that sometimes accompany an agriculture/urban transfer.

But alas, things are not so simple. Tailwater from irrigation in IID feeds the Salton Sea, a large lake formed by accident in the early part of the twentieth century by flood waters of the Colorado River. The sea is a terminal lake because it has no outlet and would dry up from evaporation if it were not for irrigation tailwater. Although an artificial body of water, the sea has become an important ecological resource, particularly for migrating waterfowl. The sea is also dying; it is already forty percent saltier than the ocean. Currently a task force of federal and state officials is trying to develop strategies to save the sea.¹⁵⁰ Reduction in tailwater flows from IID to the sea resulting from the IID conservation measures will accelerate the decline of the sea and will expose dried salts as the sea shrinks, creating significant air pollution problems. As a result, the environmental community wants IID to obtain water for the San Diego transfer by fallowing farm land rather than using conservation as IID would prefer. This dispute threatens to derail the proposed transfer which,¹⁵¹ as noted above,¹⁵² is an impor-

increased. See Gould, *supra* note 80, at 14–15.

147. “Bank storage” refers to the delay associated with the return of diverted water to the stream. Because of this delay, water is stored temporarily in the stream bank, hence the name.

148. Ronald N. Johnson et al., *The Definition of a Surface Water Right and Transferability*, 24 J.L. & ECON. 273, 273 (1981).

149. See *supra* text accompanying notes 95–101.

150. See SALTON SEA AUTH. & UNITED STATES BUREAU OF RECLAMATION, SALTON SEA RESTORATION PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT/REPORT (2000); see also Salton Sea Authority, *Salton Sea Restoration Alternatives*, at <http://saltonseaca.gov/restalt.htm> (last visited Sept. 6, 2002); *Salton Sea Restoration Project*, at <http://www.lc.usbr.gov/saltnsea/ssrest.html> (last updated Aug. 2002).

151. See *Salton Sea Impact Threatens To Sink Crucial Water Deal*, SACRAMENTO BEE,

tant component of California's efforts to reduce its dependence on Colorado River water.

B. Reallocation for Economic Reasons

Western water law recognizes some of the third-party effects associated with water transfers. All jurisdictions prohibit transfers which will injure other appropriators.¹⁵³ Indirect third-party effects, historically ignored, are also receiving increasing consideration,¹⁵⁴ although there are economists who argue that there is little that government should do about indirect economic impacts associated with resource shifts, other than continue the existing social programs, such as welfare and unemployment insurance.¹⁵⁵

Addressing externalities associated with water rights transfers is a significant impediment to the development of water markets. Identifying and quantifying third-party effects and determining mitigation measures to address them increases transaction costs and makes the outcome of proposed transfers less certain.¹⁵⁶ As noted earlier, one of the contemporary themes of western water law has been the search for better institutional and procedural mechanisms for the transfer of water, including the search for ways to better internalize externalities. For the present, however, the uncertainty and transaction costs associated with externalities prevent some transfers that would be beneficial.

Administrative reallocation has no advantage over market reallocation when it comes to externalities. Reallocation will produce the same externalities whether it results from a market decision or an administrative one. As a matter of public policy, a jurisdiction may choose to recognize or ignore various externalities associated with water rights transfers, such as the effect of tax base and economic activity, but deciding which to recognize or ignore seems to have no obvious connection with the mechanism used to implement the change.

Furthermore, the administrative process does not appear to reduce the transaction costs associated with the determination of externalities. The same information should be gathered and processed under either a market or an administrative model. In addition, it is possible that the costs of deter-

Apr. 28, 2002, at A1.

152. See *supra* notes 95–101 and accompanying text.

153. See Gould, *supra* note 80, at 13–19. In many cases, the existence of third-party effects does not bar a proposed transfer, but does result in conditions or limitations designed to eliminate the effect.

154. See Grant, *supra* note 47, at 683–85.

155. See Delworth B. Gardner, *The Untried Market Approach to Water Allocations*, in *NEW COURSES FOR THE COLORADO RIVER* 166–67 (1986).

156. See Gould, *supra* note 80, at 19–22.

mining externalities will be incurred more frequently under an administrative model. Under a market model, such costs are incurred only when the seller and buyer determine there is an advantageous trade to be made. Under an administrative model, some transaction costs are seemingly incurred each time a permit expires even if there is no advantageous transfer to be made, i.e., some costs will be incurred even if there are no competing applicants for the water.¹⁵⁷

Administrative reallocation also introduces new externalities—the economic values of the old and new uses. Where administrative reallocation is used, termination of an old use is an externality associated with a new use, and, conversely, preclusion of a new use is an externality of continuing an old use. These are externalities because neither the old user nor the new user will take the other use into account when asking for water. To address these externalities, the administrator should gather and evaluate evidence on the value of the old and new use before making a decision regarding reallocation. In a market transfer, in contrast, the externality has been internalized by the market; a transfer occurs only when both parties conclude the value of the new use exceeds that of the old.

In the words of the National Water Commission, “[i]t is not transparently clear” why an administrative body “can reallocate resources better than the market can.”¹⁵⁸ Indeed, if the experience of the twentieth century is a guide, it is transparently clear that the market is superior in deciding which uses of water are most valuable economically.

C. Reallocation for Non-Economic Reasons

Turning to reallocation for non-economic purposes, one goal of a permit system, whether based on an administrative model or a market model, should be to minimize the need for non-economic reallocations. When possible, environmental and other non-economic values should be considered and protected in making initial allocation decisions. For example, instream flow needs should be determined and protected when initially allocating water.

The East has a substantial advantage over the West in minimizing the need for non-economic reallocations. In the West, most of the water has already been allocated and meeting non-economic needs will require reallocation. In most of the East, substantial quantities of unallocated water still exist, and protection of many non-economic needs can be met in the initial

157. These costs might be minimized by performing only a limited review if there are no competing applications; however, loss of opportunity for reallocation until a reissued permit expires makes the decision to reissue a permit an important one that requires careful consideration of lost opportunity costs during the new permit term.

158. NAT'L WATER COMM'N, *supra* note 8, at 286.

allocation process. In short, in the West, the solution is remediation; in the East, it is prevention. If the East meets the challenge of prevention, reallocation for non-economic reasons should be necessary primarily when new information, new values, or new circumstances indicate that earlier permitting decisions were erroneous or are no longer appropriate.

Market models can be made more responsive to the need for non-economic reallocations. Conditions can be attached to permits for adjustment in certain circumstances. For example, the California Water Resources Control Board includes a permit term retaining "continuing authority" to make adjustments in water rights for specified purposes.¹⁵⁹ Ideally, the circumstances under which such adjustments occur should be well defined and should be as narrow as absolutely required by the interests being protected in order to keep the associated insecurity at a minimum.¹⁶⁰

Regulation can also be used to address unforeseen problems even where a market model is utilized. Water rights, like other forms of property, are subject to police power regulation. For example, government imposition of efficiency standards may be appropriate if care is taken not to impose physically and financially impossible obligations.¹⁶¹ Application of general environmental statutes, such as the Endangered Species Act,¹⁶² have sometimes had the practical effect of reallocating water to environmental purposes.¹⁶³ Again, care should be utilized to see that the frequency and impact of new regulations do not induce undue uncertainty. Finally, of course, condemnation can always be used to acquire water for non-economic needs.

The administrative model is undoubtedly more responsive than the market model in reallocating water for non-economic purposes. Markets are economic institutions and typically do not respond well to non-economic needs. In large part, the question is whether the advantages of administrative reallocation on this score outweigh the disadvantages in terms of other goals such as security, efficiency, and fairness. In my view, the answer is no, particularly when steps, such as those just described, are taken to mitigate the deficiencies of the market model with regard to non-economic needs.

159. CAL. CODE OF REGS. tit. 23, § 780 (2002).

160. The National Water Commission adopted this approach in substance if not in form. Although the Commission recommended term permits not perpetual permits, it also recommended that the permits be automatically renewed unless water is needed for municipal use or for protection of instream values. NAT'L WATER COMM'N, *supra* note 8, at 287.

161. See *Colorado v. New Mexico*, 459 U.S. 176, 192 (1982) (O'Connor, J., dissenting).

162. See Endangered Species Act, 16 U.S.C. § 1533 (2000).

163. See A. Dan Tarlock, *The Endangered Species Act and Western Water Rights*, 20 LAND & WATER L. REV. 1 (1985) (suggesting that environmental statutes create "federal regulatory water rights"). *But see* *Tulare Basin Water Storage Dist. v. United States*, 49 Fed. Cl. 313 (2001) (holding that a reduction in water deliveries mandated by the Endangered Species Act was a taking of property requiring compensation under the United States Constitution).

VII. RESPONSES TO SHORTAGES

The appropriation doctrine uses temporal priority to allocate water during shortages. There is an obvious relationship between priority and risk, although it is sometimes misunderstood. As noted earlier, priority does not eliminate risk; even the holder of a very senior water right may not get water if the supply dwindles sufficiently. Rather, priority helps to define and stabilize risk. With good hydrologic data and water rights information, an appropriator can determine, within an acceptable degree of accuracy, the probability of water availability. The rule of temporal priority assures the appropriator that the probability will not be altered by new demands for water. Stated differently, priority does not reduce risk on the supply side, but does eliminate risk on the demand side. As noted earlier, temporal priority coupled with transferable rights allows a water user to obtain a water supply with a risk curve suitable to the user's enterprise.

Eastern permit systems give water administrators discretionary authority to decide who gets water in times of shortage.¹⁶⁴ Some states reduce the degree of discretion that water administrators possess through a statutory hierarchy of preferred uses.¹⁶⁵ Other states attempt to provide predictability by directing water agencies to prepare plans for dealing with shortages.¹⁶⁶

The existence of administrative discretion to decide who gets water in times of shortage makes it impossible for water users to calculate the risk. Some proponents of eastern permit systems recognize that the lack of definitive rules makes it difficult for users to adjust to the risk of possible shortages.¹⁶⁷ While well-defined statutory or administrative plans for shortages can reduce uncertainty, they do not provide a degree of predictability comparable to that provided by temporal priority. Even if a plan makes it possible for a prospective user to calculate the probability of water availability based on current uses, the lack of priority vis-a-vis subsequent permittees undermines the stability of the calculation.

The effect that decreased predictability will have on investment in water dependent enterprises in the East remains to be seen. Historically, the existence of stable, abundant, base flows in eastern streams mitigated the uncertainty created by the lack of legal security under the common law riparian doctrine.¹⁶⁸ If shortages do not occur or occur only infrequently, risks

164. Dellapenna, *supra* note 2, § 9.05(d).

165. *See, e.g.*, ARK. CODE ANN. § 15-22-217(c) (LEXIS Repl. 2000); IOWA CODE § 455B.266 (2001).

166. *See, e.g.*, FLA. STAT. ch. 373.246(1) (2001); MISS. CODE ANN. § 51-3-21(2)(i) (1999); N.J. STAT. ANN. § 58:1A-4b (West 1992); VA. CODE ANN. § 62.1-249A (Michie Repl. 1998).

167. Ausness, *supra* note 10, at 581-84.

168. George A. Gould, *Water Rights Systems, in* WATER RIGHTS OF THE EASTERN UNITED

associated with shortages are theoretical or insignificant. Of course, movement toward adoption of eastern permit systems is motivated in part by the perception that the frequency of shortages is increasing in the East.¹⁶⁹ If the perception becomes reality, providing predictability will assume greater importance. If the perception is not reality, the East may not need a permit system at all.

The advantages of temporal priority over administrative discretion with regard to security and predictability are clear. However, priority has been criticized on grounds of efficiency and fairness.¹⁷⁰ In terms of efficiency, the earliest uses of water may not be the most productive uses.¹⁷¹ Thus, under the rule of priority, water may not always be allocated to the most productive uses. A closely related point was made by an economist, Mason Gaffney, who noted that the priority rule violates the economic principle of marginal utility.¹⁷² In times of shortage, a senior user receiving a full supply continues to apply water to units with low utility while a junior user receiving no water is forced to take units of high utility out of production. Improved transfer mechanisms (water markets) address these problems by reallocating water from less productive to more productive uses.

Gaffney also criticized prior appropriation on economic grounds because there is no market for raw water as opposed to water rights.¹⁷³ While this is possibly a valid criticism of prior appropriation as applied, it is not a direct result of the priority principle, or indeed, any inherent principle of the appropriation.¹⁷⁴ Eastern states adopting appropriation principles could remedy this criticism by allowing and encouraging the appropriation and development of water for sale to others.

In terms of fairness, it may seem unfair that a senior user receives a full supply and a junior user receives nothing when water is short. However, fairness is often in the eye of the beholder. In contrast to the foregoing, under the riparian doctrine, is it fair to force a long-established use to share an inadequate supply with a newcomer? Whatever the meaning, concern with the fairness of the priority rule carries the strongest weight where shortage is conceived as a rare phenomenon, as it has historically been in the East. In such a situation, requiring all users, or at least all users similarly situated, to bear some of the pain by sharing the available supply may seem by many to

STATES 12 (Kenneth R. Wright ed., 1998).

169. Ausness, *supra* note 10, at 547.

170. See Mason Gaffney, *Economic Aspects of Water Resources Policy*, 28 AM. J. ECON. & SOC. 131, 139-41 (1969).

171. See *id.* at 140.

172. *Id.*

173. *Id.*

174. In fact, markets for raw water do exist within irrigation districts and other large, water supply entities. See *supra* note 105 and accompanying text.

be fairer than giving some users a full supply while others get nothing. As the frequency and severity of drought increases, sharing, however fair and egalitarian, can mean that almost no enterprise gets sufficient water to survive.

Proponents of eastern permit systems assume that the allocation of water resulting from the decisions of an administrator will be better than those that result from the mechanical application of temporal priority—the administrator will see to it that the most productive, best, or most important uses receive water, the administrator will promote marginal utility by rationing water, and the administrator will allocate water fairly. It seems doubtful that such advantages, if real, are sufficient to offset the damage to predictability and stability. Moreover, administrative allocation may discourage planning and water development. A party using water for a purpose with a high preference, such as a municipality, may have little incentive to develop water supplies to meet shortages if water can simply be taken from those using water for purposes with a lower preference. Conversely, a party needing water for a use with a low preference may be discouraged from water development by lack of legal security; water developed to meet shortages may be lost to parties with existing or new uses with a higher preference. In addition to allocating supply in times of unusual shortage, preventing over-development of the resources is a concern for any allocation model. Shortage exists when demand exceeds supply. Demand may exceed supply because of decreases in supply, increases in demand, or a combination of the two. On a probability curve, the frequency and severity of shortages increases as the demand on a given stream or river increases. Nevertheless, eastern permit systems perceive shortage primarily as a supply problem—shortage occurs when the supply falls abnormally short.¹⁷⁵

Because eastern streams tend to have stable base flows, the assumption that shortages are the result of abnormally low flows may be workable if demand is kept in check. Many eastern statutes direct administrators to consider flows and existing permits when deciding whether or not to issue new permits.¹⁷⁶ Limiting withdrawals to ordinary flows, except for water required for public instream purposes with some margin of safety, may confine shortages to periods of abnormally low flows.

This is a problematic approach in areas where demand is high and other supply options are limited. Even on eastern streams, there is some variability in flows. Demand typically varies as well. If the administrator is too liberal in issuing permits, shortages will not be restricted to periods of abnormally low flows, but will increasingly spill over into periods where

175. Eastern statutory provisions addressing shortages typically use the term “water emergencies.” See Dellapenna, *supra* note 2, § 9.05(d).

176. See *id.* § 9.03(b)(1).

flows are more nearly normal.¹⁷⁷ If the administrator is too cautious in issuing permits, the resources will be underdeveloped.

Western administrators must also decide how many permits to issue on a stream. Statutes in western states typically direct that a permit is to be issued only if unappropriated water is available.¹⁷⁸ Variability in supply and demand make it difficult to determine whether unappropriated water exists;¹⁷⁹ even on over-appropriated streams, there is probably unappropriated water available at some times in some years. Because of the rule of priority, however, it is not so critical that western administrators find the proper point to stop issuing permits. If water is not sufficient to satisfy all permits, priority allocates the available supply. Priority functions to determine who gets a permit *and* to resolve conflicts between permittees. In order to maximize the use of water resources, western administrators tend to err on the side of over-appropriation rather than under-appropriation.¹⁸⁰

In California, the Water Resources Control Board is authorized to close streams to further appropriation.¹⁸¹ Efficiency is the principal advantage in closing streams. The Water Resources Control Board is freed from processing permits which will almost certainly be denied, and prospective users are given notice that attempts to appropriate water from closed streams are futile. Eastern administrators might consider a similar approach when use by existing permits approximates or exceeds dependable flows.¹⁸² In addition to the advantages in efficiency, stream closure might produce administrative discipline. It may be easier for an administrator to close a stream to further permits than to deny a pending application, particularly one for a preferred use.

Limiting demand by refusing to issue new permits is an application of priority, albeit more crude than under the appropriation doctrine. Priority in this sense, separates the "haves" from the "have nots," but does not resolve conflicts between the "haves," as it does in prior appropriation. The use of

177. This is particularly problematic for water users because there is no predicable rule, such as priority, to determine how conflicts will be resolved. Frank Trelease suggested that administrators may be particularly tempted to over-allocate when confronted with an application for a preferred use at a time when no permits for less favored uses are set to expire for some time. *See* Trelease, *supra* note 26, at 220.

178. *See, e.g.*, MONT. CODE ANN. § 85-2-311 (2001); TEX. WATER CODE ANN. § 11.124 (Vernon 2000); WYO. STAT. ANN. § 41-4-503 (LEXIS 2001).

179. *See* Lower Colo. River Auth. v. Tex. Dep't of Res., 689 S.W.2d 873 (Tex. 1984).

180. *See* Benz v. Water Res. Comm'n, 764 P.2d 594 (Or. App. 1988). A permit in the West is sometimes analogized to a hunting license; the state does not guarantee that water is available when it issues a permit, it merely authorized the permittee to take unappropriated water if it can be found.

181. CAL. WATER CODE §§ 1205-1207 (West Supp. 2002).

182. In eastern permit systems, this would mean that new uses will be accommodated only as existing permits expire.

priority to restrict demand to normal supply has a parallel in western groundwater law. The existence of storage in most aquifers makes it possible to treat supply as a constant. In a rechargeable aquifer, the constant is usually based on average annual recharge.¹⁸³ In an aquifer with little recharge, the constant will typically be an amount that gives the aquifer some minimum life.¹⁸⁴ Permits are issued until withdrawals equal the supply constant. Priority determines who gets a permit, but those who do get permits are equals, practically if not legally.

Temporal priority should be considered by an eastern state even if it rejects perpetual rights in favor of term permits and administrative reallocation in favor of market reallocation. In such a system, a term permittee would have a superior right to those receiving permits at a later date, but water could be reallocated at the end of the permit term or the priority of the right could be subordinated in appropriate cases if the permit is extended for a new term. Such an approach provides much of the flexibility to changed circumstances provided by traditional eastern permit systems, while substantially enhancing security during the permit term.

VIII. CONCLUSION

Professor Robert Abrams said in a 1989 article, “[t]hese hard cases of absolute shortage, evermore prevalent [in the East], demand a different water law for their management, one designed to function in times of shortage rather than abundance.”¹⁸⁵ If the East is truly entering an era of absolute shortage, that law is the law of prior appropriation, a law developed and tested in the arid West. This is not the appropriation doctrine of 1850, but the appropriation doctrine of the present. It is a doctrine which combines government regulation and secure, transferable water rights to obtain the best each has to offer. It is a doctrine which, in the words of Frank Trelease, allows water officials to be “wise administrators,” not “goddam bureaucrats.”¹⁸⁶

183. See IDAHO CODE § 42-237a(g) (Michie 1990); S.D. CODIFIED LAWS § 46-6-3.1 (Michie Supp. 2001).

184. See *Fundingsland v. Colo. Ground Water Comm'n*, 468 P.2d 835 (Colo. 1970).

185. Robert H. Abrams, *Charting the Course of Riparianism: An Instrumentalist Theory of Change*, 35 WAYNE L. REV. 1381, 1446 (1989).

186. Trelease, *supra* note 26, at 207.

