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Water Use Permits in a Riparian State: Problems and Proposals

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## INTRODUCTION

The prolonged drought which brought water rationing, forest fires, and severe crop losses to many parts of the country during the summer of 1977 focused public attention on long-range water resource problems in the United States. According to *U.S. News and World Report*:

> It is estimated that by the year 2000, only three of the 18 federally designated water regions on the U.S. mainland—New England, the Ohio basin and the South Atlantic-Eastern Gulf area—will be able to live comfortably with their water supplies. And even there, purity may prove to be just as serious a problem as shortages.¹

An increased demand for water due to population growth,² ris-

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² The population of the United States has grown from 76 million in 1900 to 204 million in 1970 and projections indicate that this trend is likely to continue. BUREAU OF THE CENSUS, U.S. DEPT. OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES 5, table 2 (1970).
ing per capita use of water, and the progressive concentration of population in urban areas will be major causes of this impending water shortage.

Fortunately, the water supply is much better in Kentucky than in most other areas of the United States. Kentucky's climate and topography insure that, with proper management, water will generally be available. The average annual rainfall ranges from thirty-six to forty-two inches in the northern counties, forty-two to forty-seven inches in the central portion of the state, and forty-seven to fifty inches in the southern area. This produces a forty-five-inch average annual rainfall. Although there are seasonal variations, rainfall is generally adequate throughout the year.

Kentucky has 544 square miles of streams, rivers, lakes and reservoirs. The flowing surface waters of the state comprise a network of rivers and streams ranging from the Ohio River and its main tributaries to the small creeks which drain into the Ohio's lesser tributary streams. The Ohio forms the northern boundary of Kentucky for a distance of 664 miles and drains a total area of 204,000 square miles from portions of fourteen states. About ninety-seven percent of Kentucky's 40,000 square mile area drains into the Ohio River, mainly through seven major river basins: the Big Sandy, Licking, Kentucky, Salt, Green, Cumberland and Tennessee rivers. The remaining

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3 Because of industrialization, per capita use of water in the United States increased from 526 to 1893 gallons daily per person during the first six decades of this century. J. WRIGHT, THE COMING WATER FAMINE 19 (1966). As industrial growth continues, per capita water use will also increase. Stein, Problems and Programs in Water Pollution, 2 NAT. RESOURCES J. 388, 394 (1962).

4 Urbanization will put a severe strain on the nation's water resources since the water-holding capacity of an area is reduced when rural lands are converted into high-density residential areas. For example, paved surfaces retain heat, increase evaporation, and reduce recharge area for replenishment of ground water resources. F. Moss, THE WATER CRISIS 4-5 (1967); Maloney & Ausness, Administering State Water Resources: The Need for Long-Range Planning, 73 W. VA. L. REV. 209, 210 (1971).


7 WATER INFORMATION CENTER, INC., WATER ATLAS, plate 3 (1973).

8 U.S. ARMY CORPS OF ENGINEERS, KENTUCKY WATER RESOURCES DEVELOPMENT 15 (1975). Normal flows on the Ohio River are largely regulated by navigation structures which provide a channel depth of nine feet. This system consists of nine modern locks and dams and eight older structures. Id. at 17.
area, located in extreme western Kentucky, drains directly into the Mississippi River. There are no natural lakes of any size in the state, but a number of large artificial lakes or reservoirs, such as Lake Cumberland, Kentucky Lake and Lake Barkley, have been created by river impoundment. In addition, impoundments on small tributary or headwater streams have created a number of small lakes and ponds for farm use, municipal water supply or recreational purposes. Finally, there are many large springs in the state, some flowing several hundred gallons per minute.

Ground water is also plentiful in some parts of the state. There are five major ground water provinces in Kentucky: the Eastern Coal Field Region, the Blue Grass Region, the Mississippian Plateau Region, the Western Coal Field Region and the Jackson Purchase Region. The Jackson Purchase Region and the alluvial fill areas along the Ohio River are the richest sources of ground water in Kentucky, but good to moderate supplies are also available from the Mississippian Plateau and Western Kentucky Coal Field regions.

Although adequate supplies of water are generally available in Kentucky, the law governing its use and allocation is much less satisfactory. At present, Kentucky water law is a complex mixture of common law and statutory water rights. The purpose of this article is to evaluate these water rights and suggest a number of improvements. Part I will examine the common law rules as they relate to both surface water and ground water. Part II will focus upon Kentucky's present system of statutory water use regulation and will identify some of

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* Ky. Dep't of Commerce, Natural Resources of Kentucky 28 (1967).
* Id. at 30.
* The Knobs Region is a subdivision which is omitted from some classifications.
its more serious deficiencies. Part III will recommend some short-range legislative revisions. Constitutional issues will be treated in Part IV and a few long-range alternatives will be considered in Part V.

I. COMMON LAW WATER RIGHTS

A. Surface Water

The right to consume surface water in the United States is governed by two major allocation systems, riparianism and prior appropriation. The riparian system is found in most of the eastern states while the prior appropriation system prevails in the West.

1. The Prior Appropriation System

Priority and beneficial use are fundamental elements of the prior appropriation system. The prior appropriation doctrine provides that the appropriator who is first in time is first in right, and a prior or earlier appropriator is entitled to satisfy his water needs before a subsequent appropriator may satisfy his. The subsequent or junior appropriator also possesses a legally protected water right, but it is subordinate to that of the senior appropriator.

"Mississippi is the only eastern state which presently follows the prior appropriation system. Formerly a riparian state, Mississippi enacted its prior appropriation statute in 1956. Miss. CODE ANN. § 51-3-7 (1972). See also Champion, Prior Appropriation in Mississippi: A Statutory Analysis, 39 Miss. L.J. 1 (1967)."

"Consumptive riparian rights have no legal status in the eight western states which adhere to the "Colorado doctrine." These states include Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. F. Trelease, Cases and Materials on Water Law 11 (2d ed. 1974). Riparian rights exist along with appropriative water rights in the 11 "California doctrine" states. These include Alaska, California, Kansas, Mississippi, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Texas, and Washington. In these states, for the most part located along the Pacific coast or in the Great Plains area, riparian rights were recognized before the prior appropriation system was adopted. However, since the riparian and appropriative systems are not very compatible, most "California doctrine" states limit the exercise of riparian rights to some extent. Trelease, Coordination of Riparian and Appropriative Rights to the Use of Water, 33 Tex. L. Rev. 24 (1954).

"City of Pasadena v. City of Alhambra, 207 P.2d 17 (Cal. 1949); Bailey v. Idaho Irrigation Co., 227 P. 1055 (Idaho 1924). In addition, priority of appropriation governs the respective rights of the various users regardless of whether the senior appropriator diverts water at a point below where junior appropriators make their diversions from the stream.

"Smith v. O'Hara, 43 Cal. 371, 375 (1872). This protection of the junior appropri-
Under prior appropriation, water rights are derived from beneficial use of the water rather than from land ownership. Not only must the use be a beneficial one, but the methods of diverting the water, conveying it to the place of use, and applying it to the land or machinery for which it is appropriated must also be efficient under the circumstances. Appropriations are for a definite quantity of water, usually expressed in cubic feet per second for direct diversion or in acre-feet for reservoir storage. Diversions are often limited to specific times of the day or week. Moreover, administrative procedures for appropriating water invariably require the applicant to designate the proposed place of use for the water he desires to appropriate. The place of use may be on nonriparian land.

In the West, water rights are perpetual in duration, although they may be lost or abandoned through nonuse. For allocating water during times of shortage or for choosing between simultaneous applications, several states have enacted statutes giving certain uses preferred status. Some states also give these preferred uses condemnation powers. Nowadays, appropriative rights usually operate within a comprehensive

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  \item 1 A. G. Thompson, Commentaries on the Modern Law of Real Property § 263 (1964).
  \item Hutchins, Background and Modern Developments in Water Law in the United States, 2 Nat. Resources J. 416, 417 (1962). Although the date of priority is generally established by the date of public notice or by the date of application for a permit, the appropriation is effectively secured merely by applying the water to the stated use. Davis, Australian and American Water Allocation Systems Compared, 9 B.C. Indus. & Com. L. Rev. 647, 688 (1968).
  \item 1 W. Hutchins, Water Rights Laws in the Nineteen Western States 491 (1971).
  \item 1 W. Hutchins, Water Rights Laws in the Nineteen Western States 517 (1971).
  \item Colo. Const. art. XVI, § 6; Neb. Const. art. XV, § 6.
\end{itemize}
statutory and administrative framework. In most jurisdictions permits are issued by a state administrative agency pursuant to some form of adjudicatory process. The agency often has the power to deny or modify permit applications in order to protect senior appropriators or the public interest.29

2. The Riparian System

The riparian system appears to have originated in the United States during the early part of the nineteenth century,30 although some commentators claim that it developed from the French civil law31 or the English common law.32 Under the concept of riparianism, both consumptive and nonconsumptive33 rights arise from ownership of land34 which borders on natural

33 Riparian landowners possess a right of access to adjacent navigable waters. Board of Trustees v. Maderia Beach Nominee, Inc., 272 So. 2d 209, 214 (Fla. App. 1973); McCarthy v. Coos Head Timber Co., 302 P.2d 238, 246 (Ore. 1956); Hollan v. State, 308 S.W.2d 122, 125 (Tex. Civ. App. 1958). They also share with other members of the public the right to navigate, fish, swim, or bathe in such waters. Harris v. Brooks, 283 S.W.2d 129, 134 (Ark. 1955); Harrison County v. Guice, 140 So. 2d 838, 842 (Miss. 1962). Riparian property is also subject to the doctrines of accretion, avulsion, and erosion. See generally 5A G. Thompson, Commentaries on the Modern Law of Real Property §§ 2560-65 (J. Grimes, ed. 1957); 56 Am. Jur. Waters §§ 983-86 (1973).
watercourses such as lakes or streams. As a general rule, however, riparian rights do not attach to artificial waterbodies or to diffused surface waters. Although commentators have differed about the nature of riparian rights, they generally agree that no rights of ownership attach to the corpus of the water as long as it remains in the stream "because...so long as it continues to run there cannot be that possession of it which is essential to ownership." Instead, in most jurisdictions, a riparian owner has only a usufructuary right to the water. Moreover, riparian rights are not absolute, but correlative, and each landowner must consider the needs of other riparian proprietors.

a. Consumptive Use Rules

There are two doctrines that govern consumptive rights to water under the riparian system, the natural flow doctrine and the reasonable use rule.

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35 Humphreys Mexia Co. v. Arseneaux, 297 S.W. 225 (Tex. 1927); 1 WATERS AND WATER RIGHTS § 52.1(D) (R. Clark ed. 1987); Davis, Water Rights in Iowa, 41 IOWA L. REV. 216, 229 (1956); Maloney & Plager, Florida's Lakes: Problems in a Water Paradise, 13 U. FLA. L. REV. 1, 52-54 (1960). These rights are also known as "littoral" rights where a natural lake or pond is involved. 56 AM. JUR. Waters § 282 (1947).

36 A stream flows in a particular direction, possesses a definite channel, bed, banks or sides, and discharges into some other body of water. Piper v. Hawley, 175 P. 417 (Cal. 1918); Yaskill v. Thibault, 173 N.E. 504 (Mass. 1930); McGill v. Card-Adams Co., 47 N.W.2d 912 (Neb. 1951); Note, Acquisition of the Right to Use Water, 29 TUL. L. REV. 554, 555 (1955). Kentucky law is substantially in accord with this definition. Winters v. Berea College, 349 S.W.2d 357 (Ky. 1961); Morgan v. Morgan, 266 S.W. 35 (Ky. 1924); KY. REV. STAT. § 151.100(4) (1974)[hereinafter cited as KRS].

37 3 H. FARNHAM, WATER AND WATER RIGHTS §§ 827b, 838 (1904); but see Evans, riparian Rights in Artificial Lakes and Streams, 16 Mo. L. REV. 93 (1951).

38 Maloney & Plager, Diffused Surface Water: Scourge of Bounty?, 8 NAT. RESOURCES J. 72, 108 (1968). KRS § 151.100(5) (1974) defines diffused surface water as water which comes from falling rain or melting snow or ice, and which is diffused over the surface of the ground, or which temporarily flows vagrantly upon or over the surface of the ground as the natural elevations and depressions of the surface of the earth may guide it, until such water reaches a stream or watercourse.


i. The Natural Flow Doctrine

Under the natural flow doctrine, each riparian proprietor on a watercourse is entitled to have the stream flow through his land in its natural condition, not perceptibly retarded, diminished or polluted by others.\(^4\) This doctrine assumes that the law should follow nature and that each proprietor on a stream should be entitled to have the stream continue flowing in its natural state through his land.\(^5\)

Consumptive uses are not entirely prohibited by the rule, but a distinction is made between “natural” and “artificial” wants or uses.\(^6\) Natural wants are those necessary to sustain life and include water for bathing, drinking, household purposes, and watering animals.\(^7\) The natural flow doctrine allows a riparian proprietor to use as much water as he needs for his domestic or natural uses even if this depletes the entire streamflow.\(^8\)

Artificial uses are those which increase man’s comfort and prosperity and include irrigation, manufacturing, power generation, mining operations, and large-scale stock watering.\(^9\) Riparian landowners may divert water for artificial uses as long as there is no material interference with the natural flow of the watercourse, but a nondomestic use which noticeably affects the natural condition of the stream creates a cause of action for a downstream owner even though he is not using the stream and suffers no actual damages.\(^10\) The plaintiff is deemed to be injured by the change in the natural flow or condition of the

\(^{13}\) Evans v. Merriweather, 4 Ill. 492 (1842).
\(^{14}\) Crawford Co. v. Hathaway, 93 N.W. 781 (Neb. 1903); Meng v. Coffey, 93 N.W. 713, 715-16 (Neb. 1903); Hough v. Porter, 98 P. 1083 (Ore. 1909); Salem Flouring Mills Co. v. Lord, 69 P. 1033 (Ore. 1902); Martin v. Burr, 228 S.W. 543 (Tex. 1921).
\(^{17}\) Harvey Realty Co. v. Wallingford, 150 A. 60 (Conn. 1930); Robertson v. Arnold, 186 S.E. 806 (Ga. 1936); Roberts v. Martin, 77 S.E. 535 (W. Va. 1913); Comment, *Development of Riparian Law in Alabama*, 12 Ala. L. Rev. 155, 158 (1959).
stream and may obtain nominal damages or injunctive relief.\textsuperscript{51} In fact, under the natural flow doctrine, the downstream owner is virtually forced to institute an action in order to protect his rights against the acquisition of a prescriptive right by an upper riparian user even though the diversion is reasonable and harmless under the existing circumstances.\textsuperscript{52}

In the early days of the Industrial Revolution, when many mills and factories were powered by water, the natural flow doctrine insured that the water passed down from one mill dam to the next.\textsuperscript{53} Under modern conditions, however, the natural flow doctrine has little utility. It prohibits many beneficial, nonharmful uses simply because they materially diminish the natural flow of the water. The natural flow doctrine also permits a riparian proprietor to play "dog in the manger"; that is, he does not use the water himself and deprives the upstream owners of its use as well. Fortunately, only four or five states still adhere to the natural flow doctrine.\textsuperscript{54}

\textbf{ii. The Reasonable Use Rule}

The reasonable use rule is now the majority position, at least in the eastern United States. The reasonable use rule and the natural flow doctrine reflect widely divergent attitudes about man's relation to a watercourse.\textsuperscript{55} The natural flow doctrine emphasizes the \textit{status quo} of nature, whereas the reasonable use rule seeks to promote the fullest beneficial use of streams by adjacent riparian owners.\textsuperscript{56} Under the reasonable use rule, each riparian proprietor may use the water for any

\textsuperscript{51} Guynn v. Wabash Water & Light Co., 104 N.E. 849 (Ind. 1914); Note, Water Rights in Indiana, 32 Ind. L.J. 39, 42 (1956).

\textsuperscript{52} Teass, Water and Water Courses—Riparian Rights—Diversion of Storm or Flood Waters for Use on Non-Riparian Lands, 18 Va. L. Rev. 223, 236 (1932).


\textsuperscript{55} In spite of this, the natural flow and reasonable use rules often tend to become blended or confused in practice. Davis, Water Rights in Iowa, 41 Iowa L. Rev. 216, 218 n.8 (1956).

\textsuperscript{56} 5 R. POWELL, THE LAW OF REAL PROPERTY ¶ 713 (1976); RESTATEMENT (SECOND) OF TORTS § 853, comments c, d, & e (Tent. Draft No. 17, 1971).
beneficial purpose, provided that the intended use is reason-
able with respect to the needs of other proprietors on the
stream and does not unreasonably interfere with their legiti-
mate water uses. Of course, the mere fact of benefit to the
user does not establish the reasonableness of the use.\(^7\) Moreover, neither the priority of use nor the extent of riparian
frontage or riparian land are generally considered in determin-
ing reasonableness.\(^8\) Although riparian rights are regarded
as equal or correlative, each riparian user is not necessarily en-
titled to a proportionate share of the available water.\(^9\) Indeed,
where the water supply cannot satisfy the needs of all riparian
users, some uses, otherwise beneficial, may be deemed un-
reasonable under the circumstances and prohibited.\(^6\)

The determination of the reasonableness of a use is a ques-
tion of fact and must be resolved on a case-by-case basis. Var-
ious factors may be considered, including rainfall, climate, sea-
son of the year, customs and usages, size, velocity and capacity
of the watercourse, nature and extent of improvements on the
watercourse, amount of water taken, place and method of di-
version, place of use, previous uses, the object of the use, the
extent and type of use, its necessity and importance to society,
and the uses, rights and reasonable needs of other riparians.\(^6\)
The reasonableness of a particular use may also be affected by
its location on the stream. The riparian proprietor at its mouth
may capture all he can, while the uppermost riparian must con-
sider the needs of downstream users.\(^6\)

The reasonable use rule, like the natural flow doctrine,
distinguishes between natural and artificial uses, and gives
preferential treatment to the former.\(^6\) Thus, a natural or do-
mestic use will always be treated as reasonable, while compet-

\(^{67}\) Trelease, *The Concept of Reasonable Beneficial Use in the Law of Surface Streams*, 12 Wyo. L.J. 1, 16 (1957).


\(^{70}\) *Restatement (Second) of Torts* § 850A, comment d (Tent. Draft No. 17, 1971).


\(^{72}\) *Restatement (Second) of Torts* § 850A, comment d (Tent. Draft No. 17, 1971).

ing artificial uses may be enjoined, but no other preferences are recognized under the reasonable use rule between types or classes of use.

Finally, the reasonableness of a particular use must be determined by present conditions and not by speculation concerning future circumstances. Hence, in the absence of activity by other riparians, a single riparian owner may use all of the water in a stream. However, he does not thereby gain any continuing right to the full flow of the stream since upstream owners may commence reasonable uses in the future. Thus, a use which is reasonable under existing circumstances may later become unreasonable when others initiate new uses on the watercourse.

b. Place-of-Use Restrictions

Under both the natural flow and reasonable use theories, water rights are based on ownership of riparian land, a principle which prevents nonriparian landowners from using watercourses and which has led to other use restrictions as well.

i. Definitions of Riparian Land

Since surface water may be used only on "riparian" land, the courts have developed several tests to determine whether a particular tract is riparian or not. Perhaps the most restrictive is the "source of title" test, under which riparian rights are limited to the smallest parcel held under one title in a chain of title leading to the present owner. The size of a riparian tract cannot be increased by the purchase of contiguous nonriparian land.

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64 Although many courts have abandoned the old classifications of natural and artificial use, all have recognized the existence of a preference for domestic uses.
68 Lauer, Reflections on Riparianism, 35 Mo. L. Rev. 1, 10 (1970). Both the reasonable use rule and the natural flow doctrine also govern private rights and duties among riparian owners with respect to water quality. F. Maloney, S. Plager & F. Baldwin, Water Law and Administration—The Florida Experience § 112.1 (1968).
parian land, and if the back portion of a riparian tract is sold it loses its riparian character. Moreover, the subsequent re-uniting of a severed tract with the abutting tract will not re-establish its riparian status. Thus, a riparian tract can be decreased but never increased in those jurisdictions which follow the source of title rule. This rule, which originated in California, tends to restrict available surface water supplies to a small group of riparian owners and has been largely confined to the western states. The rule supports the western policy of limiting riparian rights as much as possible in order to provide more water for appropriators, but it seems inappropriate for eastern states where more water is available.

The more inclusive "unity of title" rule provides that any tracts contiguous to the abutting tract are riparian, if held in common ownership, regardless of when they were acquired. This approach permits an increase in the size of a riparian parcel by the purchase of contiguous land even though the added land had been nonriparian ever since its transfer from governmental to private ownership. Given the trend toward larger farms and landholdings in this country, application of the unity of title theory will result in a continually expanding quantity of riparian land. This rule has support in both eastern and western jurisdictions.

The unity of title rule appears to be a better approach for an eastern jurisdiction than the source of title test. Often a riparian owner can use water on land added to his riparian tract land without unreasonably curtailing the amount of water available for other riparian owners. However, the failure of the

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7. Clark v. Allaman, 80 P. 571 (Kan. 1905); Jones v. Conn, 64 P. 855 (Ore. 1901); Slack v. Marsh, 11 Phila. 543 (C.P. Pa. 1875); Restatement of Torts § 843, comment c (1939).
unity of title rule to impose any restriction on the amount of added land which can become riparian when acquired by one riparian owner may adversely affect other riparian proprietors. Accordingly, some courts have declared that the amount of riparian land claimed under the unity of title rule must be reasonable. Under this corollary, the distance of the land from the watercourse is taken into account in deciding the reasonableness of the particular water use. Arguably, this affords other riparians some protection against monopolization of water by one riparian owner.

ii. The Watershed Limitation

The concept of riparian land is further restricted in some states by the watershed limitation, which provides that any part of a tract of land which lies outside the watershed of a body of water is not riparian to it even though the tract itself borders on a natural watercourse and is otherwise riparian. This watershed limitation is followed in five western states and a few eastern states.

The watershed limitation is based on the assumption that
land beyond the watershed is outside the boundaries established by nature for riparian ownership and that water used on land within the watershed will eventually return to the parent body of water. If water is withdrawn from one watershed and drained into another, downstream owners along the first watercourse would be damaged by diminution of the stream's flow, while those along the second watercourse might be injured by the effects of an excessive stream flow. Thus, the watershed limitation allows a riparian owner to use water on his land to the maximum extent while at the same time protecting downstream owners, and protects riparians who are not currently exercising their riparian rights by insuring that water will be available if needed in the future.

Nevertheless, many commentators favor relaxation or abolition of the watershed rule. In the East, this restriction often unduly limits water use and encourages waste of the resource. At present, four eastern states have expressly adopted the watershed rule, two have rejected it, and the majority has not yet taken a position.

iii. Effect of Nonriparian Uses

A nonriparian use is one in which water is diverted onto nonriparian land. Land which lies outside of a stream's watershed is also deemed nonriparian in those states which adhere to the watershed rule. Thus, diversions by nonriparian landowners and use of water by riparian owners on nonriparian land are considered nonriparian uses.

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Anaheim Union Water Co. v. Fuller, 88 P. 978 (Cal. 1907); Note, Limitation on Diversions from the Watershed: Riparian Roadblock to Beneficial Use, 23 S.C. L. Rev. 43 (1971). Most industrial and municipal uses return up to 90% of the water diverted; some water used for irrigation is also returned. Johnson & Knippa, Transbasin Diversions of Water, 43 Tex. L. Rev. 1035, 1057 (1965).

Murphy, A Short Course on Water Law for the Eastern United States, 1961 Wash. U. L.Q. 93, 94-95.


Arkansas, Massachusetts, New Jersey, and Virginia; see note 82, supra.


Municipalities are usually not considered to be riparian owners. In theory, a
Nonriparian uses, however, are not always prohibited. According to one view, such uses are wrongful per se and riparian owners may obtain appropriate judicial relief even though they have suffered no actual damages. In states which follow the reasonable use rule, however, a plaintiff must usually prove actual damage before he can enjoin a nonriparian use. A few states permit nonriparian uses even though downstream riparian owners are harmed. Nonriparian use is simply one factor that is considered in determining whether the use is reasonable in accordance with the requirements of the reasonable use rule.

c. Prescriptive Rights

Most riparian jurisdictions allow both riparian and nonriparian owners to acquire prescriptive rights to particular water uses. In order to ripen into a prescriptive right, the use must
be adverse, notorious, continuous and uninterrupted, and the use must be made under a claim of right or title. To establish a right by prescription, the use must be maintained in a manner hostile to the right of the riparian proprietor against whom it is claimed. The use must be visible and open so that the riparian owner either knows, or should know that his rights have been invaded. It must also be continuous and uninterrupted for the entire prescriptive period. Since some water uses, like irrigation, may be sporadic rather than continuous, this requirement is probably satisfied if the claimant uses the water as his necessities require. Of course, the initiation of a suit ends the adverse character of the use as does any other substantial interruption during the prescriptive period. Likewise, the adverse use is interrupted if at any time during the limitation period the adverse claimant concedes or acknowledges title in the true owner. Finally, use by one claiming a prescriptive right must be under a claim of right in order to imply an ouster of the owner's exclusive right of control.

Because of the transient nature of water, prescriptive water rights are difficult to acquire. In those states which follow the natural flow doctrine, there must be an actionable invasion of the right to the stream's natural flow, while reasonable use jurisdictions require an actionable wrong involving actual dam-

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96 Prescription, like adverse possession, rests on the theory that aggrieved parties should seek judicial relief within a reasonable time or be forever barred from a remedy. Harnsberger, *Prescriptive Water Rights in Wisconsin*, 1961 Wis. L. Rev. 47, 48-49.

97 Shellow v. Hagen, 101 N.W.2d 694 (Wis. 1960). An act is hostile when it is inconsistent with the true owner's rights of ownership. Thus, a licensed or permissive use can never give rise to a prescriptive right because such uses are not hostile to the titleholder. Stewart v. White, 30 So. 526 (Ala. 1901); Motl v. Boyd, 286 S.W. 458 (Tex. 1926); Rhoades v. Barnes, 102 P. 884 (Wash. 1909).

98 Illinois Steel Co. v. Bilot, 151 N.W. 258 (Wis. 1915).

99 At common law there was no fixed period of prescription but by analogy the courts followed the statute of limitations for adverse possession. 2 *American Law of Property* § 8.52 (A.J. Casner ed. 1954). The common law period is 20 years, but in most states the prescriptive period is determined by statute. Id.

100 Alta Land & Water Co. v. Hancock, 24 P. 645 (Cal. 1890); Harmon v. Carter, 59 S.W. 656 (Tenn. 1900).


102 Illinois Steel Co. v. Bilot, 85 N.W. 402, 403 (Wis. 1901).

ages to the servient owner.\textsuperscript{104} The scope of a prescriptive right, once acquired, is measured by the use originally made and actually enjoyed during the prescriptive period,\textsuperscript{105} but the water use may be changed at any time as long as the new use does not increase the burden imposed on the servient estate.\textsuperscript{106} Finally, prescriptive rights, once acquired, may be lost by abandonment, although mere nonuse is only evidence of an intent to abandon and is not conclusive.\textsuperscript{107}

\section*{B. Ground Water}

Subsurface waters are classified as either underground streams or percolating waters, and different consumptive use rules apply to each.\textsuperscript{108} Underground or subsurface streams flow in well-defined channels below the earth’s surface, generally have ascertainable banks and courses,\textsuperscript{109} and are subject to the same consumptive use rules that govern surface water-courses.\textsuperscript{110} However, underground streams are relatively unusual and a party alleging the existence of one generally has the burden of proof on that issue.\textsuperscript{111} Furthermore, the existence and location of the underground stream must be reasonably ascertainable from the surface without excavation.\textsuperscript{112}

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\textsuperscript{105} Smith v. McElderry, 124 So. 896 (Ala. 1929); Tinker v. Bessel, 99 N.E. 946 (Mass. 1912).
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\textsuperscript{107} Burkman v. City of New Lisbon, 19 N.W.2d 311 (Wis. 1945).
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\textsuperscript{108} 93 C.J.S. Waters § 86 (1956).
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\textsuperscript{109} Olson v. City of Wahoo, 248 N.W. 304, 307 (Neb. 1933); Canada v. City of Shawnee, 64 P.2d 694 (Okla. 1937); 2 S. Weil, \textit{Water Rights in the Western States} § 1077 (3d ed. 1911).
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\textsuperscript{111} Safranek v. Town of Limon, 228 P.2d 975 (Colo. 1951); Ryan v. Quinlan, 124 P. 512, 516 (Mont. 1912).
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Percolating waters "ooze, seep or filter through the soil beneath the surface, without a defined channel."\textsuperscript{113} Ground water is presumed to be percolating rather than flowing in an underground stream because visible surface indications and available scientific information are usually inadequate to allow an accurate determination of the source and movement of underground water. Some states have even abandoned the underground stream classification, and hold all ground waters to be percolating.\textsuperscript{114}

Although consumptive use rules with respect to percolating ground water are hopelessly fragmented and confused, three major approaches can be discerned in the East: the absolute ownership doctrine, the American rule and the correlative rights doctrine. In addition, many western states now apply the prior appropriation system to ground water.\textsuperscript{115}

\textsuperscript{113} Clinchfield Coal Corp. v. Compton, 139 S.E. 308, 311 (Va. 1927).

\textsuperscript{114} Hinton v. Little, 296 P. 582, 583 (Idaho 1931); KAN. STAT. §§ 82a-702 to 703 (1969); OR. REV. STAT. § 537.515(3) (1973); N.D. CENT. CODE § 61-01-01 (1960).

\textsuperscript{115} In the West, underground streams have always been subject to appropriation in the same manner as surface waters. Maricopa County Mun. Water Conservation Dist. v. Southwest Cotton Co., 4 P.2d 369 (Ariz. 1931); Chandler v. Utah Copper Co., 135 P. 106 (Utah 1913). Increasingly, these states have moved toward public control and management in the distribution of their percolating ground water as well. Colorado, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Washington and Wyoming now have separate ground water codes based on the prior appropriation model. COLO. REV. STAT. §§ 37-90-101 to 141 (1973); IDAHO CODE §§ 42-226 to 239 (Supp. 1977); MONT. REV. CODES ANN. §§ 89-2911 to 2936 (Supp. 1975); NEV. REV. STAT. §§ 534.019-180 (1973); N.M. STAT. ANN. §§ 75-11-1 to 40 (1968); OKLA. STAT. ANN. tit. 82, §§ 1002-1014 (West 1970); OR. REV. STAT. §§ 537.05-.990 (1973); WASH. REV. CODE §§ 90.010-.44.250 (1972); WYO. STAT. §§ 41-121 to 147 (1957).

Five other states (Alaska, Kansas, North Dakota, South Dakota, and Utah) have made their general appropriation statutes applicable to percolating ground water. ALASKA STAT. §§ 46.15.030, .040(a), .280(5) (1971); KAN. STAT. § 82a-707 (1969), construed in Cities of Hesston & Sedgwick v. Smrha, 391 P.2d 93 (Kan. 1964) and Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962); N.D. CENT. CODE § 61-01-01 (1960); S.D. COMPILED LAWS ANN. § 46-6-3 (Supp. 1977); UTAH CODE ANN. § 73-1-1 (1953), construed in Stubbs v. Ercanbrack, 368 P.2d 461 (Utah 1962).

The remaining western states follow one of the common law rules and do not apply prior appropriation principles to ground water. California follows the correlative rights doctrine; Arizona and Nebraska follow the American rule. See Bristor v. Cheatham, 255 P.2d 173 (Ariz. 1953); In re Metropolitan Util. Dist. of Omaha, 140 N.W.2d 626 (Neb. 1966) and Olson v. City of Wahoo, 248 N.W. 304 (Neb. 1933).

1. The Absolute Ownership Doctrine

According to the English or absolute ownership doctrine, a landowner may extract an unlimited quantity of percolating ground water from his land and use it on overlying or distant lands, regardless of injury to adjacent landowners. The rule imposes liability only for waste or for malicious injury to another.

The absolute ownership doctrine originated in Acton v. Blundell, an English case decided in 1843. The plaintiff in that case was a manufacturer whose well was affected by nearby mining operations. As the defendant pumped water out of the shaft of his coal mine, he drew the percolating water from under the plaintiff’s well. The plaintiff sought damages in an action on the case. Although the defendant’s conduct might have been actionable if a surface watercourse had been involved, the court refused to apply the law of surface waters because

no man can tell what changes these underground sources have undergone in the progress of time. . . . [T]here can be no ground for implying any mutual consent or agreement for ages past . . . which is one of the foundations on which the law as to running streams is supposed to be built . . . .

Instead, the Acton court held that the defendant was entitled to use the water as he saw fit, even if he injured the plaintiff. This result was justified since the defendant, as owner of the overlying land, had an exclusive right to any percolating ground water beneath his tract.

The absolute ownership doctrine recognizes a vested property in the overlying landowner to percolating ground water

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114 Stoner v. Patten, 63 S.E. 897 (Ga. 1909); Edwards v. Haeger, 54 N.E. 176 (Ill. 1899).
beneath his property regardless of whether he actually puts the water to use. It has been said that "the percolating water belongs to the owner of the land, as much as the land itself, or the rocks and stones in it." However, since a landowner has no rights against an adjoining landowner who also withdraws ground water, it is somewhat misleading to say that he owns "absolutely" the percolating water under his land. Instead it would seem that the landowner does not really own the water until he has reduced it to actual possession. The property right involved is the landowner's exclusive right of access to the ground water through his land, rather than ownership of the underground water itself.

The absolute ownership rule was followed in many American jurisdictions in the nineteenth century and is still recognized in a number of states today. It is often criticized, however, because it fails to account for the nature of ground water and because it favors municipalities and other large users who are able to drill deep wells.

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[W]ater percolating underground... is in law a part of the land itself, in the same sense that earth, gravel, stones, or minerals of any kind are constituent parts of the land, and is the absolute property of the owner in the same way, and to the same extent, that the other constituent parts of his land are his absolute property; so that he has the same right to... use it, on the land or elsewhere, that he has to... use or sell sand, soil, clay, ores, or any other constituent part of the land.


124 Roath v. Driscoll, 20 Conn. 532 (1850); Saddler v. Lee, 66 Ga. 45 (1879); Kinnard v. Standard Oil Co., 12 S.W. 937 (Ky. 1890); Wilson v. City of New Bedford, 108 Mass. 261 (1871); Chase v. Silverstone, 62 Mo. 175 (1873); Haldeman v. Bruckhart, 45 Pa. 514 (1863). The rule seems to have arisen independently in Massachusetts. See, e.g., Greenleaf v. Francis, 35 Mass. (18 Pick.) 117 (1836).


2. The American Rule

The American or reasonable use rule\(^{127}\) allows a landowner to use as much percolating ground water as he needs, regardless of any adverse effect on other landowners, as long as the water use is reasonably related to the natural use of his overlying land.\(^{128}\) The use must be beneficial; a malicious or wasteful use is considered unreasonable \textit{per se}\(^{129}\) and may be enjoined even though the plaintiff has suffered no actual damage.\(^{130}\) As a general rule, however, the use of water on overlying land for agricultural, domestic, mining or manufacturing purposes is deemed to be reasonable.\(^{131}\)

The absolute ownership doctrine and the American rule are virtually the same with respect to the landowner's right to use percolating ground water on overlying land, but they differ significantly in regard to the extraction and transportation of ground water for use in distant areas. The absolute ownership doctrine permits ground water to be transported and used on non-overlying land without liability even though neighboring landowners are injured. According to the American rule, however, the sale or use of water on distant lands is unreasonable and actionable if it impairs the ground water supply of another landowner, even though the defendant's use is beneficial.\(^{132}\)

\(^{127}\) Although the American rule is often called the reasonable use rule, it should not be confused with the surface water reasonable use rule.


\(^{129}\) Barclay v. Abraham, 96 N.W. 1080 (Iowa 1903); Stillwater Water Co. v. Farmer, 93 N.W. 907 (Minn. 1903).


\(^{131}\) Board of Supervisors v. Mississippi Lumber Co., 31 So. 905 (Miss. 1902); Drummond v. White Oak Fuel Co., 140 S.E. 57 (W. Va. 1927); Pence v. Carney, 52 S.E. 702 (W. Va. 1905); Lugar, \textit{Water Law in West Virginia}, 66 W. Va. L. Rev. 191, 214 (1964). It cannot be said with certainty that the courts would find any use reasonable if it actually resulted in a substantial injury to a neighboring landowner's ground water supply. In nearly all the cases applying the reasonable use rule, the percolating water was extracted for sale or use at distant points. No case was found in which both parties were using the water on overlying land for a beneficial purpose and the court applied the percolating water reasonable use rule in such a way that one party was allowed to use the water to the complete deprivation of another's supply. Maloney & Plager, \textit{Florida's Ground Water: Legal Problems in Managing a Precious Resource}, 21 U. Miami L. Rev. 751, 770 (1967).

\(^{132}\) Schenk v. City of Ann Arbor, 163 N.W. 109 (Mich. 1917); Erickson v. Crookston Waterworks, Power & Light Co., 111 N.W. 391 (Minn. 1907); Rouse v. City of Kinston, 123 S.E. 482 (N.C. 1924); Canada v. City of Shawnee, 64 P.2d 694, 697 (Okla. 1937).
The leading case on the American rule is Forbell v. City of New York. The plaintiff in Forbell used ground water for farming operations on his land. The City of New York, which owned an adjoining two-acre tract, sank a number of wells to obtain water for sale to the City of Brooklyn. When the wells interfered with plaintiff's farming operations, he sought injunctive relief. Although the court conceded that there would be no liability under the absolute ownership doctrine, it nevertheless enjoined the defendant's extraction of ground water for transportation and sale to distant users.

The American rule has displaced the older absolute ownership doctrine in many jurisdictions, and is now probably the majority position. Although the American rule differs from the absolute ownership doctrine where the use of ground water on non-overlying land is concerned, the two rules are quite similar conceptually and the American rule may be regarded as a modification of the absolute ownership doctrine. Both rules place the ownership of percolating waters in overlying landowners, but the American rule places reasonable limitations upon the exercise of ownership rights similar to those in the law of private nuisance. Also, like the absolute ownership doctrine, the American rule favors large users at the expense of farmers and domestic users who often have shallow wells and less powerful pumps.

3. The Correlative Rights Doctrine

Under the correlative rights doctrine, each landowner over a common ground water pool has an equal and correlative right to make a beneficial use of the water on his overlying land. The

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133 58 N.E. 644 (N.Y. 1900).
correlative rights doctrine is sometimes known as the "California rule" because it was introduced by the California Supreme Court in *Katz v. Walkinshaw.* The plaintiff in the *Katz* case was using ground water for domestic and irrigation purposes on land overlying an artesian basin. He brought suit when the defendant began pumping the water for sale and use outside the basin. The court stated that use of ground water on non-overlying land would not be allowed if it caused injury to an overlying user, but went on to declare that landowners above a common underground basin have equal rights in the underlying water so it must be prorated among them when the available supply is not sufficient to meet the needs of all.

Outside of California the doctrine provides that ground water must be equitably apportioned among overlying owners in times of shortage, with each owner entitled to no more than his fair and just proportion. This is sometimes known as the eastern correlative rights doctrine. In some instances, particularly in the case of irrigators, the correlative rights doctrine limits the user to his proportionate share, determined by comparing his surface area with the whole area overlying the water supply.

Some writers view the correlative rights doctrine as an attempt to analogize the law of percolating ground water to the law of surface streams. The approach of these two doctrines,

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137 70 P. 663 (Cal. 1902), *modified on rehearing,* 74 P. 766 (Cal. 1903).

138 In addition, the court applied the principles of prior appropriation to transfers of water beyond overlying land. Thus, as between outside users the first taker has priority over subsequent users. The *Katz* case, therefore, represented an effort to unify the state's groundwater law with its law of surface water streams, which recognized both riparian and prior appropriation rights. City of Pasadena v. City of Alhambra, 207 P.2d 17 (Cal. 1949); Recent Cases, *Water and Watercourses—Prescriptive Rights to Underground Waters—Mutual Prescription,* 34 MINN. L. REV. 574 (1950). In a case decided after *Katz* it was held that the rights of overlying users are superior to those of outside users even where the outside use was earlier in time. Burr v. Macay Rancho Water Co., 98 P. 260 (Cal. 1908). However, an outside user could gain a prescriptive right through the adverse taking of nonsurplus waters. City of Pasadena Co. v. City of Alhambra, 207 P.2d 17, 29 (Cal. 1949); Comment, *The Law of Underground Water: A Half-Century of Huber v. Merkel,* 1953 WIS. L. REV. 491, 501.


with their emphasis on common rights to water, is similar. Using either the surface water reasonable use rule or the correlative rights doctrine, a number of eastern states appear to have abandoned the American rule.\(^{142}\) Other commentators regard the correlative rights doctrine as an extension or modification of the American rule.\(^{143}\) However, these two doctrines seem to rest upon different concepts of water ownership.\(^{144}\) Under the correlative rights doctrine, overlying owners have only usufructuary rights and not, as under the absolute ownership and American rules, proprietary rights in the corpus of the water itself.\(^{145}\) It is this concept of a usufructuary right which justifies the requirement that overlying owners share the available water supply during shortages.\(^{146}\) The surface water reasonable use rule rests on a similar basis.

C. Common Law Water Rights in Kentucky

1. Surface Water

Although Kentucky is a riparian state, it was unclear until recently whether it followed the natural flow doctrine or the reasonable use rule since the Court often applied the doctrines interchangeably. *Anderson v. Cincinnati Southern Railway,*\(^{147}\) an early case, is illustrative. The plaintiff in *Anderson* owned a grist mill on a small creek. Two miles above the mill the defendant railroad company constructed a small dam to supply a reservoir of water for its trains. The dam, however, interfered with the plaintiff’s mill and he brought suit.

The Court declared that “[t]he right of every riparian owner to the enjoyment of a stream of running water in its

\(^{142}\) Jones v. Oz-Ark-Val Poultry Co., 306 S.W.2d 111 (Ark. 1957); MacArtor v. Grayln Crest III Swim Club, Inc., 187 A.2d 417 (Del. 1963); Koch v. Wick, 87 So. 2d 47 ( Fla. 1956); Cason v. Florida Power Co., 76 So. 535 ( Fla. 1917); Erickson v. Crookston Waterworks Power & Light Co., 117 N.W. 435 (Minn. 1908); Meeker v. City of East Orange, 74 A. 379 (N.J. 1909); Nashville, C. & St. L. Ry. v. Rickert, 89 S.W.2d 889 (Tenn. 1936).


\(^{144}\) Kirkwood, *Appropriation of Percolating Water*, 1 STAN. L. REV. 1, 6 (1948).


\(^{147}\) 5 S.W. 49 (Ky. 1887).
natural state in flow, quantity, and quality is now well established." This language implies that the Court was adopting the natural flow theory. Later portions of the opinion, however, suggested the reasonable use rule:

The owner is entitled to the reasonable use of the water for natural and domestic purposes; but when he undertakes to divert the course of the stream, or detains the water by means of a dam so as to prevent the previous supply to other riparian owners, he becomes a wrongdoer . . . .

. . . The use and detention of the water on a large stream by means of a dam for purposes of the railroad might not be an unreasonable use, as ordinarily there would be ample water left for all the purposes of the riparian owner below; yet where the stream is small, or even large, if the dam so obstructs the water as to diminish the flow, and lessen the capacity of the water-power below, it is an injury to the proprietor for which damages may be awarded. 149

In the end the Court reversed and remanded for a new trial, stating that the plaintiff should not recover unless he suffered material injury from the defendant's use of the water.

In Fackler v. Cincinnati, New Orleans and Texas Pacific Co.,150 the defendant railroad placed a dam across a small creek, preventing it from flowing onto the plaintiff's land. The Court declared that a "proprietor is entitled to have the water of a stream to flow to his land in its natural course undiminished in quantity and unimpaired in quality."151 Relief was denied, however, because the plaintiff could not show any damage.

In City of Louisville v. Tway,152 the defendant also dammed a stream, reducing the velocity of its flow and creating a pollution problem for the plaintiff. The Court stated:

It is true, as suggested by counsel for appellant, that our court is committed to the "natural flow rule" though as we read the two rules (Reasonable Use) . . . the distinction is rather close, and even under what may be termed the more re-

148 Id. at 51.
149 Id. at 52.
150 17 S.W.2d 194 (Ky. 1929).
151 Id. at 195.
152 180 S.W.2d 278 (Ky. 1944).
stricted theory [the natural flow doctrine], ... each riparian owner is recognized as having a privilege to use the water to supply his natural wants, and extraordinary or artificial uses, so that such does not sensibly or materially affect the quantity of the water and such uses by a lower riparian owner. 133

The Court held that the plaintiffs failed to show that the defendants had made "unreasonable use of the water from the stream." Thereupon, the Court upheld the lower court's refusal to grant injunctive relief since the defendant's actions had not caused any demonstrated harm to the plaintiff's property.

This uncertainty as to which rule applied in Kentucky led to a legislative adoption of the reasonable use rule in 1954:

The owner of land contiguous to public water shall have a right to make such reasonable use of water for other than domestic purposes as will not deny the use of such water to other owners for domestic purposes or impair existing uses of other owners heretofore established, or unreasonably interfere with a beneficial use by other owners. 144

Although this provision was repealed in 1966, the reasonable use rule appears to be securely established in this state. In Daugherty v. City of Lexington, 155 the most recent case on point, the City of Lexington denied a building permit to the plaintiff, who had planned to build a restaurant, because he failed to show that his septic tank system would not endanger the purity of city water in a nearby reservoir. The plaintiff argued that his proposed restaurant would be a reasonable use of his land and would not endanger the nearby reservoir. The Court quoted a Michigan case, People v. Hulbert, 156 which set forth a reasonable use formula for water:

[I]n determining whether a use is reasonable we must consider what the use is for, its extent, duration, necessity, and its application; the nature and size of the stream, and the several uses to which it is put; the extent of the injury to the

133 Id. at 280.
144 1954 Ky. Acts, ch. 247, § 2. This statute, however, was repealed in 1966. See 1966 Ky. Acts, ch. 23, § 39. There is no similar provision in KRS ch. 151 (1976), Kentucky's present water resources legislation.
155 249 S.W.2d 775 (Ky. 1952).
156 91 N.W. 211 (Mich. 1902).
one proprietor and of the benefit to the other; and all other facts which may bear upon the reasonableness of the use.\textsuperscript{157}

According to the Court, reasonable use is a question of fact to be settled by a balancing test: The necessity of the water use must be balanced against the harm which would ensue from the use.

Kentucky, like most eastern jurisdictions, limits the use of surface water to riparian land. In \textit{Bank of Hopkinsville v. Western Kentucky Asylum for the Insane},\textsuperscript{158} the defendant purchased a small tract of land on a stream, constructed a pumping station, and transported the water for use on nonriparian land located about three-quarters of a mile away. This diversion interfered with the operation of the plaintiff's grist mill and he brought suit to enjoin this nonriparian use. The Court agreed that the hospital could not transport the water to a nonriparian tract if this caused injury to a riparian owner.

Kentucky apparently also recognizes prescriptive rights. In \textit{W. G. Duncan Coal Co. v. Jones},\textsuperscript{159} a coal company obtained the right to pollute a stream because the lower riparian owner allowed the defendant's use to continue throughout the statutory prescriptive period.

2. \textit{Ground Water}

Like most states, Kentucky recognizes the legal distinction between underground streams and percolating ground water. In \textit{Nourse v. Andrews},\textsuperscript{160} a plaintiff owning land on the Muddy River in Logan County tried to prevent the City of Russellville from using two springs for its water supply since this depleted the river. The plaintiff argued that the springs were part of the source of the river but lost the case when he was unable to prove this allegation. The Court stated that one who alleges the existence of an underground stream has the burden of proof and added that:

Subterranean streams, as distinguished from subterranean percolations, are governed by the same rules, and give rise to

\textsuperscript{157} Id. at 217.
\textsuperscript{158} 56 S.W. 525 (Ky. 1900).
\textsuperscript{159} 254 S.W.2d 720 (Ky. 1953).
\textsuperscript{160} 255 S.W. 84 (Ky. 1923).
the same rights and obligations, as flowing surface streams... The owner of the land under which a stream flows can, therefore, maintain an action for the diversion of it, if such diversion took place under the same circumstances as would have enabled him to recover, if the stream had been wholly above ground.\textsuperscript{161}

Therefore, according to the \textit{Nourse} case, a landowner may assert riparian rights to underground water only if he can prove the existence of an underground stream. In \textit{Commonwealth v. Sebastian},\textsuperscript{162} such proof was established by pointing to a line of green grass which flourished in spite of dry weather. The Court in \textit{Sebastian} also stated that "there is an initial presumption that subterranean waters are percolating, but once a subterranean stream is shown to exist, there arises a presumption that it has a fixed and definite course and channel."\textsuperscript{163}

In the case of percolating ground water, Kentucky originally followed the absolute ownership rule. In \textit{Kinnard v. Standard Oil Co.},\textsuperscript{164} the Court stated that percolating waters "belong to the soil, constitute part of it, and may be used, controlled, or removed by the owner in the same manner that he could the soil through which the water percolates or runs."\textsuperscript{165} In \textit{Long v. Louisville & Nashville Railway Co.},\textsuperscript{166} the Court declared that "[t]he rule is universal that the owner may dig on his own land such wells as he needs, although in doing so he may dig up his neighbor's well."\textsuperscript{167} The doctrine was reaffirmed in \textit{Nourse v. Andrews}:\textsuperscript{168}

Percolating waters are part of the earth itself, as much as the soil and stones, with the same absolute right of use and appropriation by the owner of the land... The law seems to be well settled that water percolating through the soil is not, and cannot, be distinguished from the soil itself. The owner of the soil is entitled to the waters percolating through it, and such water is not subject to the appropriation.

\textsuperscript{161} Id. at 86.
\textsuperscript{162} 345 S.W.2d 46 (Ky. 1961).
\textsuperscript{163} Id. at 47.
\textsuperscript{164} 12 S.W. 937 (Ky. 1890).
\textsuperscript{165} Id. at 938.
\textsuperscript{166} 107 S.W. 203 (Ky. 1908).
\textsuperscript{167} Id. at 205.
\textsuperscript{168} 255 S.W. 84, 86 (Ky. 1923).
The absolute ownership rule, however, was replaced by the American rule of reasonable use in *Sycamore Coal Co. v. Stanley*. In that case, the plaintiff brought suit when the defendant coal company's core hole, used to test for coal, caused the water in his well to disappear. The defendant plugged the hole, but the water rose only fourteen inches, as compared to the previous fifty-four inch level. Since there was no evidence of an underground stream, the waters were assumed to be percolating. The Court limited the landowner over subterranean percolating waters to the "reasonable and beneficial use of the waters . . . and he had no right to waste them, whether through malice or indifference, if, by such waste, he injures a neighboring landowner." Since the landowner's use was "properly connected with the use, enjoyment and development of the land itself," the Court held that he was entitled to all he could use, regardless of the depletion of his neighbor's supply.

D. *An Evaluation of Common Law Water Rights*

Unfortunately, the riparian system is not responsive to the needs of many water users. Ideally, water rights should be both definite and secure: The water right should be clearly defined with respect to quantity and in terms of its relation to the rights of other users. The reasonable use rule, however, is vague and uncertain; one cannot know with any precision who may use the available water, how much can be used, or for what purpose it can be used. This uncertainty exists because any use must be reasonable with respect to the uses of other riparian owners, and these uses are constantly changing.

The uncertain nature of the user's water right under the riparian system is further aggravated because mechanisms for resolving controversies among water users are severely limited. Not only is litigation time consuming, expensive, and uncer-
tain in its outcome, but the results of successful litigation are often narrow and limited in scope. First, the judgment relates only to the parties before the court and not other water users. Since the courts will usually not apportion a stream between competing users, the judgment will be "all or nothing" for one party or another. Moreover, a judgment pertains only to the present facts, and new developments which change the relative positions of the parties cannot adequately be dealt with absent further litigation.175

Another criticism is that the riparian system tends to foster locational inefficiencies.176 In most states it restricts excessively the use of the water by nonriparian landowners.177 Since many beneficial uses consume water some distance from the point of diversion, these locational restrictions probably result in less efficient water use.178 Thus, while the riparian system possesses the advantage of flexibility, insecurity of the water right and locational restrictions do not promote efficient water use.

As far as ground water allocation doctrines are concerned, the correlative rights doctrine seems to be more equitable than either the absolute ownership doctrine or the American rule since small users are better protected and because the effects of a water shortage are borne proportionately by all users. In addition, hydrological considerations favor the correlative rights doctrine. Both hydrologists and legal commentators have criticized the existing law of water rights for its failure to recognize the relationship between surface and ground water.179 This interrelation between percolating ground water and surface water supports a uniform allocation rule for all forms of water.180 Only the correlative rights doctrine sufficiently resem-

177 Farnham, Improvement and Modernization of New York Water Law Within the Framework of the Riparian System, 3 LAND & WATER L. Rev. 377, 413 (1968);
180 Kirkwood, Appropriation of Percolating Water, 1 STAN. L. Rev. 1, 23 (1948).
bles the surface water reasonable use rule, both in terms of an allocative standard and in terms of an underlying theory of property interest in the water, to allow the courts to fashion a rational and integrated law of water allocation. 181

On the other hand, the correlative rights doctrine is subject to many of the same criticisms as the surface water reasonable use rule. The correlative rights rule is so indefinite that it is exceedingly difficult to apply to varying conditions. 182 Moreover, it offers no security to early developers by protecting the water supply on which they have relied, nor does it permit landowners to acquire a more secure right to an adequate supply of water by purchase or contract. 183

II. STATE REGULATION OF CONSUMPTIVE WATER USES

A. Water Use Permits in the East

Since water has usually been plentiful in the East, the common law system, despite its many deficiencies, has generally provided a satisfactory framework for water allocation. Since World War II, however, a number of states, including Kentucky, have modified these common law doctrines through legislation. Although some states considered adoption of the western system of prior appropriation, 184 most have preferred hybrid systems possessing characteristics of both riparianism and prior appropriation. 185

At present, eleven eastern states regulate consumptive water uses with a permit system, 186 while the common law rules remain in seventeen states. 187 So far, Mississippi is the only

186 Delaware, Florida, Indiana, Iowa, Kentucky, Maryland, Minnesota, New Jersey, North Carolina, South Carolina, and Wisconsin.
eastern state to adopt the prior appropriation system of the West.¹⁸⁸

As a practical matter, few permit systems in the East are very comprehensive. For example, Indiana, New Jersey, North Carolina, and South Carolina regulate only ground water and require permits only in those areas where ground water supplies are inadequate to meet existing demand.¹⁸³ Moreover, Indiana, Minnesota, and North Carolina exempt existing users, either partly or entirely, from regulation,¹⁹⁰ while Kentucky, Delaware, and Maryland exempt other classes of users as well.¹⁹¹

Only Iowa and Florida have truly comprehensive water regulation systems. The Iowa statute, enacted in 1957, established a permit system under the control of the Natural Resources Council, administered by a water commissioner, which regulates rights to both surface and ground water.¹⁹² Although the law purports to leave unimpaired all "vested rights," it regulates both existing and unused rights to water.¹⁹³ The Iowa law requires that all substantial uses of water be "beneficial." That term is defined to mean the application of water to a useful purpose inuring to the benefit of the water user and subject to his dominion and control.¹⁹⁴ Permits are issued by the water commissioner. These permits have a general limitation of ten years, and the law prohibits the diversion, storage, or withdrawal of water for most substantial uses from any natural watercourse, underground basin or watercourse, drainage ditch, or settling basin (except for ordinary household purposes and use for domestic animals) without a permit.¹⁹⁵ The water


¹⁹² See generally Hines, A Decade of Experience Under the Iowa Water Permit System, 7 Nat. Resources J. 499 (1967); Hines, A Decade of Experience Under the Iowa Water Permit System—Part II, 8 Nat. Resources J. 23 (1968).


commissioner may suspend the operation of permits if necessary during an emergency and establish priorities for water distribution, thus protecting the public interest.196

In Florida, the Water Resources Act of 1972 established an elaborate structure for the regulation of consumptive water uses.197 At the state level, the Department of Environmental Regulation oversees the administration of the Act.198 However, the state is divided into five water management districts and the governing boards of these districts are primarily responsible for the operation of the permit system.199

Permit applications under the Florida Act must demonstrate that the proposed use is a reasonable-beneficial one, will not interfere with any presently existing legal use, and is consistent with the public interest.200 "Reasonable-beneficial use" is defined as "the use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest."201 A permit may be issued for up to twenty years and as long as fifty years if the permittee is a municipality, public works, or public service corporation.202 Also, a permit may be modified or renewed prior to the expiration date.203 Finally, each district is required to formulate a plan of classification to determine which users are to be given priority of use during periods of water shortage.204 A "shortage" within the meaning of the Act exists when there is insufficient water to satisfy permit requirements, or when reduction in water use is necessary to protect water sources from serious harm.205

200 Id. at § 373.223.
201 Id. at § 373.019(5).
202 Id. at § 373.236(1)-(2).
203 Id. at § 373.239.
204 Id. at § 373.246(1).
205 Id. at § 373.246(2).
B. Water Use Permits in Kentucky

Kentucky made the first significant legislative change in its common law system in 1954. The droughts of the two preceding years caused many farmers to divert water from nearby streams and lakes in order to satisfy their water needs. This increased use of surface water demonstrated the need for a more satisfactory definition of riparian rights in Kentucky. Consequently, the legislature set forth in the 1954 Act a basic statement of the rights of landowners in such waters.

The 1954 Act applied to "public water" which included contained surface water and ground water, but not diffused surface water. Section 3 of the Act set forth the rights of landowners to use the public waters of the state. The Act provided that the use of water by a riparian owner for domestic purposes would have priority over other uses and declared that riparian owners shall have a right to make such reasonable use of water for other than domestic purposes as will not deny the use of such water to other owners for domestic purposes or impair existing uses of other owners heretofore established, or unreasonably interfere with a beneficial use by other owners.

Finally, the Act allowed riparians to impound and store water on their land under certain conditions as long as this would not injure the rights of other users.

In 1966 the original Act was repealed and replaced by Kentucky Revised Statutes Chapter 151, a more comprehensive law. The Department for Natural Resources and Environmental Protection administers the new Act. Consumptive uses of water, as well as the construction of dams and impoundments, are regulated. In addition, the legislation provides for water resources planning and authorizes construction for flood control and water development purposes.

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208 KRS § 151.125 (1976).
209 Water resource planning and development is also promoted by the Commonwealth's Water Resources Authority, established by KRS § 151.330 (1976). The Authority is "empowered to coordinate the programs of all state agencies in the conserva-
One of the most significant features of the 1966 Act is the permit system by which the Department regulates diversions and consumptive uses of public water. The statute declares that “no person, business, industry, city, county, water district, or other political subdivision” may withdraw, divert or transfer public water unless a permit is first obtained from the Department.\textsuperscript{21} According to another section, “public water” includes “[w]ater occurring in any stream, lake, ground water, subterranean water, or other body of water in the Commonwealth which may be applied to any useful or beneficial purpose.”\textsuperscript{212} Permits are usually issued after an inspection by the Department to determine whether the applicant’s proposed use is consistent with the statutory requirements.\textsuperscript{213} When the circumstances warrant, the Department may allow less water than the applicant has requested, and permits may be amended at the request of either the Department or the permittee.

The Act further provides that “any person aggrieved” by an order, determination, regulation, or ruling of Department personnel may appeal to the Secretary for a formal quasi-judicial hearing.\textsuperscript{214} Public notice must be given and the hearing is open to the public. The Department may issue subpoenas, administer oaths, and examine witnesses. On the basis of the evidence produced at the hearing, the Secretary makes findings of facts and conclusions of law and enters a decision or final order. The Act allows for judicial review of these proceedings, but the scope of this review is limited, and findings of fact by
the Department are conclusive if supported by substantial evidence.\textsuperscript{215}

Once a permit is issued, the water user must keep accurate records of all water withdrawn, diverted, or transferred and submit periodic reports to the Department.\textsuperscript{216} The Department may, after warning, order the suspension or revocation of a permit if the owner fails to comply with the conditions of his permit or with provisions of the Act or with related orders, rules or regulations.\textsuperscript{217} In addition, the Department may enforce the provisions of the Act in a number of other ways. It may issue a cease and desist order against one who makes a withdrawal, diversion, or transfer of public water without obtaining the necessary permit.\textsuperscript{218} The Department may also institute court proceedings to enforce its orders.\textsuperscript{219} Moreover, unauthorized diversions of public water,\textsuperscript{220} as well as other violations of the Act, may subject the violator to civil penalties of up to one thousand dollars per day.\textsuperscript{221}

\section*{C. Statutory Water Use Rights}

Kentucky's present water resources law, like consumptive water use legislation in other eastern states, has created a scheme of statutory water use rights which are superimposed upon the older system of common law rules. This section will examine the nature of these water use rights and the way they operate in Kentucky.

\subsection*{1. Prior Appropriation Elements}

Although Kentucky's statutory water use rights differ from those at common law, they strongly resemble western water rights. For example, water rights are available to more potential users under present Kentucky law than under the common law rules. In the East, surface water rights are based on ownership of riparian land while rights to ground water arise from the

\begin{footnotesize}
\begin{enumerate}
\item KRS § 151.190 (1976).
\item KRS § 151.190 (1976).
\item KRS § 151.125(9) (1976).
\item KRS § 151.125(10) (1976).
\item KRS §§ 151.125(11), .460 (1976).
\item KRS § 151.150(2) (1976).
\item KRS § 151.990 (1976).
\end{enumerate}
\end{footnotesize}
ownership of overlying land. Under prior appropriation, water rights are derived from beneficial use of the water and not from land ownership. In Kentucky, as in the West, beneficial use rather than ownership of land also appears to be the basis of permit rights. The Act states that no permit shall be denied "to a responsible applicant who has established an amount of water for which he has a need for a useful purpose" and there is no requirement that the applicant be a riparian owner. Furthermore, municipalities, which are considered nonriparians in most states, are specifically mentioned as eligible applicants.

The Kentucky Act also requires permits to be specific in terms of quantity, time, place, and rate of diversion, transfer, or withdrawal. Under the riparian system, the water user merely has the right to make a reasonable use of the available surface water. Under each of the "common law" ground water doctrines, the water right is likewise unquantified, but under prior appropriation, the water right is fixed in terms of time, location and quantity. In this respect the Kentucky Act resembles the prior appropriation system rather than common law allocative doctrines.

Duration of the water right is an important aspect of any water allocation system. Water rights under the prior appropriation system are perpetual in nature although they can be lost or abandoned through nonuse. Riparian rights are also perpetual since they are appurtenant to the land, but the continuing right to make a particular use of water (except for domestic uses) is indefinite in duration under the reasonable use rule since changing circumstances may compel an existing user to modify his water use or cease use altogether in order to accommodate new users. In contrast, most permit systems in the East place time limits on the permits and require periodic renewal. The Kentucky Act, however, does not specify any particular time limit, nor does it contain any provisions for re-
newal. This omission, a serious deficiency in the Act, will be discussed further in a subsequent portion of this article.

2. Security of Statutory Water Use Rights

Water rights must also be secure in order to encourage investment in productive water uses. As one economist noted, however, there are various aspects to the concept of security. Legal security means protection against the unlawful acts of others, while physical security is concerned with protection against fluctuations in streamflow or ground water level due to climatic or other natural conditions. Tenure security involves protection against the lawful acts of government or other private users. At the present time, lack of tenure security is a particularly serious problem with statutory water rights in Kentucky.

As stated earlier, the Department may suspend or revoke a permit if the water user violates the conditions of his permit or the provisions of the Act. In addition, the Department may subsequently modify the terms of a permit after it has been granted when the requirements of the permit holder have changed appreciably. Moreover, even in normal circumstances, the permit holder's status vis-a-vis the Department appears to be analogous to that of a tenant at will. The Act declares that "such permits represent a limited right of use and do not vest ownership nor an absolute right to withdraw or use the water." Since the Act does not provide for permits of a specific duration, the Department might revoke the permit of an existing user in order to make the water available to another applicant. Even if the courts would protect a permit holder

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227 Ciriacy-Wantrup, Concepts Used as Economic Criteria for a System of Water Rights, 32 Land Econ. 295 (1956).
228 This also requires an effective mechanism for adjudicating disputes among water users. Trelease, A Model State Water Code for River Basin Development, 22 Law & Contemp. Prob. 301, 312 (1957).
229 Physical security can be increased through the construction of impoundments and other structures to store water during periods of high flow for use.
from arbitrary action by the Department on constitutional grounds, the status of his statutory water right is nevertheless uncertain.

a. Other Permit Holders

Under the Kentucky Act a permit holder is only partly protected against the acts of other permitees. Existing permit holders are protected against new regulated users by a provision which states that a permit application will be granted only if the proposed use "will not be detrimental to the... rights of other public water users" and if "the requested amount of water is available." In this respect statutory water use rights are more secure than common law water use rights, since existing water users were not protected against the initiation of new uses at common law. However, in Kentucky, once a permit is actually secured, older water uses are not superior to newer uses during periods of water shortage. The Act provides that during periods of "drought, emergency, or other similar situations," the Department, with the permission of the Water Resources Authority, may suspend the operation of the permit system and temporarily allocate available water supplies on some other basis. The statute speaks of "situations requiring a balancing of the rights and available water between water users" — language which suggests the riparian reasonable use rule. Nevertheless, the statute gives very little indication of how the Department will allocate the available water. A permit holder has no idea where he stands when some water uses must be curtailed; thus, he is left without protection by the Act at the very time when he needs it most.

b. Unregulated Water Users

The security of permit holders is also compromised by the large number of water users who are exempted from regulation...
by the Act. These include domestic users, agricultural users and irrigators, uses exempted by administrative regulation, steam-generating plants, and water injected underground in connection with oil and gas production.

The exemption for domestic use reflects the high priority given to such uses under the riparian doctrine. Section 151.100(1) of the Kentucky Revised Statutes defines "domestic use" as "the use of water for ordinary household purposes, and drinking water for poultry, livestock and domestic animals." Domestic uses are often exempted from regulation in eastern states because it is impractical to regulate numerous small users; individual domestic users collectively account for a relatively small amount of the total water demand; and regulation of municipal waterworks and other public water suppliers can effectively control domestic consumption in urban areas.

The agricultural exemption is more significant. In 1970, irrigation in Kentucky averaged about 7,000,000 gallons per day on 25,000 acres of land. Tobacco is the principal crop using irrigation waters, and if a drought year occurs, some 36,000 acres would require 4,320,000,000 gallons of water.

In addition, no permit is required "if the amount of water withdrawn, diverted or transferred is less than the amount established by regulation." The Department now exempts from the permit system those who use less than 10,000 gallons per day.

The 1966 Act originally exempted many manufacturing and industrial users from the permit requirements, provided that the water was returned in substantially the same quantity

21 The exemptions are listed in KRS § 151.140 (1976).
21 KRS § 151.100(1)(1976).
221 KRS § 151.140 (1976). This exemption was created as a result of a 1974 amendment to KRS § 151.140 requested by the Department.
and condition as when it was withdrawn. This provision was repealed in 1972, leaving only steam-generating facilities still exempt. Finally, the use of water for secondary recovery operations remains exempt from the permit requirements.

These exemptions are certain to cause eventual problems between regulated and unregulated water users. As noted, no regulated user can obtain a permit to initiate a new water use unless sufficient water is available to meet the needs of all existing users. This provision protects unregulated users against permit holders. However, permit holders do not receive comparable protection against subsequent acts by unregulated users. Suppose, for example, a farmer begins to divert water from an adjacent stream in order to irrigate his land and this reduces the amount of water available to a downstream permit holder. What recourse does the permit holder have against the upstream riparian owner? It is doubtful that the Department could prevent the farmer’s action since agricultural users are exempted from regulation.

In fact, a provision of Section 151.140, which declares that “nothing herein shall interfere with the use of water for agricultural . . . purposes, including irrigation,” strongly suggests that agricultural users, along with domestic users, have been placed in a preferential water use category by the legislature. Therefore, unless a court grants relief to the permit holder on equitable grounds, it would seem that the permit holder is at the mercy of such an unregulated water user. From the permit holder’s point of view, therefore, his statutory water right is somewhat tenuous.

Moreover, it is not clear whether water users exempted from regulation are subject to regulation during water shor-
Section 151.200(1) states that the Department may "allocate the available public water supply among water users" and "restrict the water withdrawal rights of permit holders." This language is ambiguous and possibly inconsistent unless "water users" is synonymous with "permit holders." However, the statute dealing with the exemptions, which states that "nothing herein shall interfere with the use of water for agricultural and domestic purposes including irrigation," suggests that the entire Act, including the provisions of Section 151.200(1), are inapplicable to these two exempted categories. In other words, permit holders will be forced to reduce their consumption of water during a drought while farmers and other unregulated users will be free to continue and even increase their water use. This is not only highly inequitable, but it is certain to undermine the confidence of water users in the integrity of the water regulatory system.

III. RECOMMENDATIONS FOR LEGISLATION: A SHORT-RANGE PROPOSAL

Kentucky's present water regulatory law is defective because it exempts too many classes of water users from regulation; it fails to define clearly the rights of water users during periods of temporary water shortage; and it places no time limit on the water use permit. These are serious weaknesses which severely compromise the effectiveness of the state's water regulatory policy. This portion of the article proposes new legislation to deal with these and other deficiencies.

Since water supplies in Kentucky are expected to be sufficient in the near future, the proposed legislation reflects a philosophy of minimal government regulation. While allocative regulations may be necessary during a water shortage, it is poor public policy to deny water to some users when sufficient water is presently available to satisfy the needs of all. Instead, this proposal seeks to encourage efficient and productive use of

217 KRS § 151.140 (1976).
218 However, KRS § 151.140 merely states that "no permit shall be required" for other classes of exempt uses such as small uses, steam generation, and oil and gas production. Conceivably, the Department may have some authority to regulate these uses under KRS § 151.200(1) during periods of water shortage.
water resources by both public and private users. The best way to accomplish this goal is to replace common law water rights with statutory water rights which are definite, secure, and available to all potential users.

Nevertheless, the proposal is a short-range one. Eventually, in perhaps thirty-five or forty years, most of the available water in the state will be fully utilized. At that time the legislature must be prepared to replace this short-range program with a more comprehensive regulatory framework which can allocate a limited supply of water among various competing users. A few of the alternatives for such a long-range program will be examined in Part V.

A. Exempted Users

Kentucky's present system of water rights is two-tiered. At the top are water users whose rights are based on common law doctrines and who are exempted from regulation. Below them are the permit holders, whose water rights are statutory. As we have seen, the existence of these two incompatible sources of water rights creates significant problems for both the regulatory agency and the water users themselves. Accordingly, we recommend that the common law water rights regarding both surface water and ground water be replaced with a single statutory water right. This would have at least two beneficial results: First, water rights would be more specific in terms of quantity, as well as time, place, and rate of withdrawal; second, common law place-of-use restrictions would be abolished and water would be made available to more users.

This would be particularly helpful to municipal public water suppliers and some industrial users.

Only domestic users would remain completely exempt from regulation. These users, taken collectively, do not ac-

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219 Possibly the regulatory agency should retain the right to reject permit applications that involve transfers of water beyond the watershed from which it is withdrawn.

220 It will probably be necessary to allow nonriparian landowners to condemn rights-of-way in order that they may obtain physical access to the watercourse. Legislation permitting the exercise of eminent domain by private parties for this purpose is common in the western states. 1 R. Hutchins, Water Rights Laws in the Nineteen Western States 274-82 (1971).

221 KRS § 151.100(1) (1976) defines "domestic use" as "the use of water for ordinary household purposes, and drinking water for poultry, livestock and domestic ani-
count for a significant portion of water use in most areas and it would be costly and probably futile to try to regulate them. An exemption would give domestic users a preferred status in the proposed water rights scheme, but this is no different from their status at common law.\textsuperscript{252} Needless to say, only individuals would be exempt from regulation; water companies and municipal water suppliers would be required to obtain permits.

In addition, the regulatory agency, for reasons of economy or administrative convenience, should also have the power to exempt small-scale nondomestic users from the permit requirements. However, these water users should continue to be regulated insofar as other provisions of the proposed act are concerned. For example, the agency should retain the right to regulate nondomestic small users, along with other non-exempt water users, during periods of temporary water shortage.

\subsection*{B. The Beneficial Use Standard}

We believe that statutory water rights should be based on the concept of beneficial use. Beneficial use has been defined as "the use of such a quantity of water, when reasonable intelligence and reasonable diligence are exercised in its application for a lawful purpose, as is economically necessary for that purpose."\textsuperscript{253} For more than a century water rights in the West have been based on the beneficial use standard,\textsuperscript{254} and recently this concept has been recognized in the East.\textsuperscript{255}

Beneficial use, however, is an absolute rather than a relative standard: A proposed water use is either beneficial or wasteful; beneficial uses are permitted, while wasteful or non-beneficial ones are not.\textsuperscript{256} This means that a regulatory agency

\textsuperscript{252} Winters v. Berea College, 349 S.W.2d 357 (Ky. 1961); Note, \textit{Acquisition of the Right to Use Water}, 29 Tul. L. Rev. 554, 556 (1955). As a technical matter, the preferred status of domestic users at common law extends to surface water and underground streams but not to percolating ground water.


\textsuperscript{254} Union Mill & Mining Co. v. Dangberg, 81 F. 73, 119 (C.C.D. Nev. 1897); Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 45 P.2d 972 (Cal. 1935).


\textsuperscript{256} The concept of "duty of water" is an aspect of the beneficial use standard: It is that measure of water, which by careful management and use, without wastage, is reasonably required to be applied to any given tract of
would not attempt to characterize one use as “more beneficial” than another for purposes of allocating water. Instead, the agency would continue to award water use permits on a “first come, first served” basis as long as the proposed use was beneficial and water was available. As noted, the present Kentucky Act seems to use this approach already. We recommend that the state continue to grant water use permits on the basis of beneficial use, but the term should be defined and explicitly incorporated into the regulatory structure.

C. **Duration of Water Right**

In Part II, the present Kentucky Act was criticized because the water rights created by it are insecure. Accordingly, as part of the short-range plan we suggest that water users be granted a permit of fixed duration for thirty years. This statutory water right should be expressly recognized as a property right which could not be revoked before its termination date unless the permit holder violates the statute or voluntarily terminates his water use. The permit should also be renewable, though not as a matter of right. In addition, the agency should provide a procedure by which rights can be determined expeditiously and inexpensively.

Although it might be argued that this approach achieves security at the expense of flexibility, it commits the state only for thirty to forty years. Because of the durational limit, permits will begin to expire in the first decade of the next century. If the situation has changed by then to a water-scarce environment, the legislature will have ample time to design a new allocation system to deal with these changed conditions.

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D. Water Right Transfers

Water rights must be transferable if water is to move from less productive uses to more productive uses in response to market forces. However, voluntary transfers are generally prohibited in the East under both common law doctrines and regulatory legislation. Even where such transfers are permitted, tenure insecurity sometimes discourages potential buyers. In addition, lack of information contributes to excessive transaction costs and inhibits efficient transfers.257

Spillover costs, which arise because of the interrelated nature of water use, also present serious difficulties.258 Many spillover cost problems involve the return flow of surface watercourses.259 Most water uses do not make full consumptive use of the water, but instead return some of it to the watercourse from which it was taken. When a transfer or a change in water use occurs, it may reduce the amount of water that is returned to the stream to the detriment of downstream users. Economists have proposed a number of solutions to the problem of spillover costs. One alternative is simply to prohibit transfers which have significant spillover effects.260 Another is to allow affected downstream users to recover damages for their injuries.261 This would discourage transfers when the spillover costs exceed the benefits to transacting parties.262


258 Spillover costs occur when an action by one person imposes uncompensated costs on others which are not borne by him. In terms of welfare, these conditions reduce the capacity of the market to achieve an optional allocation of resources. L. Hartman & D. Seastone, Water Transfers: Economic Efficiency and Alternative Institutions 2 (1970).


262 Another solution to the return-flow problem would be to grant a water user a right to all water that is diverted, including what would otherwise be returned to the stream. Comment, Toward the Maximization of a Resource: The 1971 Washington Water Resources Act, 9 GONZ. L. REV. 759, 772-73 (1974). This solution would also encourage water users to use new techniques to reduce the amount of water needed.
E. Temporary Water Shortages

The present Kentucky Act takes a rather casual approach to the problem of temporary water shortages. Although water shortages are infrequent in Kentucky's present water-rich environment, this is precisely the situation in which water rights should provide the user with some protection and security.

Our short-range plan would require the regulatory agency to formulate in advance a plan for use during any future period of water shortage. Among other things, this plan should specify the method for apportioning the available water among the various permit holders in the affected area. Although this may commit the agency to a particular course of action at a time when more flexibility would be desired, water users should know where they stand so that they may provide for inevitable drought periods. Industrial and municipal users in particular might benefit from such information.

If we assume that the agency will make its allocative decisions on a class-by-class rather than on a case-by-case basis, three basic choices are available. Probably the best approach is to establish a system of preferences. Water users in a lower preference category would be required to restrict their use of water before users in a higher preference group would be forced to cut back. Perhaps water users who would be most severely affected by loss of water should be placed in the higher preference categories. For example, irrigators might be placed in a higher category than municipal water suppliers since the latter might make use of water storage facilities without serious inconvenience.

Another method would be to prorate the available water among all users in the affected area. At first blush the notion of forcing everyone to share the consequences of adversity seems to be the fairest way to deal with the problem. (It resembles the surface water reasonable use rule or the ground water correlative rights doctrine.) Nevertheless, this approach might lead to inefficient results since an across-the-board reduction

for some uses. At the present time in prior appropriation states, savings of that type would simply increase the return flow to the benefit of downstream appropriations. Note, Towards an Economic Distribution of Water Rights, 1970 Utah L. Rev. 442, 445-46.

in allowable water use might harm one class of users far more severely than another.\textsuperscript{264}

Equitable considerations also support an approach which allocates water on the basis of temporal priority; that is, those with the most recent water right would be the first cut off during a period of water shortage. This, of course, is one of the most prominent features of the prior appropriation system of the West. Like prorationing, however, this approach may achieve fairness at the expense of economic efficiency.

F. Water Resources Planning

Ideally, planning responsibility should be concentrated in a single agency.\textsuperscript{265} This seldom occurs, however, because of the large number of federal, state, and local government agencies involved in water-related activities.

Kentucky, like most states, has planning authority widely dispersed among various instrumentalities of state and local government. At the local level numerous public organizations have a limited planning function in water resource development activities. These include drainage, levee, and reclamation districts,\textsuperscript{266} soil and water conservation districts,\textsuperscript{267} watershed conservancy districts,\textsuperscript{268} flood control districts,\textsuperscript{269} and water districts.\textsuperscript{270} Furthermore, municipal and county planning units are authorized under the Zoning Enabling Act to do water resources planning.\textsuperscript{271} At the federal level, planning by agencies such as the U.S. Army Corps of Engineers\textsuperscript{272} and the Environ-

\textsuperscript{264} This disadvantage might be offset somewhat if users were permitted, with the approval of the agency, to purchase additional water from other users during periods of water shortage. Thus, when across-the-board reductions were made, those most adversely affected by the cutback would be free to acquire additional water from less affected water users, while the agency would be able to protect the rights of third parties. See N.M. Comp. Laws §§ 75-40-1 to 7 (1975). See also Trelease, Alternatives to Appropriation Law, 6 Den. J. Int’l L. & Pol’y 283, 295 (1976).


\textsuperscript{266} KRS chs. 266-69 (1974).
\textsuperscript{267} KRS ch. 262 (1974).
\textsuperscript{268} Id.
\textsuperscript{269} KRS ch. 104 (1974).
\textsuperscript{270} KRS ch. 74 (1974).
\textsuperscript{271} KRS § 100.187(5) (1974).
mental Protection Agency may have a significant impact on the water resources of this state.

At the state level the Department for Natural Resources and Environmental Protection has substantial planning responsibilities. However, both the Water Resources Authority and the governor’s cabinet also possess planning power in the water resources area. The Department, for example, may study and review all reports concerning or affecting water-related projects within the state which are proposed for construction by federal, state, or local government agencies. In addition, the Department may review proposals for any project which involves the use of state funds in the construction or maintenance of flood control works or water development purposes. Finally, local governmental bodies (and private individuals) must obtain a permit from the Department before they can construct any dam, embankment, levee, dike, bridge, fill, or other obstruction across or along any stream. Thus, it seems that the Department may prevent local water resource development agencies from acting contrary to its own policies.

The Water Resources Authority appears to be primarily concerned with the financing, rather than the planning, of state and local water resource development projects. Nevertheless, the Water Resources Authority is authorized “to coordinate the programs of all state agencies in the conservation, development and wise use of public water,” and “to promote the beneficial and proper distribution of water throughout the Commonwealth.” Moreover, the Authority has explicit power to engage in water development planning and maintains some supervisory authority over the Department. We believe that the relationship between the Department and the Water Re-

275 KRS § 151.360(2)-(3) (1974).
276 KRS § 147.070(1)(a) (1974).
280 See KRS §§ 151.360(1), 370-.450 (1974).
281 KRS § 151.360(2) (1974).
sources Authority should be clarified. The responsibility for water resources planning should be concentrated in one agency, and the present statutory ambiguity should be eliminated.

In addition, as part of the planning process, the regulatory agency should establish a minimum flow for all surface water-courses.\(^{28}\)

No permit should be granted that would cause the water level in a stream to fall below this point.\(^{28}\)

The purpose of the minimum flow concept, which is used in a number of states, is to protect activities such as commercial navigation, recreational boating, fishing, hunting, and swimming. It may also be used to control water quality and protect the environment.

The regulatory agency should also prohibit or restrict new water uses on certain streams in order to promote such public purposes as recreation and the preservation of fish and wildlife habitats. This idea originated in the West where several states now allow reservation of water by public agencies.\(^{287}\)

IV. THE CONSTITUTIONALITY OF ABROGATING COMMON LAW WATER RIGHTS

The short-range proposal discussed earlier virtually abolishes the common law consumptive use doctrines. To the extent that common law water rights may be considered property, this abrogation raises serious constitutional issues. As noted, a number of eastern states have modified the common law system of water rights and substituted statutory permit systems. Despite the fact that so many states regulate water uses in the East, there have been no direct challenges to the constitutionality of these statutes. The primary reason for this remarkable lack of litigation is that, with the exception of Flor-

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\(^{286}\) It may be desirable to require the regulatory agency to declare a water shortage when withdrawals by permit users cause the water level to drop below the minimum flow level.

ida and Iowa, most state regulations are neither comprehensive nor severely restrictive. Thus, the absence of litigation does not suggest that water users might not question the constitutionality of statutory permit systems in the future.

A. **Common Law Water Rights as Property**

Because of the nature of flowing water, a consumptive-use right can never be as secure or complete as the ownership of a book, an automobile, or a house. The corpus of the water in a flowing stream cannot be privately owned until it is diverted or reduced to possession in some fashion, and the water right itself is limited by the reciprocal rights of other users. Ground water rights at common law are also subject to consumptive and locational use limitations. Nevertheless, common law rights regarding surface and ground water should be considered as property rights within the meaning of due process. Like any other form of property, however, they are subject to the state's police power.

B. **The Taking Issue**

The police power has been defined as an exercise of the sovereign right of the state to enact laws for the protection of the lives, health, morals, comfort, and general welfare of the people. While property rights are subject to the police power, the concept of substantive due process limits the exercise of this power.

Substantive due process requires that police power regulations must have a rational relation to the safety, health, morals, or general welfare of the community. Regulations to encourage the conservation and more efficient use of the state's water resources promote the general welfare and are almost certainly within the proper scope of the police power. Sub-

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stantive due process also requires regulation to be reasonable and not arbitrary or oppressive. An unreasonable exercise of the police power will be deemed a taking of property without due process of law.

Over the years, the courts have applied a variety of tests to determine the constitutional limits of the state police power. The "diminution-in-value" test, which is probably the most popular, originated in an opinion by Mr. Justice Holmes in *Pennsylvania Coal Co. v. Mahon*. He stated:

Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law. As long recognized, some values are enjoyed under an implied limitation and must yield to the police power. But obviously the implied limitation must have its limits, or the contract and due process clauses are gone. One fact for consideration in determining such limits is the extent of the diminution. When it reaches a certain magnitude, in most if not all cases there must be an exercise of eminent domain and compensation to sustain the act. So the question depends upon the particular facts. The greatest weight is given to the judgment of the legislature, but it always is open to interested parties to contend that the legislature has gone beyond its constitutional power.

This test compares the magnitude of economic loss imposed on the regulated party with the harm to the community sought to be prevented by the regulation.

While the great majority of courts continue to employ the diminution-in-value test, some courts have developed other approaches such as the "harm-to-the-public" test. According to this rule, a regulation is not a taking if it relieves society of a prospective or actual harm.

Finally, there is the "public rights approach," which com-

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291 260 U.S. 393, 413 (1922).
292 Id. at 413.
bines an expanded conceptualization of public rights with a presumption that the needs of the public outweigh any burden imposed on an individual landowner.\textsuperscript{295} Just v. Marinette County\textsuperscript{296} is the leading case. Just involved the constitutionality of an ordinance which prohibited the filling of wetland areas contiguous to navigable waters without a permit. The court distinguished between restrictions designed to prevent harm to the public and those intended to secure a benefit not presently enjoyed by the public; compensation would not be required in the first class of cases though it might in the second. The court concluded that the shoreline regulations merely prevented a harm and, therefore, did not constitute a taking of property without due process of law. The court also emphasized that the public right to preserve a natural area is superior to an individual's right to develop it.\textsuperscript{297}

It is not clear whether the Just court's approach will be widely accepted or not. However, if the decision means that developmental value is no longer a property interest within the protection of substantive due process, then widespread adoption of the Just rationale would mean that only existing uses could be protected from confiscatory government regulation.

C. Cases From Western States

Although there are no cases from eastern jurisdictions on the constitutionality of restricting the exercise of common law water rights,\textsuperscript{298} there are decisions from the western states.

\footnotesize{\textsuperscript{295} Comment, Regulation of Land Use: From Magna Carta to a Just Formulation, 23 U.C.L.A. L. Rev. 904, 923-31 (1976).}
\footnotesize{\textsuperscript{296} 201 N.W.2d 761 (Wis. 1972).}
\footnotesize{\textsuperscript{297} An owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others. The exercise of the police power in zoning must be reasonable and we think it is not an unreasonable exercise of that power to prevent harm to public rights by limiting the use of private property to its natural uses. 201 N.W.2d at 768.}
\footnotesize{\textsuperscript{298} The Omernick cases from Wisconsin seem to be the only authority on the issue in the East. In Omernick v. State, 218 N.W.2d 734 (Wis. 1974), a landowner was convicted of irrigating his land without a permit, a violation of a Wisconsin statute. The law required the state to grant an irrigation permit if surplus waters were involved or if riparians who would otherwise be harmed consented. Since the landowner, a riparian owner, never applied for a permit, it is not clear whether he would have been entitled to it as a matter of right under the statute.}
Most of these cases, which involve the validity of replacing riparian rights with prior appropriation, arose in states where riparian rights had been recognized before the prior appropriation system was adopted. We will briefly examine decisions from California, Oregon, Kansas, South Dakota, North Dakota, and Idaho.

*Lux v. Haggin*, a California decision, was one of the earliest cases to deal with the problem of riparian rights in a prior appropriation jurisdiction. In the *Lux* case, the court held that the riparian doctrine had become part of California law as a result of the state's adoption of the common law when it was admitted to the Union and declared that the riparian owner is entitled to the full natural flow of the watercourse; that this right attaches to the land and is not created by use nor lost by nonuse; and that the legislature cannot authorize appropria-

The court rejected the landowner's contention that the statute was a denial of equal protection because it regulated irrigators but not industrial users. In addition, the court held that the state could exercise its police power "to protect public rights and to prevent harm to the public by uncontrolled diversion of water from lakes and streams." 218 N.W.2d at 743. Applying the rationale of Just v. Marinette County, 201 N.W.2d 761 (Wis. 1972), the court also concluded that the regulation did not constitute a taking of property without due process of law since the statute sought to prevent harm rather than to confer a benefit on the public.

The landowner again challenged a provision of the Wisconsin statute in *Omernick v. Department of Natural Resources*, 238 N.W.2d 114 (Wis. 1976). This time the issue involved the Department's action in designating the watercourse involved as a trout stream under the Act's provisions, in effect protecting it from excessive depletion by irrigators. Although the case was primarily concerned with procedural due process considerations, the court affirmed its holding in *Omernick I* that the regulation of consumptive uses was a valid exercise of the police power. Speaking of the first *Omernick* case, the court said:

The necessary implication of this holding [*Omernick v. State*] is that the legislature in the exercise of its police power has abrogated the common law riparian right of irrigation and has substituted the permit procedure under sec. 30.18, Stats. This has the result of introducing an element of prior use in the Wisconsin water law which was not there at the common law. The wisdom of this policy may be debatable, but it is a legislative, not a judicial determination. 238 N.W.2d at 116.

The *Omernick* case, if read broadly, will support the notion that common law water rights are subject to regulation under the state's police power. However, we should remember that the landowner was not denied a permit since he never applied for one; a presently-exercised right was not abrogated; and the court relied on the *Just* case, rather than the more conventional diminution-in-value approach, to resolve the taking issue.

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10 P. 674 (Cal. 1886).
tions which interfere with these rights unless the riparian owners are compensated.\textsuperscript{500}

This controversy arose again forty years later in \textit{Herminhaus v. Southern California Edison Co.}\textsuperscript{501} The plaintiffs in \textit{Herminhaus} owned a ranch on the San Joaquin River and sought to enjoin the Southern California Edison Company from constructing dams on the upper reaches of the river for the purpose of impounding water for irrigation on nonriparian lands. The plaintiffs contended that the proposed dam would prevent the annual spring and summer floods which inundated and fertilized their land. The defendant's actions were authorized by a permit issued pursuant to the 1913 California Water Code. Among other things, the Code restricted all water users to beneficial and reasonable uses, limited the amount of water which could be used to irrigate an acre of cultivated land, and provided for the loss of riparian rights for nonuse after a period of ten years. The court granted the injunction, ruled that the plaintiffs were entitled to the full flow of the stream, and invalidated the statutory provisions discussed above because they violated vested riparian rights.\textsuperscript{502}

Litigation also arose in Oregon after the legislature enacted a comprehensive water allocation law based on the principles of prior appropriation. The Oregon Code purported to protect vested rights but defined the term to include only the right to continue to use such quantities of water that were actually used beneficially prior to the passage of the Code. It also provided for the loss of vested rights if the riparian owner failed to use his rights for two years.\textsuperscript{503} The Code was upheld

\textsuperscript{500} See generally Scurlock, \textit{Constitutionality of Water Rights Regulation}, 1 \textsc{Kan. L. Rev.} 125, 139 (1952).
\textsuperscript{501} 252 P. 607 (Cal. 1926).
\textsuperscript{502} In 1928, a constitutional amendment was adopted that limited riparian rights to such water as was reasonably required for the beneficial use to be served. \textsc{Cal. Const. art. XIV, § 3}. This provision was upheld in \textit{Chow v. City of Santa Barbara}, 22 P.2d 5 (Cal. 1933). Nevertheless, riparian rights are still protected in California. As the court declared in \textit{Peabody v. City of Vallejo}, 40 P.2d 486, 495 (Cal. 1935), "Any use by an appropriator which causes substantial damage thereto, taking into consideration all of the present and reasonably prospective recognized uses, is an impairment of the right for which compensation must be made." See generally United States v. Gerlach Livestock Co., 339 U.S. 725 (1950).
in the case of In re Willow Creek. While admitting that riparian rights could not be arbitrarily or unreasonably impaired by legislation, the court nevertheless declared that such rights "are subject to such reasonable regulations as are essential to the general welfare, peace, and good order of the citizens of the state." 

The Oregon Water Code, as amended, was again upheld in In re Hood River by a four to three decision. At issue was a provision that preserved as "vested rights" only beneficial uses in existence at the time of the Code's passage. The court declared:

No one has any property in the water itself, but a simple usufruct. It was within the province of the Legislature, by the act of 1909, to define a vested right of a riparian owner, or to establish a rule as to when and under what condition and to what extent a vested right should be deemed to be created in a riparian proprietor.

In effect, the court concluded that the inchoate riparian right to unused water had never been a vested interest.

A final challenge to the constitutionality of the Oregon Water Code was made in California-Oregon Power Co. v. Beaver Portland Cement Co. The court sustained the constitutionality of the Code and remarked that "[l]ike other property . . . riparian rights are subject to the police power of the state and within reasonable limits may be modified by legislation passed in the interest of the general welfare." The court then characterized the right of the riparian owner as a usufruct of the water and not ownership of the water itself. According to the court, "[l]egislation limiting the right to its use is in itself no more objectionable than legislation forbidding the use of real property for certain purposes." Thus, the legislature could modify common law water rights in the interest of securing a fairer distribution of the resource as well as to prevent

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304 144 P. 505 (Ore. 1914).
305 Id. at 514.
306 227 P. 1065 (Ore. 1924).
307 Id. at 1087.
308 73 F.2d 555 (9th Cir. 1934), aff'd, 295 U.S. 142 (1935).
309 Id. at 562.
310 Id. at 567.
economic and physical waste.\textsuperscript{311}

In 1945, Kansas, like Oregon, revised its water rights laws to emphasize the prior appropriation element. The Kansas Act declared that "[s]ubject to vested rights, all waters within the state may be appropriated for beneficial use."\textsuperscript{312} However, it also provided that nothing therein would impair the vested right of any person except for nonuse.\textsuperscript{313} Another section allowed any riparian owner injured as a result of an appropriation under the Act to claim damages against the appropriator to the extent of any "property taken."\textsuperscript{314} Finally, the Act defined "vested right" as "the right . . . to continue the use of water having actually been applied to any beneficial use . . . to the extent of the maximum quantity and rate of diversion for the beneficial use made thereof."

\textit{State ex rel. Emery v. Knapp},\textsuperscript{315} was the first in a series of state and federal court decisions upholding the constitutionality of the 1945 Kansas Act. In \textit{Knapp}, the state's chief engineer granted a permit pursuant to the Act which allowed an irrigation district to divert water for use on nonriparian land in such a manner as to diminish substantially the flow available to downstream riparians. The riparian owners argued that the Act was an unconstitutional interference with vested property rights. In sustaining the 1945 Act, the court remarked:

We have difficulty in seeing that the owner of land in Kansas riparian to the Republican River has a vested interest in flood waters of the river impounded in the Harland dam, eighty miles or more from his property. If he thinks he has such rights, and they have been damaged by the impounding of the water in the dam and its use for irrigation in Nebraska and Kansas, the statute gives him a right to bring a suit for such damages. The suggestion that he has such rights as must be acquired by eminent domain is untenable. The suggestion that such an owner may be damaged by the use of such water

\textsuperscript{311} The decision was subsequently affirmed on appeal by the United States Supreme Court, 295 U.S. 142 (1935), although the Court disposed of the case without deciding the constitutional issues raised before the lower court.

\textsuperscript{312} \textsc{Kan. Stat.} § 82a-703 (1945).

\textsuperscript{313} \textit{Id.}

\textsuperscript{314} \textit{Id.} at § 82a-716.

\textsuperscript{315} \textit{Id.} at § 82a-701(d).

\textsuperscript{316} 207 P.2d 440 (Kan. 1949).
for irrigation upon lands several miles from the river cannot be sustained.\(^{317}\)

Although the analysis of the constitutional issues in the *Knapp* decision was superficial, a more detailed examination is found in the decision of a three-judge federal court in *Baumann v. Smrha*,\(^{318}\) a case which involved ground water rather than surface water. The plaintiff in *Baumann* owned land near where the City of Wichita was proposing to construct a well-field pursuant to a permit issued under the 1945 Act. The plaintiff, who was not presently using the water, objected because under the Act any future right to use the ground water would be subordinated to the superior rights of the municipal appropriator. Accordingly, he sought a declaratory judgment that the Act violated the fourteenth amendment to the Constitution.

Prior to the 1945 Act, Kansas courts had followed the absolute ownership doctrine with respect to ground water.\(^{319}\) The plaintiff argued that the legislature could not abrogate the absolute ownership doctrine and replace it with a prior appropriation system. The court, however, concluded that:

> There is no vested right in the decisions of a court and a change of decisions does not deprive one of the equal protection of the laws or property without due process of the law.

> Even though prior decisions of a state court may have established a rule of property, a departure therefrom in a subsequent decision does not, without more, constitute a deprivation of property without due process of law under the fourteenth amendment.\(^{320}\)

Instead, the court maintained, the legislature had the power to modify or reject the doctrine of riparian rights if it was unsuited to conditions in the state and to adopt the doctrine of prior appropriation. In the court's words, "[W]e do not regard a landowner as having a vested right in underground waters underlying his land which he has not appropriated and applied to beneficial use."\(^{321}\)

\(^{317}\) *Id.* at 448.


\(^{320}\) 145 F. Supp. at 625.

\(^{321}\) *Id.* at 624-25.
The *Knapp* and *Baumann* decisions were followed in *Williams v. City of Wichita*. As in the *Baumann* case, plaintiff Williams was concerned with ground pumping by the City of Wichita. The city had obtained a permit under the 1945 Act to appropriate ground water on a tract near the plaintiff’s farm. The landowner brought suit on the theory that the Act was unconstitutional insofar as it purported to subordinate his common law ground water rights to the city’s appropriative rights. The trial court agreed with the plaintiff and declared the Kansas Act unconstitutional.

On appeal the Kansas Supreme Court reversed and upheld the validity of the appropriation statute insofar as the rights of the plaintiff were concerned:

We find nothing in the Act which in any manner offends the Fourteenth Amendment to the Constitution of the United States or in any way violates the constitution of Kansas. There is no inhibition in our constitution against legislation such as this regulatory Act which we find to be a proper and valid exercise of the police power.323

In reaching its decision, the court first determined that the Act was a water conservation measure and, as such, was within the proper scope of the legislature’s regulatory power. In order to promote economic development in the state, the legislature had determined that allocation of water should be based on beneficial use and priority without regard to ownership of underlying land and that waste and underdevelopment would occur if water was reserved in perpetuity for common law owners who might never have a use for it.

The court also rejected the plaintiff’s contention that his right to ground water was vested as a result of earlier judicial decisions recognizing the absolute ownership doctrine in Kansas. According to the court: “[T]he legislature may change the principle of common-law and abrogate decisions made thereunder when in its opinion it is necessary to the public interest.”324 The court in *Williams* determined that prospective uses of ground water were not considered “vested rights”

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323 374 P.2d 578 (Kan. 1962). The action was originally brought in a federal court, but was dismissed. *Williams v. City of Wichita*, 279 F.2d 375 (10th Cir. 1960).
324 374 P.2d at 595.
324 *Id.* at 589.
as defined by the Act and, therefore, could not be superior to appropriative rights acquired according to the procedures of the 1945 Act. The court noted, however, that the landowner might be able to utilize the Act's damages provision if he could show an actual injury to his land as a result of the city's well-drilling and water extraction activities. Finally, the court cited the *Knapp* case with approval and declared that *Knapp*'s reasoning with respect to unexercised water rights applied with equal force to both surface and ground water even though their respective common law allocation rules were different.

The validity of the South Dakota appropriation statute as it affected the use of percolating ground water came before the court in *Knight v. Grimes*. The plaintiff in the *Knight* case had only irrigated a small part of land with ground water prior to 1962. When he sought to increase his water use he was required to obtain a permit from the State Water Resources Commission as an appropriator. As such, of course, his right to the additional water would be subordinate to those of any senior appropriator. The plaintiff instead brought a declaratory judgment action against the state water engineer and the Commission, contending that under prior case law he had a vested right to the underlying ground water.

The court upheld the appropriation statute, observing that since common law water rights were not property in the constitutional sense, water use doctrines could be modified or rejected entirely without constituting a taking of property. In addition, the court declared that even if water rights were regarded as vested property interests, they were still subject to regulation under the police power if required by the general welfare.

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211 The court declared that "the legislature [can] define 'vested rights' of common-law water uses." *Id.* at 594. Additionally, the court said, "Nor do we regard such a landowner as having a vested right . . . to ground water underlying his land." *Id.* at 595.

212 127 N.W.2d 708 (S.D. 1964).

Litigation over ground water rights also occurred in North Dakota, where a 1955 statute made ground water available for appropriation. In *Volkmann v. City of Crosby*, the court declared that presently exercised uses of percolating ground water were vested in the overlying landowner and held that the plaintiff's vested water rights were superior to those of one who made a subsequent appropriation under the 1955 law. Nevertheless, the same court in a later case held that unused rights to ground water were not protected from appropriation under the 1955 law. While presently exercised uses (as of the time of enactment) were vested rights, the court ruled that the state could exercise its police power and make unused ground water available to appropriators without impairing the property rights of surface owners.

The taking issue arose in Idaho in *Baker v. Ore-Ida Foods, Inc.* In *Baker*, a senior appropriator sued to prevent a junior appropriator from withdrawing ground water in excess of the annual recharge rate. Idaho's ground water appropriation statute prohibited such “mining” of the resource. In response, the junior appropriator argued that the court should apply the common law correlative rights rule, under which each overlying landowner is entitled to a pro-rata share. The court, however, rejected this argument even though it conceded that the correlative rights doctrine might have applied at one time in Idaho. As the court put it, “The doctrine of correlative rights is repugnant to our constitutionally mandated prior appropriation doctrine.” In effect, the court held that any allocation rights a landowner formerly possessed under the correlative rights doctrine had been validly abrogated by passage of the appropriation statute.

purposes waters which had been impounded by a dam and released into the river by the Bureau of Reclamation for the use of the district. On appeal the court stated that the “decision in the Knight case concerned with underground waters is equally applicable to surface water.” *Id.* at 246. However, since the riparian owner claimed to have been using water from the river since 1953, two years prior to the 1955 Act, the court remanded the case for a determination of the extent of the landowner's “vested rights” under the Act. *See also* Belle Fouche Irrigation Dist. v. Smiley, 204 N.W.2d 105 (S.D. 1973).

328 120 N.W.2d 18 (N.D. 1963).
331 *Id.* at 635.
On the basis of the cases just discussed, the following principles appear to be well-settled, at least in western jurisdictions. First, conservation of the state’s water resources is an appropriate area of legislative concern.\footnote{California-Oregon Power Co. v. Beaver Portland Cement Co., 73 F.2d 555 (9th Cir. 1934); Southwest Eng’r. Co. v. Ernst, 231 P.2d 764 (Ariz. 1955); Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962); Baeth v. Hoisveen, 157 N.W.2d 728 (N.D. 1968); Knight v. Grimes, 127 N.W.2d 708 (S.D. 1964).} Second, common law doctrines are not inflexible, but may be modified within limits, as warranted by changing economic and social conditions. This applies to both surface water rules\footnote{In re Hood River, 227 P. 1065 (Ore. 1924); Omernick v. Department of Natural Resources, 238 N.W.2d 114 (Wis. 1976).} and ground water rules.\footnote{Baumann v. Smrha, 145 F. Supp. 617 (D. Kan. 1956); Baker v. Ore-Ida Foods, Inc., 513 P.2d 627 (Idaho 1973); Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962); Knight v. Grimes, 127 N.W.2d 708 (S.D. 1964).} Third, in the interests of promoting the efficient use of the state’s water resources, the legislature can extinguish riparian rights which are not being exercised.\footnote{McCook Irrigation & Water Power Co. v. Crews, 96 N.W. 996 (Neb. 1903); Belle Fourche Irrigation Dist. v. Smiley, 176 N.W.2d 239 (S.D. 1970).} Unused common law rights to ground water can likewise be terminated without compensation.\footnote{Baumann v. Smrha, 145 F. Supp. 617 (D. Kan. 1956); Baeth v. Hoisveen, 157 N.W.2d 728 (N.D. 1968).} Fourth, although common law rights may be terminated, presently exercised water uses are “vested rights” which cannot be abrogated by the legislature without compensation.\footnote{Herminghaus v. Southern Cal. Edison Co., 252 P. 607 (Cal. 1926); Lux v. Haggin, 10 P. 674 (Cal. 1886); Clark v. Cambride & Arapahoe Irrigation & Improvement Co., 64 N.W. 239 (Neb. 1895); Volkman v. City of Crosby, 120 N.W.2d 18 (N.D. 1963)(ground water); St. Germain Irrigating Co. v. Hawthorn Ditch Co., 143 N.W. 124 (S.D. 1913); Neilson v. Sponer, 89 P. 155 (Wash. 1907).} This principle is tacitly recognized in other “California doctrine” states such as Texas and Oklahoma, where presently exercised uses are expressly preserved by statute.\footnote{Tex. Rev. Civ. Stat. Ann. art. 7542a, § 4 (Vernon Supp. 1970); Okla. Stat. Ann. tit. 82, § 105.2 (West 1972).}

D. Constitutionality of Proposed Legislation in Kentucky

The constitutionality of Kentucky’s present water allocation statute has never been challenged. This is probably due to so many water users being exempted from regulation. Of the
major categories of water users—domestic, agricultural, municipal, and industrial—only industrial users have any basis for raising the taking issue. Since the Act exempts domestic and agricultural users from regulation, those users are not affected. Municipal users, who are subject to the permit requirements, possessed no riparian rights at common law, and so have not been disadvantaged by the Act's partial abrogation of common law water rights. Only the remaining class, the industrial users, have some cause to complain. Industrial users, including mining and commercial users, who formerly possessed riparian rights now have a statutory water right of dubious value and uncertain duration. However, while this group of users might argue that the present Kentucky Act constitutes a taking of private property without due process of law, it is doubtful that any litigation will occur until the regulatory agency terminates a permit or refuses to issue one to a former riparian owner.

What happens when we examine our short-range proposal in light of the principles derived from western case law? The first three principles present no serious problem. According to the first principle, water conservation legislation, such as the short-range plan, is within the scope of the state’s police power. The second principle upholds the right of the legislature to modify common law water allocation rules. Thus, the shift from a system of common law water rights to one of statutory water rights should not be invalid. The third principle is a corollary of the second: One way in which common law doctrines can be modified is to terminate unexercised water rights. Our short-range proposal, with the exception of domestic uses, would also accomplish this.

The fourth principle provides that presently exercised water uses are vested rights which may not be terminated without compensation, although they may, of course, be regulated like other forms of property. This principle is seemingly at variance with the essential features of the short-range proposal.

Our short-range proposal does not actually terminate existing uses but rather provides for their conversion into permit

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339 Possibly downstream unregulated water users could bring a constitutional challenge against the statute if they were harmed by the Department's grant of water use permits to upstream nonriparian users such as municipalities.
rights. Arguably, the conditions for a permit under this approach are reasonable. The requirement that common law consumptive uses be "beneficial" has generally been upheld in the West.\textsuperscript{40} In addition, several courts have sustained the validity of statutes which require the holders of common law rights to secure a permit from a regulatory agency in order to preserve their rights against subsequent appropriators.\textsuperscript{41} Therefore, we may assume that this aspect of the proposal is valid.

The real issue is the extent to which an existing user is injured by surrendering his common law water rights for those of a permittee. The forced exchange of one type of water right for another is not necessarily unconstitutional. In effect, that is what happened when many western states replaced their common law ground water rules with a prior appropriation system. Existing ground water uses were quantified and converted into appropriative rights. The common law user in Kentucky, however, unlike his counterpart in the West, may justifiably contend that he has been forced to make a poor "exchange." While common law water rights were exchanged for permanent appropriative rights in the West, the owner of such rights in Kentucky would receive a permit right of limited duration under our short-range proposal. Arguably, the loss that he has suffered on the transaction may represent a taking of property without due process. The security of the statutory water right is important: The less secure the permit right, the more likely a court would be to declare the statute unconstitutional. Thus, there may be a constitutional problem if common law water users are forced to accept a permit of short duration or one which may be prematurely terminated by the regulatory agency without compensation.

We believe that the water right created in our short-term proposal is secure enough to withstand this sort of constitutional challenge. Since most existing water users would be able to satisfy the beneficial use requirement, they would obtain a thirty-year permit. Moreover, we feel that the courts would

\textsuperscript{40} Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 45 P.2d 972 (Cal. 1935); Lone Tree Ditch Co. v. Cyclone Ditch Co., 91 N.W. 352 (S.D. 1902); Biggs v. Lee, 147 S.W. 709 (Tex. Civ. App. 1912); 2 W. Hutchins, Water Rights in the Nineteen Western States 95-97 (1974).

refuse to hold that a taking had occurred until an existing water use was actually curtailed; therefore, the constitutional issue would not arise until the regulatory agency refused to renew a permit at the expiration of the thirty-year term. If the courts adopted this approach, they could then resolve the taking issue on a case-by-case basis.

Once an existing common law water use was actually curtailed by denial or nonrenewal of a water use permit, the validity of the agency's action in that particular case would probably depend on the court's choice of a taking test. In all probability the diminution-in-value test discussed earlier would be used since Kentucky courts have employed a similar rationale on many occasions in the past.

Applying this formula, a court would have to determine the extent of actual harm that a landowner suffers when common law water rights are restricted or completely abrogated. Since water rights in the East are not usually transferable, the value of a water right must be measured primarily in relation to a particular tract of land. Thus, if a water right was completely destroyed, we would look at the diminution in value not of the water right itself, but of the land to which it is appurtenant. For example, in an area where irrigation is necessary, loss of a common law water right might virtually destroy the value of a farm. If the farm was not suitable for some other productive use, the diminution in value as a result of the regulation would probably be sufficient to constitute a taking. In cases where the regulatory agency forced a permit holder to obtain his water from a more distant source of supply, the courts might also treat the capitalized cost of obtaining water from this new source as a diminution in value. No doubt in some instances this sum would be large enough to require compensation.

At present the public rights test of *Just v. Marinette County* is not used in Kentucky. Even under the *Just* rationale, however, presently exercised water rights would probably be entitled to constitutional protection. However, this Wisconsin case possibly could be used to sustain a regulatory agency's

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3E.g., Hobbs v. Markey, 398 S.W.2d 54 (Ky. 1966); Moore v. Ward, 377 S.W.2d 881 (Ky. 1964); City of Richlawn v. McMakin, 230 S.W.2d 902 (Ky. 1950); Schloemer v. City of Louisville, 182 S.W.2d 782 (Ky. 1944).

3201 N.W.2d 761 (Wis. 1972).
decision to deny new consumptive use permits in order to prevent expansion of existing uses or initiation of new ones in some areas to protect minimum stream flows or to promote recreational or environmental interests.

In conclusion, the requirements of substantive due process will impose some constraints on the design of a water allocation system. The risk of constitutional infirmity becomes greater as the regulatory agency is given more power to transfer water rights from one group of water users to another without compensation in order to achieve a more efficient allocation pattern. However, the more modest approach suggested by the short-range proposal should not encounter any serious constitutional difficulties.\textsuperscript{344}

V. LONG-RANGE PROPOSALS: FOUR ALTERNATIVE ALLOCATION SYSTEMS

Although Kentucky's water resources are adequate at the present time, greater reliance on irrigation in agricultural operations, increased urban and industrial growth, and the evolution of new technologies (such as coal conversion) will all contribute to a rising demand for water in the years ahead. Eventually, demand for water will exceed the available supply\textsuperscript{345} and it will be necessary to develop a mechanism for allocating the state's limited water resources among the various competing users and uses. This section will consider four alternatives for accomplishing this objective. Each involves some form of allocation by an administrative agency, but most also permit market forces to operate.

\textsuperscript{344} Section 54 of the Kentucky Constitution states, "The general assembly shall have no power to limit the amount to be recovered for injuries resulting in death, or for injuries to person or property." In addition, § 14 declares that "all courts shall be open and every person, for an injury done him in his lands, goods, person or reputation, shall have remedy by due course of law . . . ." Although these provisions limit the power of the legislature to abolish common law tort actions, Ludwig v. Johnson, 49 S.W. 2d 347 (Ky. 1932) (automobile guest statute), it is doubtful that they would apply where the underlying property right is abolished or modified, as in the case of common law water rights. The validity of such legislative action should instead be determined by reference to substantive due process requirements.

\textsuperscript{345} Within limits the supply of water within a region can be increased by desalting, precipitation augmentation, better land management practices, and the importation of water from other areas. See generally National Water Commission, Water Policies for the Future 335-63 (1973).
A. Short-Term Permits

The issuance of short-term water use permits is a common aspect of water regulation policy in the eastern states. Iowa, for example, limits permits to a ten-year term, while the Florida Water Resources Act sets a maximum period of twenty years. This approach reflects a philosophy that water is a public resource which should not be entirely left to private control. In addition, legislation of this sort implicitly assumes that an administrative agency can allocate water more efficiently than market forces.

This alternative also allows the state water regulatory agency to deal with reallocation problems in a flexible manner. In particular, the agency would be able to correct prior mistakes, utilize new data in the decision making process, and respond to changing needs and values. Moreover, the use of short-term permits, when coordinated with state land use controls, would facilitate long-range planning and would allow the government to direct growth along rational lines.

On the other hand, economists and others have argued that this approach creates a climate of uncertainty regarding water resources and discourages capital investment. The use of short-term permits, according to one commentator, merely substitutes the uncertainties of administrative decision making for the uncertainties of common law rules. Since short-term permits seldom last long enough to allow for amortization, entrepreneurs must gamble on whether their permits will be renewed. If the permit is renewed at the expiration date, all is well; but if the agency rejects the renewal application, the water user may lose a part of his original investment. The risk of nonrenewal may create similar problems during the term of

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a permit. For example, suppose an irrigation system of pumps and sprinklers, which initially cost forty thousand dollars hopelessly breaks down in the fifteenth year of a twenty-year permit. Will it be replaced? Opponents of the short-term permit approach have expressed doubts that an administrative agency can allocate water as efficiently as the market. They are also concerned with arbitrary behavior or corruption on the part of the regulatory agency and these fears are not entirely illusory. Finally, there is a question of fairness. Quite apart from considerations of efficiency, the propriety of destroying the value of one person's property in order to benefit another is open to serious question. Perhaps the best solution is to require the new user to compensate the original user when the latter's permit is not renewed.

B. Variable-Term Permits

Some commentators argue that a water right should last for the duration of the user's operation or enterprise. In the case of irrigation or municipal water supply, a water permit based on this principle might be granted in perpetuity, although one for a mining operation might last only until the mineral involved is completely extracted. Unfortunately, although a water rights system based on long-term permits provides maximum security for water users, it may not be efficient in the long run unless it also contains a mechanism for reallocation.

One proposal, recommended for eastern states by the National Water Commission, would achieve reallocation through involuntary transfers. Under this approach permits would be

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352 This example is taken from F. Trelease, Water Law: Resource Use and Environmental Protection 434 n.3 (2d ed. 1974).


354 The rather poor record of zoning agencies in this respect stands as a warning to those who would put their faith in the desirability of resource allocation by governmental bodies. See generally R. Babcock, The Zoning Game (1966); Dukeminier & Stapleton, The Zoning Board of Adjustment: A Case Study in Misrule, 50 Ky. L.J. 273 (1962).


Water Use Permits

granted for a period long enough for the water user to amortize his investment. Depending on the nature of the enterprise, permits might be issued for terms of up to fifty or sixty years. Moreover, the regulatory agency would be required to renew the permit indefinitely unless it determined that water was needed for a higher public purpose such as municipal water supply, recreation or environmental protection. This would protect most productive uses even after full amortization of the original investment but would still allow the state to recapture water without cost for legitimate public uses.

Although reallocation can occur from private to public uses, an inefficient pattern of water use may still result unless transfers among private users are also allowed. Unfortunately, there are problems with permitting voluntary transfers under a variable-term permit scheme. For example, suppose a farmer obtains a forty-year permit and sells it to an industrial user thirty years later. Let us assume that the industrial user would require sixty years to amortize his investment. Presumably, the water right obtained from the farmer would be good for another ten years, the remainder of the original permit term. When it comes up for renewal, assuming that the water is not required for a higher public use, what duration period should be used for the new permit? Should it be forty years, the length of the original term, or fifty years, the remaining period needed to amortize the investment of the new user?

If the goal of protecting initial investment is to be met, the fifty-year period seems appropriate. However, it should be noted that the new user would sustain an uncompensated loss if the water regulatory agency refused to renew the original permit when it expired. In our example, the farmer’s permit

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357 According to one estimate, the normal period for depreciation of a manufacturing plant is 40 years and some plants have useful lives of 60 years or more. Trelease, The Model Water Code, the Wise Administrator and the Goddam Bureaucrat, 14 Nat. Resources J. 207, 219 (1974).

358 This avoids a situation where the permit holder, who obtained his water right without cost, gains a windfall profit when the state is forced to reacquire the water for a higher public purpose.

359 Presumably no compensation would be required if a permit is not renewed when it expires if the water user's investment has been amortized. A similar principle applies in zoning law when nonconforming uses are terminated after the expiration of an amortization period. It should be pointed out, however, that the water user incurs a loss even though there is no taking in the constitutional sense.
had ten years to run when purchased by the industrial user. If this permit were not renewed, the new user would lose more than eighty percent of his investment. A possible solution to this problem would be to issue the new user another permit at the time he buys out the earlier user. In our example, when the farmer and the industrial user reached an agreement over the sale of the farmer’s water right, they would request the water regulatory agency to issue a new permit based on an amortization period appropriate to the new user’s operation. If the agency determined that the water was needed for a higher public use, it would deny the request. The projected transfer would not take place, but the farmer would still retain his water right for the remainder of the permit’s term, ten years in our case. If the agency agreed to the request, assuming no third parties were adversely affected by the proposed transfer, it would issue a new permit to the industrial user which in our example would be valid for sixty years. Like the original permit, this water right would be renewable indefinitely, subject to the state’s right to reallocate the water for higher public uses at each renewal period.

C. Permits of Perpetual Duration

The third alternative places more emphasis on the market as a reallocation mechanism. Under this approach, the water regulatory agency would issue permits of a perpetual nature on a “first come, first served” basis as long as water was available. These water rights would be transferable, subject to agency approval in order to protect public rights and third-party interests.

Water rights of perpetual duration are, of course, a promi-

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360 In our example, only 10 years of a 60-year amortization would have elapsed before the new user’s water right was terminated by the agency’s refusal to renew the permit. Thus, 5/6 of the original investment (plus the cost of acquiring the water right from the farmer) would be unamortized.

361 In its proposal, the National Water Commission suggests that variable-term permits be subject to renewal “for a similar period” unless the agency reallocates the water to a higher public purpose. NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 286-87 (1973). This would mean renewal periods of up to 60 years or more for some users. If the variable-term permit approach is adopted, a uniform renewal period of 40 or 50 years is recommended for operations like agriculture and industrial uses which have a potentially long useful life.
nent feature of prior appropriation. As mentioned earlier, the prior appropriation system has been proposed in a number of eastern states in the past thirty years. Undoubtedly, a water right of perpetual duration is secure enough to encourage capital investment, a necessary requirement for optimum use. Reallocation will occur as conditions warrant by voluntary transfers among water users. In this fashion, market forces should eventually achieve the most efficient allocation pattern possible. Moreover, the minimum flow and reservation concepts discussed earlier in our short-range proposal could be utilized in order to protect environmental, recreational, and aesthetic interests.

Unfortunately, like the other long-range alternatives, this approach also has its disadvantages. Perhaps the most serious problem is inflexibility. At least in the West there is evidence that prior appropriation tends to force water uses into a rigid pattern based on the original appropriations. This may be due to the fact that changes in use or location, while theoretically possible, are often difficult to make in practice. In the West transfers are particularly hard to arrange when they involve a change from a nonconsumptive to a consumptive use, thereby diminishing the rate of return flow to the stream and impairing the rights of downstream users.

However, if an efficient water use pattern cannot be achieved by means of voluntary transfers alone, the state could also allow involuntary transfers through the use of a preference system. This device, which is found in some prior appropriation jurisdictions, utilizes a system of preference categories which allows a water user in a one preference category to condemn the water right of a user in a lower preference category. For exam-

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pie, industrial uses were placed in a higher category than agricultural uses, and industrial users could acquire a farmer's water right in a condemnation action. Of course, the industrial user would have to pay the farmer the fair market value of his water right and also indemnify third parties for any losses they would sustain as a result of the proposed change in use. The requirement for compensation not only satisfies due process requirements but also insures that the transfer will take place only when the new user can make a more productive use of the water than the original user.\textsuperscript{308}

D. The "Pseudo-Market" Approach

In this country, scarce resources are usually allocated on the basis of prices in a competitive market,\textsuperscript{307} particularly when economic efficiency is an important consideration.\textsuperscript{308} Although water has economic value as a factor of production, water use is not always strongly influenced by market forces. Consequently, some economists have advocated the use of a pseudo-market administered by the state.\textsuperscript{309} This device would enable water users to recognize and respond to the actual cost of their water use, including both the cost of delivering the water and

\textsuperscript{304} This example was chosen because the average value product of consumptive water use is usually higher in industry than in agriculture. Ciriacy-Wantrup, Concepts Used as Economic Criteria for a System of Water Rights, 32 LAND ECON. 295, 301 (1956).

\textsuperscript{307} Prices have an important function in the market process. Where total resources are limited, the output of one commodity can increase only if resources are diverted to it from the production of something else. A misallocation of resources occurs when the benefits from the increase of one commodity do not exceed the cost of foregone alternative products and services. Prices reflect these costs to consumers and provide them with an incentive to increase consumption when the real benefits exceed the real costs.

\textsuperscript{308} Society seeks to achieve an optimal or efficient allocation of resources on the theory that, given a particular distribution of wealth, this reflects a point at which human welfare is maximized. An optimal allocation is achieved when it is impossible by rearranging to benefit anyone without injuring someone else. Note, Economic Implications for Arizona's Ground Water Law, 1972 LAW & SOC. ORDER 626, 634. For a discussion of the concept of efficiency and its role in resource allocation theory, see L. JAMES & R. LEE, ECONOMICS OF WATER RESOURCES PLANNING 43-118 (1971); McKean, Products Liability: Trends and Implications, 38 U. CHI. L. REV. 3, 24-42 (1970).

the "opportunity cost" or values foregone by diverting the water from other potential uses.370

Under one such proposal the state would expropriate all existing water rights and allow an administrative agency to allocate the available water among competing buyers within a particular hydrologic area at demand-generated prices.371 The agency would accomplish this function by the sale of "water certificates" which would allow the holder to withdraw a specific amount of water from the area until the certificate's expiration period. These certificates would be sold or leased among users subject to the agency's supervision.

The sale of water rights by the state, as opposed to giving them away without cost, not only promotes an efficient initial allocation pattern, but it also prevents water users from obtaining "windfall" profits when they transfer their water rights. In addition, the agency could use the revenue generated from such sales in order to finance water conservation and development progress.

At the end of a fixed period the certificates would revert to the agency and would be offered for sale again. The expiration dates of the initial certificates would be staggered so that some water would be available each year for sale by the agency. The agency could secure water for public purposes in a given year by not re-issuing some of the certificates which had expired; when necessary, it could also purchase additional certificates from existing users at market prices.

Of course, there are many problems that must be overcome if the pseudo-market is to allocate the state's water resources efficiently. First of all, the agency must determine how much water is available in a particular area for allocation purposes.372 Undesirable shortages will occur if the agency sells too many water certificates. The agency must also determine the optimum duration period for its water certificates. Finally, it may have to take measures to prevent some users from monopoliz-

372 The agency should set aside sufficient water to maintain minimum stream flows and protect public interests when it calculates the amount of water that is available for sale.
ing the available water supply or manipulating the price of certificates.\textsuperscript{373}

The pseudo-market approach is an intriguing one, particularly when viewed as a long-term solution to the problem of efficient water allocation. However, it remains to be seen whether such a complex system could actually operate effectively in practice.

CONCLUSION

Our examination has revealed a number of weaknesses in Kentucky's water allocation law. These defects are not likely to be very troublesome as long as water supplies are sufficient to meet demand, but they will undoubtedly cause substantial problems in the future as water becomes scarce in some areas of the state.

The common law rules, particularly with respect to surface water, are uncertain and insecure, characteristics which may discourage investment in water-dependent industries. Place-of-use restrictions also inhibit optimum use of the resource.

Kentucky's present water regulatory law, which was enacted to remedy some of the deficiencies of the common law rules, also contains serious flaws. The existence of large numbers of exempt users undermines the state's water regulatory policy. Water rights under the permit system are insecure and there is no mechanism for reallocation by voluntary transfers among water users. In addition, the provisions of the Act relating to water shortages are unnecessarily vague.

Kentucky Revised Statutes Chapter 151 should be replaced by a better water allocation law. The short-range proposal suggested in Part III might serve as a model. It would provide the water regulatory agency with sufficient authority to formulate and implement a coherent water resources policy for the state while at the same time avoiding unnecessary interference with the affairs of private water users. Moreover, we believe that this proposal can abolish common law water rights without violating the requirements of substantive due process.

\textsuperscript{373} The integrity of the pseudo-market system would be compromised if the promised water were not available. One commentator suggests prorationing during periods of shortage. Kiker & Lynne, \textit{Water Allocation Under Administrative Regulation: Some Economic Considerations}, S.J. AGR. ECON. 57, 62 (Dec. 1976).

Eventually, as the demand for water increases, the state will have to play a larger role in the allocation process. The four alternatives discussed in Part V indicate the wide range of options available. It is hoped that when the time comes the state will be able to choose the alternative that best meets its needs and objectives.