Beyond Section 858: A Proposed Ground-Water Liability and Management System for the Eastern United States

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INTRODUCTION

Ground-water law in the urban, industrially oriented Eastern United States reflects that area's relatively abundant water supply. The policy of the common law has been to encourage consumption of water rather than to protect it against abuse. The controlling legal principles were developed when the nature and distribution of ground-water use were radically different from those prevailing today.[1] The law has frequently failed to reflect modern scientific knowledge of the hydrologic cycle, ground-water occurrence, flow systems, and natural relations with surface waters.[2] In the western states, where scarcity makes rational water management a necessity, the law is more soundly based on such knowledge. Rights to percolating ground water derived from the common law, on the other hand, are irrationally structured and in the long run may contribute to an ecological crisis.

Conditions in Wisconsin are a good example of the harm to private and public interests wrought by established legal principles encouraging unmanaged consumption. Although there have been some

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1. *See* Comment, *Wisconsin Ground Water Law—A New Era,* 1957 WIS. L. REV. 309. *See also Adams,* Updating Ground Water Law: New Wine in Old Bottles, 39 OHIO ST. L.J. 520 (1978).

2. R. CLARK, S. CIRIACY-WANTRUP, W. HUTCHINS, C. MARTZ, S. SATO & A. STONE, WATERS AND WATER RIGHTS 30 (1967) [hereinafter cited as R. CLARK].

The climatic and geographical division between humid and semi-arid is customarily drawn in the segment of the 95th and 100th meridian, which from north to south cuts through the Dakotas, Nebraska, Kansas, Oklahoma and Texas. The line thus drawn corresponds roughly with the rainfall line where annual precipitation drops to 20-22 or fewer inches. *Id.*

specific problem areas, Wisconsin is relatively rich in ground water,[3] as are most of its neighbors to the east. But not all of this water is clean and fit for human consumption.[4] And demand for water is increasing in many areas, substantially straining nature's ability to renew the resource.[5] Increasing numbers of communities must draw on their supplies of ground water.[6] Presently, much of Wisconsin's municipal, and almost all of its rural, water supply is provided by underground water.[7] Hydrological studies of Wisconsin's ground-water reserves,[8] like studies in other eastern states,[9] reveal that significant quantity and quality

3. Even though only about 10% of the average 31 inches of precipitation over the state infiltrates to the ground water, Wisconsin's subsurface reservoirs are replenished naturally by an average of 16 billion gallons per day of fresh water of which less than 3% is withdrawn from wells. *See* H. ELLIS, H. BEUSCHEUR, C. HOWARD, J. DEBRALL, WATER USE AND ADMINISTRATION IN WISCONSIN 5-8 (1970) [hereinafter cited as ELLIS]. Thus, it is estimated that over one million billion gallons of ground water are in storage in Wisconsin. *Id.* For studies concerning Wisconsin's ground-water reserves, *see* C. HOLT, K. YOUNG & W. CARTWRIGHT, THE WATER RESOURCES OF WISCONSIN, NATURAL RESOURCES OF WISCONSIN 112 (1967); R. COTTER & L. JAHN, GROUND WATER, WATER USE: PRINCIPLES AND GUIDELINES FOR PLANNING AND MANAGEMENT IN WISCONSIN (1969).

4. For a detailed discussion and diagrammatic illustrations of various ground-water problem cases, *see* Coogan, *Problems of Ground Water Rights in Ohio*, 9 AKRON L. REV. 34 (1975).

Sanitary landfills, dumps, petroleum products, sewage effluents, farm animal excrement, fertilizers, insecticides, herbicides, and salts used for melting snow and ice are potential sources of ground-water pollution. These substances are disposed, stored, or spilled on land and may eventually percolate into shallow aquifers resulting in harmful effects on the quality of ground water. More specifically, storage of petroleum products, chemicals, chemical wastes, and other toxic substances in steel or concrete tanks beneath the land surface may cause problems if corrosion of the metal or cracking of the concrete allows seepage. Septic tanks and dry-well disposal of domestic sewage may allow contaminants to enter fresh water aquifers after percolating through the zone of aeration. In a few cases, Wisconsin aquifers have been polluted by the accidental injection of toxic substances. (As injection of liquid wastes into the subsurface is illegal in the state; deep well disposal/storage of liquid wastes has not been a problem.) Finally, natural migration of inferior quality waters into fresh ground-water aquifers could occur from overpumping a well, or from using unplugged, uncased, or improperly constructed wells or test holes, or from dredging or deepening a lake or stream being fed by ground water. *See* Ruedisili, note 5 *infra*.

5. The only two reported ground-water supply problems in Wisconsin resulted from unfavorable hydrogeologic environments present in an area and from declining ground water levels caused by overpumping. Fond du Lac v. Empire, 273 Wis. 333, 77 N.W.2d 699 (1956); Meene v. Fond du Lac, 273 Wis. 341, 77 N.W.2d 703 (1956). A lack of ground water in Fond du Lac was the cause in both instances. Other quantity problems have been reported in and around Neillsville, Green Bay, and Milwaukee. *See* ELLIS, *supra* note 3, at 6; L. Ruedisili, Ground Water in Wisconsin—Quantity and Quality Protection: Legal Controls and Management 25-27 (Oct., 1972) (distributed by the University of Wisconsin, Madison Water Resources Center) [hereinafter cited as Ruedisili]. Despite the reported cases of man-made and natural ground-water quality problems in Wisconsin, the total amount of ground water adversely affected is only a small portion of the total resource. *Id.* at 27-81.

6. This development in Wisconsin parallels events in other states. *See generally* Coogan, *supra* note 4.

7. *See* ELLIS, *supra* note 3.

8. *See id.* at 13-14.

9. *See, e.g.*, H. THOMAS, THE CONSERVATION OF GROUND WATER 1-14, 36-77 (1951).

changes have occurred in the aquifers beneath heavily populated regions where ground-water withdrawals have exceeded natural recharge capacities.[10]

An overview of water law in eastern states is helpful in understanding the relationship between the legal principles and the problems of ground-water quantity and quality. At common law, the location of water has determined the applicable legal principles. All non-atmospheric water has been categorized into five classes and a disparate body of law has developed for each class:

(1) natural surface water—the navigable waters of lakes, rivers, streams, and other natural bodies of water so classified;
(2) diffused surface water—the water that is dispersed over the ground as a result of rain or melting snow and which flows in other than natural water courses;
(3) underground streams—water flowing in well-defined, traceable underground channels;
(4) ground water—water which seeps or filters through underground porous beds of earth or rock without definite channels;
(5) springs—natural discharge points of ground water or underground streams.[11]

At least three distinct rules of law have been applied in eastern states to define the right of a landowner to ground water. The English common law rule of absolute ownership[12] prevailed in Wisconsin and other eastern states from the pre-industrial 1840's onward. In its harshest and most simplistic form, it gave a landowner the unqualified right to withdraw unlimited quantities of ground water from his land without liability to anyone, even if his neighbors' wells were exhausted as a result.[13]

The rule of absolute ownership was abandoned by most states soon after the turn of the century.[14] In its place, most eastern courts

10. ELLIS, *supra* note 3, at 6; Ruedisili, *supra* note 5, at 25-27.

11. ELLIS, *supra* note 3, at 13-14.

12. Huber v. Merkle, 117 Wis. 355, 94 N.W. 354 (1903). Sometimes known as the "English Common-Law doctrine," the rule was established in the case of Acton v. Blundell, 12 M. & W. 324, 152 Eng. Rep. 1223 (1843). However, the Massachusetts case of Greenleaf v. Francis, 35 Mass. 117 (1836) had reached the same essential conclusion. *See* 2 S. WIEL, WATER RIGHTS IN THE WESTERN STATES § 1039 (3d ed. 1939).

13. New River Co. v. Johnson, 2 El. & El. 435, 121 Eng. Rep. 164 (Q.B. 1860). *See, e.g.*, Chatfield v. Wilson, 28 Vt. 49 (1855); Huber v. Merkel, 117 Wis. 355, 94 N.W. 354 (1903). The rule required that ground water be perceived as a part of the soil, which under the *cujus est slum ejus usque ad coelum et ad inferos* rationale entitled a landowner to do what he pleased with ground water. The owner could take out whatever ground water was under his property or which seeped into his bore hole and his neighbor could do likewise. Any interference with the other's supply was *damum absque injuria, i.e.*, a non-actionable injury. More often, however, taking percolating water from one's own land for the malicious purpose of denying it to another did give rise to a cause of action. *See generally* Annot., 55 A.L.R. 1385, 1397 (1928); 109 A.L.R. 395, 399 (1937).

14. *See* Sloss-Sheffield Steel & Iron Co. v. Wilkes, 231 Ala. 511, 165 So. 764 (1936);

adopted the American rule of reasonable use,[15] which restricted a landowner's ground-water rights by permitting him only "reasonable" withdrawals.[16] So broad was the definition of "reasonable," that the American rule did little to limit landowners' rights.[17] Wisconsin, on the other hand, did not repudiate the rule of absolute ownership until the 1974 case of *State v. Michels Pipeline Construction, Inc.*[18] When the Wisconsin Supreme Court finally did reject that antiquated rule, it also refused to adopt the popular American rule.[19] Instead, the court became the first to adopt the Second Restatement of Torts' recent modification of the American rule: section 858.[20] Overnight, Wisconsin

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Bristor v. Cheatham, 75 Ariz. 227, 255 P.2d 173 (1953); Macartor v. Graylyn Crest III Swim Club, Inc., 40 Del. Ch. 53, 173 A.2d 344 (1961); Cason v. Florida Power Co., 74 Fla. 1, 76 So. 535 (1917); Behrens v. Scharringhausen, 22 Ill. App. 2d 326, 161 N.E.2d 44 (1959); Gagnon v. French Lick Springs Hotel Co., 163 Ind. 687, 72 N.E. 849 (1904); Barclay v. Abraham, 121 Iowa 619, 96 N.W. 1080 (1903); Sycamore Coal Co. v. Stanley, 292 Ky. 168, 166 S.W.2d 293 (1942); Finely v. Teeter Stone, Inc., 251 Md. 428, 248 A.2d 106 (1968); Schenk v. Ann Arbor, 196 Mich. 75, 163 N.W. 109 (1917); Erickson v. Crookston Waterworks, Power & Light Co., 100 Minn. 481, 111 N.W. 391 (1907); Higday v. Nickolaus, 469 S.W.2d 859 (Mo. App. 1971); In re Metropolitian Utilities Dist. of Omaha, 179 Neb. 783, 140 N.W.2d 626 (1966); Basset v. Salisbury Mfg. Co., 43 N.H. 569, 82 Am. Dec. 179 (1862); Meeker v. East Orange, 77 N.J.L. 623, 74 A. 379 (1909); Erickson v. McLean, 62 N.M. 264, 308 P.2d 983 (1957); Hawthorn v. Natural Carbonic Gas Co., 194 N.Y. 326, 87 N.E. 504 (1909); Bayer v. Nello L. Teer Co., 256 N.C. 509, 124 S.E.2d 552 (1962); Volkmann v. City of Crosby, 120 N.W.2d 18, (N.D. 1963); Canada v. City of Shawnee, 179 Okla. 53, 64 P.2d 694 (1937); Rothrauff v. Sinking Spring Water Co., 339 Pa. 129, 14 A.2d 87 (1940); Evans v. City of Seattle, 182 Wash. 450, 47 P.2d 984 (1935); Drummond v. White Oak Fuel Co., 104 W. Va. 368, 140 S.E. 57 (1927); Binning v. Miller, 55 Wyo. 451, 102 P.2d 54 (1940).

15. For an excellent discussion of the American rule, see Behrens v. Scharringhausen, 22 Ill. App. 2d 326, 161 N.E.2d 44 (1959). See also text accompanying note 20 *infra*.

16. Generally, western states developed along different lines. *See* Rusch, *South Dakota's Artesian Pressure—Should It be a Protected Means of Diversion?* 16 S.D. L. REV. 481 (1971); Moses, *Basic Groundwater Problems*, 14 RKY. MTN. M. L. INST. 501 (1968); Clark, *Groundwater Legislation in the Light of Experience in the Western States*, 22 MONT. L. REV. 42 (1960); Hutchins, *Trends in the Statutory Law of Ground Water in the Western States*, 34 TEX. L. REV. 157 (1955). Most western states transposed surface water concepts onto ground-water laws. Hence, California applied its surface water notions of "correlative rights" to ground water. *See* City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 207 P.2d 17 (1949). Under the scheme enunciated in that case, California divided its ground water into three classifications: (a) definite underground streams, (b) underflow immediately associated with a river, and (c) percolating ground waters. The waters of the first and second class are subject to appropriation while the water of the third group belongs in common to the overlying landowners; their right to withdraw is limited to the reasonably beneficial uses required of the users relative to the commonly held capacity of the aquifer. Two states in the West have retained the American rule. Bristor v. Cheatham, 75 Ariz. 227, 255 P.2d 173 (1953); In re Metropolitan Utilities Dist. of Omaha, 179 Neb. 783, 140 N.W.2d 626 (1966). One state in the West appears to have retained the English rule of absolute ownership. *See* Greenhill & Gee, *Ownership of Ground Water in Texas; The East Case Reconsidered*, 33 TEX. L. REV. 620 (1955), discussing the Texas Supreme Court's apparent endorsement of the English rule in City of Corpus Christi v. City of Peasanton, 154 Tex. 289, 276 S.W.2d 798 (1955).

17. See text accompanying notes 36-40 *infra*.

18. 63 Wis. 2d 278, 217 N.W.2d 339, *modified*, 63 Wis. 2d 278, 219 N.W.2d 308 (1974).

19. *Id.* at 299-301, 217 N.W.2d at 349-50.

20. RESTATEMENT (SECOND) OF TORTS § 858 (1977) [hereinafter cited as RESTATE-

moved from one of the most backward to the vanguard of eastern ground water jurisdictions.

The direction of the march is wrong, however. Although the *Michels* decision generally has been praised,[21] the section 858 standard of liability presents substantial problems in application and is an inappropriate means of regulating ground-water rights. This Article will identify the weaknesses of this standard, illuminate some of the basic precepts of ground-water liability, and propose an alternative method of ground-water management for Wisconsin and similar eastern states. By combining controls utilized in many western arid regions with the freedom of use characteristically associated with eastern ground-water regions, the alternatives proposed here would bring eastern ground-water law back into the mainstream of modern natural resource management.

I

A DEFINITION OF GROUND WATER

Subsurface water may be divided into zones of aeration and saturation.[22] The zone of aeration extends from the surface down to the water table and consists of interstices or voids in rock or soil occupied partially by water and partially by air.[23] Some water may be held in the zone of aeration by the forces of attraction between water and soil particles.[24] Ground water occurs in the zone of saturation, where all interstices are filled with water.[25] It does not normally flow in identifiable channels. This saturated zone is topped by overlying impermeable layers of rock[26] or the surface of the zone is the water table, the level at which water stands in a well penetrating this zone.[27] The water table is

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MENT or as section 858]. For relevant text of section 858, see text accompanying note 41 *infra*. The *Michels* court referred to section 858A, which was an earlier draft of section 858. The court's reasoning is equally applicable to the final version.

21. *See* Comment, *Wisconsin Strives to Minimize Conflicts Over the Use of Water*, 59 MARQ. L. REV. 145 (1976).

22. D. TODD, GROUND WATER HYDROLOGY 17 (1959) [hereinafter cited as TODD]. Subsurface water is one part of the hydrologic cycle. See Figure 1.

23. D. TODD, supra note 22, at 1, 17. See Figure 2.

24. D. Lindorff and K. Cartwright, Ground-Water Contamination: Problems and Remedial Actions 3 (1977) [hereinafter cited as Lindorff].

25. TODD, *supra* note 22, at 12, 23.

26. *Id.* at 17.

27. *Id.*

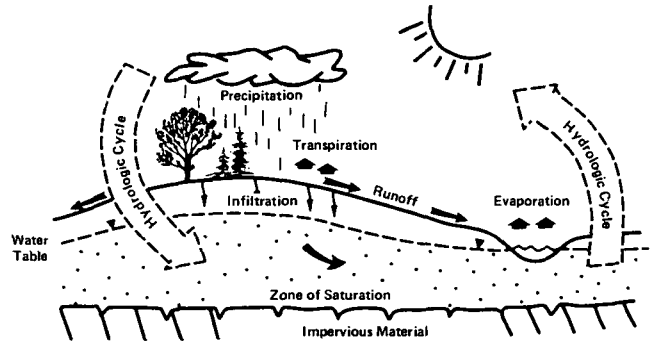

Figure 1. Illustration of a generalized hydrologic cycle.

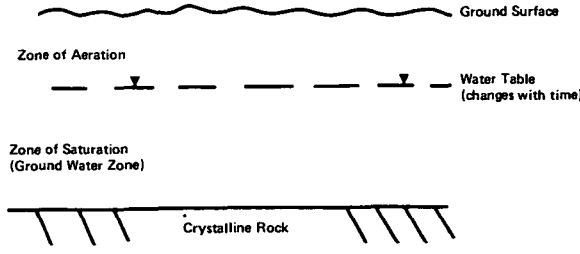

Figure 2. Illustration of subsurface water zones.

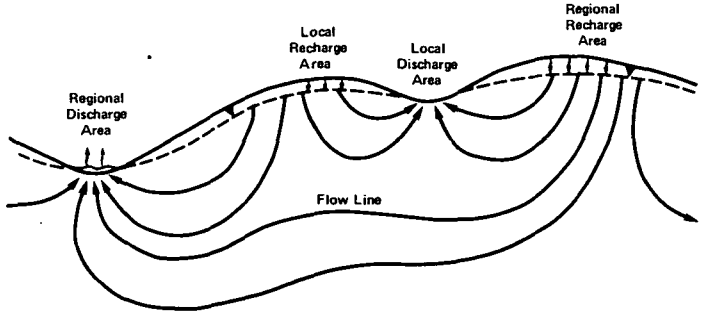

Figure 3. Illustration of an idealized land and regional ground-water flow system under homogeneous soil conditions. Note ground water movement is from recharge to discharge areas.

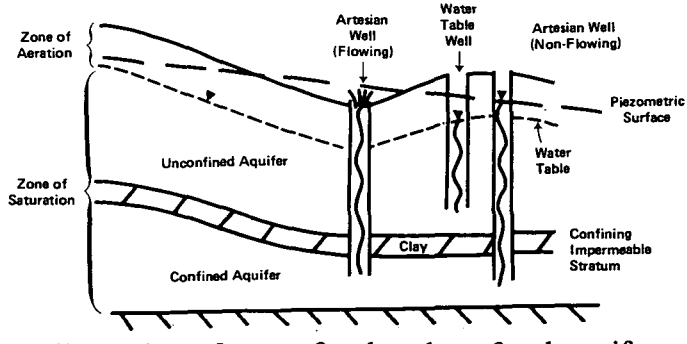

Figure 4. Illustration of unconfined and confined aquifers and wells which penetrate these aquifers.

commonly a subdued imitation of the topography of the land surface.[28]

Ground water moves in response to gravity from the area of infiltration (recharge) to a place of discharge, where the water table intersects the land surface.[29] Recharge areas are often topographic highs and discharge areas are often topographic lows.[30] Ground water, unlike surface water, is constantly moving.[31] However, actual movement is rarely, if ever, observed because the flow is underground and the normal rate of movement is extremely slow (approximately five feet per day to five feet per year).[32]

Ground water is discharged naturally by seeps and springs to other surface water bodies.[33] It is discharged into the atmosphere by evaporation and plant transpiration when the water table lies within a few feet of the surface (as in bogs, wetlands and marshlands).[34] Artificial discharge of ground water is accomplished by pumping from wells and mines, developing seeps and springs, and draining and irrigating wetlands.[35]

II

PROBLEMS WITH PRESENT LIABILITY RULES

A. The American Rule

Under the American rule, an overlying landowner's use of ground water is "reasonable" if it is beneficial to use or enjoyment of the land. If the landowner's use is reasonable (beneficial), he is not liable to adjacent landowners for injury caused by the use.[36] Liability is imposed, however, upon a landowner who transports ground water from his land—no matter how reasonable and beneficial the use off the land might be—if harm results to other overlying users.[37] Thus, under the

28. Lindorff, *supra* note 24, at 4.

29. *Id.*

30. *Id.* See Figure 3. Recharge to an aquifer occurs when rainfall and snowmelt filter through layers of rock and soil to the water table.

31. TODD, *supra* note 22, at 44.

32. *Id.* at 53. A rock unit or formation that will store, transmit, and yield significant quantities of water is called an aquifer. R. DEWEIST, GEOHYDROLOGY 133 (1965); TODD, *supra* note 22, at 26. Most aquifers are large, *id.* at 27, and act as underground storage reservoirs. *Id.* An aquifer bounded by the water table is classed as unconfined (or free, or nonartesian), *id.* at 28; an aquifer bounded by impermeable rock is classed as confined (or pressure, or artesian). *Id.* See figure 4.

33. *Id.* at 27-28.

34. *Id.* at 155.

35. *Id.* at 9.

36. See note 15 and accompanying text *supra*; *see generally* Annot., 55 A.L.R. 1385, 1398 (1928); 109 A.L.R. 395, 397 (1937). However, a variation on the American rule, the rule of correlative rights, requires an overlying landowner to consider the needs of other overlying landowners and take only his fair share. *See* Katz v. Walkinshaw, 141 Cal. 116, 74 P. 766 (1903).

37. The theory is that off-surface use of the land cannot be beneficial to the use and

American rule, the landowner who takes ground water for use on the overlying surface is effectively insulated from liability unless his use is wasteful. If he removes water from the land, however, he is liable for harm which results to other well owners sharing the same aquifer regardless of the benefits to himself or others. In defining reasonableness in terms of the geographic use of ground water, the American rule offers an overlying user a secure, almost absolute right, while providing tenuous protection to his neighbors and no protection to those who sell ground water for use off the premises.[38]

The scope of protection given to the owner of overlying land in his use of ground water has been criticized because it takes no account of the relative values to the community of different water uses.[39] The landowner who uses ground water on his premises is protected even if his uses are of little benefit to the community. On the other hand, the landowner who removes ground water from the overlying land faces liability for harm resulting to other overlying landowners no matter how important his reasons for removal. As may be expected, this rigidity frequently leads to unfair results. Consequently, the Wisconsin Supreme Court in *Michels* rejected the American rule, noting that it failed to protect well owners against large water users—*e.g.*, factories or apartment buildings—on neighboring land.[40]

B. The Restatement of Torts Rule

The Restatement (Second) of Torts Section 858 provides:

> (1) A proprietor of land or his grantee who withdraws ground water from the land and uses it for a beneficial purpose is not subject to liability for interference with the use of water by another, unless
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> (a) the withdrawal of ground water unreasonably causes harm to

enjoyment of the land. *See generally* Annot., 31 A.L.R. 906, 908 (1924); 55 A.L.R. 1385, 1404-08 (1928); 109 A.L.R. 395, 402-03 (1937).

38. RESTATEMENT, *supra* note 20, at 256-57; State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 300-01, 217 N.W.2d 339, 349-50 (1974).

The comment to section 858(1)(a) suggests that the "modern view" of the American Rule, purportedly adopted in that section, has recognized that "the salient factor is not the place of the use but the withdrawl of water in unprecedented quantities for purposes not common to the locality, and that it is fair and just to place the cost of improving neighboring facilities upon the person or organization whose withdrawls render them inadequate, even though the water is used on the land from which it is withdrawn." RESTATEMENT, *supra* note 20, at 262. We are not aware of any recent cases applying the American Rule as stated in section 858(1)(a), however. With the exception of *Michels*, reliance upon which would be "bootstrapping," we see no movement away from the traditional rigidity of the American Rule.

39. MCDOUGAL & HOBER, PROPERTY, WEALTH, LAND, ALLOCATION, PLANNING, AND DEVELOPMENT 993 (1948). *See also* Adams, *supra* note 1.

40. State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 301, 217 N.W.2d 339, 350 (1974).

a proprietor of neighboring land through lowering the water table or reducing artesian pressure,

(b) the withdrawl of ground water exceeds the proprietor's reasonable share of the annual supply or total store of ground water, or

(c) the withdrawl of the ground water has a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water.

(2) The determination of liability under clauses (a), (b) and (c) of Subsection (1) is governed by the principles stated in §§ 850 to 857.[41]

The Restatement formulation incorporates all the grounds of liability recognized by the common law, but removes some of the common law defenses to liability.[42] It embraces a concept of reasonableness, but the concept differs from that of the American rule in that it offers the overlying user more limited protection from liability.[43]

In contrast with the American rule, under section 858 an overlying user may be liable for harm resulting from ground-water withdrawals, though such use may be beneficial to the overlying surface. "Reasonableness" and beneficial effect of use are not judged in relation to use on the overlying land. Instead, they are open-ended concepts whose application varies with the circumstances.[44] The purpose of the American rule is to encourage the more or less unrestricted development of ground water by overlying landowners on the theory that they will be the most efficient users. Section 858 seeks to make more fair an area of law that has been more certain than fair.

An example illustrates the change in the concept of reasonableness between the American rule and section 858. Under the American rule, Landowner A, who removed ground water for the maintenance of a series of putting greens on the overlying surface, would not be liable for damage to the wells of his neighbor caused by lowering the water table or reducing artesian pressure, even if B's crop of lettuce were destroyed as a result. A's use of ground water would be beneficial and reasonable in relation to his use and enjoyment of the overlying surface. But if A removed the ground water from the overlying surface to provide a nearby town with water to satisfy the thirst of its citizens, A would be liable to B for damage to B's use—whether B's use were maintenance of putting greens or irrigation of crops. Under section 858, a court would weigh the benefits of use and unreasonableness of the resulting

41. RESTATEMENT, *supra* note 20, at 258.

42. *Id.*

43. *Id.* at 262.

44. RESTATEMENT, *supra* note 20, at 262. Under section 858, issues of reasonableness are to be determined by reference to section 850A. For the text of that section, see note 58 *infra*.

harm in light of all circumstances.[45] In this instance, one would expect the result to be precisely opposite that of the American rule: liability would be imposed upon A where his use was for maintenance of putting greens (even though the greens were on the overlying land), but not where the water use was to satisfy the thirst of a nearby community (even though the water was taken off the land).

In sum, the Restatement formulation is more than a modest extension of the American rule. It incorporates a new concept of "reasonableness" by inviting consideration of all circumstances in a dispute rather than limiting the concept to use and enjoyment on the overlying surface.

C. Criticisms of Section 858

The open-ended reasonableness standard of the Restatement, while more in accord with modern concepts of social utility and fairness than the American rule, poses significant problems in logic and application. It assumes an abundance of water, but will be applied to disputes resulting from water shortages. In seeking to achieve fairness, it tips the balance too far against certainty, and therefore is unfair to individuals trying to function within the economic system. Moreover, the standard does not adequately protect the public interest in groundwater resources.

1. Failure to Consider Water Shortage Situations

In the *Michels* decision,[46] the Wisconsin Supreme Court rejected the administrative regulatory controls of western states[47] on the basis that ground-water laws which extensively restrict the landowner's right to withdraw ground water are ill-suited to the types of problems brought into the courts of eastern states. The court, and the comments to section 858,[48] identified the retention of the landowner's right to withdraw ground water[49] as the Restatement rule's leading virtue. The Wisconsin Supreme Court and the Restatement drafting committee recognized that, in eastern states such as Wisconsin, there are usually

45. *Id.* at 262. *See also id.* at 220-39.

46. State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 302-03, 217 N.W.2d 339, 350-51.

47. RESTATEMENT, *supra* note 20, at 254-55; 63 Wis. 2d at 301, 217 N.W.2d at 350.

48. *See* RESTATEMENT, *supra* note 20, at 259.

49. The power of the overlying landowner with respect to the ground water under his land may be described either as a broad privilege, 63 Wis. 2d at 300, 217 N.W.2d at 349, or as a property right, RESTATEMENT, *supra* note 20, at 259. If it is a right, it is clearly limited. If it is a privilege, it is clearly very broad. We have chosen to refer to it as a right for semantic simplicity.

sufficient supplies of ground water.[50] Therefore, they reasoned, in the typical situation a user cannot capture the whole supply, and legal controversies are limited to the apportionment of costs for the deepening of wells.[51] Hence, the restrictive western state controls were not deemed appropriate.

This logic is unsound as a premise for determining liability. Section 858 assumes a physical condition that is contradicted by the circumstances of its application. The new rule will be applied to disputes where there is a lack, or relative lack, of ground water (at least at the depth to which the wells are drilled)—not where there are uniformly sufficient reserves. Section 858 misses the fundamental issue of a ground-water dispute in stating that because ground water is generally abundant, both parties have rights; it is because ground-water supplies are not abundant that such disputes arise.

2. Lack of Certainty

Much has been written about the need for law to balance certainty with social justice or "fairness."[52] Certainty means predictability; a major function of law is to establish a code of conduct that permits members of society to structure their actions so as to avoid formal disputes.[53] On the other hand, "fairness" is the general ethical standard of society, however it may be defined in a particular age.[54] Tension exists between the concepts of certainty and fairness in that clear guidelines yielding certainty may be too rigid to be fair.[55]

Section 858 fails to resolve that tension satisfactorily. Although the section may be fairer than the American rule as a tool for resolving legal disputes, it is virtually useless as a planning tool. The standard is no liability for "beneficial" use of ground water or for "reasonable" harm, but these are concepts without readily ascertainable bounds. Whether or not the defendant landowner has escaped liability can be determined only after the harm has occurred and all the facts have been presented in court. Even if the Michels Pipeline Company had known the section 858 standard would be applied, it probably would have been unable to structure its activities so as to preclude the risk of

50. *See* RESTATEMENT, *supra* note 20, at 259, 261; 63 Wis. 2d at 300, 217 N.W.2d at 349.

51. RESTATEMENT, *supra* note 20, at 261; 63 Wis. 2d at 301, 217 N.W.2d at 351.

52. *See, e.g.*, R. POUND, INTRODUCTION TO THE PHILOSOPHY OF THE LAW 128 (1954); B. CARDOZO, *The Growth of the Law*, in SELECTED WRITINGS OF BENJAMIN NATHAN CARDOZO 186 (M. Hull ed. 1947); F. COUDERT, CERTAINTY AND JUSTICE 1-3 (1913).

53. "Law as a guide to conduct is reduced to the level of mere futility if it is unknown and unknowable." B. CARDOZO, *supra* note 52, at 181 (1947).

54. F. COUDERT, *supra* note 52, at 3 (1913).

55. Fusion of the two has been called the law's "problem of the ages." B. CARDOZO, *supra* note 52, at 181 (1947).

liability. Such a rule is inapposite for an area of law in which disputes are most likely to arise from development, commerce, or industrial activity.[56] The need for certainty is more acute where economic security is dependent upon ground water than where it is based upon surface water. The total quantity of surface water available, its annual recharge, the number of users, and the causal link between use and effect are more visible and readily ascertainable in the case of surface water. Application of the rule could chill economic activity and increase significantly the number of ground-water liability disputes before the courts.

The uncertainty of the reasonableness standard could have been mitigated by the suggestion of relevant criteria. Neither the Restatement nor the courts of Wisconsin or other states has thus far established such criteria. The comments to section 858 suggest a court should broadly interpret the limits of its deliberations so that it can retain a free hand to consider all relevant aspects.[57] A nine factor "reasonableness" test is incorporated by section 858(2), but the factors identified are so broad as to be functionally useless, and are not to be considered exhaustive.[58] The Wisconsin Supreme Court has utilized a three factor reasonableness standard[59] in other surface water controversies which would be somewhat more manageable. However, adoption

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56. *See, e.g.*, RESTATEMENT, *supra* note 20, at 262-64 (illustrations of the comments).

57. RESTATEMENT, *supra* note 20, at 262-63. The authors of section 858 provide examples of the principle's application, but all involve one-sided fact situations providing little guidance for application of the reasonableness standard. *Id.* at 263-64.

58. The Restatement provides as follows:

§ 850A. Reasonableness of the Use of Water

The determination of the reasonableness of a use of water depends upon a consideration of the interests of the riparian proprietor making the use, of any riparian proprietor harmed by it, and of society as a whole. Factors that affect the determination include the following:

(a) the purpose of the use,
(b) the suitability of the use to the watercourse or lake,
(c) the economic value of the use,
(d) the social value of the use,
(e) the extent and amount of the harm it causes,
(f) the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other,
(g) the practicality of adjusting the quantity of water used by each proprietor,
(h) the protection of existing values of water uses, land, investments and enterprises, and
(i) the justice of requiring the user causing harm to bear the loss.

RESTATEMENT (SECOND) OF TORTS § 850A (1977).

59. Omernick v. Dep't of Natural Resources, 71 Wis. 2d 370, 238 N.W.2d 114, *cert. denied*, 425 U.S. 941 (1976). The Wisconsin Supreme Court stated that, for surface water disputes, the adjudicating tribunal should consider: (1) the volume of water at issue (2) the season or climate insofar as the likelihood of the problem repeating itself is concerned, and (3) the relative needs of the parties. Again, the three factor test offers little concrete guidance in the resolution of a particular factual situation and, therefore, does little to promote the development of a coherent case law.

of that test for ground-water disputes probably would preclude a court from considering some of the notions specifically urged in the comments to section 858. Other courts wrestling with the reasonableness concept have divided in their treatment of the relevance of such considerations as the motive of the parties, the degree of prior warning given to the offending water user, the recklessness or hazardous nature of the defendant's actions, and ground-water withdrawal as opposed to water discharge.[60]

Section 858's "beneficial purpose" requirement is also vaguely defined. The comment to section 858 refers to the comment to section 850A(a) for definition of that term.[61] The comment, however, indicates that a beneficial use is any that fulfills "some significant or worthwhile need or desire."[62] "Beneficial purpose" might better have been defined in abstract, absolute terms, as anything which is not waste.

Because the term is inherently vague and the comment defining it offers no definition, a court may feel compelled to compare the beneficial effects of the two uses in the dispute. Consideration of "beneficial purpose" on a comparative basis would either result in that term becoming a second open-ended criterion of the section 858 standard or would require the courts to adopt a priority scheme, where, for example, farmers would have priority of use over non-farmers. The former alternative would render application of section 858 even more uncertain. A court-developed priority scheme would also lead to problems. The judicial system's case-by-case method invites confusion and contradiction among competing uses as the factual circumstances of each lawsuit change. Any priority system created thus would be of uncertain duration. Another problem with a judicially created priority scheme is that such a system would have to be transposed onto the already existing statutory law which has established a broad *de facto* priority list.[63] Even if a coherent hierarchy of preferred uses could be estab-

60. *Compare* Daly v. Gypsy Oil Co., 133 Kan. 551, 300 P. 1099 (1931) (recklessness or hazardousness of venture determined to be relevant), *with* West Kentucky Coal Co. v. Dilback, 219 Ky. 783, 294 S.W. 478 (1927) (recklessness or hazardousness not relevant); *compare* Forbell v. New York, 164 N.Y. 522, 58 N.E. 644 (1900) (separate rules should be applied depending on whether the contested action is a withdrawal or a discharge of ground water), *with* New Mexico v. Mears, 86 N.M. 510, 525 P.2d 870 (1974) (no distinction made between withdrawals and discharges of ground water and ground-water rights).

61. RESTATEMENT, *supra* note 20, at 260.

62. RESTATEMENT (SECOND) OF TORTS § 850A (1977). For text see note 58 *supra*.

63. For example, the Wisconsin high-capacity well statute is designed to protect municipal ground-water supplies from contamination by wells which pump water in excess of 100,000 gallons per day. WIS. STAT. ANN. § 144.025(2)(e) (West 1974). Originally enforced by the State Board of Health, this statute empowers the state, now through the Department of Natural Resources, to shut down any high-capacity well which in any way threatens a municipal ground-water supply. Wisconsin has a *de facto* hierarchy with the unregulated, small domestic users at the top, municipal users below, and high-capacity well users at the bottom. Thus, though most users of Wisconsin ground water are not regulated, those users who are regulated are the biggest users of ground water. *See* C. Holt, K. Young & W.

lished, such a complex issue is better decided in a political manner in the legislature where, at least theoretically, all people are represented and the value choices can be made in a democratic manner.

In sum, section 858 does not provide persons attempting to act in an economically rational way with sufficient predictability to assess their risk of liability in a given situation. In striving to bring added fairness to dispute settlement, section 858 creates so much uncertainty for those seeking to avoid litigation as to substantially increase the risk of suit or discourage entrepreneurial activity.

3. Management of Resources

Section 858 fails to provide an adequate basis for management of ground water resources in the public interest. Like the English rule and the American rule, it focuses upon the issue of the private rights of overlying landowners. The section does not purport to provide a vehicle for protecting the public interest in the balancing of private rights.[64]

This shortcoming of section 858 would be less significant if it were possible to apply the Public Trust doctrine to ground water. The Public Trust doctrine, recognized by most American states,[65] provides that all navigable waters and their submerged beds are owned by the state in trust for all its citizens.[66] The scope of the doctrine is unclear despite

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Cartwright, Natural Resources of Wisconsin (1967) (report of the 1964 Wisconsin Blue Book); R. Cotter & L. Jahn, Water Use: Principles and Guidelines for Planning and Management in Wisconsin (1969) (distributed by Water Use and Planning Committee, Wisconsin Chapter, Soil Conversation Society of America).

Similar statutes exist in other eastern states. *See, e.g.*, GA. CODE ANN. § 17-1106 (Supp. 1978).

64. The comment to section 858(1)(b) contains the following statement:

> The provisions of §§ 850A to 857 relating to riparian rights will be applicable to ground water whenever one user takes the supply of another or *whenever the total withdrawls of all users threaten to reach a rate or amount that will endanger the availability, continuation or usefulness of the resource* and the preservation of these values requires some restriction on the number of claimants or on the rate or quantity of each withdrawl.

RESTATEMENT, *supra* note 20, at 264 (emphasis added). The emphasized words could be interpreted as a recognition of the public interest as well as of competing private interests. Because of the context within which the sentence is found, and because sections 850A-857 deal solely with private rights, they should not be so interpreted.

65. The Public Trust doctrine has been suggested frequently as a basis for citizen enforcement and broad judicial review of environmental legislation and administrative regulations. *See* J. Sax, *The Public Trust Doctrine in Natural Resource Law*, 68 MICH. L. REV. 471 (1970). *See also* Comment, *The Public Trust in Public Waterways*, 7 URBAN ANN. 219 (1974); Comment, *The Public Trust Doctrine*, 59 MARQ. L. REV. 787 (1976).

66. Illinois Cent. R.R. v. Illinois, 146 U.S. 387 (1892); Doemel v. Jantz, 180 Wis. 225, 193 N.W. 393 (1923). The extent of rights granted to members of the public and the definition of navigable waters vary considerably from jurisdiction to jurisdiction in the East. *See* 7 R. CLARK, WATERS AND WATER RIGHTS § 602.4 (1976). The cases dealing with the Public Trust doctrine have frequently involved determinations of whether a particular body of water is encompassed within the doctrine's scope. *See, e.g.*, Muench v. Public Serv. Comm'n, 261 Wis. 492, 53 N.W.2d 514 (1952); City of Milwaukee v. State, 193 Wis. 423, 214

extensive litigation in the various states,[67] but its purpose is protection of the public interest in the use of water for navigation, free passage, commerce, fishing, and recreation.[68] The state's custodianship under the Public Trust doctrine gives it the authority and the duty to exercise reasonable controls over anything that will affect the natural character of the water.[69]

Application of the Public Trust doctrine to ground water would make it easier to protect the public interest in adequate and non-polluted ground water in several ways. It would insure standing for the state as trustee or for private persons as beneficiaries of that trust to enforce statutes aimed at protection of ground water.[70] It would simplify the proof required to maintain an action for public nuisance,[71] provide a basis besides the police power for upholding legislation,[72] and enable the courts to enjoin government actions which threaten to degrade ground water.[73] Finally, the doctrine might open the way for a new source of ground-water rights. Wisconsin law has previously recognized that the doctrine might impose affirmative duties upon the state to enact protective legislation.[74] Judicial recognition of the complex interdependence of ground water and surface water quantity and

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N.W. 820 (1927). *See generally*, Comment, *Role of Local Government in Water Law*, 1959 WIS. L. REV. 117; Waite, *Public Rights to Use and Have Access to Navigable Waters*, 1958 WIS. L. REV. 335; Fraser, *Title to Soil Under Public Waters—A Question of Fact*, 2 MINN. L. REV. 313 (1918). *See also* R. STEWART & J. KRIER, ENVIRONMENTAL LAW AND POLICY 313 (1978).

67. 7 R. CLARK, *supra* note 2, at § 602.4. For discussion of the development of the doctrine in various jurisdictions, and an argument that its scope ought to be extended, see Sax, *The Public Trust Doctrine in Natural Resource Law*, 68 MICH. L. REV. 471 (1970).

68. 1 R. CLARK, *supra* note 2, at § 37.2(C).

69. *See, e.g.*, Milwaukee v. State, 193 Wis. 423, 449, 214 N.W. 802, 830 (1927).

70. Wisconsin's Environmental Decade, Inc. v. Public Serv. Comm'n of Wisconsin, 69 Wis. 2d 1, 230 N.W.2d 243 (1975).

71. In public nuisance cases, plaintiffs must show that the objectionable use interferes with the use and enjoyment of more than one individual's property. *See* State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 283-87, 217 N.W.2d 339, 340-43 (1974); State v. H. Samuels Co., 60 Wis. 2d 631, 638, 211 N.W.2d 417, 419 (1973), for discussions concerning the number of injured persons required to constitute a "public" nuisance. *See also* WIS. STAT. ANN. § 823.02 (West 1978). If the Public Trust doctrine were asserted, no such proof would be required. Proof of violation of a statute or administrative regulation would suffice. Abbott v. House of Vision-Belgard-Spero, Inc., 259 Wis. 87, 47 N.W.2d 321 (1951).

72. Just v. Marinette County, 56 Wis. 2d 7, 201 N.W.2d 761, 4 ERC 1841 (1972); Muench v. Public Serv. Comm'n, 261 Wis. 492, 53 N.W.2d 514 (1952).

73. *See, e.g.*, Muench v. Public Serv. Comm'n, 261 Wis. 492, 53 N.W.2d 514 (1952); In re Horicon Drainage District, 136 Wis. 227, 116 N.W. 12 (1908); Priewe v. Wisconsin State Land & Improvement Co., 93 Wis. 534, 67 N.W. 919 (1896).

74. In Milwaukee v. State, 193 Wis. 423, 214 N.W. 820 (1927), the Wisconsin Supreme Court said:

> The trust reposed in the State is not a passive trust; it is governmental, active, and administrative . . . [It] requires the lawmaking body to act in all cases where action is necessary, not only to preserve the trust but to promote it.

Id. at 449, 214 N.W. at 830.

quality could lead the courts to conclude that the protections provided by the legislature are inadequate. The next step would be judicial recognition of substantive rights in both the state and the public, either under nuisance theory or an analogous doctrine.[75]

So far, however, the Public Trust doctrine has not been extended to ground water in any state.[76] At one time, it appeared that such an extension was possible. In *Just v. Marinette County*,[77] the Wisconsin Supreme Court upheld shoreland-floodplain regulation, extending the scope of the Public Trust doctrine to include marsh and swamp water.[78] The *Just* court specifically recognized the interrelationship of river water, wetlands, and marshlands.[79] This decision made possible the incorporation of diffused surface water, the main source for ground water, into the doctrine as well. Diffused surface water flows over the land surface to surface water bodies or infiltrates into the ground and moves toward the water table, and is as interrelated with the protected "navigable waters" as swamps or marshes.

But two years later, in *State v. Deetz*,[80] the court failed to include diffused surface water within the ambit of Public Trust doctrine protection, stating that surface water that carried sediment into a lake was not navigable water.[81] From the hydrologist's viewpoint, the court's decision was incorrect. There was no basis to distinguish surface water from marsh and swamp water in their relation to navigable waters. Nonetheless the court's refusal to recognize this scientific fact ended speculation about the possibility of an expanded Public Trust doctrine in Wisconsin.[82]

In Wisconsin and most other eastern states, the public interest in limiting private rights to ground water is protected only by such laws as

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75. That was the argument made by Wisconsin in State v. Deetz, 66 Wis. 2d 221, 224 N.W.2d 407, 412 (1974). The court decided, however, that the doctrine gave standing to enforce substantive rights but created none. See also the discussion at W. RODGERS, ENVIRONMENTAL LAW 180-86 (1977).

76. 7 R. CLARK, *supra* note 2, at § 602.4. W. RODGERS, *supra* note 75, at 173. *See also* Comment, *Role of Local Government in Water Law*, 1959 WIS. L. REV. 117, 128.

77. 56 Wis. 2d 7, 201 N.W.2d 761, 4 ERC 1841 (1972).

78. *Id.* at 17-18, 201 N.W.2d at 769, 4 ERC at 1844.

79. *Id.* at 17, 201 N.W.2d at 768, 4 ERC at 1844.

80. 66 Wis. 2d 1, 224 N.W.2d 407 (1974).

81. *Id.* at 23, 224 N.W.2d at 418. The *Deetz* court also characterized the doctrine as a device to find standing to vindicate rights that already exist under state law, rather than as a basis for new rights. *Id.* at 13, 224 N.W.2d at 413.

82. The decision in *Deetz* turned on the issue of whether the Public Trust doctrine created substantive rights directly enforceable in court or whether it gave only procedural rights as to standing. The question remains open in most states. See discussion in W. RODGERS, *supra* note 75, at 183-84. The *Deetz* court's dicta that ground water is not within the ambit of the Public Trust doctrine seems calculated, however. *See also* Freeborn v. Bryson, 297 Minn. 218, 210 N.W.2d 290 (1973).

the high-capacity well statute,[83] the common law doctrine of public nuisance,[84] and the anti-pollution sections of environmental protection statutes.[85] Though the state has some power to protect the public interest in ground-water management, its authority is so spotty and arises from such diverse sources as to be ineffectual.[86] In these states, neither existing law nor section 858 provides the needed framework for an effective ground-water management system.

D. Summary of Criticism of Section 858

Ground-water legal principles ought to reflect a fine balance between the equitable solution of disputes and certainty of result, and to provide a vehicle for guarding the public interest. Section 858 fails on both counts. Like its predecessor common law rules, the section is inadequate in conception, scope, and definition to deal with the problems to which it must be applied. Section 858's premise, that the abundance of ground water justifies preserving the landowner's right to withdraw ground water subject to only the most liberal constraints, ignores the problem setting in which the rule often must be applied. The rule provides a flexible standard for judicial determination when what is needed is a standard of certainty to enable parties either to avoid dispute or to settle among themselves. The amorphous "reasonableness" standard can be applied effectively only after problems are in court. Finally, section 858 does not adequately protect the public interest in the preservation of ground-water quality and quantity.

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83. WIS. STAT. ANN. § 144.025(2)(e) (West 1974).

84. *See* Schiro v. Oriental Realty Co., 272 Wis. 537, 546, 76 N.W.2d 355, 359 (1956). The court in *Michels*, however, curtailed the availability of this cause of action when it defined the "affected persons" requirement of a ground-water dispute narrowly and refused to concede a general public interest in pure, free flowing ground-water supplies. State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 217 N.W.2d 339, 351 (1974). *See also* State v. Wright Gallery, 64 Misc. 2d 423, 314 N.Y.S.2d 661 (1970); Wade v. Campbell, 200 Cal. App. 2d 54, 19 Cal. Rptr. 173 (1962).

85. *See, e.g.*, WIS. STAT. § 1.11 (1978) (The Wisconsin Environmental Policy Act directed to the actions of state agencies); 42 U.S.C. §§ 4321-4361 (1970) (The National Environmental Policy Act); 42 U.S.C. § 300f (1949) (The Safe Drinking Water Act). Some problems with these legislative remedies are discussed in Project, *Agency Decision Making under W.E.P.A.*, 1977 WIS. L. REV. 111 (1977). See also text accompanying notes 117-20 *infra*.

86. Decision making responsibility for water resources planning and management has been splintered among the federal, state, county, and local governments, private industry, and individuals. At least six federal agencies, one inter-agency council, two inter-state basin commissions, seven state agencies, and several regional planning commissions presently exert influence on water resources mangement programs in Wisconsin. The University of Wisconsin System and State Water Resources Center also lends support to the planning function. *See* Ruedisili, *supra* note 5, at 93-96; see also text accompanying notes 115-20 *infra*.

III

A PROPOSED SOLUTION

A. Tailoring a Western System to Meet Eastern Conditions

By far the most popular method of ground water regulation in the arid West is a prior appropriation system.[87] Under this system, a landowner applies to the state, usually to a Department of Water Resources, for a permit to use the water beneath his land. After determining that there is sufficient water in the aquifer, the department issues a permit for a stated number of gallons. If the most senior permit holder is unable to get his full allotment of ground water, wells drilled subsequent to his may be shut down. On the basis of the preceding analysis of the common law rules and section 858, a prior appropriation system might appear to be an attractive alternative.

Experience in Wisconsin indicates that the prior appropriation system cannot be sold to an eastern legislature, at least in the forseeable future. In 1953, a proposal for a Wisconsin prior appropriation system for both surface water and ground water was published[88] but ignored. In the following years various alternatives were considered. The state legislature's Natural Resources Committee concluded that a switch to the administratively run prior appropriation system would be economically impractical and urged instead that the powers of the State Board of Health be enlarged to protect the "purity" of municipal supplies.[89] A comment in the Wisconsin Law Review proposed a modified prior appropriation system in which existing well owners would be compensated for damages created by subsequently drilled wells.[90] That suggestion's poor reception appears to have prompted another proposal in the Wisconsin Law Review which, like the 1953 recommendation, in

87. *See e.g.*, ALASKA STAT. §§ 46.15.030-.185 (1977); ARIZ. REV. STAT. ANN. §§ 45-101 to 45-407 (1956 & Supp. 1978); CAL. WATER CODE §§ 1200-1801 (West 1971 & Supp. 1978); KAN. STAT. ANN. §§ 82a-701 to 82a-730 (1977); MONT. REV. CODES ANN. §§ 89-2911 to 89-2936 (1947 & Cum. Supp. 1977); NEV. REV. STAT. §§ 534.010-.190 (1977); N. M. STAT. ANN. §§ 75-11-1 to 75-11-40 (1953 & Supp. 1975); N.D. CENT. CODE §§ 61-01-01 to 61-01-26 (1960 & Supp. 1977); OKLA. STAT. ANN. tit. 82 §§ 1020.1-.22 (West Supp. 1978); OR. REV. STAT. §§ 537.505-.795 (1977); S.D. COMPILED LAWS ANN. §§ 46-6-1 to 46-6-23 (1967 & Supp. 1978); UTAH CODE ANN. §§ 73-1-1 to 73-4-24 (1953 & Supp. 1977); WASH. REV. CODE ANN. §§ 90.14.010-.910, 90.44.010-.250 (1962 & Supp. 1977); WYO. STAT. §§ 41-121 to 41-147 (1957 & Supp. 1975). Special policies are applied in Hawaii. HAW. REV. STAT. §§ 177-1 to 177-35 (1976). The trend has been toward increasing state regulation. *See* Maloney & Ausness, *A Modern Proposal for State Regulation of Consumptive Uses of Water*, 22 HAST. L.J. 523 (1971).

88. *See* Coates, *Present and Proposed Legal Control of Water Resources in Wisconsin*, 1953 WIS. L. REV. 256, 275-81. *See also* Ellis, *Some Current and Proposed Water-Rights Legislation in the Eastern States*, 41 IOWA L. REV. 237 (1956).

89. *See generally* Scott, *Wisconsin's Experience in Writing a Water Law*, 1960 WATER RIGHTS CONFERENCE 35 (1960).

90. *See* Comment, *Wisconsin Ground Water Law—A New Era*, 1957 WIS. L. REV. 309.

many ways resembled broad western prior appropriation schemes.[91] The merits of these proposals were argued without resolution. More recently, in 1977, Representative Mary Lou Munts introduced 1977 Assembly Bill 1026, which effectively would have established a prior appropriation water law system in Wisconsin. After one hearing, at which substantial opposition was voiced, the bill died at the end of the legislative session in 1978.[92] In each instance over the years, the issue of whether or not to apply the appropriation doctrine to surface waters has overshadowed and complicated the ground-water issues.

Alternatives are available that would meet the ground-water law needs of Wisconsin and other eastern jurisdictions with a smaller bureaucracy and less expense than the prior appropriation system. These alternatives would also be politically more defensible than wholesale adoption of western water law. The remainder of this Article analyzes the alternatives.

A determination that strict ground-water controls are inappropriate does not necessarily imply that liberal controls are always appropriate. Though most of the East is endowed with ample ground-water supplies, some eastern urban areas have aquifers that possess limited yields, especially of potable water.[93] Due to high population density, some of these urban areas have exhibited extensive ground-water overdrafts (*i.e.,* withdrawals have exceeded recharge).[94] It is in these urban areas that many ground-water disputes have occurred. The problem of limited ground water can be expected to increase in frequency with continuing urbanization of the nation and with development of water-intensive uses.

Hence, there exists in the East a range of physical conditions—from areas of abundant ground-water supplies where quality remains relatively unthreatened to areas where ground-water quantities are insufficient and the water is vulnerable to pollution. Each different con-

91. *See* Comment, *Role of Local Government in Water Law*, 1959 WIS. L. REV. 309.

92. Telephone conversation between John S. Lowe and Michael L. Youngman, Administrative Assistant to Representative Munts, November 30, 1978.

93. *See* Ruedisili, *supra* note 5. The complexity of such a situation has been demonstrated by the experiences of other states. *See, e.g.*, Blundell, *As Water Supply Ebbs, Arizonians are Fretting Over Economic Effects*, Wall St. J., Dec. 28, 1977, at 1, col. 1.

94. Overdrafts have occurred in such cities as Milwaukee, Chicago, Toledo, and New York. R. HUTCHENSON, WATER RESOURCES OF RAINE AND KENOSHA COUNTIES, SOUTHEASTERN WISCONSIN (U.S.G.S. Water-Supply Paper No. 1878, 1970); K. Venturoli, An Evaluation of the Ground-Water Resources of Lucas County, Ohio (unpublished thesis, Univ. of Toledo, Dec. 1978). Other smaller urban areas suffer ground-water supply problems due to unfavorable hydrogeologic environments and declining ground-water levels caused by overpumping. *See* Coogan, *supra* note 4, at 60, 65 (Columbia, Mississippi, and Van Wert, Ohio); Ruedisili, *supra* note 5, at 25-27 (Fond du Lac, Green Bay and Neillsville, Wisconsin); M. DEUTSCH, GROUND-WATER CONTAMINATION AND LEGAL CONTROLS IN MICHIGAN 56-60 (U.S.G.S. Water Supply Paper No. 1691, 1963) (Royal Oak, Flint, Pontiac, Holland and Manistique, Michigan).

dition requires separate attention. If these local differences are recognized, the solution to the problem of constructing a sound eastern ground-water law becomes a matter of geography. Concern for preservation of a landowner's private property right to withdraw ground water without unnecessary government interference must be balanced with concern for protection of the resource.[95] Regions of abundant ground-water supplies will permit liberal development of the resource. On the other hand, regions where ground water is scarce will require that the right of withdrawal be monitored and restricted.

Sensitivity to these localized conditions will lead to methods of ground-water management more politically acceptable to the affected localities than the prior appropriation system. A modified liberal right rule, more certain and self-effectuating than the section 858 standards, should be applied in areas of abundant supply to encourage rational development of the resource. Areas of critical shortage should be placed under the protective management of an administrative agency.

B. General Rule of Liability for Non-Critical Areas

The law for water-affluent areas should encourage development of ground water by placing the fewest controls possible on the landowner and his well.[96] There is less need for management of the resource in the public interest when water is abundant. Therefore, a rule of liability with a scope limited to establishing private rights is proper in situations where ground water is abundant or where the lack of ground water is of a temporary nature and the threat of permanent damage to the aquifer is minimal.[97] Several alternatives, however, are more suitable than section 858: the first user principle, the priority use rule, and the comparative cause rule.

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95. As Justice Jackson said: "Rights, property or otherwise, which are absolute against all the world, are certainly rare, and water rights are not among them." United States v. Willow River Power Co., 324 U.S. 499, 510 (1945).

96. The theory is that those who can make the most efficient use of the water will be the ones to use it. RESTATEMENT, *supra* note 20, at 259.

97. The Wisconsin Supreme Court identified this principle approvingly when it rejected the kinds of administrative controls a California ground-water legal system required:

> [The correlative rights doctrine] applies the basic rules of the reasonable use doctrine, but calls for apportionment of underground water where there is not a sufficient supply for all reasonable uses. We are not shown here that water conditions in Wisconsin are so critical as to necessitate the adoption of this doctrine. Also the administrative difficulties of a court trying to make such an apportionment would militate against its adoption.

State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, 300, 217 N.W.2d 339, 349 (1974). Insofar as the court's reasoning is based on the correct general condition of Wisconsin's ground-water reserves, the principle and the court's enthusiastic recognition of it are proper. However, since the court misunderstood or failed to recognize the limitations and/or vulnerabilities of Wisconsin's ground-water reserves, as well as the interrelationship between ground-water flows and surface water bodies, the principle of freedom of use of ground water requires closer scrutiny. See text accompanying notes 115-29 *infra*.

1. The First User Principle

The simplest improvement in the present rule of liability in states unwilling to adopt a prior appropriation system would be a statute similar to the following:

> A possessor of land or his grantee who uses ground water from an aquifer is subject to liability for interference with the use of water, or for damage to the land surface or structures upon the overlying land, caused to another whose use of specific nature and amount predates his use, unless such prior use constitutes waste.

This proposal incorporates a characteristic element of western ground-water appropriation law: the first user in an area is entitled to claim water rights that are superior to those of his later neighbors.

The primary advantage of the first user principle is that it is more certain than section 858 and fairer than either the English or American rules. For example, if farmer A were to convert his pasture land to crop land and irrigate his crops with well water, A would be liable to his neighbor, farmer B, if B's well were adversely affected by A's new or increased use. B would have to prove prior use and causation, but the open-ended issue of reasonableness would be avoided, with the consequence of greater certainty. The first user principle is fairer to late-coming water users than these liability rules because it protects senior ground-water claimants only to the extent that they actually use water they claim. No senior water claimant has control over unused water below his land, unlike the English or American rule. Nor can he prevent transportation of ground water to distant land not overlying the aquifer once his specific allotment is met, unlike the American rule.

However, the first user principle is subject to some of the same objections raised before the Wisconsin legislature[98] when it considered proposals to adopt the prior appropriation system—*i.e.*, its political premise is that water is scarce, a premise distasteful to eastern states, and although its results are certain, they are not necessarily fair in deferring to senior but sometimes more frivolous uses. In response, proponents of a first user principle can argue that it is narrower in application than proposals previously rejected in Wisconsin. It is limited to ground water, and merely sets forth a rule of liability requiring little or no administrative structure.

One practical difficulty with the first user principle as a standard of liability is that it may be difficult to ascertain who was the first user. Appropriation states in the West solve this problem either by requiring users to file notices with local officials or by posting notices at the well sites stating that water is being withdrawn.[99] A non-mandatory notice

98. See text accompanying note 92 *supra*.

99. These statutory schemes, as varied as they are numerous, share the common requirement that a ground-water permit may be rejected if the proposed withdrawal will im-

filing, much like the trade name registration procedures followed in many states,[100] would mitigate this problem substantially.

2. The Priority Use Rule

A second alternative is to establish a rule of liability according to a legislatively determined priority of uses. If one person's water use caused injury to a higher priority water user, the higher priority user could collect damages. If the situation were reversed, the lower priority user could not collect damages. For example, a typical priority scheme might place residential and domestic uses at the top of the hierarchy, followed by agricultural, commercial and, finally, industrial uses. The farmer whose well or land surface was damaged by an industrial user overlying the same aquifer would be entitled to damages from the industrial user upon proof of causation.

Eastern state legislatures could successfully establish such a system. As previously noted,[101] there is already a *de facto* priority scheme for the use of ground water in some eastern states. Furthermore, many of the states have been required to establish a hierarchy of uses to curtail use of natural gas[102] and the recently enacted Natural Gas Policy Act contains a priority scheme for allocations in natural gas shortage emergencies.[103] Similar schemes might well be applied to groundwater shortages.

The major advantage of a priority use rule of liability would be that state administrators concerned with water quantity and quality would have an additional tool to shape land use trends and to avoid

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pair existing water rights from the source. *See e.g.*, N.M. STAT. ANN. § 75-11-3 (Supp. 1975). *See generally* Bagley, *Water Rights Law and Public Policies Relating to Ground-Water "Mining" in the Southwestern States*, 4 J.L. & ECON. 144 (1961); Comment, *Appropriation and Colorado's Ground Water*, 40 U. COLO. L. REV. 133 (1967); White, *Survey of Colorado Water Law*, 47 DEN. L.J. 226 (1970); Reis, *A Review and Revitalization: Concepts of Ground Water Production and Management—The California Experience*, 7 NAT. RES. J. 53 (1967); Krieger & Banks, *Ground Water Basin Management*, 50 CALIF. L. REV. 56 (1962). 1977 Assembly Bill 1026, if it had passed would have required users to obtain an appropriation permit. § 144.273. See text accompanying note 92 *supra*. The proposal of this Article will require no permit.

100. *See e.g.*, OHIO REV. CODE ANN. § 1329.01-.10 (Page 1962 and Supp. 1977). Trade names may be registered in the office of the Ohio Secretary of State upon appropriate application filed in that office. Compliance with the registration requirements entitles the registrant to a certificate of registration, which is evidence of the date of its adoption and use. *See also* WIS. STAT. §§ 132.01-.20 (1974).

101. See note 63 *supra*.

102. Such curtailments are established pursuant to FERC Order 467, 18 C.F.R. § 2.78 (1978). Application of Columbia Gas of Ohio, Inc., to Amend its Existing Curtailment Plan Creating New Priority Classifications for Curtailment Purposes, No. 75-568-GA-AGC, (Ohio P.U.C., Mar. 31, 1977). See discussion of the mechanism in Lowe & Ruedisili, *Federal and State Responses to the Energy Dilemna*, 7 DISCOVERY MAG. 1 (1976).

103. Natural Gas Policy Act of 1978, Pub. L. 95-621, § 303.

problems of pollution and inadequate water supply.[104] Closer integration of the principles of liability determination and the existing procedures for ground-water management could be seen as an intermediate step between the largely uncontrolled development of ground-water resources permitted by most eastern states and the "full management" concept embodied in most western legislation.

The greatest difficulty with a priority use rule would be its complexity. Considerable legislative or administrative involvement would be required to determine priorities and to set guidelines for classification of users in those priorities. Also, once established, the priorities might prove difficult to change, and might lead to distortions in patterns of land development. Finally, a priority use rule of liability would not yield certainty in situations where the users on both sides of the dispute are entitled to the same priority (e.g. farmer versus farmer). The first user principle or some other rule of liability would have to be relied on in such situations.

3. The Comparative Cause Rule

A third alternative is a comparative cause rule, stated as follows:

> A possessor of land or his grantee who uses ground water from an aquifer is subject to liability for resulting interference with the use of water, or for damage to the land surface or to structures upon the overlying land, in the proportion to which his use during the period of time in which the impairment or damage was caused bears to all uses of ground water from that aquifer during that period.

This alternative explicitly recognizes both the transitory nature of ground-water problems in areas with normally abundant supplies and the fact that often no one is at fault in ground-water disputes. By avoiding the premise of chronic water scarcity inherent in the prior appropriation system and the first user principle, the comparative cause rule should be more politically acceptable in the East. Its effect would be demonstrably fairer, though less certain, than the first user rule, for it would proportion liability. Thus, if A converted his pasture to farmland, irrigated with ground water, and subsequently caused B's well to dry up, A and B would share the costs of deepening B's well in proportion to their use of the ground water at the time of the shortage. If A's use had been two units and B's use had been three units, A would pay 40% and B 60% of the total cost of deepening B's well.

One potential problem in applying the comparative cause rule arises when the number of defendants is unusually high. Suppose, for example, that A, who uses minimal amounts of water for domestic purposes, is damaged by subsidence of his land or loss of his well as a

104. See text accompanying notes 115-35 *infra*.

result of the use of ground water for irrigation and domestic purposes by other landowners whose property overlies the aquifer.[105] The usual rule of apportionment of damages, adopted by the Restatement (Second) of Torts, places the burden of proof as to apportionment of damages upon the defendants.[106] Once A shows that damage was caused by the lowering of the water level in the aquifer due to use by the defendants, the burden passes to the defendants to show how the liability should be apportioned. If the defendants cannot demonstrate an appropriate apportionment, each is severally liable for the whole amount.[107] However, the rationale that a wrongdoer should not escape liability simply because the harm he has created has combined with similar harm created by others[108] may break down when there is a large number of actors, each of whom has contributed only an insignificant and uncertain portion of the total harm. Then liability, especially several liability for one defendant, may work a hardship.[109]

The multiple defendant problem should not preclude adoption of the comparative cause rule. The problem is also encountered by the American rule, section 858, and the first user and priority use rules. Additionally, information as to total and proportionate ground-water use during the period of the damage can be developed with relative certainty through the use of hydrology.[110] This may explain why, as the Restatement notes, the multiple defendant problem has not arisen

105. An aquifer may extend under large areas of land surface. See text accompanying notes 22-35 *supra*.

106. RESTATEMENT (SECOND) OF TORTS § 433B(2) (1965).

107. *Id.* Comment d.

108. *Id.*

109. Placing the burden of proof on the defendants is unfair only when they cannot each show the amount of their contribution. *Id.* Comment e. Onerous though the burden may be, it can be met by most defendants. Fairness dictates that it be met by the defendants rather than by the plaintiff, who has been required to show that the combined uses of the defendants lowered the water level in the aquifer and caused his loss. Restatement § 433B Comment e does not address the situation directly. There, the commentator was considering a rule for apportionment of liability among defendants whose conduct has been found tortious, and most cases applying that section's apportionment rule have involved situations inferring some degree of the defendants' moral culpability. *See, e.g.*, Summers v. Tice, 33 Cal. 2d 80, 199 P.2d 1 (1948); W. PROSSER, LAW OF TORTS § 41 (1971). In the present situation, it may be difficult to find the defendants morally wrong.

110. For specific documentation of the science of well hydraulics and aquifer tests, *see* J. FERRIS, D. KNOWLES, R. BROWN, & R. STALLMAN, THEORY OF AQUIFER TESTS (U.S.G.S. Survey Water-Supply Paper No. 1536-E, 1962); S. LOHMAN, GROUND WATER HYDRAULICS (U.S.G.S. Professional Paper No. 708, 1972); W. WALTON, SELECTED ANALYTICAL METHODS FOR WELL AND AQUIFER EVALUATION (Illinois State Water Survey Bulletin No. 49, 1962). Generally, evidence of the total use of water from an aquifer and use by each unit drawing from that aquifer for a given time period is necessary. This evidence can be calculated from the number of people in each household, the size of water pumping units, the number and kinds of livestock being watered, and the types of crops being irrigated (irrigation records are generally kept by farmers).

in actuality; some evidence limiting liability has always been found.[111]

Indeed, on balance, the comparative cause rule may be the best alternative suggested. It is substantially more certain than section 858 for both planning and dispute settlement purposes because liability is tied to scientific fact rather than to the reasonableness concept. Unlike a priority use rule, it avoids establishment of an administrative bureaucracy to deal with ground-water disputes and escapes the rigidity of a legislatively-determined set of priority uses. Finally, it avoids the sometimes unfair results of deference to senior water claims under the first user principle.

Any of the three alternative rules for liability determination in ground-water disputes is a significant improvement over both section 858 and the common law rules in water-affluent areas. All three rules avoid uncertainty over the reasonableness of the harm suffered, and thereby permit realistic assessment of business risks and discourage litigation. All are fairer by contemporary standards in their determination of liability than either the rule of absolute ownership or the American rule. In addition, all three are less complicated and less expensive than the prior appropriation system.

C. Protection in Critical Ground Water Areas

Serious repercussions may result from failure to deal with acute ground-water shortages and the threat of water pollution that may accompany them. Both man-made and natural pollutants have already entered many of the aquifers in Wisconsin and other states as waste-laden liquids, through infiltration from the surface by percolation, from the zone of aeration, or by accidental injection into the aquifers.[112] Overpumping and dewatering of ground-water reservoirs may result in natural migration of inferior quality waters into those reservoirs. Moreover, this depletion of reservoirs may cause permanent damage to the aquifers.[113]

Private parties cannot adequately safeguard the public interest in conserving ground-water quality and quantity in areas where water is

111. RESTATEMENT (SECOND) OF TORTS § 433B(2), Comment e.

112. Ruedisili, *supra* note 5, at 27-81. For a nationwide review of similar problems and case histories, *see* Lindorff, *supra* note 24 and W. PETTYJOHN, WATER QUALITY IN A STRESSED ENVIRONMENT 189-223 (1972).

113. If ground water becomes polluted, it is more serious than similar pollution of surface water for several reasons. First, ground-water pollution occurs insidiously. Second, a longer period of time is required before pollutants break down in the subsurface environment. Lindorff, *supra* note 24, at 5. Third, the slow movement of ground water causes a long time lapse before pollution is recognized, and makes dilution of contaminants an ineffective way to reduce pollutant concentrations. *Id.* at 6-7. Fourth, it is difficult to prove the source of ground-water pollution in any legal action that may result. *Id.* at 8. Fifth, it is extremely expensive to reclaim ground water once it is polluted, if indeed the water can be reclaimed. *Id.* at 11.

scarce. A government agency, *e.g.*, a state department of water resources, must be given authority by new legislation to oversee private landowner use of ground water. Government agency regulation by new legislation is necessary for several reasons. Self-regulation by users of ground water through voluntary controls is unlikely to work. Unfortunately, while it may be in the long-term interest of all who depend on a degraded ground-water source to discontinue its use, it is in the short-term interest of each individual to continue use. Each user of ground water gains the full benefits of use, but does not bear the full cost of use. Although he pays for the cost of each gallon received, he does not pay the cost of replacing each gallon, which escalates as clean water becomes more scarce. Rather, the costs of replacing the common resource are spread among all users.[114] Thus, in the short term, it is in the interest of each private ground-water user to use as much water as he can, and hope that others do not follow suit. So, although private entrepreneurs or citizens are concerned with the long range public interest in maintaining and preserving clean, abundant ground-water supplies, economic self-interest dictates that a higher priority be placed on short-term maximization of individual benefit through water use.

Tort liability rules cannot perform the task either. Tort laws, designed for compensation of injuries and not for management of natural resources on a long-term basis, motivate tort plaintiffs to seek damages for their own injuries, regardless of whether such remedies are a general benefit to society. Relying as they do on proof of injuries to specific persons, tort liability rules cannot vindicate the long-term public interest in a more than incidental manner.

Finally, no existing state or federal legislation empowers authorities in Wisconsin or most other eastern states to take the kind of curative action necessary to avert water shortages and permanent damage to aquifers in the event of severe drought or pollution. With the exception of the high-capacity well statute[115] which is of limited scope, no Wisconsin statute authorizes the state to restrict consumption of water from a particular aquifer. Moreover, state powers under anti-pollution acts are generally limited to controlling or abating, through a system of permits and criminal and civil penalties, the source of the pollution, and offer few curative solutions for pollution.[116] Analogously, the major federal laws affecting ground water, the Safe Drinking Water Act of 1974[117] and the Federal Water Pollution Control Act,[118] are essentially

114. Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243-48 (1968).

115. WIS. STAT. ANN. § 144.025(2)(e) (West 1974). For a description of the operation of the statute, see note 49 *supra*.

116. *See, e.g.*, WIS. STAT. ANN. §§ 144.01-.26 (West 1974 and Supp. 1978) (Wisconsin water pollution control laws).

117. 42 U.S.C.A. §§ 300f to 300j-10 (West 1974 and Supp. 1977).

prophylactic. The goal of both acts is to prevent water pollution: the former by regulating underground disposal of wastes and the latter by eliminating pollution from individual dischargers.[119] Neither focuses on water quantity nor authorizes remedial management of ground water in the event of degradation.[120]

In sum, broader powers than those given by either the common law or by existing state or federal statutes are needed to deal with acute ground-water shortages and the threat of water pollution that might accompany them. For these reasons, new ground-water resource management laws must be passed granting regulatory authority to a government agency. Because of the local interests affected, the agency should be a state rather than a federal agency.

The management system should be attuned to the duration of the water crisis so as to avoid inefficient or oppressive regulation. Thus, three classifications of ground-water problem areas should be created: 1) emergency critical ground-water control areas; 2) temporary critical ground water control areas; and 3) permanent ground-water control areas. Such a format would give the appropriate administrative agency necessary flexibility. Under each of these classifications the agency could impose curtailments on existing uses of both surface and ground water,[121] institute a permit system for new uses, and require reports of water usage. Water use curtailments could be effected either across-the-board or on the basis of curtailment priorities established by administrative regulation. The permit system might be structured similarly to Wisconsin's present high-capacity well law.[122] The permit would be issued for use of a given amount of water from a given aquifer only after the administrative agency was satisfied the usage would not adversely affect the supply or quality of water and upon such conditions as the agency might find necessary to impose, given the supply situation at that time.

The basic distinction among the three classification areas would be

118. 33 U.S.C. §§ 1251-1376 (1976), *as amended* by Clean Water Act of 1977, Pub. L. No. 95-217, 33 U.S.C.A. §§ 1251-1376 (West Supp. 1978).

119. For an excellent summary of the provisions and goals of the Federal Water Pollution Control Act and the Safe Drinking Water Act as they relate to ground water, see W. RODGERS, ENVIRONMENTAL LAW § 4.3 (1977).

120. Both, however, do empower the Administrator of the federal Environmental Protection Agency to take such actions "as he may deem necessary" where a pollution-contamination emergency threatens. 42 U.S.C. § 1431 (Supp. VI 1976) (Safe Drinking Water Act); 33 U.S.C. § 1364 (Supp. VI 1976) (Federal Water Pollution Control Act). Since no regulations have ever spelled out the Administrator's options or procedures, and since the emergency powers have never been invoked, the extent of the authority is unclear. W. RODGERS, ENVIRONMENTAL LAW § 4.21 (1977). No regulations have been promulgated to date.

121. The curtailment and permit systems must apply to both because ground-water and surface water supplies and quality are interrelated. See text accompanying note 72 *supra*.

122. See note 63 *supra*.

the length of time remedial measures would apply; the measures themselves should be similar. The primary technique for preventing damage to the aquifer when confronted with a ground-water shortage is to cut back demand or to shift demand to other sources so that ground water can be replenished. For each classification, limitation of present uses through curtailments and control of new users through a permit system would be the common techniques used to restore the ground-water level in all critical areas.

Emergency critical ground-water controls should be imposed only in unusual circumstances. When confronted with the possibility of sudden pollution of an aquifer or an acute localized water shortage,[123] administrators need to be able to act quickly and decisively with mandatory controls. The wisdom of their decision ought to be checked, however, by requiring public hearings within a designated period after the action (*e.g.*, sixty days) and by limiting the duration of the order (*e.g.*, six months to one year).

The temporary critical ground-water control area designation could be used to handle more regularly the typical ground-water problem of a prolonged drought, caused by overproduction ("mining") of ground water. The designation could be made after public hearings in the affected locality, and the order should include an expiration date. Within the time designated, the administrative agency should be able to utilize a permit system for proposed uses and to curtail existing ground-water usage to allow the hydrological system to recover.

Longer term problems would be dealt with by designating a permanent critical ground-water area upon termination of an emergency or temporary ground-water order. The same administrative tools would be used to handle the problem as under the emergency and temporary orders. Under a permanent order, the localities affected would be given an opportunity to promulgate and administer their own standards, as long as the standards met or surpassed guidelines set by the legislature or the administrative agency. For example, in the event that Milwaukee County[124] were declared a permanent critical ground-water

123. Emergencies may occur when pollution threatens to cause fire or explosions. For instance, gasoline fumes from a spill or methane fumes leaching from decomposing refuse in a landfill may collect and threaten to explode. Lindorff, *supra* note 24, at 10. This has occurred in Elmhurst, Illinois. *Id.*

124. It is highly unlikely, of course, that the area of drought or the degraded aquifer would precisely fit the boundaries of Milwaukee County. The ideal way to designate the area subject to a permanent order would be to refer to a map of the ground-water basins of the state if they exist. Another solution would be to designate the area subject to the order in terms of the state's surface water drainage basin maps, for a ground-water basin will almost always conform to the general outline of the surface water drainage area with which it is associated. This Article speaks of control areas designated on the basis of political subdivisions, at least for permanent critical ground-water control areas, because of the importance of the involvement of local legislative and administrative units.

supply area, administration of the curtailment and permit systems could pass to an appropriate local agency. That agency or its legislative superiors could modify the curtailment plans and permit system to conform with the community's sense of priorities.

The proposed regulatory scheme has an analogy elsewhere. The fundamental notion in this Article of tailoring the law to fit the local physical situation is one of the principles ascribed to by the National Water Commission.[125] The concept has been reflected in the legislation of several states, both western and eastern, in designating critical ground-water areas within which administrators have special powers.[126] The powers given the administrators after such a designation differ greatly from state to state, ranging from the right to limit only large commercial and industrial users[127] to powers substantially similar to those proposed here.[128]

The essential difference between the existing critical ground-water laws and the proposal made here is that the system being advocated would give state officials flexible authority not only to fashion curative programs but also to determine the timing and the means of implementing those programs. Where haste is necessary, an emergency critical ground-water order can be issued. Where swift action is not essential, as would usually be true in the case of drought, a temporary order can be issued after a hearing. Where the problem is seen as one of probable long duration, involvement of local officials both as planners and as administrators can be achieved.

Such flexibility may aid in defending the scheme against constitutional challenge. The right of a landowner to use the ground water under his land has been recognized in Wisconsin and other eastern states as a property right.[129] If the state, through an administrative agency, were to prevent a landowner from withdrawing ground water

125. *See* NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 232 (1972).

126. *See generally* ARIZ. REV. STAT. ANN. § 45-308 (1978); FLA. STAT. ANN. § 373.175 (West 1974); MISS. CODE ANN. § 51-4-5 (1978); CAL. WATER CODE §§ 350-359 (West 1971 and Supp. 1978); NEV. REV. STAT. § 416.010-416.100 (1977); MONT. REV. CODES ANN. § 89-2914 (1977); OR. REV. STAT. § 537.735 (1977); IDAHO CODE § 42-233(a) (1978); VA. CODE § 62.44.96 (1978); S.D. COMP. LAWS ANN. § 46-6-6.2 (1978); WASH. REV. CODE ANN. § 90.44.180 (1977).

127. *See, e.g.*, VA. CODE §§ 62.1-44.83 to 62.1-44.106 (1978) (Groundwater Act of 1973).

128. *See e.g.*, MISS. CODE ANN. § 51-4-7 (1978). The Munts/MacDonald proposal for Wisconsin is considerably broader than that proposed here. It would apply to surface water as well as ground water and would effectively convert Wisconsin to the prior appropriation system. See text accompanying note 92 *supra*. The control system proposed here could easily be expanded to include areas of critical surface water supply or quality; it has been limited to ground water because ground water is the subject of this Article.

129. Lindsley v. Natural Carbonic Gas Co., 220 U.S. 61 (1910). Rights associated with this property right—for example, the right to transfer ownership—have long been recognized. *See, e.g.*, Painter v. Pasadena Land & Water Co., 91 Cal. 74, 27 P. 539 (1891); Short

beneath his land, the landowner could claim the action deprived him of property without due process of law. Any proposed system which seeks to protect ground water at the cost of property rights must meet this constitutional hurdle.

The hurdle is minimal, however, particularly in light of the flexibility of the system proposed. The interest of a landowner in ground water under his land is not absolute. The state has a paramount interest in protecting its water resources,[130] and so long as a reasonable relationship exists between the end sought by regulation and the means by which that end is sought, the state's action will be upheld.[131] Recognizing a state's interest in its water resources, the United States Supreme Court has usually upheld state regulation under the police power.[132]

More specifically, state legislation changing permitted uses of riparian owners has been upheld on several occasions.[133] It has been held that a state government may invoke the police power to abolish a rule of absolute right to take water and substitute a doctrine of beneficial use under state supervision.[134] The limited proposals of this Article are no more difficult to justify constitutionally than a change to the prior appropriation system.

Furthermore, a procedure providing for state agency designation of "critical ground-water areas" has been approved by the Arizona courts. In *Southwest Engineering Co. v. Ernst*,[135] the Arizona Supreme Court held that the police power includes regulation of ground-water use. Though the total supply of ground water in proportion to demand in Wisconsin is certainly greater than in Arizona, water levels in areas of critical shortage in Wisconsin may be as deficient as in certain areas of Arizona.

For these reasons, the proposed scheme for designation of critical

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v. Praisewater, 35 Idaho 691, 208 P. 844 (1922); City of Hutchinson v. Wegner, 157 Minn. 41, 195 N.W. 535 (1923). *See also* Annot. 55 A.L.R. 1385, 1478 (1928).

130. Hudson County Water Co. v. McCarter, 209 U.S. 349 (1908).

131. "[E]very State is free to change its laws governing riparian ownership and to permit the appropriation of flowing waters for such purposes as it may deem wise." Connecticut v. Massachusetts, 282 U.S. 660, 670 (1930). Riparian rights are property rights to withdraw water from streams contiguous to the land. As ground-water withdrawal rights are similar in nature, the same deferential stance should apply to ground-water cases.

132. O'Connell, *Iowa's New Water Statute—The Constitutionality of Regulating Existing Uses of Water*, 47 IOWA L. REV. 549, 596-98 (1961).

133. State ex rel. Emergy v. Knapp, 167 Kan. 546, 207 P.2d 440 (1949); In re Hood River, 114 Or. 122, 227 P. 1065 (1924); California-Oregon Power Co. v. Beaver Portland Cement Co., 73 F.2d 555 (9th Cir. 1934), *aff'd on other grounds*, 295 U.S. 142 (1935). *See also* R. CLARK, *supra* note 2, at § 22.3 and cases cited therein.

134. Knight v. Grimes, 80 S.D. 517, 127 N.W.2d 708 (1964). See also the discussion in 7 R. CLARK, *supra* note 2, at § 28.4(A) (the constitutional evolution of western states from riparianism to prior appropriation), and Bauman v. Snirha, 145 F. Supp. 617 (D.C. and Kan. 1956), *aff'd*, 352 U.S. 863 (1956).

135. 79 Ariz. 403, 407, 291 P.2d 764, 770 (1954).

ground-water areas should survive constitutional challenge. The power of the state would be limited to only those areas where there existed a need for close regulation—critical ground-water areas. The scope of the powers exercised would be tied to the immediacy of the need for those powers. The power to designate and regulate critical ground-water areas is necessitated by the vulnerability of ground water. When such a threat exists, the law ought to allow swift action by authorities to prevent permanent harm and to restore the replenishable but not indestructible resource.

In sum, the proposal outlined here would bring to eastern states the presently lacking statutory authority to control water use in the event of shortage or degradation. It also would create an administrative apparatus only where needed instead of across-the-board. If it were determined that the need extended beyond a short period of time, administration would come under the aegis of local government, thereby insuring local input.

CONCLUSION

The proposals outlined here for determination of liability in ground-water disputes and for protection of the public interest in maintaining ground-water supply and quality are compromises between political and practical reality on the one hand, and scientifically recognized needs, on the other. They are compromises which seek to permit development of the resource concommitant with protecting the resource. In the long run, eastern states will recognize the need for extensive management of ground-water resources and probably will adopt some form of prior appropriation system. But that time is not yet here. Until it comes, there are better principles of liability which can be applied that are fairer than the common law rules and more certain and as fair as section 858, and there are minimally burdensome systems of remedial management that can be implemented.