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COMMENTARY

THE PROCEEDINGS OF THE WATER RIGHTS SYMPOSIUM

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During the proceedings of the Symposium on Legal Rights and Interests in Water Resources, panel discussions were held after the presentation of each paper. As moderator of these discussions, I tried to use the discussions to accomplish three purposes. First, because several of the articles did not focus on Virginia, the discussions were used as a means for relating the substantive content of the papers to specific water use issues facing Virginians today. Second, the discussions helped to define more clearly the many facets of Virginia's water management and allocation problems by focusing on the often competing interests affected by potential solutions. Third, and perhaps most importantly, the discussions provided a public forum for the discussion of important water use issues by state legislators, local government officials, economists, academicians, scientists, environmentalists and other interested persons. Given this wide range of perspectives and interests, it is not surprising that the discussions resulted in lively exchanges that provided several important lessons.

THE NEED FOR CLARIFICATION OF THE LAW GOVERNING PUBLIC RIGHTS IN TIDAL RESOURCES

One important message of the Symposium is that the law governing public rights in tidal resources urgently needs clarification and reform. Under Virginia law, two separate statutory provisions

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recognize that the public has rights of use in certain tidal resources. One provision, originally enacted in 1780, provides that "[a]ll the beds of the bays, rivers, creeks, and the shores of the sea" that have not been "conveyed by special grant or compact according to law, shall continue and remain" the state's property and "may be used as a common by all the people of the state for the purpose of fishing and fowling, and of taking and catching oysters and other shellfish."¹ The second provision, first enacted in 1888, protects the public's rights to "fish, fowl, or hunt" in "all unappropriated marsh or meadowlands lying on the Eastern Shore of Virginia, which have remained ungranted, and which have been used as a common."² Rooted in ancient legal doctrines,³ these provisions reflect a willingness on the part of the legislature to protect public rights existing at common law from encroachment by conveyances to private parties executed pursuant to land grant legislation.⁴

Although the public rights legislation seems relatively clear and straightforward, it has generated tremendous uncertainty and confusion, especially when interpreted in light of statutory and common law principles protecting private property rights.⁵ Several fac-

1. VA. CODE § 62.1-1 (1982) (originally enacted as Act of May 4, 1780, ch. 2, 1780 Va. Acts 226).

2. VA. CODE § 41.1-4 (1981) (originally enacted as Act of Feb. 24, 1888, ch. 219, 1888 Va. Acts 273).

3. For a discussion of these doctrines, see Butler, *The Commons Concept: An Historical Concept with Modern Relevance*, 23 WM. & MARY L. REV. 835 (1982).

4. As the preamble to the original 1780 Act indicates, the General Assembly enacted the statute to clarify the effect on common rights of land grant legislation enacted in 1779. Act of May 4, 1780, ch. 2, 1780 Va. Acts 226. Apparently, the 1779 legislation had failed to exempt certain resources traditionally subject to common use from private appropriation and thus had created confusion over the status of this property. See Act of May 3, 1779, ch. 13, 1779 Va. Acts 50. The legislature also passed the 1888 Act to clarify the status of public interests in certain marshes and meadowlands, which had become uncertain after a previous act modified the protection of the 1780 Act. See Act of April 1, 1873, ch. 333, 1873 Va. Acts 310 (repealing 1866 legislation authorizing the sale of common lands and thus reinstating, in modified form, the common lands reservation of the 1780 Act).

5. Courts, for example, have been perplexed by the relationship between the present version of the 1780 commons act and a boundary statute first enacted in 1819 and still in effect today. The current boundary statute extends the boundary of land abutting bays, rivers, creeks, and the sea to the low water mark, but makes the extension subject to the commons reservation act. VA. CODE § 62.1-2 (1982). In a recent opinion, the Virginia Supreme Court concluded that the 1819 Act did not modify the 1780 commons statute, but rather only extended the boundaries of lands held in common and granted prior to 1780. *Bradford v. The Nature Conservancy*, 224 Va. 181, 197, 294 S.E.2d 866, 874 (1982). The court thus inter-

tors have contributed to this uncertainty and confusion. During the 1600's and the 1700's, the concept of common or public rights became a familiar part of the land grant system, providing settlers with shared rights in certain resources. At the beginning of the colonization period, these collective rights were a vital part of the economy, because the settlers needed to share products taken from the land and sea to survive. Gradually, though, as the settlers became self-sustaining and as a private property system developed, the commons concept became increasingly less important to the settlers and thus increasingly more obsolete.⁶

Ironically, in recent years the commons concept has reacquired some of its importance, primarily because of the increased demand for open space and pleasant environmental surroundings generated by population growth and pollution. In an attempt to meet this demand, some courts have returned to the concept of common rights and to a closely related concept, the public trust doctrine.⁷ Resurrecting the commons concept, though, is not an easy task, for the doctrine evolved informally through long, continuous usage and thus lacks a clearly defined theoretical foundation. Additionally, because the concept has remained relatively dormant for a number of years, modern courts often overlook and fail to understand its common law origins.⁸ In Virginia at least, such an understanding is crucial to interpreting key phrases of the commons statutes.⁹ Finally, the flexible nature of the commons concept further complicates the court's task, making it difficult to identify the

preted the 1819 Act as preserving the common rights of the public first recognized in the 1780 Act.

6. See generally Butler, *supra* note 3, at 867-75.

7. See, e.g., *Borough of Neptune City v. Avon-by-the-Sea*, 61 N.J. 296, 294 A.2d 47 (1972); *Oregon ex rel. Thornton v. Hay*, 254 Or. 84, 462 P.2d 671 (1969). As originally explained by the United States Supreme Court, the public trust doctrine provided that the government held title to certain tidal lands and waters for the public benefit. *Martin v. Waddell*, 41 U.S. (16 Pet.) 367 (1842). See generally Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 473 (1970).

8. Modern courts, for example, sometimes fail to realize that common rights were property interests under the common law. See, e.g., *The Nature Conservancy v. Machipango Club, Inc.*, 419 F. Supp. 390, 402 (E.D. Va. 1976), *aff'd in part and rev'd in part*, 579 F.2d 873 (4th Cir. 1978).

9. The meaning of the phrases "used as a common" and "unappropriated," for example, must be construed in light of their common law origins. See VA. CODE § 41.1-4 (1981); *id.* § 62.1-1 (1982).

types of situations involving common use by the public.

The renewed interest in public rights and the tremendous amount of uncertainty in the law governing those rights have caused upheaval not only in Virginia, but also in other coastal states. Private landowners suddenly are finding that their ownership interests are being challenged by parties claiming superior public rights.¹⁰ This conflict between private and public rights raises important policy considerations that must be resolved. A private property owner who productively uses and improves his land has tremendous reliance interests tied up in his land. Subjecting his proprietary interests to common or public interests seems unjust, at least where the investment is substantial, and discourages future economic development. On the other hand, the public also has important interests in using tidal resources for commercial and recreational pursuits.¹¹ Where the private property owner took with notice of the public rights, either through deeds, other recorded documents, or any other legally accepted method of putting a party on notice, it does not seem as unfair to subject the proprietor to the public rights.¹²

The amount of uncertainty pervading this area and the importance of the policy interests at stake suggest that the General Assembly may be the only branch of the government able to provide the clarity now lacking and so desperately needed. As Professor Brion's detailed analysis of the commons statutes demonstrates, the controversy surrounding public interests in tidal resources involves many diverse statutory issues.¹³ Most courts, however, are

10. See, e.g., *Gion v. City of Santa Cruz*, 2 Cal. 3d 29, 465 P.2d 50, 84 Cal. Rptr. 162 (1970); *Borough of Neptune City v. Avon-by-the-Sea*, 61 N.J. 296, 294 A.2d 47 (1972); *Oregon ex rel. Thornton v. Hay*, 254 Or. 584, 462 P.2d 671 (1969); *Bradford v. The Nature Conservancy*, 224 Va. 181, 294 S.E.2d 866 (1982).

11. The Chesapeake Bay, for example, supports thriving commercial, agricultural, and recreational industries. Estimated revenues for blue crab catches and oyster harvests alone amounted to \$30 million in 1980. U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF RESEARCH AND DEVELOPMENT, *CHESAPEAKE BAY 2* (May 1980).

12. The concept of notice often serves as an important factor in determining the priority rights of parties with conflicting interests. For example, it is important in determining whether a subsequent purchaser of real estate can prevail against a prior purchaser, see 4 AMERICAN LAW OF PROPERTY §§ 17.4-36 (A. Casner ed. 1952), and in deciding whether a remote purchaser of a lot in a planned subdivision takes subject to various use restrictions, see 2 AMERICAN LAW OF PROPERTY §§ 9.24-40 (A. Casner ed. 1952).

13. See Brion, *The Unresolved Structure of Property Rights in the Virginia Shore*, 24

limited by their jurisdictional powers to actual cases or controversies and generally cannot render opinions sufficiently broad in scope to encompass all of those statutory issues.¹⁴ Furthermore, although the courts have had ample opportunity in 200 years to interpret various aspects of the statutes, serious doubts and questions still remain. The recent opinion of the Virginia Supreme Court in *Bradford v. The Nature Conservancy* provided some answers, but left many more questions unresolved, and already some of the answers provided by it have been questioned by scholars.¹⁵

The questions and comments after Brion's presentation highlighted the need for clarification by the legislature. In that discussion, participants voiced many misconceptions and uncertainties about public rights. Given the audience's educated background and its general familiarity with the law in this area, it would not be unreasonable to assume that the problem is magnified in the general public. Only the legislature can reform the law governing public rights to reflect more accurately the perceptions and reasonable expectations of the public today, and only the legislature can provide a more comprehensive and precise definition of those public rights. In reforming the law though, the General Assembly must recognize that the problem does not involve deciding whether public rights in certain natural resources should exist. That proposition is generally accepted in Virginia, where for hundreds of years public rights have been a part of Virginia's heritage.¹⁶ Rather the

WM. & MARY L. REV. 727 (1983).

14. See U.S. CONST. art. III; VA. CONST. art. VI. But see *In re Opinion of the Justices*, 365 Mass. 681, 313 N.E.2d 56 (1974) (advisory opinion on a Massachusetts common rights statute).

15. In *Bradford*, the Supreme Court of Virginia held that the 1780 Act reserved title in the state to certain shoreland along the Atlantic Ocean for common use by the public, 224 Va. at 197, 294 S.E.2d at 874, and that the 1888 Act prohibited granting marshland on the Eastern Shore, *id.* at 193, 294 S.E.2d at 872. For a critique of the decision, see Brion, *supra* note 13.

16. The state constitution even recognizes the importance of the public interest in natural resources. Section 1 of article XI declares:

To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.

problem involves providing a clearer line of demarcation between public and private rights.¹⁷

The General Assembly, however, should not have to solve the problem by itself, for both the executive and the judicial branches can instill greater certainty into the law governing public rights in tidal resources. Although the executive branch does not have as much flexibility as the other branches in defining the substantive content of the law in this area, it could help clarify the status of public rights while protecting the rights of private property owners by adopting Mr. Owens' suggestion of using land acquisition as a management tool.¹⁸ Although this device is not a panacea for all resource management problems, it can, in the proper circumstances, be very effective in preserving wetlands and beaches.

The courts could help to alleviate the problem by responding to specific public rights problems with thoughtful analysis and clearly defined answers. Professor Livingston, for example, suggests that the courts adopt a clearer framework for analyzing whether certain public rights exist. As Professor Livingston explains, the courts currently are using several different common law doctrines, such as implied dedication, prescriptive rights, and custom, to determine whether public rights exist.¹⁹ Although these doctrines have different requirements, in Livingston's view they all involve consideration of the same fundamental question: whether long, continuous use by the public should ripen into a legally protected right. Furthermore, the doctrines all attempt to answer that question by focusing on the same key factors: (1) the burden imposed on the pri-

VA. CONST. art. XI, § 1. In furtherance of this policy, § 2 of article XI authorizes the General Assembly to conserve, develop, and utilize the lands, waters, and other natural resources of the state. VA. CONST. art. XI, § 2. Finally, the last section of article XI recognizes that the people of the Commonwealth have a special interest in the "natural oyster beds, rocks, and shoals in the waters of the Commonwealth," which are to "be held in trust for the benefit of the people." VA. CONST. art. XI, § 3. See *infra* notes 45-46 and accompanying text.

17. Some questions, though, are better resolved by the courts. The judiciary, for instance, is probably the proper forum for determining whether lands have been used as a common and therefore qualify for protection under VA. CODE § 62.1-1 (1982), because resolution of such questions depends on the particular facts and circumstances of the situation.

18. See Owens, *Land Acquisition and Coastal Resource Management: A Pragmatic Perspective*, 24 WM. & MARY L. REV. 625 (1983).

19. Livingston, *Public Access to Virginia's Tidelands: A Framework for Analysis of Implied Dedications and Public Prescriptive Rights*, 24 WM. & MARY L. REV. 669, 679-83 (1983).

vate landowner's estate by the public use; (2) the reasonableness of the landowner's expectations about free use of his land; (3) the magnitude of public reliance on the public use; and (4) the public benefit derived from the use. Because of this similarity in analysis, Livingston argues that the different requirements of the traditional doctrines should be abandoned and that a balancing test involving the key factors should be adopted.²⁰

Professor Livingston's model has considerable merit, since it calls for intellectual honesty by the courts. Yet the discussion after the presentation pointed out several potential problems with it. One such problem is that Livingston's approach appears to be punishing a "nice" landowner who is willing, informally at least, to allow the public to continue to use his land. Under Livingston's analysis, a landowner must either license the use or prohibit it to avoid losing a property right. Livingston, however, justifies this by describing the landowner as passive and as too lazy or indifferent to investigate the apparent public use or to take action to stop it.²¹ Either characterization seems plausible, so determining which is the proper perspective is probably a futile task. Focusing on the different perspectives, though, does serve a valuable function, for it reveals that the first objection to Livingston's model really is rooted in considerations of public policy. Unlike other objections that raise questions about doctrinal requirements or theoretical inconsistencies, this first problem involves a difficult policy choice which Professor Livingston was quite willing to confront. In determining how to deal with public rights in natural resources, any decisionmaker must decide whether to give maximum protection to private property rights or to subject those rights to public uses in appropriate situations. Livingston's decision to do the latter seems proper, at least in the context of tidal resources, where both statutory and common law recognize the importance of the public interests.²²

A second, more serious concern voiced by several participants at the proceedings is that the model is inherently dangerous because it could be extended to situations other than those involving public

20. *Id.* at 683-85, 687-88.

21. *Id.* at 703-04.

22. See *supra* notes 1-12 & 15-17 and accompanying text.

use of common lands. For example, the model could be extended to any situation involving public use of private property, regardless of whether that property is a tidal resource reserved for common use. Or, it conceivably could be applied, with some modifications, to situations where a private party is claiming the right to use the land of another. Professor Livingston's justification for her model would not appear to be limited to situations involving common lands since her justifications do not depend on the nature of the use or the identity of the user.

Such an extension would be troubling for several reasons. First, it would undermine some of the important functions served by specific requirements adopted in the common law doctrines. The prescriptive rights theory, for example, requires that a use be continuous to help ensure that the landowner has notice of the adverse use. A use that is too sporadic or too limited in scope does not enable the landowner to distinguish between an adverse use situation and a trespass situation.²³ Although Professor Livingston uses the second factor, landowner's expectations, to focus on notice, she does not appear to contemplate the same type of analysis as that engaged in with the continuous requirement. Whereas traditional analysis under the continuity requirement focuses on the degree of permanency and frequency needed to justify enforcement of the use as a property right, Livingston's analysis focuses on the reasonableness of the landowner's expectations, as evaluated in light of general facts like the existence of commons statutes. Because those statutes generally protect tidal marshes and shores along the Chesapeake Bay and Atlantic Ocean, she appears to conclude that owners of land bordering these water bodies should expect public use of areas not reserved by statute, regardless of how frequent or permanent the use is.²⁴

Second, the extension of her model to other situations fails to recognize that the various theories exist in part because they re-

23. See, e.g., *Romans v. Nadler*, 217 Minn. 174, 14 N.W.2d 482 (1944); *Spiegle v. Borough of Beach Haven*, 116 N.J. Super. 148, 281 A.2d 377 (1971). See generally 3 R. POWELL, *REAL PROPERTY* ¶ 413 (P. Rohan ed. 1981).

24. Professor Livingston, for example, states that because of the public's extensive statutory rights in tidal resources, owners of property located on the Atlantic Ocean should "anticipate persistent and extensive attempts" by the public to cross the shore and to use the adjacent upland. Livingston, *supra* note 19, at 704.

present different methods for creating and acquiring property rights and that these methods developed separately at common law to serve different fundamental policies. Some methods, like implied dedication and easements created expressly or by implication, focus on the intent of the parties, seeking to ratify their expressed or implied intent from the facts and circumstances of the particular situation.²⁵ By ratifying the parties' intent, these methods promote and protect voluntary exchanges of property interests. Others, like adverse possession and prescriptive rights, allow rights to be created against the interests of a landowner, even though that party does not intend to create a right, because the landowner slept on his rights while another person made a more productive use of the landowner's property.²⁶ This second category thus encourages efficient use of resources. If the different theories were completely abandoned and a single framework for analysis adopted, the underlying policies served by each of the theories probably would become submerged in the new analysis and forgotten. Because many of these policies still serve important roles in our property system, the law should not completely abandon the traditional doctrines.²⁷

25. The concepts of easements by implication and implied dedication thus seek to ratify the reasonable expectations of the parties. *See generally* AMERICAN LAW OF PROPERTY §§ 8.31-43 (A. Casner ed. 1952); 3 R. POWELL, REAL PROPERTY ¶¶ 410, 411 (P. Rohan ed. 1981).

26. The law of adverse possession, for example, allows transfer of interests in realty without the consent of the previous landowner. Commentators have justified this method of acquiring property interests by explaining that the law should impose penalties on dormant landowners for sleeping on their rights beyond a reasonable time, that the law should reward those who use land productively for an extended period of time, and that the law should provide a method for quieting title. *See generally* 7 R. POWELL, REAL PROPERTY ¶ 1012 (P. Rohan ed. 1977); Ballantine, *Title by Adverse Possession*, 32 HARV. L. REV. 135 (1918).

Although differing in some respects from the concept of adverse possession, the prescriptive rights theory also allows acquisition of property interests without the consent of the owner of the burdened land. Actually, as originally explained, the theory ratified the parties' intent to create a use, which was presumed to exist after long usage. Most modern courts have abandoned the legal fictions used to explain this intent and instead have analogized to the law of adverse possession. *See generally* AMERICAN LAW OF PROPERTY §§ 8.44-52 (A. Casner ed. 1952); 3 R. POWELL, REAL PROPERTY ¶ 413 (P. Rohan ed. 1981); Cook, *Legal Analysis in the Law of Prescriptive Easements*, 15 S. CAL. L. REV. 44 (1941).

27. Because the theories reflect different policies, the courts tend to interpret the rights differently once they decide that they have been created. If, for example, an easement is created expressly, the courts tend to allow reasonable changes in use, including reasonable development of the dominant estate, absent an agreement to the contrary. *See, e.g.,* Crim-

One possible solution to this problem, suggested by Livingston during the proceedings, is to limit her model to property subject to the public's common rights. In Virginia such property would include "beds of the bays, rivers, creeks and the shores of the sea" that had not been "conveyed by special grant or compact according to law,"²⁸ as well as "all unappropriated marsh or meadowlands lying on the Eastern Shore of Virginia, which have remained ungranted, and which have been used as a common."²⁹ Under this proposal, the public could use Livingston's model to acquire rights of use in such property even though the uses are not explicitly authorized by the commons statute. Sunbathing on common shores would be an example of such a use. Or the public could use the model to acquire use rights in property adjoining common lands where the use was directly related to the commons property. The public, for example, might acquire the right to use the land adjoining the shore for fishing, fowling, or hunting, or for access to the common lands.

Although Livingston's proposal was not fully explored at the Symposium, limiting the model to common lands seems logical since the legislature generally has limited its recognition of public rights of use to common lands situations. Also, the traditional theories fail to provide adequate methods for analyzing issues and factors involved in common lands situations. The law of custom, for example, has proven to be an unsatisfactory tool for analyzing public rights issues because it traditionally applies only to uses of immemorial duration, or, as interpreted by the courts, to uses existing since the reign of Richard I (1189).³⁰ The basic premise of

mins v. Gould, 149 Cal. App. 2d 383, 308 P.2d 786 (1957); *Bang v. Forman*, 244 Mich. 571, 222 N.W. 96 (1928). If, however, the easement is acquired by prescription, then the courts tend to construe strictly the scope of the use, limiting the user to his original use. *See, e.g., Kennedy v. Niles Water Supply Co.*, 173 Mich. 474, 139 N.W. 241 (1913). *See also* AMERICAN LAW OF PROPERTY §§ 8.68-70 (A. Casner ed. 1952); 3 R. POWELL, REAL PROPERTY ¶ 416 (P. Rohan ed. 1981).

28. VA. CODE § 62.1-1 (1982); *see supra* notes 1 & 4 and accompanying text.

29. VA. CODE § 41.1-4 (1981); *see supra* notes 2 & 4 and accompanying text.

30. *E.g., Department of Natural Resources v. Mayor & Council of Ocean City*, 274 Md. 1, 13, 332 A.2d 630, 638 (1975); *Harris v. Carson*, 34 Va. (7 Leigh) 632, 639 (1836). Some American courts also have rejected the doctrine by reasoning that it was developed to protect expectancy interests created before the establishment of a recording system. *E.g., Graham v. Walker*, 78 Conn. 130, 61 A. 98 (1905).

the doctrine of customary rights is that certain uses exercised by the people since time immemorial must have arisen from some legal authority and therefore deserve formal recognition by the courts.³¹ Only recently have a few courts decided to redefine the immemorial use requirement and uphold public use of shores as customary rights.³²

The prescriptive use and implied dedication theories also do not provide satisfactory vehicles for analyzing whether public rights of use exist. Applying the prescriptive rights theory to situations involving common lands raises numerous issues that do not exist when a private party claims an adverse use. Questions arise, for example, about whether the user must be the government or members of the public and, if the latter, about whether a significant portion of the public must be exercising the use. Furthermore, situations where implied dedication traditionally is applied differ significantly from common lands situations. Whereas in the traditional setting the use is clearly defined, this is not true of lands like shores and marshlands subject to common use.³³ Public use of common lands can involve many different activities, including fishing, hunting, and navigation, and also can vary in frequency and time.

Thus, although Livingston's model provides a clearer and intellectually more satisfying mode for analyzing public use of common lands, it probably should be limited to that area. In other areas at least, the traditional doctrines developed by courts to determine whether a party acquired rights of use still serve important functions.

FACING THE POLICY QUESTION CONCERNING INTERBASIN TRANSFER

The second message of the Symposium, which evolved during

31. The law of custom developed in feudal England long before a formal legal system authorized certain usages exercised by the people. Besides requiring that the usage be of immemorial duration, the customary rights doctrine also required that the usage be reasonable, certain, continuous, acquiesced in, peaceably enjoyed, and consistent with other customs and laws. 1 W. BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 77-78 (Oxford 1765); J. BROWN, THE LAW OF USAGES AND CUSTOMS, §§ 20, 25, 27, 30-31 (1888).

32. *E.g.*, Oregon *ex rel.* Thornton v. Hay, 254 Or. 584, 462 P.2d 671 (1969). See generally Niven, *Beach Access: An Historical Overview*, 2 N.Y. SEA GRANT L. & POLICY J. 161 (1978).

33. See Livingston, *supra* note 19, at 682-83, 689.

the discussion of Professor Abrams' paper on interbasin transfer,³⁴ is that the state government needs to reexamine the desirability of such transfers. Although a substantial part of Professor Abrams' presentation focused on the legality of interbasin transfer, the audience's repeated expressions of concern about the interests at stake suggest that the crucial water supply issue facing Virginia today is a policy question. Because of changing needs and heightened public interest in the problem of water supply, the General Assembly of Virginia needs to reexamine the question of whether interbasin transfer should, as a matter of public policy, be adopted as a solution to the water supply problem. In the past, the policy question has been averted by relying on ancient common law principles generally prohibiting such transfers³⁵ or by raising doubts as to the legislature's authority to take such action.³⁶ Today, however, such responses are becoming increasingly unsatisfactory as the water supply problem becomes more acute.³⁷

34. As Professor Abrams explained, interbasin transfer involves the diversion and transfer of water from a natural watercourse to an area located outside of the watercourse's basin. Abrams, *Interbasin Transfer in a Riparian Jurisdiction*, 24 WM. & MARY L. REV. 591, 595 (1983).

35. For a discussion of the common law principles governing the question of interbasin transfer in Virginia, see Abrams, *supra* note 34, at 598-601. See generally 2 H. FARNHAM, *THE LAW OF WATER AND WATER RIGHTS*, ch. XIX (1904).

36. Some members of the General Assembly apparently doubt whether that body has the power to pass legislation affecting riparian rights in nonnavigable watercourses because the state generally does not have any ownership interest in either the riparian land or the bed of those watercourses. Proceedings of the Symposium on Legal Rights and Interests in Water Resources, Marshall-Wythe School of Law, College of William and Mary, Williamsburg, Virginia, Mar. 25-26, 1983 [hereinafter cited as *Proceedings*]. Under Virginia law, a party owning land abutting a nonnavigable watercourse usually owns to the middle of the watercourse. *Hampton v. Watson*, 119 Va. 95, 89 S.E. 81 (1916); *Home v. Richards*, 8 Va. (4 Call.) 441 (1798). Title to riparian lands abutting a navigable watercourse, however, usually extends only to the low water mark and does not include the bed of the watercourse. See *Miller v. Commonwealth*, 159 Va. 924, 166 S.E. 557 (1932); *Mead v. Haynes*, 24 Va. (3 Rand.) 33 (1824); VA. CODE § 62.1-2 (1982).

37. Although Virginia is a water-rich state, uneven distribution of Virginia's water resources and irregular population growth patterns create water supply problems. Two areas of the state, in particular, have experienced increased water demands and shortages: Northern Virginia, which is the state's fastest growing area, and Tidewater Virginia, which has 60% of the state's population, but only 29% of the state's land. C. COX, *VIRGINIA'S MOST IMPORTANT WATER-RELATED PROBLEMS* 8 (Va. Water Resources Research Center, Special Report No. 13, Aug. 1981). See also W. ANDERSON, W. COX & L. SHABMAN, *EXPANDED ALTERNATIVES FOR WATER SUPPLY IN SOUTHEASTERN VIRGINIA* (Va. Water Resources Research Center, Special Report No. 2, Apr. 1978).

Those responses do not present insurmountable obstacles to a legislature willing to confront the policy question. As Professor Abrams demonstrated, article XI of the Virginia Constitution gives the General Assembly the power to develop or utilize the state's natural resources, including watercourses.³⁸ Furthermore, the General Assembly can, as part of its legislative prerogative, modify the common law to respond more effectively to the public's changing needs,³⁹ as long as it adequately provides for existing riparian rights.⁴⁰ Thus, the General Assembly should not feel seriously constrained by prior law or by doubts as to its legislative powers in deciding whether to authorize interbasin transfer.

If the General Assembly refuses to face the policy question, it surely will emerge as an issue for consideration by the Virginia Supreme Court in the near future. The court has not addressed the lawfulness of interbasin transfer under the riparian doctrine in over thirty years, and the increasing demand for water certainly will force some local government to test the law. Furthermore, sufficient flexibility exists in the common law principles to allow the court to refashion old law in light of present policies and to uphold interbasin transfer, at least where surplus water is used or where the use is reasonable and thus does not harm a lower riparian.⁴¹ Yet such a decision by the court would be troublesome, for the court could not impose adequate limitations on interbasin transfers if it decided generally to permit them, except on a case-by-case basis. It also would have difficulty reaching the political compromises needed to achieve a solution acceptable to most, if not

38. Abrams, *supra* note 34, at 603-04. Note, however, that § 14 of article IV prevents the General Assembly from enacting "any local, special, or private law . . . declaring streams navigable, or authorizing the construction of booms or dams therein, or the removal of obstructions therefrom." VA. CONST. art. IV, § 14.

39. See VA. CONST. art. IV (legislative powers); VA. CODE § 62.1-11(c) (1982) (state waters are to be regulated "with a view to the welfare of the people" and to the public's "changing wants and needs").

40. In regulating riparian rights, the General Assembly must be careful not to take private property rights without just compensation in violation of the fifth and fourteenth amendments. See U.S. CONST. amends. V, XIV; *Missouri Pacific Ry. v. Nebraska*, 164 U.S. 403 (1896) (fourteenth amendment incorporates the fifth amendment's just compensation clause).

41. See Abrams, *supra* note 34, at 601. See also W. COX, L. SHABMAN, S. BATIE & J. LOONEY, VIRGINIA'S WATER RESOURCES: POLICY AND MANAGEMENT ISSUES 2-8 to 2-11 (1981) [hereinafter cited as 1981 STUDY]. See generally 2 H. FARNHAM, *supra* note 35, §§ 495-499.

all, localities. Without these political compromises, a judicial decision to authorize interbasin transfer would face strong resistance.

Only the legislature could authorize interbasin transfer in a manner that provided adequate protection for the area of origin and that was politically acceptable to a majority of localities. As Professor Abrams explained, such measures could include minimum flow legislation, funding for the area of origin to enable it to pursue development projects, mandatory water conservation measures, and fees imposed on the right of use.⁴² Also, to minimize the long-range impact of legislation permitting interbasin transfer, the General Assembly could authorize interbasin transfer as a general proposition, but then require that each transfer be considered on its own merits.⁴³ Such an approach would allow appropriate government officials to identify the particular costs and benefits associated with each interbasin transfer. It also would enable the state to control the types of situations where interbasin transfer is allowed and to respond to changing needs.

Thus, the discussion of interbasin transfer highlighted the need to confront the policy question concerning the desirability of such transfers. Increased demand and chronic shortages of water in some areas of the state have led to numerous debates about whether interbasin transfer is a viable solution to Virginia's water supply problems. Although these debates involve consideration of many different factors, including the lawfulness of interbasin transfer under present law and the environmental costs associated with such transfers, perhaps the most serious questions raised during the debates are matters of public policy. Because the policy choices raise important political concerns, the General Assembly is the only body that can adequately resolve the controversy.

CONSIDERATION OF ENVIRONMENTAL CONCERNS

The third message of the Symposium is that environmental concerns raised by water management and allocation problems require greater discussion and consideration. Although some environmental issues were raised, the discussions never really focused on them, except during the coastal zone management session and tangen-

42. Abrams, *supra* note 34, at 607; Abrams, *Proceedings*, *supra* note 36.

43. Abrams, *Proceedings*, *supra* note 36.

tially in the discussion of the Chesapeake Bay. For instance, there never was a meaningful discussion of the environmental costs associated with interbasin transfer, or with public use of common lands. Only Mr. Owens' presentation focused on preservation of the natural environment as a goal of land use planning.⁴⁴

The almost total absence of such consideration from the proceedings unfortunately suggests that environmental concerns may not play as significant a role in water resources management as they should. Yet, the Virginia Constitution itself contains a "conservation article" providing that "it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth."⁴⁵ Whether this constitutional provision imposes substantive legal requirements on state and local governments to evaluate environmental concerns in their regulatory decisions is a question now on appeal to the Virginia Supreme Court.⁴⁶ But even if the court answers this question

44. As Owens demonstrated, land acquisition sometimes can be an effective means for promoting this goal. See Owens, *supra* note 18.

45. VA. CONST. art. XI, § 1. See also VA. CODE §§ 62.1-10, -11, -44.3 (1982) (generally declaring the need to regulate the state's water, as defined in VA. CODE § 62.1-10(a) (1982), so as to preserve and protect them for public use). For a more detailed description of the substantive content of article XI, see *supra* note 16.

46. Shockoe Slip v. Dalton, No. G7019-2 (Richmond, Va. Cir. Ct., June 2, 1982), *appeal docketed*, Robb v. Shockoe Slip, No. 82-1539 (Sept. 2, 1982). The drafters of § 1 of article XI apparently thought that it would create a public trust in certain lands and waters. The records of the 1969 Virginia Senate debates addressing article XI indicate that when one senator attempted to modify § 1 by including a statement that "open lands and waters" owned by the state were to be held in trust for the people of the state, the article's floor sponsor opposed the amendment. He explained his opposition by commenting that the article already established such a trust. PROCEEDINGS AND DEBATES OF THE SENATE OF VIRGINIA PERTAINING TO AMENDMENT OF THE CONSTITUTION 1970, 1969 (Extra Session) 374-77.

A report on the proposed revision of article XI of the state constitution described the "proposed Conservation article" as "making a statement of policy" and "removing possible legal barriers to effective governmental programs." The report also stated that the proposal "should operate as part of the climate of state and private initiative to deal with such increasingly important problems as air and water pollution, access to the countryside for recreation and other purposes." COMMISSION ON CONSTITUTIONAL REVISION, REPORT TO THE GOVERNOR OF VIRGINIA, THE GENERAL ASSEMBLY OF VIRGINIA, AND THE PEOPLE OF VIRGINIA, H. Doc. No. 1, H. & S. Doc. 322 (1969). Based upon article XI's legislative history and upon its broad, mandatory language, Professor Howard has argued that § 1 of article XI contains a "statement of public policy . . . directing state agencies, officers, subdivisions, and instrumentalities to consider the impact of proposed actions upon the Commonwealth's atmosphere, lands, waters, and other resources." Howard, *State Constitutions and the Environ-*

in the negative, the policy statement expressed in the Virginia Constitution still recognizes the need for serious consideration of environmental concerns.

THE ROLE OF THE POLITICAL PROCESS

The fourth lesson learned from the discussions and presentations concerns the role of the political process in water resources allocation and management. As a recent study indicated, although permit systems adopted in eastern states offer tremendous potential for improved water allocation, the exact nature of the system will vary according to the political compromises needed to pass the legislation.⁴⁷ Similarly, as Professor Power demonstrated, political forces can play a vital role in water resources management. During his presentation, for example, Power explained how one political choice, the decision to protect the oyster industry, affected management of the Chesapeake Bay by prompting the adoption of sanitary control measures. In Power's view, political forces such as this one have affected and will continue to affect management of the Bay more than any other force because science and technology cannot be relied upon to make appropriate management choices.⁴⁸ These observations suggest that the content of any substantive reform will depend to a great extent on the political compromises needed to secure passage of the legislation and on the political choices motivating passage.

Although Professor Power's presentation focused on political choices influencing water resources management, other more subtle facets of Virginia's political climate also can affect and mold water resource legislation. Unlike Power's example, though, these elements are, in a sense, part of the political process in Virginia and

ment, 58 VA. L. REV. 193, 209 (1972). According to Howard, § 1 imposes "an affirmative duty" on state agencies "to inquire into environmental consequences of proposed actions," *id.* at 213, and in carrying out this duty a "decision-maker is not entitled to weigh alternatives solely in economic terms, though cost will . . . be a major factor." *Id.* at 214.

47. 1981 STUDY, *supra* note 41, at 8-19.

48. Power, *Proceedings*, *supra* note 36; J. CAPPER, G. POWER & F. SHIVERS, JR., *GOVERNING CHESAPEAKE WATERS: A HISTORY OF WATER QUALITY CONTROLS ON CHESAPEAKE BAY, 1607-1972*, at 1-5, 131-35 (manuscript available at Maryland Environmental Trust, Baltimore, Md. 21202). At the Symposium, Professor Power presented a paper based upon this manuscript. The manuscript is scheduled to be published as a book this year.

often do not represent conscious political choices.

For instance, Virginia's political system traditionally has favored local rule, especially in regulation of land use.⁴⁹ Because local governments have come to expect to play this role, to secure passage, major reform legislation probably would have to give local governments an active role. For example, to obtain passage of permit legislation, proponents probably would have to incorporate local governments into the administration of the program, perhaps by creating management districts.⁵⁰

A second facet of Virginia's political climate that could affect the content of water resources legislation is the strong bias towards private property rights. Because of this predilection, the political system has tended to protect private property rights whenever Virginia water law has been modified.⁵¹ The statutory provisions protecting public rights in common lands are exceptions to this observation.⁵² In that area, the legislature has long since recognized public rights and interests in certain tidal resources, to the consternation of private landowners. Just recently the Supreme Court of Virginia upheld those rights, giving more protection to the public and thus taking away more rights from private owners than perhaps was necessary.⁵³ But, with these few exceptions, the General

49. J. Edwards, *Land Use and Government in Virginia*, in THE VIRGINIA GENERAL ASSEMBLY ON LAND USE POLICIES: ISSUES FOR THE COMMONWEALTH 65 (1982). The Wetlands Act, for example, places a great deal of control over wetlands in local governing bodies. See VA. CODE §§ 62.1-13.1 to -13.20 (1982). See also VA. CODE §§ 15.1-486 to -498 (1981 & Supp. 1982) (enabling legislation authorizing local governing bodies to regulate land use through zoning).

50. In the Groundwater Act of 1973, the General Assembly rejected an approach having statewide effect and instead adopted one that restricts regulatory measures to areas geographically defined and identified by the State Water Control Board as having ground water management problems. VA. CODE §§ 62.1-44.94, -44.95 (1982). See also 1981 STUDY, *supra* note 41, at 10-9 (suggesting that if Virginia adopts a permit system a district approach should be used because of the variation in supply and use existing in different areas of the state).

51. See, e.g., VA. CODE § 15.1-492 (1981) ("Nothing in this article [on zoning] shall be construed to authorize the impairment of any vested rights. . . ."); VA. CODE § 62.1-12 (1982) ("Nothing in this chapter [on watercourses] shall operate to affect any existing valid use of such waters or interfere with such uses hereafter acquired. . . .").

52. See VA. CODE § 41.1-4 (1981); VA. CODE § 62.1-1 (1982). See also *supra* notes 1-6 and accompanying text.

53. See *Bradford v. The Nature Conservancy*, 224 Va. 181, 294 S.E.2d 866 (1982). For example, the court in *Bradford* did not have to conclude that under the 1780 and 1819 acts

Assembly has exempted existing rights from modification. Thus, adopting a permit system in Virginia politically may require giving riparian owners permit rights greater than, or at least equal to, the rights they now have.⁵⁴

A final political factor relates to the structure of government in Virginia, which tends to impede resolution of water management problems by local governments. Strict adherence to Dillon's Rule, which provides that local governments only can exercise those powers authorized by state law,⁵⁵ and extensive variation in the powers granted to local governments create an inefficient, confusing system.⁵⁶ Efforts by local governments to manage land and water resources frequently have been frustrated by a court's narrow interpretation of a statutory authorization under the Dillon principle.⁵⁷ Thus, a local government, quite legitimately, may be confused about its authority to make decisions about water resources.⁵⁸ Nor is this uncertainty limited to local governments, for as the proceedings demonstrated, some members of the General

title to common lands remained in the state; it could have interpreted the acts as reserving only a right of use in the public. Under this interpretation, the private landowner could acquire title to the shore. For a critique of *Bradford*, see Brion, *supra* note 13, at 759-64.

54. Additionally, some legal scholars question whether a permit system could alter or eliminate riparian rights without just compensation. For a discussion of this issue, see Abrams, *supra* note 34, at 604-05 n.81.

55. See 1 J. DILLON, *THE LAW OF MUNICIPAL CORPORATIONS* § 89 (3d ed. 1881). See also *Boyles v. City of Roanoke*, 179 Va. 484, 19 S.E.2d 662 (1942); *American-LaFrance and Foamite Indus. v. Arlington County*, 164 Va. 1, 178 S.E. 783 (1935) (power to contract); *Hopewell v. Norfolk & Western Ry. Co.*, 154 Va. 19, 152 S.E. 537 (1930) (power to condemn).

56. The Supreme Court of Virginia has interpreted article VII, § 2 of the state constitution as authorizing the legislature to enact different plans of government for each local governing body. *Pierce v. Dennis*, 205 Va. 478, 138 S.E.2d 6 (1964). Compare VA. CODE §§ 15.1-504 to -581 (1981 & Supp. 1982) (describing general powers and duties of counties) with *id.* §§ 15.1-582 to -668 (1981 & Supp. 1982) (describing two forms of government for counties) and *id.* §§ 15.1-837 to -915.1 (1981 & Supp. 1982) (describing general powers of cities and towns) and *id.* §§ 15.1-916 to -945 (1981) (describing other forms of government for municipalities of less than 50,000).

57. For a critical discussion of the court's role in land use decisions, see L. BEVIER & D. BRION, *JUDICIAL REVIEW OF LOCAL LAND USE DECISIONS IN VIRGINIA* (Institute of Government, University of Virginia, Charlottesville, Virginia, 1981).

58. For example, if a public right of access is found to exist under Professor Livingston's model of analysis, whether the local government could regulate use by the public or whether that task would be solely within the prerogative of the state government because of the commons statute reserving public rights in certain tidal resources would be unclear. See VA. CODE § 62.1-1 (1982); Livingston, *supra* note 19.

Assembly genuinely do not know whether, as a matter of law, that body has the power to enact legislation affecting riparian rights, especially in nonnavigable watercourses.⁵⁹ The doubts and uncertainty created by the political structure need to be resolved before progressive water resources management can occur.

THE DESIRABILITY OF COMPREHENSIVE PLANNING AND REFORM

The final lesson of the proceedings, which evolved during the discussions of Professor Ausness' article on permit systems in eastern states and Professor Power's paper on the Chesapeake Bay, is that comprehensive reform is not necessarily a desirable solution to water allocation and management problems. During these discussions several participants questioned the need for such reform in Virginia, suggesting that perhaps the best approach would be to reform a few aspects of Virginia's present allocation system while increasing the state's role in planning.⁶⁰ Professor Tarlock, for example, stated in his introductory remarks and during the Symposium proceedings that Virginia only needed to adopt partial reform measures. In his view, water resources law should develop in Virginia and in most water-rich eastern states when a specific need arises.⁶¹

Similarly, in response to a question about whether it is possible to establish a comprehensive management plan for the Chesapeake Bay, Professor Power stated that he favors incremental decision-making. He believes that decisionmakers should proceed on a problem-by-problem basis, gathering information, conducting research, and then finding a politically acceptable solution to a problem that is defined in manageable terms. Using the specific topic of

59. For a response to this concern, see Abrams, *supra* note 34, at 602-05.

60. This is one of three alternative recommendations made in a comprehensive study of Virginia's water laws. Conducted by scholars at Virginia Polytechnic Institute and State University in Blacksburg, Virginia, the study offered the three recommendations for reform after concluding that the present system did not meet Virginia's water needs. The other two recommendations include retaining the present system while increasing state planning of water use activities and substituting for the present system a permit system involving state oversight and administration. 1981 STUDY, *supra* note 41, chs. 7, 8, 10. For a discussion of some of the common law principles governing water use in Virginia, see Abrams, *supra* note 34, at 598-601; 1981 STUDY, *supra*, chs. 2, 3.

61. Tarlock, *Introduction*, 24 WM. & MARY L. REV. 535, 535-41 (1983); Tarlock, *Proceedings*, *supra* note 36.

his paper as an example of the problems inherent in comprehensive planning, Power concluded by noting that government should not try to "save the Bay," but rather should identify "major problems and respond to them with skill and enthusiasm."⁶²

As a co-author of the Model Water Code,⁶³ Professor Ausness naturally disagrees with this position. In his view, comprehensive "[w]ater rights legislation in the East represents a significant improvement over common law ground water and surface water allocation doctrines."⁶⁴ Typically such legislation establishes a permit system that replaces the common law allocation system and that is administered by a state agency.⁶⁵ Although recognizing that these water use regulatory schemes need some reform,⁶⁶ Ausness believes that they "should be comprehensive."⁶⁷

Since the early 1970's, the common law principles governing use of Virginia's water resources have been the subject of extensive analysis and study.⁶⁸ Politicians, scholars, and citizen groups disenchanted with those principles repeatedly have voiced their criticisms of them, noting the tremendous uncertainty and confusion created by them.⁶⁹ As a substitute for those principles, they have

62. *Proceedings, supra* note 36. See also Shabman & Kerns, *Organizing Government for Management of Chesapeake Bay*, LAND: ISSUES AND PROBLEMS, No. 60 (Va. Coop. Extension Service, Dec. 1981-June 1982) (indirectly supporting Power's observations by arguing that a comprehensive management system should not be established without first identifying specific management issues to be addressed and deciding whether the issues can be handled by a more limited system). For a discussion of some citizens' views on management of the Bay, see Shabman & Ashton, *Citizen Attitudes Toward Management of the Chesapeake Bay*, BULL. 96 (Va. Water Resources Research Center, Feb. 1976).

63. See F. MALONEY, R. AUSNESS & J. MORRIS, A MODEL WATER CODE (1972).

64. Ausness, *Water Rights Legislation in the East: A Program for Reform*, 24 WM. & MARY L. REV. 547, 589 (1983).

65. For a description of permit systems in eastern states, see *id.*

66. For a discussion of some suggested reforms, see *id.* at 576-89.

67. *Id.* at 589.

68. See, e.g., W. WALKER & W. COX, WATER RESOURCES LAW FOR VIRGINIA (Va. Water Resources Research Center, 1968); W. COX & W. WALKER, VIRGINIA WATER LAW: A FUNCTIONAL ANALYSIS WITH RESPECT TO QUANTITY MANAGEMENT (Va. Water Resources Research Center, Special Report No. 7, Feb. 1979) [hereinafter cited as Special Report]. Perhaps the most comprehensive review of Virginia water law is the 1981 STUDY, *supra* note 41.

69. See Ausness, *supra* note 64, at 552-53. Virginia water law, for example, classifies each water resource according to its place in the hydrologic cycle and then develops separate legal doctrines for the primary classifications, which include natural watercourses, ground water, and diffused surface water. See generally Special Report, *supra* note 68. Although some principles apply to all water resources, the legal doctrines governing each classification gen-

advocated adoption of various comprehensive and partial reform measures.⁷⁰ Even efforts at partial reform, though, have been criticized by some as representing ad hoc solutions which ignore the complexity of water resource problems and which perpetuate the uncertainty of the present common law system.⁷¹ Because this movement for reform has been gaining support throughout the state,⁷² and recently has resulted in the proposal of several important water resources bills,⁷³ it is imperative that Virginia lawmakers understand and attempt to resolve the debate over the desirability of comprehensive reform.

Three principal arguments undercut the position that comprehensive reform is the ideal solution for water resource problems. First, comprehensive planning or reform presupposes the existence of a vast pool of information beyond our present capabilities to

erally are unrelated and often conflict with one another. *Id.* at 7. Additionally, the common law doctrines tend to embrace concepts like reasonable use, which are not susceptible to precise definition and which usually vary according to the facts and circumstances of a particular situation. Although these concepts allow flexibility, they also inject a significant amount of uncertainty into the law. 1981 STUDY, *supra* note 41, at 6-2 to -4. See generally Lauer, *Reflections on Riparianism*, 35 Mo. L. Rev. 1 (1970). Finally, Virginia lacks a comprehensive, integrated legal framework for dealing with its water resource problems. Although in recent years the General Assembly has enacted some modifications to the common law, these statutes tend only to supplement the common law and do not represent a comprehensive revision of it. *But see* The Groundwater Act of 1973, VA. CODE §§ 62.1-44.83 to -44.107 (1982). Furthermore, they are scattered throughout the Virginia Code and invoke regulatory oversight from approximately 11 different agencies, with each agency focusing on only part of a water resources problem. This ad hoc blend of statutory and common law creates tremendous confusion and uncertainty. See generally, W. WALKER & W. COX, WATER RESOURCES LAW FOR VIRGINIA, *supra* note 68.

70. See *infra* note 73.

71. See *supra* note 69.

72. The League of Women Voters of Virginia, in particular, has been active in increasing public awareness of water management issues and in searching for solutions. See, e.g., LEAGUE OF WOMEN VOTERS OF VIRGINIA, VIRGINIA'S WATER SUPPLY PROBLEMS: SEARCHING FOR SOLUTIONS (1982).

73. See, e.g., Interbasin Transfer Act, H.B. 503 (1982 Sess.); The Virginia Water Law, H.B. 1420 (1981 Sess.) (a comprehensive revision creating a permit system); H.B. 1338 (1981 Sess.) (a bill to amend and clarify certain common law principles). Although most of these efforts have failed, the General Assembly enacted a substantial revision of the common law principles governing ground water in 1973. See The Groundwater Act of 1973, VA. CODE §§ 62.1-44.83 to -44.107 (1982). This movement for reform, however, may have lost some momentum; the Virginia Water Resources Research Center apparently will not seek introduction of interbasin transfer legislation in 1983. See Va. Water Resources Research Center, 14 WATER NEWS, No. 2, at 2 (Feb. 1983).

acquire, much less assimilate into a coherent whole.⁷⁴ As Professor Tarlock observed, because "most eastern water use problems are land use problems,"⁷⁵ developing a comprehensive plan would require gathering information about many land use, as well as water use, issues. While some of this information is available, much of it is not, and it is doubtful whether Virginia has the financial resources required to collect the missing data. The budgetary problems of the Virginia Water Resources Research Center (the Water Center) poignantly demonstrate this point. Created for the purpose of collecting information about the state's water resources and problems,⁷⁶ the Water Center already has served an invaluable role in gathering and evaluating information on some water issues. Its continued difficulties with funding, though, limit its ability to pursue more avenues of research.⁷⁷

Moreover, even if all the relevant information were available, comprehensive planning still would require assimilating that information into a coherent whole.⁷⁸ This process would involve integrating all relevant management information, as well as legal principles, scientific data, and policy choices, into one rational, comprehensive plan, a task not easily accomplished. For example, as one participant at the Symposium noted, comprehensive management of the Chesapeake Bay should include consideration of farming practices in New York because that area is in the Bay's watershed and those practices therefore affect the Bay's nutrient content.⁷⁹ Additionally, a comprehensive plan for interbasin transfer should incorporate, among other factors, proposed uses of the

74. L. Shabman, Planning and Managing Virginia's Water Resources: Basic Issues 1 (Feb. 1983) (available from Virginia Cooperative Extension Service at Virginia State University and at Virginia Polytechnic Institute and State University).

75. *Proceedings*, *supra* note 36.

76. The Water Center was created pursuant to a congressional mandate in 1974. 42 U.S.C. § 7811 (repealing 42 U.S.C. § 1961a (West 1974)). In 1982, the General Assembly of Virginia finally passed legislation recognizing the Water Center as a state institution. VA. CODE §§ 23-135.7:8 to -135.7:13 (Supp. 1982).

77. A recent edition of WATER NEWS reports that the General Assembly finally appropriated \$300,000 to the Water Center for the biennium, which will be matched by federal funds. Va. Water Resources Research Center, 14 WATER NEWS, No. 4, at 3-4 (Apr. 1983). Up until that point, the Water Center's future was in serious jeopardy. *Id.* No. 3, at 4 (Mar. 1983); *id.* No. 2, at 1 (Feb. 1983).

78. L. Shabman, *supra* note 74, at 1-2; White, *Environment*, 209 SCIENCE 183-90 (1980).

79. *Proceedings*, *supra* note 36.

water being diverted, actual and projected needs, potential effects on land use in the areas of origin and import, environmental costs associated with building diversion structures, and environmental costs associated with diversion of flow from a watershed. These two examples demonstrate that comprehensive planning often would impose tremendous, if not unreasonable, burdens on those charged with developing and implementing the plan.

Second, given that decisionmakers generally operate on the basis of imperfect knowledge in managing and allocating water resources, water resources planning should not be comprehensive in scope because such planning would tend to magnify the probability and the consequences of an erroneous decision. Rather, the preferable approach would be to attack water resource problems in small increments to enable the decisionmakers to assess better the consequences of their decisions. Then, if they later decide that a decision is unsatisfactory or erroneous, they should be able to implement changes more easily than with a larger-scaled decision.⁸⁰ Decisionmakers should implement more far-reaching changes only where the facts are clear, the necessary information available, and the legal principles crystallized.

Third, as the diversity of the audience demonstrated, water management issues involve many different interests and concerns.⁸¹ Reaching a decision that satisfies all interest groups would be impossible in most cases. Furthermore, as several participants remarked, the problem being addressed often raises important questions of public policy better resolved through the political process. A comprehensive plan probably would provide an inadequate means for making those policy choices, especially where the plan would make an initial allocation of scarce resources and would have long-range effect.⁸² Where, however, the political choices al-

80. L. Shabman, *supra* note 74, at 2. See generally C. LINDBLOOM, *THE INTELLIGENCE OF DEMOCRACY: DECISIONMAKING THROUGH MUTUAL ADJUSTMENT* (1965); W. OPHULS, *ECOLOGY AND THE POLITICS OF SCARCITY* 191-94 (1977).

81. Issues concerning common rights, for example, involve the public's interest in exercising their rights of use, the private landowner's interest in protecting his property right, and environmental concerns associated with public use.

82. See L. Shabman, *supra* note 74, at 2-3. See generally C. LINDBLOOM, *supra* note 80; W. OPHULS, *supra* note 80. Some commentators, however, argue that developing land use policy in the political arena by interest group competition is undesirable for several reasons. First, the stakes vary greatly in any particular land use decision. The greater the stake, the

ready have been made, long-range planning might be possible.⁸³

These three points demonstrate that comprehensive planning or reform is often undesirable in the water management area. Although Professors Tarlock and Power appear to assert that such planning never would be advisable in Virginia, the arguments supporting their position suggest that it is overbroad and that comprehensive planning might be desirable in certain circumstances. Factors indicating such a situation include the extent to which an issue has been clearly defined and researched, the amount of resources available for gathering missing data, the ability of the decisionmaker to assimilate all relevant information, the degree to which legal and scientific principles have been crystallized and accepted, and the nature of the policy choices involved in the problem. If a major water problem has been clearly defined and adequately researched, if the results can be, or have been, assimilated, and if major policy choices have been made or could be made effectively through the political process, then a comprehensive solution may be plausible and desirable. Unfortunately, this situation often does not exist in the water resources area because of the continued discovery of new problems and scientific evidence, because of the political controversies surrounding use of water resources, and because of the realization that water management issues really are land use decisions.

Even if comprehensive reform of water management problems is not advisable at this time, the development of a planning and conflict resolution process certainly is.⁸⁴ Indeed, the very absence of a comprehensive plan, for whatever reason, suggests the need to develop an effective means for resolving smaller, more manageable problems. The General Assembly has neither the time nor the resources to provide solutions to all water management problems and

more likely the party will be effective in voicing its interests. Second, not all interested groups have sufficient resources to support effective lobbying efforts. J. Edwards, *supra* note 49, at 66-67. This argument does not necessarily prove, however, that the choices must be removed from the political arena, but rather that the decisionmaking process must be structured more carefully. See *infra* notes 84-92 and accompanying text.

83. For example, both the state and federal governments have made commitments to water quality control. Clean Water Act of 1977, Pub. L. No. 9-148, §§ 1(a)-(c), 93 Stat. 1088 (1979); VA. CODE §§ 62.1-44.2 to -44.34:7 (1982).

84. See L. Shabman, *supra* note 74, at 3.

conflicts. As an alternative to resolution of problems through the political process, the General Assembly could establish an administrative process designed to serve three primary functions: (1) defining more precisely the nature and scope of major problems by, for example, gathering information about those problems;⁸⁵ (2) evaluating this information and developing manageable solutions to appropriate problems; and (3) resolving disputes concerning allocation and management of water resources.

Although such a process already exists in part under the state Administrative Process Act, the provisions of that Act primarily set forth general procedural requirements to be followed by state agencies in adopting and applying regulations.⁸⁶ The provisions are not defined in terms of specific water resource problems. Nor do they specifically address all three functions described above. Rather the provisions tend to merge the different functions together in generally worded procedural requirements.⁸⁷ To be effective, the proposed administrative process should distinguish be-

85. In recent years, the General Assembly has enacted legislation increasing the role of the state in planning and policy formulation. This legislation assigns primary responsibility for planning and policy development to the State Water Control Board. More specifically, it requires the Board to "formulate a coordinated policy for the use and control of all the water resources of the State." VA. CODE § 62.1-44.36 (1982). To guide the Board in fulfilling its responsibilities, the legislation then instructs the Board: (1) to protect existing water rights, except to the extent that they are subject to public use; (2) to give priority to human consumptive uses; (3) to maximize economic development through appropriate water use and development; (4) to consider the harmful effects of drainage on ground water supplies and wildlife; (5) to maintain flow levels to protect instream use; (6) to develop watersheds for multiple use; and (7) to protect water recreation facilities from pollution. *Id.* § 62.1-44.36 (1)-(7). Under the planning provisions, the Board is required to prepare plans for water management in each major river basin and appropriate subbasins "in such a manner as to encourage, promote and secure the maximum beneficial use and control." *Id.* § 62.1-44.38A. Also, the legislation authorizes the Board to adopt water user registration programs under appropriate circumstances, *id.* § 62.1-44.38C, and to assist a political subdivision in water supply planning upon request, *id.* § 62.1-44.38F. Although these provisions represent a positive attempt to coordinate and improve water resource management, they have one serious flaw: they do not give the Board the power to implement policies, plans, or programs formulated by it.

86. *Id.* §§ 9-6.14:1 to -6.14:21 (1978 & Supp. 1982). The stated purpose of the Act is "to supplement present and future basic laws conferring authority on agencies to either make regulations or decide cases as well as to standardize court review thereof. . . ." *Id.* § 9-6.14:3 (1978).

87. For example, VA. CODE § 9-6.14:7 (1978 & Supp. 1982), which deals with "informational proceedings," combines the information-gathering and the problem-solving stages.

tween the information-gathering, the problem-solving, and the dispute resolution stages and should establish specific procedures for each. Also, because water management problems involve scientific, legal, political, and economic considerations, the process should involve people with sufficient expertise in these and other appropriate areas.

Finally, in formulating procedures for each stage, the legislature could vary the nature of the process according to the type of problem or dispute. If, for example, the problem involves a direct conflict among several parties, such as a dispute over who has the right to make a certain use,⁸⁸ then a formal, adversarial mode of dispute resolution probably is needed. Such a dispute could be described as "substantive" since resolution of it would involve deciding whether certain rights exist or were validly acquired and since resolution would require defining the nature and scope of those rights.⁸⁹ As a dispute becomes more substantive, the need for a fair, impartial decision process increases. A formal, adversarial hearing conducted by a neutral third party best resolves such a conflict because the formality of the process, the thoroughness of the evidentiary requirements, and the neutrality of the decisionmaker create a sense of fairness and justice.⁹⁰ If, however, the issue concerns how to exercise rights already acquired and agreed upon,⁹¹ then resolution can occur through negotiation between the parties or through some other informal process. As the dispute becomes less substantive, the need for efficiency increases and the need for the type of fairness acquired through a formal process diminishes. A less formal process, with fewer evidentiary and proce-

88. Such a conflict, for example, would exist if a lower riparian was claiming that an upper was unlawfully diverting the watercourse, or if a lower riparian obstructed the watercourse, causing it to flow on the upper riparian's land. See generally 2 H. FARNHAM, *supra* note 35, §§ 475-488, 495-510.

89. VA. CODE § 9-6.14:4.H (1978) defines substantive to mean:

when used in connection with regulations, those allowing, requiring, or forbidding conduct in which persons are otherwise free or prohibited to engage or which state requirements, other than procedural, for obtaining or retaining a license or other right or benefit.

90. See W. OPHULS, *supra* note 80, at 188-91.

91. For example, two riparians may agree that each has a right to make a reasonable use of the watercourse abutting their lands, but may disagree about what is a reasonable use. See generally 2 H. FARNHAM, *supra* note 35, §§ 465-467.

dural requirements, better resolves such a dispute because it yields a solution more quickly.⁹²

Eventually the information-gathering procedures and evaluation process should produce sufficient information about the nature and scope of the defined water problem to enable comprehensive planning to begin. At that point in time, the pieces of the puzzle should be put together and an attempt should be made to develop a comprehensive plan. Even if the initial effort fails, though, it at least will provide an invaluable learning experience to those who tried.

In conclusion, although it is easy to assume that comprehensive reform is the ideal solution for any sort of problem, the discussions demonstrated that such reform is not always desirable in the water resources area. This observation becomes especially important in light of the recent movement for reform of the law governing water resources in Virginia. While some participants at the proceedings believed that comprehensive measures were necessary for effective allocation and management of water resources, others questioned whether such methods ever would be desirable in this area. Although compelling arguments support the latter position, those arguments also suggest that it is overbroad and that in proper circumstances comprehensive planning might be desirable. Even if comprehensive planning is not desirable, development of procedures for information-gathering, planning development, and dispute resolution is. Such a process hopefully would remove some of the burden from the General Assembly and the judiciary and establish the necessary foundation for comprehensive planning. Thus, those involved in reevaluating Virginia's water law and in managing Virginia's water resources now need to identify situations where comprehensive planning might be feasible and to set up an administrative process for those situations where it is not.

92. This procedural model is adapted from a model of estate settlement developed recently as an alternative to the traditional probate system and to the complicated Uniform Probate Code approach. See Martin, *Justice and Efficiency Under a Model of Estate Settlement*, 66 VA. L. REV. 727 (1980). For a discussion of the general theory for evaluating disputes in terms of justice and efficiency, see Thibaut & Walker, *A Theory of Procedure*, 66 CALIF. L. REV. 541 (1978).