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Water lawyers are increasingly being called upon either to revise existing water laws or adopt existing systems to different areas. Dean Trelease examines the many problems faced by the draftsmen in developing a water law system which will not only facilitate and achieve efficient allocation of resources and environmental protection, but also in many cases help to achieve social and national goals.

NEW WATER LEGISLATION: DRAFTING FOR DEVELOPMENT, EFFICIENT ALLOCATION AND ENVIRONMENTAL PROTECTION*

*Frank J. Trelease***

INTRODUCTION

The Need for New Laws

In today's rapidly changing world many water lawyers find themselves faced with a task that puts them to a challenging test. Each an expert in the application and administration of an existing system of water law, some are called upon to write new laws that will replace that system while others are asked to transplant their systems to new and unfamiliar ground. Once practitioners of an obscure specialty, water lawyers have been pushed to prominence by an immense surge of interest in their subject. Nations all over the world, in developed and developing stages, in tropical and temperate zones, with arid and humid climates, are re-examining their laws which regulate water allocation and use and are calling on local experts and consultants from afar to recommend needed changes.

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The overshadowing cause of this interest is, of course, the increase in world population, which everywhere adds to needs for urban supplies, rural domestic use, and food production. A contributing factor is industrial growth, including the processing of minerals, food and textiles for all the world's peoples. With industrialization comes a higher standard of living and a concomitant increase in the per capita consumption of water that compounds the problem. Arid countries seek to make their land more productive or to produce higher valued crops, those subject to rainy and dry seasons to stretch the growing season and add a new annual crop. In humid zones once plentiful water supplies are now subject to local and intermittent shortages, caused not only by increased urban and industrial uses but by new demands for supplemental irrigation to smooth out the vagaries of seasonal rainfall and eliminate losses from periodic droughts. Investors in multimillion dollar enterprises and international agencies underwriting large projects now seek from the law the security once supplied by a seemingly inexhaustible stock of water. Where supplies are scant and almost wholly put to use, pressures of new demands require greater efficiency in use and legal mechanisms to shift water from less productive uses to new and more desirable applications. All these demands on a finite quantity of water are met with a counter-pressure that arises from our new-found concern for preservation of environmental and ecological values and that operates to diminish the available supply.

The laws at hand to manage and meet these demands and conserve the supply are in many cases left over from simpler days. Time has overtaken laws which give developers or property owners a free hand, and advances in knowledge and technology have outdated many early types of control. The search for new sources leads to groundwater, to trans-divide importation, to storage and distribution schemes of undreamed size, and existing laws may have no provisions for regulating these sources or enabling such projects.

To meet these needs new water laws must be drafted. They must be designed not only to facilitate and achieve ef-

efficient allocation of resources and environmental protection, but in many cases they must also help to achieve social and national goals. Each law must fit a particular set of physical and climatological conditions and be compatible with local historical and cultural backgrounds. This is a difficult task and a challenging assignment for the draftsmen.

The Function of a Water Law System

The comprehensive planning, development and management of water resources must rest on a basis of water law doctrine, and that doctrine must be implemented with legal mechanisms and procedures that authorize and facilitate these processes. In earlier days a "water law system" referred primarily to rules of law that fixed the relations of one water use vis-a-vis another, such as the riparian doctrine or the law of prior appropriation. Today the interests and objectives of government add a new dimension to the system, and it must as well regulate the relations of the water-user with the state and delineate the powers of the state over private uses of water.

Water law is, of course, a broader concept, one that includes many more topics. This paper is directed only at that part of water law which governs the activities of persons and firms who withdraw and use water for beneficial purposes, in other words, the law of water rights. The subjects of government structure and organization, construction and operation of projects, pollution and quality control, land use and servitudes, flood control and drainage have, of course, a bearing on the allocation and use of water resources, but these matters are here put aside. This paper does not even treat all rights of water users, since it excludes those of the consumer who receives his supply from a government project, irrigation district, municipal water works, public utility or a mutual or communal organization. Such wholesalers of water, even those which are government instrumentalities, will have water rights and will be governed by the water use laws to the extent that those rights and laws delineate their powers over the source and fix their external relations with

other water users, but the internal relations between the distributor and the consumer are governed by institutional laws of a quite different nature. This is not to say that the system of water rights is an independent and isolated topic. The other items may be component parts of a comprehensive water code that also includes a chapter on water rights, or each subject may be an independent statute. Each will have a bearing on water rights and the form of water rights will influence and affect all of them. All must be correlated and fitted into the total picture, but initially at least each part must be separately constructed.

A government seeking to regulate water use for development, efficient allocation of resources and environmental protection may have to make a major change in its water law system. Rights and privileges based on riparian rights, "private waters," landowner's rights to groundwater, wild west style prior appropriation—all rights arising *ministerio legis*—must go, or must be subjected to such a heavy overlay of regulatory controls as to become almost unrecognizable. If private water rights are to be fitted into government policies, if development by individuals and corporations is to be compatible with government objectives, proprietors and entrepreneurs cannot act at their own will. Systems based on sporadic grants or concessions from the executive and laws controlling or granting privileges to specific types of water users must be replaced with continuing and unified administrative action. The state must superimpose controls upon the initiation of uses, the exercise of water rights, the division of water among users, and the reallocation of water rights to new uses as needs change. A modern water law system must not only promote the welfare of water users, it must accomplish the state's social and economic objectives, coordinate private activities with state projects, protect the interests of the public in common uses and environmental values, and integrate the activities of individual and corporate users into comprehensive state plans for water development and management.

METHODOLOGY

Philosophical Approach

The task of writing a law for water allocation and use is subject to some pitfalls that lie in the mind of the person who undertakes that task. His initial bias, his frame of mind as he approaches the assignment, may lead him into fallacies that can hinder the ultimate accomplishments or effectiveness of his law. He may be led into error if those who employ him have a particular attitude toward water law. Even if he has the right approach, he must be prepared to perform a difficult feat if he must persuade others to abandon their bias and accept his views.

A quite common fallacy of this type is that a water law should be focused on the resource, that the object of regulation is the water. But the statute, or its administrator, will not regulate water, develop water resources or provide maximum welfare from water use. The statute will regulate people, people will develop the water and hopefully people will maximize the output from their uses of water. Officials, lawyers, and judges have been known to personify and almost apotheosize water, and in protecting water from what they see as undesirable consequences have done a great disservice to people who seek to use the water or to protect environmental values created by man. Artificial standards of "efficient use" and absolute values ascribed to some one use or environmental element can do much harm by preventing the achievement of truly maximum welfare or by requiring departures from optimum allocation. A statute can encourage or deter, require or prohibit, the activities of people, but realistically it must take human nature and economic facts into account or it will inevitably fail.

A second attitude that can so color a water law as to detract from its efficacy is the bureaucratic notion that the statute is primarily for the protection of the government or the public from the illegal or undesirable activities of private or corporate water users. People, including corporate man-

agers, have been known to waste water, to act for personal gain to the detriment of others, to use water in ways thought undesirable by those who represent the state. All this must be controlled or prevented, but this is a secondary concern. The face of the state should not be set against the water user, and private interests should not be regarded as inimical to the public interest. It must be recognized that under a good water law the private water user accomplishes the government's purpose and achieves the government's objectives. The state wishes full and comprehensive development of its water resources in the public interest. To the extent that irrigation and industrial production are a part of that development, landowners and proprietary firms who profit from water use further the state's ends as well as their own.

Analyzing the Problem

The person setting out to draft a water law must be steeped in the historical, governmental, legal, physical, climatological, hydrological, economic, and social conditions of the country he is to serve. If he is a native all this may already be a part of his mental equipment, although he may have some gaps to fill. If he is a consultant called in from afar, all this he must learn, and quickly. A good encyclopedia and a good atlas will be starting places for obtaining a preliminary understanding. In the library he will find books and magazine and journal articles on the country. Detailed information can often be obtained from studies or surveys made by local or international agencies or consultants, from reports on or plans for projects supported by international development and financial agencies and from national and economic development plans.

A reconnaissance of the country, especially one taken in the company of an informed person, can be of enormous help in understanding the physical conditions in which the law is to operate. A tour of existing waterworks, dams, damsites, projects, future project areas, mining districts, and cities will enable the draftsman to visualize the consequences of

what he is doing. A view from the air may be especially valuable.

The consultant must talk to, and above all listen to, many, many people. They should include ministers and administrators in many posts, water users representing farmers, miners, manufacturers, power plants, cities, sportsmen and conservationists, representatives of international service and development organizations, professional people including engineers, lawyers, scientists, economists, and university professors. Engineers are placed first among the professionals for emphasis, for they will generally be among his best contacts. Most engineers are instinctively good water lawyers. Because they understand what is to be done with water, they understand what the water law must provide.

The purpose of these investigations and interviews will be to discover problems the draftsman must solve, the constraints he must face, the policies he must carry out and the objectives he is to meet. Countries will be at different stages of development. In the writer's experience, the State of Alaska was almost virgin territory, with very little water in use, while in contrast, some Philippine rivers are over-appropriated and claimants with conflicting rights scramble for water. In Swaziland low flows can accommodate few more year-round users but many new uses for agriculture and industry are just around the corner, and must be made from high flows or storage. Countries will present different physical problems. Jamaica's groundwater is found primarily in karstified limestone that does not act like most sandstone and alluvial aquifers, and groundwater and streams are much more closely connected than is usual. In the Philippines artesian pressure must be preserved to keep water levels within reasonable reach of pumps. On the other hand, Swaziland has no known aquifers capable of sustaining large irrigation or industrial uses.

Countries will have different social conditions and problems that must concern the water law draftsman. Land reform may accompany water law reform. The subdivision of

land may call for a redistribution of water rights appurtenant to that land to insure equality of opportunity among the new owners. Settlement schemes to open up new land to irrigation or to turn nomadic or pastoral people to farming may require special provisions in water laws or special organizations to manage or distribute water. Programs for the betterment of indigenous people may need special provisions to enable them to compete with proposals for industrial development or large commercial irrigation projects. The future holders of water rights may have various degrees of sophistication that require different treatment. Much free choice might be given to landowners and industrialists in a developed country, or to a Filipino rice farmer who can read, write, figure, and drive a hard bargain, who is in short a shrewd small businessman. On the other hand, a more paternalistic system may be required for those whose introduction to what we call civilization is quite recent, whose transition to modern commercial life is incomplete, who may be recent graduates from nomadic or pastoral life or who may have been raised in a tribal or communal system to which some of our notions of law and property are foreign.

Countries will present different legal problems. In some the need is the abolition of riparian rights to unused water and the substitution of state control; in others, the modernization of existing controls. Constitutional questions may attend the termination of private rights and powers or the state takeover of private waters. Governmental structures and existing agencies may need to be altered, and political as well as legal problems can arise where powerful agencies seek to retain their grasp on the reins or where internal struggles for control must be resolved.

Choosing Solutions

The government may have well-defined objectives and clear-cut policies to be followed, or it may merely have problems it does not know how to solve, and it may look to the expert to suggest solutions. In identifying problems, in finding solutions, in selecting mechanisms to reach objectives

and implement policies, the water lawyer is put to his mettle. He must use all the skills and techniques of his profession.

Lawyers are used to handling precedents. Knowledge of what has happened elsewhere may enable the expert to see problems in the instant locale, and to foresee problems that have not yet arisen. Knowledge of the water laws of other countries will show him how similar problems have been solved elsewhere. The study of comparative water law has received a big assist from the United Nations and its Food and Agriculture Organization, which have published analyses of a number of water laws written and edited by Caponera,¹ and the useful compilation of Teclaff.² There are even "how-to-do-it" books, the Economic Commission for Asia and the Far East has published a set of guidelines for the drafting of water codes,³ and since in the United States there are, or could be, 50 water law systems, three manuals or models have been written for the drafter of new water laws.⁴ Not all the recommendations are the same, and choosing among them, like choosing among foreign precedents, is excellent exercise for the consultant.

The lawyer is also skilled in getting the facts and applying the law to them. He must test whether a law that has worked well elsewhere will fit the local situation, he must apply the provision under consideration to existing and foreseen problems to see whether the desired outcome will result. Where physical solutions or particular schemes are suggested, the lawyer must provide authority and support to make them possible.

The lawyer is also a negotiator. There may be dominant or competing pressure groups seeking special treatment—

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1. Groundwater Legislation in Europe—U.N. Legislative Series No. 5 (1964); Water Legislation in Asia and the Far East, Parts 1 & 2—U.N. Water Resources Series Nos. 31 § 35 ST/ECAFE/SER.F/31 (1967); Water Laws in Moslem Countries, Part 1—FAO/U.N. Irrigation and Drainage Paper No. 20 (1973).
 2. Abstraction and Use of Water: A Comparison of Legal Regimes—U.N./ST/ECA/154 (1972).
 3. Guidelines for the Drafting of Water Codes—U.N. Water Resources Series No. 43 (1973) [hereinafter cited as Guidelines].
 4. NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS, MODEL WATER USE ACT (1958); MALONEY, AUSNESS, & MORRIS, A MODEL WATER CODE (1972); NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 280-298 (1973).

powerful landowners, influential industries, strong environmental groups. Sometimes their positions must be reconciled, sometimes one or another must be overruled. Compromises must often be suggested that will placate such a group without sacrificing major objectives of the legislation.

The consultant will also find himself playing the role of diplomat, salesman, and teacher. Persuading a group of landowners, or their representatives on a government body, that abolition of riparian rights to future uses of water is a necessity and that government control of future uses would be of greater benefit to them is not an easy task. Showing those who may administer the law how it works, how its parts fit together, how it will be applied in various cases and how it will be used to solve particular problems may call up every skill of the pedagogue. If his students fail, his law may fail.

Drafting

Laws cannot be imported in a pre-packaged container. The expert may have preconceived notions of the major features of water allocation law and of the best ways to solve general problems of encouraging efficient use, handling shortages, and accommodating progress, but he cannot simply prepare a model water code that will fit every country and can be enacted without change by any country. Even if all of the core ideas of the expert are accepted, they must be applied to the particular facts, the water rights law must be coordinated with other aspects of water law, and particular economic and social conditions or objectives may call for modifications.

At the drafting stage a consultant must have local legal assistance. He may call upon agency attorneys, the attorney general's staff, or local legislative drafting services for information and advice on many collateral matters. He must learn the legislative style. He cannot become an expert in the local legal system and learn all at once the structure of government, the powers and procedures of government agencies, administrative law doctrines, appeal procedures, the form and availability of remedies, traditional criminal sanc-

tions, and the workings of the court system. Local counsel should provide information on the existence and effect of statutes relating to other matters, such as mining laws, irrigation laws, and civil codes, and must point out the necessity of amendments and repeals and the existence of constitutional problems.

When the consultant has learned enough so that he feels able to make a start, he must prepare a preliminary draft, at least of a portion of the law, or of salient points with indications of the form of the remainder. These should be widely distributed and checked with practically everybody originally consulted, and a second round of talks and interviews should be held. At this point pride of authorship has no place. The draft should be clearly identified as something to be shot at and criticized, as a request for suggestions and additional information. Many new facts will be forthcoming, not intentionally withheld, but the relevancy of which was not seen until concrete language brought them to mind. At this point explanations can be made, language clarified and compromises reached. A second and perhaps a third draft will follow, with much the same procedures.

The draft, and the final report, should contain much explanatory material. It may consist of a formal *exposition des motifs*, a simplified summary of the law, a statement of the problems and solutions, a statement of policies and their application or accomplishment, an explanation of operations under the law, an annotation to each section explaining its purpose, effect and force, or any combination of these.

MAJOR FEATURES

Despite the emphasis placed on the differences between countries and the need to tailor each law to fit the requirements of each country, some central principles will be found applicable to every water law and some widespread problems will present opportunities for common solutions. Any new water law must define its scope, the waters, the uses and the users it will cover. Every modern water law will require

state authorization for most new uses, and must provide some process for registering existing rights and uses and some method of incorporating them into the new system. By postulate the law is needed because the water supply is insufficient for all and must be allocated, reallocated and distributed among the holders of water rights. It is, therefore, possible to indicate preferred principles and solutions that may have application almost anywhere, although specific local problems and conditions may require variations in form, procedures, application and administration.

Scope

A modern water law should be comprehensive. All water available to man in usable form should be subjected to the same fundamental rules. Water law should be consistent with hydrologic science, and no "private waters" should be placed beyond the law's reach, no artificial classification should require different rules to be applied to the same water as it moves from one phase to another of the hydrological cycle.

The old concepts of private property in some forms of water once had a rational basis, but their function can be better performed by more flexible controls. If it is desired to permit free use of pluvial water, or to encourage soil conservation measures that retain rainwater in the soil, exemptions can be granted from some of the regulatory features of a law without surrendering the power to prevent the accumulation of such water and its sale, as has sometimes been attempted. Rural people can be given a free hand to use small springs and rivulets for domestic and stock use without permitting them to disrupt important sources of streams. The widespread notion that the landowner owned the groundwater discovered within his boundaries was originally adopted because ignorance of hydro-geological principles made a rational system of control impossible, and because harm done to neighbors was generally small and rare. The landowner's "property" in groundwater was really a system of anarchy, under which each landowner could seize what he might with-

out regard to his neighbor, who was powerless to protect *his* property. Science now has supplied the factual lack and technology has so magnified the possibilities of harm that the rule is made intolerable.

Just how these private waters are to be subjected to the law is a matter of technique, and seemingly a matter of semantics and careful choice of words. One method is to declare all water to be the property of the state. It has been said that in civil law countries a change in the code that places unused things in the public domain is permissible, that a civil code does not create entrenched rights beyond the power of the legislature to change.⁵ It is also argued that in common law countries this should be avoided, that the theory should be that the law simply regulates property rights for certain public purposes. Be that as it may, a number of American states use the state ownership concept,⁶ and the Canadians have never had any trouble with vesting water in the crown, or in the province.⁷ But whether the state takes over the property or regulates it, it can reach the same result. In the United States, statutes which "regulate" property to the extent of preventing the "owner" from using it have been held not to deprive him of that property without due process of law.⁸

The purpose is not to here settle the matter, but merely to point out the problem. It appears that under neither civil nor common law does the so-called ownership of bits of water in some portion of the hydrological cycle present an insuperable obstacle to a system of state control and regulation of all water, and that the method of accomplishing the desired result is a matter of form. Nevertheless, to the extent that form can influence substance, some care should be taken to use a formula of words which will be locally acceptable and will not unnecessarily raise constitutional questions.

5. Guidelines, *supra* note 3, at 19.

6. See Trelease, *Government Ownership and Trusteeship of Water*, 45 CALIF. L. REV. 638 (1957).

7. *E.g.*, Water Resources Act, ALTA. REV. STAT. c. 362, §§ 2(2), 5(1).

8. Southwest Engineering Co. v. Ernst, 79 ARIZ. 403, 291 P.2d 764 (1955); Knight v. Grimes, 80 S.D. 517, 127 N.W.2d 708 (1964).

Sometimes it may be tempting to disregard the advice to embrace all water. If the major purpose of the law is to fulfill a pressing need for regulation of streams, while groundwater use poses no presently acute problems, it could seem expedient to follow old patterns and apply the law only to surface water. Yet history has demonstrated that sooner or later groundwater problems will surface and that their arrival may be accelerated by a law that strictly controls streams but leaves landowners a free hand with groundwater. Sooner or later the use of one will disrupt the other. While many, perhaps most, laws are needed because an emergency has arisen and a bad situation needs to be patched up or a stop must be put to undesirable practices and activities, many wise laws are enacted to prevent emergencies from happening and to protect the people from even the beginnings of harm. It would seem desirable in such cases to strike while the iron is hot and zeal for water law reform is running high, and to establish a rational system from the beginning. At least the power over groundwater should be established and present users should be required to register and to furnish data on their withdrawals. Rather than setting up an elaborate regulatory system, however, the law might give the administration standby powers to assert control in areas or basins when conflicts arise.

On the other hand, the law need not chase water completely around the hydrological cycle. Some day atmospheric science may advance to the point where we can license people to milk the clouds and we can apportion rights to vaporous water among users. Until that day comes it is better to emulate our ancestors by keeping our hands off such water and to leave weather modification to other types of regulation.

As for water users, all should be covered and should have the same types of rights. Occasionally it may be argued that the government itself, or an entrenched public agency, should be exempted from the law and should not have to apply to the water administration for rights or be subject to the same restrictions as are private users. Yet a government project needs rights that define its relation to other water users,

including other government users, as much for its protection as theirs. A state should not deliberately create the unfortunate situation that has arisen by historical accident in the United States. There the states control the water uses of their citizens, but they cannot control the activities of the federal government. Some withdrawals and uses are therefore made pursuant to state-created water rights, while others are made pursuant to powers of the national government. Unified or coordinated planning and management is subjected to extraordinary difficulties.

Initiation of Rights

A system of concessions, licenses or permits that allows new uses to be made and new water control structures to be built only with the approval of the state is the *sine qua non* of state control. Privileges which arise from land ownership and location and self-created rights acquired by appropriation of the public domain can exist only in areas of water plenty and in early stages of development, when any use is seen as a desirable advance, or only for personal or domestic uses that take miniscule quantities. Rights to take water from a source at any time, unlimited rights to share in a common pool resource, become intolerable when water is taken by personal privilege from those who have put it to beneficial use or when so many shares are claimed that all are diminished to unworkable quantities. All such rights are incompatible with the major objectives of a modern water code. Government planning, government choice of and control over uses in the interest of advancing government policies, government restrictions to efficient use, all are impossible.

The procedural details of applying for and granting of authorizations need not concern us, beyond noting that this is the preferable point in time for deciding conflicts, before investments are made and before harm is done. Every attempt should be made to bring up and settle objections at this stage, to give notice to the public and to opposing interests, and to iron out any intragovernmental differences.

A word might be said about preferences. Many water laws list the order in which various users are to be preferred when competing applications are filed for different uses of the same water. Such laws should be avoided. In the first place, they are seldom effective, since the coincidence of incompatible applications is rare. Secondly, they too often reflect the economic and social thought of the moment of their enactment and are soon outmoded by time and change. Lastly, they prevent the intelligent weighing of alternative and relative values. Almost everyone has the automatic reaction that the domestic needs of urban population should have the first preference. Yet take the case of a groundwater source underlying a potential agricultural area, one that presents the only available source of irrigation of the land and is also one of several possible sources for a nearby city. If municipal use is given a statutory preference and the city and the irrigators file simultaneous applications, the city will get the water. Yet the lost benefits of food production may be far greater than the cost to the city of going to the next cheaper source. The water authority should have power to choose flexibly between the competitors and award the water right so as to accomplish the greatest good.

The permit system is also the primary tool for the protection of the environment from unwanted effects of water withdrawal and use. The sleeping beauty of environmental law has been the power of water officials to deny an application if the proposed use would not be in the public interest. This phrase has been construed to incorporate the concept of economic efficiency, to allow the officials to choose the project that provides the greater net benefits, to deny a permit that would do harm or preclude better uses.⁹ The main thrust of the environmental movement has been to change our attitudes and values. Amenities we once threw away because of their abundance are now scarce and there are more people to enjoy them and treasure them. Actions we once took without a thought to consequences now are known to do great harm or to present grave risks. Today an application should be denied

9. *Young & Norton v. Hinderlider*, 15 N.M. 666, 110 P. 1045 (1910); *Tanner v. Bacon*, 103 Utah 494, 136 P.2d 957 (1943).

to protect the public interest if the private benefits sought would be outweighed by a greater loss of common rights to fishing, desirable wildlife habitat, or more sophisticated scenic, recreational and wilderness values. Permits can be denied if the proposed uses would destroy needed minimum flows, or they may be conditioned to require the maintenance of such a flow. Minimum flows and lake levels can be maintained for consideration of public health, recreational uses and preservation of ecological and environmental values, as well as for economic factors such as maintaining property values added by lakes and streams, or protecting uses for domestic and stock water.

Water pollution presents the greatest threat to the environment, of course, and although the mechanics of water quality control are beyond the scope of this paper a word must be said about the interrelationship between water abstraction and the use of water to carry away and treat wastes. At the same time that permission is sought for a withdrawal of water, consideration should be given to the means for disposing of it, to the effect of effluents or saline return flow on the stream and on other uses, present and future, and to the need for disposal, treatment or drainage of the water. Sometimes the water use and water quality laws will be a part of a single package, and both will be the responsibility of the draftsman of the code. The preferable arrangement is to place both under the control of a single agency. However, often a good pollution control law will exist before a water use code comes into being, and quality regulation may already be firmly in the hands of an existing agency not suited to regulating the quantitative aspects of water. Then, of course, it is the task of the draftsman of the water law to take the other law and the other agency into consideration and adjust his work and product so that all efforts are correlated. Dual permits may work very well, but there may be need for mechanisms for coordination of effort and settlement of differences between agencies.

Preservation of Existing Uses

All new water laws must have some sort of "savings clause" to confirm existing rights and permit the continuation of current beneficial uses. It is preferable, however, not to save old rights as such. This may carry forward into the new law all the old legal baggage of the former riparian rights, private waters, concessions or whatever, and complicate administration, set the old rights apart from the new, and require the holders of old rights to be treated differently than the holders of new permits. It is preferable to confirm existing *uses* and to issue to the user permits identical to those issued for new uses. The same standards of beneficial use and efficiency should apply, the same conditions and regulatory controls should be imposed.

Matters of convenience can influence the choice of procedures for issuing confirmatory permits. When most western American states imposed control systems on previously unregulated prior appropriation, they used elaborate court or administrative "adjudications" initiated by officials, in which all water users were notified to file claims and each claim was subject to contest by other water users and by the officials. Simpler procedures are available, such as registration followed by an investigatory rather than an adversary process, although persons wishing to contest the treatment of their own claims or the awards to others should be allowed to do so. Some of the eastern American states with new permit systems have simply required existing users to file for a permit as if they were initiating new uses, but this would not seem to be a desirable practice unless there are very few claimants, since the agency might be faced from the moment of its creation with an almost impossible task.

Fixing the relative rights of existing users requires a knowledge of preexisting law. The basic conditions under which the user has received water in the past should not be materially altered. In the State of Alaska, where administrative controls were superimposed upon an existing system of customary appropriation, the temporal priorities estab-

lished by the date of beginning each use were confirmed.¹⁰ In Swaziland, where the borrowed South African law had previously dictated riparian sharing, all confirmed rights were expressed as a percentage of river flow subject to a top limit based on the quantity needed to efficiently accomplish the beneficial use.¹¹ But this ideal cannot always be reached. In Jamaica, water rights stem from a hodgepodge of riparian law, permits issued under several statutes, and statutory authorizations given in special and general acts. Actual shortages have been rare, and since there are no precedents it is impossible to say what rule the courts would apply in distributing water in case it became so short as to require rationing. In the suggested act for that country, all rights were made equal and officials, in the infrequent case of such a shortage, will distribute the water on the basis of principles of value, national interest, equity and avoidance of hardship.¹² On some streams of the Philippines a combination of appropriations, prescriptive rights, uses of private and out-of-priority uses of appropriations that far exceed the supply has created other situations that seem almost incapable of being sorted out. The recommendation there¹³ was to follow the example of Chile, where a somewhat similar proliferation of rights had led to chaos in some valleys when conflicting demands exceeded supplies. The records were so obscure and disputes so prevalent that a complete new start had to be made. "Areas of rationalization of water use" were declared, in which all rights were extinguished and new concessions were granted on the basis of the physical supply, the existing distribution system and economic and social criteria. In the few cases in which a holder of an extinguished right

10. ALAS. STAT. § 46.15.135 (1971).

11. TRELEASE, A PROPOSED NATIONAL WATER RESOURCES LAW FOR SWAZILAND § 17(1)—U.N./OTC PROJECT: SWA-73-002 (1975).

12. Development and Management of Water Resources—A Proposed Water Resources Act for Jamaica, § 17(c) FAO/U.N. Development Programme, U.N. Doc. AGL: SF/JAM 12, Working Document 2 (1973).

13. TRELEASE, CURRENT DEVELOPMENTS IN PHILIPPINE WATER LAW—SUGGESTED INTERIM GROUNDWATER REGULATIONS—A REPORT TO NIA-UNDP/FAO GROUNDWATER DEVELOPMENT PROJECT (1975), *revising* Improvement of Irrigation Facilities Through Groundwater Development—Philippines FAO/U.N. Development Programme, U.N. Doc. AGO:PHI/70/531 (1974).

could prove harm to a prior legal use, he received compensation.¹⁴

The Nature of the Water Right

The major objective of any water law must be to achieve, or at least promote, the efficient allocation of water resources. Economic efficiency is the reference: that combination of labor, capital and resources which will produce the greatest net benefits. Social and environmental factors will be worked into the adjustment of costs and benefits; state plans, programs and policies may determine the optima to be sought and state projects and agencies may play a large part in reaching them. Yet it is clear that in most countries a very large contribution toward optimum use of water for irrigation and industry will come from private sources. The water law system must foster and encourage water use and provide a climate conducive to investment in water using enterprises. A person will put his capital and labor into such an enterprise if he has sufficient assurance that he can eventually recoup the cost of wells, pumps, dams, distribution systems and treatment works and his investment in the associated lands, buildings and machinery, and if he has sufficient assurance that he will receive a fair return for a period long enough to make the venture worthwhile. This is the minimum the state must offer, if it is to enlist the efforts of the private sector. The use of water by people and firms can be guided and controlled but it cannot be forced. The state may screen the uses and weed out the undesirable ones in such a way as to insure that state policies and plans are furthered, and it may impose conditions and limits to prevent undesirable practices and side effects, but it must give security to investments and opportunities for profit. With these assurances long-term ventures and stable endeavors will be undertaken. Without them much will be lost, for if risks are great only those requiring little capital and promising quick returns will be taken, and cheap construction and short cuts can be expected.

14. Law of July 28, 1967, Agrarian Reform Law, (1967) art. 3, No. 16, 640 (Chile).

In a dynamic society efficiency also requires change, if maximum benefits are to be continually obtained. New and better uses will arise that promise more than is being produced by existing, perhaps outmoded, uses. Demands will increase as population and industrialization expand, and if they cannot be economically satisfied from unused supplies, changes in use must take place. The resulting shifts from present uses to new ones must meet the same test applied to an original use. Each must be another step toward maximization of the benefits from the resource. The economist, using the "Pareto criterion," tells us that a change will reach or approach a new optimum if it will make at least one person better off and if it makes no person worse off. A change that merely shifts wealth from one person to another does not increase economic welfare, and even if a new use will create greater wealth, the criterion requires the gainer to pay the loser. The person who is better off should receive the net gain from the change, not someone else's wealth as well.

The problem for the lawyer, then, is to draft a law, a system of water rights, that will promote this goal of efficiency by providing both security and flexibility of water rights. Some people see these two desiderata as opposites, and if too much of one is given the other is thought to suffer. Yet they can be reconciled, and water rights can be made both secure and flexible.

A prime element of security is the tenure of the right. Some water rights are held "in perpetuity," although in view of the possibilities of loss through forfeiture or expropriation they might better be described as "of indefinite duration." The ideal water right should last as long as it is contemplated that the water use will last. Rights for cities, irrigation and other purposes of a continuing nature should last indefinitely. There is no substantial reason to think that a need will arise in ten or fifty years to take water from the inhabitants of a city and give it over to another use. If irrigation water furnishes a major component of the value of land, the titles to the land and the water should run concurrently. On the other

hand, there is little utility in leaving a mining company with a water right after the mine has been exhausted.

Rights that last as long as the enterprise will give security of tenure to the water user, but how are flexibility and change to be accommodated if rights are perpetual or for long terms? As an analogy, consider the laws applied to another valuable resource. That resource is land. The state has exactly the same interests in seeing that the highest and best use of land is made and that those uses can change when needs change. Almost universally rights to land are as secure a form of property as there is, and land titles run forever. Yet land use is flexible, and a shift from a low productive use to a higher productive use is accomplished by the simple process of a sale of the land. A farm on the outskirts of a city may have a higher productive use as an industrial site or as a residential area. In either case the industrialist or the developer can afford to pay the farmer more than the land is worth as a farm, and the one with the best use can afford the most. Both buyer and seller profit. In this respect, water resources are not too different from land resources. This is not to say that full property rights and unrestricted powers of sale are recommended for water rights. Legal mechanisms can be found that will permit economic forces to operate within a framework of government control. The government will generally favor a change in use that moves water to higher productivity. The government may disapprove of a change, however, and should be able to block a transfer of the water right that would interfere with the rights of third persons, result in a disfavored water use, or harm the public interest. Procedures that permit affected private persons to raise objections and the government to approve or disapprove can take the form of government confirmation of a sale or of cancelling the old right and issuing a new permit for the new use. On the other hand, the government may wish to force transfers that advance the public interest when private action does not produce the desired change. Again consider the case of land. If the government needs the land, it takes it by expropriation or condemnation; if a favored enterprise needs it, the government gives those powers to it. Fair compensa-

tion is paid if the total value is taken, and should similarly be paid if the value given by water is taken.

The desirability of this mechanism for change is not seen by all water lawyers. In fact, it seems quite popular nowadays to recommend that water rights should last only for fixed, fairly short periods.¹⁵ The advantage is thought to be the attainment of flexibility, since at the end of the term the state has power to reassign the water to new and better uses. There are disadvantages, however, to such a system, some of which accrue to the state in departures from optimum use, and some of which impose unnecessary harm upon the water user. Most investments take many years to amortize, and the term must be a long one if capital is to be attracted. Repairs and replacements may be foregone by the water user towards the end of a fixed period. Flexibility is surrendered during the life of the right, and if an application for a new use does not coincide with the expiration of an old permit, the new user may have to wait a fairly long time before water becomes available. If to meet this the right is subject to condemnation or expropriation during its life, the usual compensation offered is the unamortized portion of the investment. But the holder of the right will, in many cases, lose an asset more valuable than his sunk costs, that is, the going concern value of his enterprise, the continuing opportunity to make a profit, which is presumably a contribution to the economy.

At this point it may be wise to return to some of our methodological precepts and remember that we are speaking of laws that affect people and that laws should be tested by thinking through their application to practical facts. The theoretical proposition is that water use should be flexible and that water should move from less productive to higher and better uses. The fact is that almost everywhere in the world irrigation of agricultural crops produces less wealth per unit of water than does almost any other use—hydroelectric power, food processing, raw material processing, mining, manufacturing and domestic and commercial con-

15. See Guidelines, *supra* note 3; MALONEY, AUSNESS, & MORRIS, *supra* note 4.

sumption within municipalities. So in practical operation a change to greater beneficial use will mean that water now used by farmers will be shifted to large enterprises or cities. There is nothing bad about this *per se*; in fact it is almost inevitable. It may need to be controlled. For example, in a country where food production has a high government priority the natural economic processes may have to be interrupted and such changes forbidden. This would force cities and industries to seek higher cost water not presently in use and they might have to construct reservoirs or bring water long distances from places where use has not yet equalled supply. But if these considerations do not apply and the change is desired, a change made by fiat, without payment or compensation, will impoverish the farmer and unnecessarily enrich the industrialist or city dweller. Inevitably the farmer is poorer than he was before; he can produce less on his dry land. The water he formerly used is now being used by a manufacturing or mining company, for which the water cost would be a small part of total operating costs and could be recouped in the price for the product. If the water has moved to municipal uses, it is now benefitting householders and owners of commercial establishments within the city, and the principle of requiring those who receive the benefits to pay for them can be accomplished by a simple adjustment of water rates. A very small addition to the water bill of everyone in the city would create a fund from which payment to the farmer could be made.

Legal security given by tenure is only one-half the picture. So far it has been assumed that water was available to fulfill the right. Yet what if there is not enough to satisfy all rights? What physical security does the law provide, what guarantees that the holder of a right will get water? When there is a shortage of water, which water uses get it? These questions go to the heart of the law, indeed, shortages are what the law of water rights is all about. There is little need for water rights if there is plenty of water for all.

The word "shortage" needs to be defined. It is meaningless unless demand is considered as well as supply. On a

variable stream there may be an annual shortage if the normal or average low flows cannot support existing uses, although much high water flows to the sea. There may be shortages induced by drought if a usually sufficient supply fails in some years. There may be a shortage although the stream is running full, if the full flow is needed for fisheries, navigation, or environmental concerns. There may be no shortage even though every drop is used if the stream is so controlled that annual and perennial flows are equated by storage and the smoothed-out supply is fully but not over allocated. Such a firm right to a firm supply puts the water user in the best of all worlds.

But, for the most part, the real world is not so ideal. Some aquifers with steady recharge may present an opportunity to limit water rights and match demand to supply, but most streams are subject to very large annual fluctuations and to marked variation in yearly total flows. Some are sufficiently predictable to allow a dependable flow to be determined and split among a fixed group of water users, but this either wastes the excess high water if no rights are given to it or casts most of the burden of shortage on the users of high water.

In all cases, however, the physically available supply limits the water that can be withdrawn and the state, if it is to avoid chaos, must limit the claims to it. Inevitably, this limit will have an element of temporal priority to it. When claims equal supply, no more can be granted. New demands for better uses must then be accommodated by some mechanism for flexibility, as discussed above. Such a limit can be easily fixed if the supply is fixed. When the source fluctuates and sometimes can fill all needs but sometimes cannot, some method of allocating or distributing the immediately available water must be devised.

There are at least five ways of doing this. One is to enforce strict temporal priority, as exemplified by American prior appropriation. Another is to apply equal sharing enforced by proportionate reduction, as among some riparian

irrigators. A third is to follow a statutory list of preferences, giving priority according to a fixed ranking of the values of different uses. A fourth is to distribute the water as determined by administrative discretion based on various economic and social factors. A fifth is to put up the water for sale or auction, as practiced in some Moslem communities.

Since the criterion for the law is efficiency in obtaining maximum net benefits from water use, each of these must be evaluated against that standard before an intelligent choice can be made. *Prima facie*, each seems to have advantages and disadvantages. Temporal priority gives security, but it may sometimes seem to discriminate rather arbitrarily among people who are essentially similarly situated, and the earliest uses may not be the best ones. Sharing may be equitable among many farmers, but not if some have orchards or vineyards and others grow annual field crops, and a variable supply may be completely unsatisfactory for a factory or a mine. Statutory lists may reflect prevailing notions of relative values, but they may embody obvious diseconomies or prevent the comparison of the relative merits of individual uses. Even if they do prefer the most efficient uses, they operate so that the rich get richer and the poor get poorer. Bidding on the water market would seem to insure that the water goes to those who can produce the most from it, but it can lead to speculation and gouging, and to enrichment of those who hold a monopoly on water rather than those who work with it.

This leaves administrative control, and a number of water lawyers have thought this to be the ideal. Their theory is to place all the water in the hands of a wise administrator, let him put it where it will do the most good, let him prorate, let him reduce the supply or suspend the rights of some so that others may receive the water.¹⁶ I have serious reservations about this. We seldom give to a government official so much power over the lives and livelihoods of people. This procedure may deter investment and development, since entrepreneurs hesitate to engage in enterprises when suc-

16. *Id.*

cess or failure depends upon factors beyond their control. A rather ugly thought occurs, that the human factor could be subjected to enormous temptations and tremendous pressures to play political favorites, yield to political coercion, offer and receive bribes and graft. Even the most scrupulously honest administrators have complained of the personal strain such decisions cause, and have disclaimed the wisdom to make them with any assurance. And even if wisdom can be found, it must not only exist in higher echelons where policy is decided, it must be spread through all the regional subordinates and fieldmen who must make the actual on-the-spot decisions in individual cases.

Those who advocate administrative distribution in case of shortage may urge that with this method the public interest, or the environment, can be protected. But it must be remembered that all of this has been taken care of in the initial allocation of rights. To understand the workings of administrative distribution, it must be very clearly kept in mind that all we are talking about is water already allocated to private use, that the state and its administrators have issued permits for its use, that every use is beneficial, and that all uses can be made in times of water plenty. It must be remembered that all minimum flow requirements are met, that all other environmental factors are protected, and that the state water plan is observed or even furthered. The public interest stands neutral, and the only question is, which people get to use the water.

If each system has its good and bad features, must we then choose the least of evils? I think not, I think it possible to combine the best features of all these and to eliminate the bad effects of each.

In my preferred solution, temporal priority is the starting point, but only that. It does give security, it does mean that the state, having granted water to A, will not later grant that same water to B. Temporal priority is not the grant of a special privilege, it is simply a necessary element of the description of the water right that marks its boundaries and

distinguishes it from other rights. On a fluctuating source, it is the only way that new rights can be limited to water that is available in nature and is not already committed to existing uses. These virtues can be combined with those of sharing, if that is desirable. This is frequently done all over the world, even in western America, where a project or distribution scheme serves a number of irrigators who have in a sense a share of the distributor's water right. If that right cannot be supplied in full, the consumers take a proportionate reduction. Much the same thing can be done even though no works are needed and it is contemplated that individuals will provide their own means of diversion. If a reasonably dependable supply is available and total withdrawals are held to that limit, all of the permits, although requested at different times, could be given the same priority date or number. The plan would replace the project, the plan would receive the priority. This would avoid overcrowding by too many seeking shares, and would settle the relationships between the irrigators as a group and other irrigators, industrial users and municipalities.

Next is the problem of seeing that the water goes to the best uses. If the more productive and valuable users have junior water rights, economic efficiency can still be served by using the market, under the supervision of the administrator. We have spoken of transfers of water rights, but there is also need for sales of water as a commodity. The State of New Mexico gives a good example of how this can work. A statute permits the "leasing of the use of water" by an appropriator to any other person, with the approval of the state authorities.¹⁷ In a water-short year, growers of beans who anticipate a high price may hold junior water rights that give them no supply, while potato growers who face a glutted market can draw water under their senior rights. The bean growers buy water from the potato farmers. Maximum efficiency is reached, since the high-value crop is produced, and both water users share the profits. An administrator could not do as well. If he were charged with distributing the water on the basis of economic efficiency,

17. N.M. STAT. ANN. §§ 75-40-1 to -7 (1953).

he would allocate the water to the bean grower, but that lucky farmer would get all his profit while the unfortunate potato grower would suffer a total loss. If the administrator attempted to avoid this by a criterion of equity and gave half the water to each, the highest and best would not be served and maximum production would not be reached.

Another example of how temporary transfers of rights or sales of water could be of great utility is that of the city which gambled on a junior water right and is faced with an unusual drought. If farmers hold the priority, I would assume that an administrator would say that the city has the better use and would cut off the farmer's supply. The city would get the water but the farmer would be bankrupted. This is a social cost which must be reckoned, and the best way to account for it is to have the city pay for the farmer's lost crop. A country enacting a new law could improve on the New Mexico system by allowing only owners of permits to make purchases and by limiting quantities to enough to make up the shortage in the permitted supply. This would avoid the use of water by unauthorized persons or in unauthorized quantities. The administrator could also be given the power to force such temporary transfers and empower preferred users who are unable to make private arrangements to take temporary control of water rights at a fair compensation.

Up to now we have been dealing with shortages as if they were inevitable and uncontrollable. Both annual low flows and cyclic drought produce periods of plenty and periods of shortage, but in many areas storage of water can be used to equate the flow, to save high water for use in the low water period. Where storage is physically and economically available, the rule for dividing shortage is in practical fact a rule for determining who pays for the dam and reservoir. If an open-ended system of riparian sharing of a variable stream for irrigation eventually were to lead to too many and too small shares, all holders of rights might band together in some joint or communal organization to raise the dam. I think, however, that the costs of dislocation and the difficul-

ties of organization would be great. If economic productivity is the criterion for determining who gets low flows, the burden of providing storage would be cast on those least able to afford it. But if temporal priority is the rule, the juniors who enter the field after the low water is all spoken for must pay. Is this fair? I think so, for reasons to be developed later. It certainly is desirable from the standpoint of securing the main goal, the efficient use of water. The persons who will get the direct benefit of the storage must consider whether it is worth the price. A large estate, a communal group of farmers, an industry, a city, a government multi-purpose agency—whichever wants the water must calculate whether the benefits it will receive will exceed the costs.

From the standpoint of equity and justice, it should be remembered that development takes place over time. The first users take cheap, easily available, always available water. There is no shortage. When more and more uses are made, shortages are created as demands increase to meet or exceed low flow supply. Additional risks are created and additional costs must be met. It seems not unfair for the government to place those risks and those costs on those who create them.¹⁸

Justice is difficult to identify. One American writer has said that injustice is easier to spot, that human beings hold in common many notions of when they are being abused or treated unfairly.¹⁹ I think one of those notions is that when a person has taken, used, become accustomed to, and made a livelihood from water, it becomes "his water," and that one who takes it from him has "stolen his water." I used to think that prior appropriation was an American invention, but now I am convinced it was simply the verbal identification of a very widespread human trait.

Teclaff, in his survey of 57 countries, tells us that seniority in use is the most common of all bases for distributing

18. Again, local problems may call for variation. In Swaziland, European landowners have prior rights to most low flow water, and future projects for the Swazi people will require storage. Justice in this case was thought to require a water charge on the early users to provide a fund to pay for the dams. See TRELEASE, *supra* note 11, §§ 29, 36.

19. CAHN, *A SENSE OF INJUSTICE* (1949).

water among users.²⁰ In its most explicit form, prior appropriation exists not only in 19 American states, but also in the four western provinces of Canada, in Taiwan (China), Iran, Rhodesia, Zambia and the Philippines. There are strong elements of it in several South American countries.²¹ The 1963 British Water Resources Act creates a "protected right" indistinguishable from an appropriation, though enforced in an unusual roundabout manner.²²

Protection based on temporal priority is to some degree implicit in many other laws. Before state controls came into being, customary water rights, held from time immemorial or for prescriptive periods, were everywhere protected. When state authority to use water was instituted, the notion that a state should not make successive grants of the same water to different people appeared in most such laws. Permits, licenses or concessions, whatever they may be called, are not to be issued to the detriment of existing uses in most of the Spanish American countries, in several of the eastern United States, in Tanzania, and in Italy. Practically every new water code has given some sort of group preference to uses in existence when the code was adopted.

Some evidence indicates a subliminal recognition of priority even where the law is specifically to the contrary. The natural flow theory of 19th century English riparianism has been said to have been a protection of mill owners, a law designed to keep the wheels of the Industrial Revolution turning.²³ The reasonable use theory of American riparian law is applied to require several types of adjustments which enable several riparian uses to coexist, but a recent study of the cases shows that when two uses are truly incompatible the American courts almost invariably hold that a new use is unreasonable if it takes the water supply of an existing user.²⁴ Empirical studies show the existence of a sort of "practical

20. *Supra* note 2, at 81.

21. *Id.* at 82, 83.

22. Water Resources Act 1963, c. 38, §§ 26(1) (a), 51.

23. Beuscher, *Appropriation Water Law Elements in Riparian Doctrine States*, 10 BUFFALO L. REV. 448 (1961).

24. RESTATEMENT (SECOND) OF TORTS, § 850B(h) (i), Reporter's Notes 115-118 (Tent. Draft No. 17. 1971).

priority” in some American states, where riparians with theoretical rights to share in a stream voluntarily refrain from taking water after their neighbors have first captured the available supply. Even under modern statutes that subject the allocation and distribution of water to administrative discretion, the administrators in Great Britain, Kenya and Mexico have eased their burden by issuing permits that authorize the withdrawal of water only when there is a surplus over the needs of existing users.

CONCLUSION

Examples

Most of the first part of this paper is based on common knowledge, generally accepted legal principles and widely adopted statutory provisions, or simply states my personal predilections and homespun advice. Little of it is controversial. When I move to my precepts for a desirable form of water rights, however, I take issue with a number of my colleagues. In many personal conversations and exchanges of correspondence we have debated the merits of long term versus short term water rights, voluntary transfers versus governments shifts of water use, priority versus administrative distributions of shortages. I seldom lose these debates, of course, but I seldom seem to win them either. Too often our arguments do not meet head on because my propositions seem hard to state or difficult to understand, and my opponents assume that I advocate some form of Wild West scramble to rip off the public domain or a kind of robber baron speculation in the national patrimony. It is not difficult to show that administrative control offers advantages over such systems. It seems very difficult to explain how a system of controlled rights, secure but transferable, limited to quantities available in the source and not previously committed to other uses, can incorporate each advantage claimed for discretionary administration.

Perhaps the propositions here set forth can be clarified by illustration. Two very new examples may be compared.

One represents the ultimate in discretionary control of water use by officials, the other is based on the principles I have recommended.

Last year the President of the Philippines created a new National Water Resources Council and empowered it to issue rules and regulations for the exploitation and optimum utilization of water resources.²⁵ The superseded Irrigation Law of 1912 was modeled on an early form of American prior appropriation, implemented by a permit system. A number of contributing factors had made administration of the law ineffective, and permit procedures were overwhelmed by a flood of applications resulting from a new government program. The Council quickly adopted interim rules designed to expedite the processing of applications for water rights, and those rules make a fundamental departure from the nature of existing rights. The permits under the rules will not definitely fix the quantity of water allowed, the priority of the right, or the duration of the right. Each will be subject to these conditions :

The Council may, after due notice and hearing, reduce at any time the quantity of water or adopt a system of apportionment, distribution or rotation thereof when the facts and circumstances in any situation would warrant the same in the interests of legal appropriators.

The Council may, after due notice and hearing, revoke the permit in favor of projects for greater beneficial use or for a multipurpose use.²⁶

As explained by the Council's staff, these conditions were written into the permit for five reasons :

(1) Wasteful uses—some water users are wasteful, some can get along with less water, and as water demand increases and technology progresses, all water users may be required to initiate more economical methods or facilities.

25. Presidential Decree of March 28, 1974, No. 424 (Philippines).

26. Regulation of December 17, 1974, Interim Rules Governing the Processing of Application for Water Permit (Philippine National Water Resources Council).

(2) Reduction of use—irrigated lands are frequently subjected to changes in land use. If a water right exists to serve an area of land and part of the land is sold for residential use, or if the water is concentrated on one part while another is more or less permanently devoted to a purpose such as storage or a barnyard, the right should be reduced in quantity or terminated in part.

(3) Sharing during drought—in time of drought, it is inequitable that the entire burden of shortage fall on some farmers, while others, essentially similarly situated, get a full supply. “We wish to abolish priority,” was the statement made.

(4) Incorporation into projects—it is expected that many small irrigated plots will later be served by large multipurpose projects.

(5) Flexibility of use—to “keep up with progress” under developing conditions and to permit “greater beneficial use,” it will be necessary to shift water from one enterprise to new and different ones that will contribute more to the Philippine economy and development, and to permit multipurpose uses of greater public benefit.

Each of these reasons has a sound basis in fact and each problem or need described exists. Each condition described can be corrected and each aim accomplished by administrative action under the terms of the permit. These conditions will protect the paramount interests of the state, preserve every right of the state, and subordinate private uses of water to state control at every stage.

Contrast the new water law recommended for Swaziland. The Swaziland permit is a “protected right,” following British terminology, and each permit bears the date on which the application therefor was filed. The law provides :

Every water right shall be protected from derogation by the exercise of any permit bearing a later date and shall entitle the holder to abstract the whole

amount of water specified in the permit before any water is distributed to the holder of a permit bearing a later date.²⁷

The permit lasts as long as water is needed:

Every permit shall state the period of its duration, as determined by the Board in accordance with the following provisions: (a) any permit for [domestic] use, for urban and public water supply, for the irrigation of land and for other purposes of a continuing nature shall be of indefinite duration, and valid until revoked, varied or cancelled in accordance with § 23 [with compensation except in cases of three year nonuse or violation of law]; (b) any permit for industrial purposes shall lapse with the termination of the use of the water for such purposes or with the abandonment of the mine, plant or other facility for which it was used.²⁸

These provisions give the Swaziland water user the security denied to his Philippine counterpart. Yet every objective of the Philippine government can be accomplished under the Swazi law. In Swaziland as in the Philippines, physical waste can be found. Irrigators use large quantities of water, inefficient means of diversion and wasteful practices. Cheap water is used instead of expensive equipment or labor. But a Swazi permit will be issued subject to:

Such terms, conditions, restrictions and limitations as [the Board] deems necessary for the protection of others and the public interest including (a) any limitation whereby the quantity of water permitted to be extracted is restricted to that amount which may be beneficially and economically used and efficiently applied.²⁹

If future conditions require the state to impose an increase in efficiency, the permit is also subject to:

Any requirement for the abstraction and use of the quantity allowed by the permit to be made pursuant

27. *TRELEASE. supra* note 11, § 25(1)(b).

28. *Id.* at § 20(2).

29. *Id.* at § 20(1)(a).

to the regulations or orders of the Board governing efficient water management.³⁰

These same conditions in the permit could be used to take care of the second case that bothers the Philippine Council, in which the amount of irrigated land is decreased and less water is therefore needed. Since the beneficial use is decreased the amount of water needed for the remainder of the land would decrease. Further, the Swazi law states that:

The Board may cancel or vary any permit if the holder thereof voluntarily fails or neglects, without sufficient cause, to apply all or any part of the water to the use for which the permit was issued for a period of three successive years.³¹

Thus, if the decrease in use were temporary, the decrease in water delivery would be temporary, but if the decrease were permanent, a part of the water right would cease to exist.

In the third situation, the Philippine council reserves the right to apportion and rotate a short supply among irrigators. The practical problem arises from the fact that the government, seeking to improve rice yields by prolonging the growing season with irrigation, has distributed a large number of pumps to individual farmers in order to enable them to use whatever water is available. Each farmer will have to apply for a permit, and it is felt that minor differences in the time of filing should not be the deciding factor in determining who gets the water. In Swaziland as well, projects are being studied that call for irrigation of small plots of new land by the Swazi people. On some of them the water is quite accessible and may be taken by individual works that may be initiated at different times, on others the government will construct large works and deliver the water to the farmers. In either type of settlement, equality and sharing among the irrigators is thought desirable. The law therefore states:

30. *Id.* at § 20(1) (c).

31. *Id.* at § 23(4).

If a government irrigation project or scheme or an irrigation project or scheme initiated by an organization or group of water users is to be effectuated by permits issued to individual water users, the government, industry, department or agency, or the organization or group, may apply to the Board for an order setting aside or reserving a specified quantity of water for the irrigation of all irrigable lands to be served by the project or scheme, and the Board may issue such order and thereafter all permits issued for the irrigation of such land shall bear the date of the application for such order.³²

All permits bearing the same date shall entitle the holders thereof to a prorata share of the source of water insufficient to supply all such rights in full.³³

The fourth concern of the Philippine Council is that of the small farm which is swallowed up by a large project. It is contemplated that the land will continue to be irrigated, and what is actually involved is the substitution of the project's right for the old individual right. This would be done without compensation. The farmer's facilities would be rendered useless, however, and he would bear a double burden if he must pay for his own works and a full share of project costs as well. Contrast the Swazi solution:

If as a result of variation or revocation the holder of the varied or revoked permit can be supplied with water by a government or private scheme or project, or a local authority, in favor of which the permit was revoked or varied, damages shall be limited to the unamortized portion of the investment in water works rendered useless or unnecessary.³⁴

Lastly, the Philippine permit was made revocable at the will of the Council so that it might keep up with progress and shift water to new enterprises that will contribute more to the country's development, or to government multipurpose projects. Such opportunities for water to move to higher and better uses will occur in Swaziland as well. If a new govern-

32. *Id.* at § 24(5).

33. *Id.* at § 25(1)(c).

34. *Id.* at § 23(1).

ment scheme is planned, and it is found that an incompatible existing use must be ended or the water must be acquired for the project, then:

If the [King], a local authority, the Electricity Board, or any ministry, department or agency of the government constructing or operating a government scheme, project or water work, desires to acquire for its purposes any existing water right, servitude or land, it may . . . acquire such water rights, servitude or land, or such portion thereof as may be necessary, by expropriation and the Acquisition of Property Act shall . . . apply to such expropriation and the compensation . . . to be paid therefor.³⁵

Swaziland has large reserves of coal and is highly mineralized, and if a mining enterprise should in the future need a firm supply of water, it could approach any one of a number of farmers who have high priority water rights, and work out a transfer:

The Board may authorize the use of all or part of the water to be abstracted pursuant to permit to be changed or transferred to a different use or place of use by the same or another person if a change or transfer is effected by a surrender of the permit and the issuance of a new permit or permits bearing the same date.³⁶

In proceedings for obtaining approval of the Board for any change or transfer, . . . the Board shall approve and allow changes and transfers . . . only if it is satisfied that no injury will occur to the water rights of other persons, that the new use or place of use will be in the public interest and in conformity to or compatible with a water resources plan relating to the source or area, provided, that in appropriate cases the Board may inquire into the adequacy of the consideration paid to the person making the transfer and as to whether permitting the transfer will be to the best interests of such person.³⁷

35. *Id.* at § 22.

36. *Id.* at § 21(4).

37. *Id.* at § 21(5).

The transaction would be the same as if the mining company needed the farmer's land. Since the company will in fact produce greater wealth than does the farmer, it will be able to afford to buy out the farmer's interest to give him a substitute in money that will replace the foregone income from farming. The state will control the transaction, protect its interest, and must agree that its goals and plans are furthered by the shift. The last proviso illustrates state retention of control over a social factor. If the transferor is a Swazi farmer, the transaction can be scrutinized to see that he was not overreached in the bargaining process, and that he has other opportunities he can grasp and has not merely sold his birthright for a mess of pottage.

To summarize: in both countries, under either form of law, waste can be prevented, forfeiture imposed for nonuse, shortages prorated among similarly situated irrigators, large projects substituted for individual works, and water can move to higher and better uses. Under the interim rules of the Philippines, this is accomplished by telling the water user that the initial quantity of water allotted to him may be reduced at any time for someone else's benefit and, indeed, that his entire water right may be taken from him at any time the government or someone else needs it. This is overkill, more than is necessary for the purpose. Though these same objectives are reached in Swaziland, there the water user, whether African farmer or mining executive, knows he will be allowed the quantity needed for efficient accomplishment of his use. He knows whether or not he must share, and if he must, with how many. He knows that if he needs a firm supply and the source is variable, he must arrange for storage. He knows that if the government takes back its grant of water it will compensate him for it.

The Philippine Water Council, and its staff, are men of good will, public servants seeking to advance the best interests of the government and to wring the last benefit from water use. But since the intent is to accomplish much of the development of the Philippines through the private sector, by individuals, cooperatives, and businesses engaged in food

production and processing, raw material extraction and processing, manufacturing and mining, the question may be asked whether such tenuous rights may not frighten away such water users and actually prove counterproductive in achieving the government's objective. When the present crisis is over the interim regulations are to be replaced with a permanent water code. At that point, the Philippine government might well consider whether its interests may be better served and more benefits may be obtained by giving more assurance to those whose energies must be enlisted in the effort to develop the nation's water resources.

Applicability

Any claim to universality is subject to challenge. Nevertheless, it is believed that state control over all waters, state authority to control new uses, and state confirmation of beneficial existing uses will be elements of any new water law, and that the reconciliation of stable enterprises with mechanisms for progress is everywhere desirable. If this paper has sounded too much like the talk of an American lawyer, the challenge to one trained in another system is to translate it into his terms. For the general concepts here outlined are not based on any one legal or economic system.

Let us not become confused with formal and semantic differences. The secure and transferable water rights I have described would be called "property" by an American, while a lawyer familiar with a civil code would probably not use that word. The American speaks in a constitutional sense, with reference to the guarantee that, "no person shall be deprived of property without due process of law." His appropriation creates an entitlement that gives him the firm expectation that he can secure water under stated conditions for a stated time, unless he chooses or is forced to accept an equivalent in money. The American's property right may be subject to loss by forfeiture for nonuse, liable to reduction in the interest of efficiency, accountable for taxes and charges, cancellable for certain causes, and he cares not. He thinks of property as a "bundle of sticks," and you may

strip away some sticks and still leave the bundle. Although his expectations must be qualified and his actions adjusted accordingly, he can enforce his qualified right against other claimants to the water and the government cannot change the rules of the game, terminate his right on bureaucratic whim, give his right to another, or seize it for itself unless his loss is replaced by compensation. These limited and qualified rights are his property, what he owns.

On the other hand, a civilian with much the same expectations would not call his water right property. To him ownership or dominion is an absolute, a single staff rather than a bundle of rights. A government lawyer trained in civil law will not understand an American who tells him that water users should be given property rights. He knows that the water is the property of the state, inalienable and imprescriptible. The most he will think the government should give is a concession, hedged with contractual limitations, or better yet a permit giving usufructuary privileges, subject to reduction in the interest of efficiency, subject to termination if not used, liable for taxes and charges, and cancellable for certain causes. Yet these are exactly the same powers, privileges and restrictions created in the common law country.

The same problems of terminology may apply to the theme of obtaining flexibility. The common law right to sell real property may be hedged about by zoning restrictions, land use planning requirements and even planning permission by the authorities, but the common law owner will still think of a voluntary transfer of land under these conditions as a sale, and he will call his water right salable although it is subject to similar restrictions. In civil law countries the transaction may be termed a transfer by the authorities at the request of the parties, but the upshot is much the same. Expropriation by favored users declared to be of public utility may be more widespread under civil law than condemnation is in common law countries, and to the extent that the expropriators are those users most likely and best able to seek and pay for water in use by others the practical operation is much the same as if voluntary transfers were

allowed. For example, in Peru transfers of water rights are forbidden, but the authority may terminate water rights in order that the resource may serve a favored user such as an industry, on condition that the beneficiary pay fair compensation to the aggrieved user.³⁸ In practice, this has meant that negotiations take place between old and new users as if a sale were about to take place, then the transaction is consummated by having the authority cancel the old right and issue the new, fixing the proper compensation to the "aggrieved" user as the price he previously agreed to accept.

Nor does a water law system of secure rights depend upon an economic foundation of pure laissez-faire capitalism. It is equally necessary or desirable under various degrees of socialism. Mixed companies depend upon private investors for security as do proprietary firms. Social schemes may be needed to give an unsophisticated rural population with little access to capital an opportunity to participate in irrigation development. If a near subsistence level of farm income is expected, security of the water supply from encroachment is especially important. Again, an interesting variation on the themes of security and flexibility is found in the Peruvian Water Law of 1969, a very socialistic regulation keyed to the nation's program of land reform. Planning priorities go to crops of the greatest and most direct benefit to the community, the most efficient irrigation systems and the most suitable land.³⁹ But if in time of shortage the preference for certain types of agricultural use and specific crops leaves some farmers unable to grow any crops, money is substituted for water and a social compensation scheme will be established in which all users within a given district may participate in order to insure them an income sufficient for subsistence and to compensate them for costs incurred in preparing their land.⁴⁰

Even in Marxist countries, where all resources and means of production are owned by the state and the economy

38. Law of July 24, 1969, General Water Law, (1969) art. 35, No. 17, 752 (Peru).

39. Law of July 24, 1969, General Water Law, (1969) art. 45 (Peru).

40. Law of July 24, 1969, General Water Law, (1969) art. 46 (Peru).

is run almost entirely by plan, these principles for a water law system can be translated into socialist terms. The USSR provides an example. Until uses grew so large that all could not be accommodated, there was no Soviet system of water law. Plans were made for production of steel, energy and food which, of course, included plans to use water, but no allocation of water as such was assigned to the production enterprise.⁴¹ In 1960 the Council of Ministers issued the first Water Resources Decree, which required planning for "complex use" of water (multiple use by multiple means) and a registration and certification of principal water uses and installations,⁴² but not until the 1970 Principles of Water Law did the Soviet Union provide for authorization from state agencies of all special uses of water, those carried out by facilities or technical devices.⁴³ Under these Principles a grant creates a form of socialist civil property: every water user is obliged to respect the rights granted to other water users,⁴⁴ and if loss to a water user is caused by violation of water law the offending water user must compensate the injured user.⁴⁵ If loss is caused to enterprises, organizations, institutions and citizens by carrying out water management measures, or by the termination or change of conditions of water use, compensation must be paid.⁴⁶ Of course, since all water rights stem from the state property in water⁴⁷ the rights of water users may be limited in the interests of this state,⁴⁸ which may terminate the grant if the enterprise or organization is liquidated, if the installations are transferred to other water users or if it becomes necessary to end all individual use of a body of water.⁴⁹ But if,

41. KOLBASOV, LEGISLATION ON WATER USE IN THE USSR (1965).

42. Law of Apr. 22, 1960, Decree to Regulate Use and Increase Conservation of Water Resources No. 9, Item 67 (Council of Ministers U.S.S.R. (1960)).

43. Law of Dec. 10, 1970, Fundamentals of Water Legislation art. 15, No. 50, Item 566 (Supreme Soviet U.S.S.R. 1970).

44. Law of Dec. 10, 1970, Fundamentals of Water Legislation art. 17 (Supreme Soviet U.S.S.R. 1970).

45. Law of Dec. 10, 1970, Fundamentals of Water Legislation art. 46 (Supreme Soviet U.S.S.R. 1970).

46. Law of Dec. 10, 1970, Fundamentals of Water Legislation art. 20 (Supreme Soviet U.S.S.R. 1970).

47. U.S.S.R. Consr. art. VI.

48. Law of Apr. 22, 1960, Decree to Regulate Use and Increase Conservation of Water Resources art. 17 (Council of Ministers U.S.S.R. (1960)).

49. Law of Apr. 22, 1960, Decree to Regulate Use and Increase Conservation of Water Resources art. 18 (Council of Ministers U.S.S.R. (1960)).

for instance, the state planning committee were to decide that irrigation on a state farm in the arid regions of the Soviet Union must be discontinued so that the water supply might go to a new steel mill, the Soviet government would not simply abandon the workers on the farm. They might be reassigned to new employment, possibly retrained, but some socialist opportunity for their continued well-being would be found, equivalent to the opportunities that payment or compensation gives in other societies.

I might close with an anecdote. My charge in the assignment to Jamaica was to draft a law which would give aid and encouragement to the developing Jamaican economy, based largely on irrigated sugar cane with a more recent overlay of tourism, mining and manufacturing, and to protect the island's cities and tropical environment. In submitting various drafts I encountered some resistance to American language and quietly shifted from "prior appropriation" to the British "protected right," with which the Jamaicans felt more comfortable. During the process a counter proposal was made from another source for an "administrative system" of permits for the "expected constant yield" and for rationing water in times of shortage on the basis of "the value of the particular uses" and "the national interest." The supposed simplicity of this, compared to my allegedly complicated recommendations, had a certain appeal, but eventually my proposal won out. It has since received cabinet approval although it has not yet been adopted by the Parliament.

During the discussion the Jamaican co-director of the project, probably the future Commissioner for Water Resources, probed into how operations would actually be conducted under it. He was quick to see the type of pressures that could be brought and the difficult decisions that would have to be made in determining the size of the "expected constant yield" and whether one more permit could be squeezed into it. He also saw the ease with which he could issue permits that prohibited interference with previously issued protected rights. And he was enchanted with the notion of handling shortages by priority coupled with temporary transfers

of water, as in New Mexico. "I see—under the other system I might have to choose between shutting down a new hotel or starving some cane farmers. But one or two farmers' quota would supply the same hotel, and under your law I could just notify the hotel manager to start negotiations. Why, I might even act as a broker and help them get together."

I believe that man caught a glimpse of what water law is all about, and grasped the fundamental idea I have advocated. A water law must be designed to promote "comprehensive development" and achieve "efficient use of resources." But why? To increase the nation's welfare. For whom? The people who form that nation. How? By offering them opportunities and incentives to participate in that development and enjoy the fruits of that use. The water laws we draft must give people tools to work with and assurance that if conditions change they will not have worked in vain. So encouraged, farmer and entrepreneur will use the water to the fullest extent when there is enough for both, and when there is not, the water will move to its best use but they still share its fruits.