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HIGHEST AND BEST USE: AN ECONOMIC GOAL FOR WATER LAW*

DONALD R. LEVI**

I. INTRODUCTION

Regulating the right to use water becomes an economic problem only when there is water scarcity, whether caused by deficiencies in quantity or by pollution. There are presently pockets of water scarcity in all regions of the United States. Pollution and population increases may significantly increase the size and numbers of these "pockets of scarcity," eventually making it necessary for some level of government to regulate the rights of competing water users.¹ Projected demands for water indicate that the physical supply of water should be adequate to meet expected economic growth,² but "physical supplies" and "usable supplies" are not synonymous. Thus, even the more humid eastern states are becoming aware of the need to use available supplies more efficiently, and to preserve water quality when economically feasible.³ As the number of uses for water multiplies, and as competition increases among those using water in different enterprises, it becomes imperative to establish some

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1. There are constitutional implications that may arise from the establishment of a new system of governmental regulation of the right to use water. These questions are not within the scope of this article.

2. See H. LANDBERG, L. FISCHMAN and J. FISHER, *RESOURCES IN AMERICA'S FUTURE* (1963).

3. This recognizes that costs may prohibit treatment required to obtain completely pure water. Thus, when one considers the social benefit derived from productive processes sometimes associated with water quality deterioration it becomes apparent that society may prefer to tolerate some minimum level of pollution. See generally J. HEADLEY and J. LEWIS, *THE PESTICIDE PROBLEM: AN ECONOMIC APPROACH TO PUBLIC POLICY* (1967).

principle or system which will optimally allocate this resource among competing users.

Many social scientists believe the economic principle of "highest and best use" is the pivotal doctrine around which a system of water law ideally should be built.⁴ The theory of the doctrine is that society should receive the greatest possible benefit from the existing supply of water. This is accomplished by encouraging shifts from a use which is less beneficial to one that is more beneficial.⁵ While economists have long advocated the economic principle of highest and best use,⁶ legislatures have not readily responded.⁷ Perhaps this is largely due to communication barriers between economists and attorneys. At any rate, the less than optimal interplay between law and other social sciences has been a hindrance to serious legislative consideration of this economic goal for water law.

Previous writings by legal scholars in the field have been largely limited to "reasonable use" and "beneficial use" of water.⁸ An economist, on the other hand, might define a beneficial use of water as one in which the value of the benefits received from usage is greater than the cost of utilization. Or, to add a degree of sophistication, a beneficial use of water occurs when the marginal value product⁹ is greater than the marginal factor

4. So many economists have advocated this doctrine that it would be a practical impossibility to cite them all. This is really the application of a general principle of resource economics to a specific resource.

5. One state statute which would appear to do this is KAN. STAT. ANN. § 42.121 (1964), allowing water rights in Kansas to be transferred separate and apart from the land. This is a practical necessity if any meaningful shift between competing uses is to occur. For a similar provision, see ALASKA STAT. ANN. § 46.15.160(b) (1966). Permitting water rights to be freely alienable allows economic forces in the marketplace to allocate limited supplies among competing users. Those who can receive the greatest benefit from a given quantity will be willing to pay the most for it.

6. See, e.g., Milliman, *Economic Considerations in Allocating Water Resources*, PUBLIC POLICIES RELATING TO WATER, 86 (Columbia, University of Missouri Extension Division, 1966).

7. One exception is the Alaska statute drafted by Frank J. Trelease. Among competing applicants, if the source is insufficient to provide the requested water for all, the permit(s) to appropriate shall go to the "use which alone or in combination with other foreseeable uses will constitute the most beneficial use." ALASKA STAT. ANN. § 46.15.090 (1966). Further, in recognition that societal values are not static but change over time, continuous use of water in its "most beneficial" or "highest and best" use is permitted by ALASKA STAT. ANN. § 46.15.160 (1966), which allows the water right (permit) to be transferred with the realty or separate and apart therefrom. This allows shifting from a lower to a higher-valued use (e.g., from irrigation to manufacturing).

8. See, e.g., Trelease, *The Concept of Reasonable Beneficial Use in the Law of Surface Streams*, 12 WYO. L. J. 1 (1957).

9. The term "marginal value product" refers to the value of the quantity of output induced by the addition of one more unit of a resource (input) to the productive process. Given the classical production function the marginal value product

cost.¹⁰ The legal scholar attempting to define the term "beneficial use" may turn to three sources—recorded case decisions, statutes, and possibly the state constitution. The courts have not been particularly helpful. An Arizona court has stated:

[The doctrine of "beneficial use"] is to the effect that a water right is attached to the land on which it is beneficially used and becomes appurtenant thereto, and that the right is not in any individual or owner of the land. It is in no sense a floating right, nor can the right, once having attached to a particular piece of land, be made to do duty to any other land. . . .¹¹

And in New Mexico, beneficial use has been defined as:

the use of such water as may be necessary for some useful and beneficial purpose in connection with the land from which it is taken.¹²

will not be static but will vary as we add more of a resource. This just says that, for example, the value of output induced by the first inch of irrigation water is not likely to be the same as that induced by the fifth inch.

For those who prefer the science of mathematics, let MVP designate marginal value product. Two more definitions are needed before we can give this term meaning: (1) Let us symbolize marginal physical product as MPP and define it as the amount of output induced by the last unit of resource used in the production process; (2) let us further designate the price of the product being produced as P_y . Now marginal value product can be defined as the marginal physical product multiplied by the product price. Or, mathematically, $MVP = (MPP)(P_y)$. Under conditions of perfect competition, price is constant in the short run. This means that changes in MVP are caused by changes in MPP. An illustration of the latter's occurrence can be found in Table 1, note 27 *infra*.

10. Marginal factor cost is just the cost per unit of water which will be designated as MFC or P_x . Thus, we have said that a beneficial use occurs when MVP is greater than MFC. For those who remember their undergraduate economics courses, this can be manipulated algebraically to the point of maximum profit

$(MPP = \frac{P_x}{P_y})$, as follows:

$$a) MVP = (MPP)(P_y)$$

$$b) MFC = P \text{ water} = P_x$$

$$(MPP)(P_y) = P \text{ water if the producer is to produce.}$$

$$MPP = \frac{P_x}{P_y} \text{ at point of maximum profit.}$$

Given that MPP may fluctuate, this equation permits one to calculate the price ratio and find the optimal level of production (*i.e.*, maximum profit). If one knows what the production function looks like (*i.e.*, how much output is induced by each successive unit of input) he can then work backwards from the calculated MPP to the desired level of input.

11. Gillespie Land & Irrigation Co. v. Buckeye Irr. Co., 257 P.2d 393, 398 (1953).

12. State *ex rel.* Erickson v. McLean, 62 N.M. 264, 273, 308 P.2d 983, 988 (1957).

These definitions are of no functional value to either economists or lawyers. The courts have also frequently treated appurtenancy as an essential of certain riparian rights, since the water right is appurtenant to the land in many states.¹³ However, appurtenancy does not constitute an essential element of a beneficial use in the economic sense of the term. Rather, whether a given application constitutes a "beneficial use" of water is a fact question depending upon the circumstances of each case.¹⁴

II. REASONABLE USE VERSUS BENEFICIAL USE

Although the terms "reasonable use" and "beneficial use" are synonymous, each is usually associated with a different system of water law. The right characteristic of the riparian rights system of the thirty-one eastern states¹⁵ is that of "reasonable use" with regard to landowners adjoining natural watercourses,¹⁶ and lakes.¹⁷ The question as to whether a given usage is reasonable usually does not arise until there are competing users with regard to a given source. The "reasonable use" requirement of the riparian rights system and the "beneficial use" or application called for by the prior appropriation systems are parallel terms, given a source of water inadequate to meet the desires of all potential users. Comparing the "reasonableness" of two competing uses necessitates a determination of the use with the higher value.

While the case law indicates clearly that use of water for domestic

13. Among the exceptions are Kansas and Alaska. See note 5 *supra*.

14. City and County of Denver v. Sheriff, 105 Colo. 193, 213, 96 P.2d 836, 846 (1939).

15. This is a traditional classification and includes those states in the humid, as opposed to arid or semi-arid areas. Missouri falls within this classification.

16. In the case of Benson v. The Chicago and Alton Railway Company, 78 Mo. 504 (1883), Missouri adopted the Wisconsin definition of a watercourse, stating:

The best legal definition of the term "water course," which I have found, is that given by Dixon, C.J., in *Hoyt v. City of Hudson*, 27 Wis. 661: "There must be a stream usually flowing in a particular direction, though it need not flow continually. It must flow in a definite channel, having a bed, sides or banks, and usually discharge itself into some other stream or body of water. It must be something more than a mere surface drainage over the entire face of a tract of land, occasioned by unusual freshets or other extraordinary causes. It does not include the water flowing in the hollows or ravines in land, which is the mere surface water from rain or melting snow, and is discharged through them from a higher to a lower level, but which at other times are destitute of water. Such hollows or ravines are not in legal contemplation water courses."

17. The legal rights applicable to watercourses apply also to ponds and lakes. F. Man, J. McLarney, R. Angle, F. Miller, *Water-Use Law in Missouri*, 889 Mo. AGR. EXPER. STA. BUL. 24 (1965).

purposes is reasonable or beneficial, it is not always clear what is encompassed by the term "domestic use."¹⁸ In addition to ordinary household use, stock watering has been included in domestic use.¹⁹ In view of the fact that water for domestic use has traditionally been thought to involve small quantities,²⁰ modern large scale feedlot operations make it illogical to give stock watering the same preference as water used for drinking and other household purposes.²¹ Some courts have recognized that, while stock watering is clearly a beneficial use, it should not be entitled to compete on an equal basis with other types of life-sustaining and household uses.²²

"Beneficial irrigation" has been judicially defined as "the amount of water needed for the successful growing of diversified crops."²³ The term "beneficial irrigation" may not be synonymous with "beneficial use" in the mind of an economist, because crops could be grown successfully without producing a profit. The watering of crops, including pasture land,²⁴ is ordinarily considered a beneficial use of water. In recognition of the wisdom of preparing for extended dry periods, a court has sustained the argument of a canal company that maintaining a reserve for irrigation purposes is similarly a beneficial use.²⁵

Recreation is one of the more recent uses to be classified as reasonable or beneficial,²⁶ although it is a use which is difficult to analyze in a cost-benefit framework. In other words, it is difficult to quantify the benefits enuring by reason of recreational uses of water. For example, how much is it worth to be able to fish in a lake all day?

18. For a good discussion of the scope of the term "domestic use," see Trelease, *The Concept of Reasonable Beneficial Use in the Law of Surface Streams*, 12 Wyo. L. J. 1, 3 (1957).

19. *First State Bank v. McNew*, 33 N.M. 414, 422, 269 P. 56, 59 (1928).

20. *Crawford Co. v. Hathaway*, 67 Neb. 325, 372, 93 N.W. 781, 797 (1903).

21. *Meng v. Coffey*, 67 Neb. 500, 93 N.W. 713 (1903).

22. It is a question of degree. *Lux v. Haggin*, 69 Cal. 255, 399, 10 P. 674, 758-759 (1886). But, in another decision, the same court recognized stock water to be a "reasonable beneficial use" although "it would be an unreasonable use to require the flow of the surface stream if such cattle can reasonably be watered at reasonable expense by some artificial means." *Rancho Santa Margarita v. Vail*, 11 Cal.2d 501, 561, 81 P.2d 533, 563 (1938).

23. *Barker v. Sunnyside Valley Irr. Dist.*, 37 Wash.2d 115, 118, 221 P.2d 827, 829 (1950).

24. *State ex rel. Silve v. District Court of Tenth Judicial Dist.*, 105 Mont. 106, 112-113, 69 P.2d 972, 975 (1937).

25. *East Side Canal & Irr. Co. v. United States*, 111 Ct. Cl. 124, 162-163, 76 F. Supp. 836, 839 (1948).

26. *Cascade Town Co. v. Empire Water & Power Co.*, 181 F. Supp. 1011, 1017 (D. Colo.), *rev'd*, 205 F. 123 (1913); *State ex rel. State Game Commission v. Red River Valley Co.*, 51 N.M. 207, 218, 182 P.2d 421, 428 (1945).

III. THE CONCEPT OF "HIGHEST AND BEST USE"

Economists use the term "highest and best use" as a synonym for "most beneficial use." With regard to two competing uses of a limited supply, it implies that one may be preferred to the other. The use economic theory dictates as preferable is the one which gives the greater positive addition to social product, yielding the maximum social benefit. To determine which of the two is more beneficial, economists use the principle of marginality (explained in footnote)²⁷ or perhaps a mathematical model based on a

27. This refers to the change in output, cost, revenue, *etc.*, associated with the addition of one more unit of a given resource (*e.g.*, water) to the productive process. The principles of marginality would indicate that *each* unit of a resource be employed by the competing user who can realize the greatest increase in net benefits, thus assuring the largest possible addition to total social product from a specified amount of water, given the competing users.

For illustrative purposes, assume the following physical relationship exists between successive additions of units of water and the level of output achieved. This is a "factor-product" relationship to the economist, and here it is used to compare the relative benefits received from irrigation by neighboring corn farmers whose lands have different water-yield response characteristics.

Irrigation Water Added, in inches	Total Output (in bushels)	Marginal Output (or MPP, in bushels)
	<i>Farmer #1</i>	
0	40	
1	44 >	4
2	50 >	6
3	60	10
4	72	12
5	78	6
6	82	4
	<i>Farmer #2</i>	
0	50	
1	60 >	10
2	74 >	14
3	82	8
4	85	3
5	87	2
6	86	1

This hypothetical data indicates both total output and marginal output from adding successive units of irrigation water. Without irrigation, Farmer #1 will produce 40 bushels of corn while Farmer #2 will produce 50. Now let us suppose that they both have access to the same source of water, and that it will be exhausted if *either* farmer adds six inches of irrigation water to his corn. Thus, our problem becomes one of making the optimal allocation of a limited supply between two competing users. Given the principles of marginality, the first inch of irrigation water will be allocated to Farmer #2. He can realize a yield increase of 10 bushels

product-product relationship.²⁸

While social scientists have little trouble in agreeing on a meaning for "highest and best use," the courts have seldom had the occasion to give the term meaning. Speaking in regard to an eminent domain problem, an Illinois court has said:

[T]hey are entitled to have that value fixed on the basis that the property is to be sold for the highest and best use to which it is adapted—that is, the use which makes it the most valuable.²⁹

Facing a similar problem, a Louisiana court stated:

Fundamental to the concept of value [of property expropriated] is the theory of highest and best use, i.e., that use which, at the time of the taking, is most likely to produce the greatest net return.³⁰

While neither court was speaking directly to the problem involved with water usage, their language is relevant to the problem at hand. It is sub-

with this water whereas Farmer #1 would only add 4 bushels with his output (see the preceding table and compare the *marginal* outputs of the two producers). The second inch should also go to Farmer #2 as he will again realize the greatest increase (14 to 4). Likewise, the third inch will be given to Farmer #2, as his increased yield would be 8 bushels (as compared to 4 for Farmer #1). However, the fourth inch can be used to comparatively greater advantage by Farmer #1. He can realize an increased yield of 4 bushels by initiating irrigation, whereas #2 would increase production by only 3 bushels by adding a fourth inch of water to his land. Likewise, the fifth and sixth inches would both go to Farmer #1, with the comparative yield responses being 6 to 3 and 10 to 3.

If Farmer #1 had used all six inches his yields would have increased by 42 bushels (from 40 to 82). If Farmer #2 had used all six inches of water, his net increase in production would have been 36 bushels (from 50 to 86). However, by making a "marginal" allocation of a scarce supply of six inches we have increased production by a total of 52 bushels (20 bushels for Farmer #1 and 32 bushels for Farmer #2). This is the maximum production which can be achieved with this supply of water, given the growing conditions assumed by the respective production relationships. If our water supply is greater in a given year, we would allocate the seventh inch to Farmer #1 because this would increase his yields by 12 bushels as compared to four for Farmer #2. Again, we are allocating resources at the margin, using as a criterion the additional output induced by this additional unit of our input. This example has involved the same product for simplicity. If we have different products (such as corn and soybeans), we need only take the change in output observed at the margin and multiply it by the market price of our respective products. The figures thus obtained can then be compared directly, as they embody the concept of marginal value product discussed *supra* at note 9.

28. An explanation of the product-product relationship is beyond the scope of this essay. Those interested in pursuing this concept might see C. Bishop and W. Toussaint, *INTRODUCTION TO AGRICULTURAL ECONOMICS ANALYSIS* (1965).

29. *Freiberg v. South Side Elevated R.R. Co.*, 221 Ill. 508, 515, 77 N.E. 920, 922 (1906).

30. *State v. Hedwig, Inc.*, 133 So.2d 180, 182 (La. App. 1961).

mitted that with regard to water law either definition is acceptable to lawyers and economists alike.

While the judicial definitions of "beneficial use" cited earlier were essentially meaningless to economists, those outlined for "highest and best use" are concise and useful. Illinois and Louisiana were, respectively, interested in securing the "most valuable" use and the "greatest net returns." Both courts have implicitly recognized that maximizing the extent by which marginal value product exceeds marginal factor costs *is* the appropriate goal and that total costs and gross returns *are not* the relevant criteria for water-use management decisions. This concept of maximum net benefits can also be expressed using the economists' doctrine of opportunity costs. This doctrine requires the *benefits* which would result from using a resource in its *best alternative use* to be included as a cost when calculating net income, profits, or benefits (explained in footnote).³¹

Missouri courts have apparently not had the occasion to define "highest and best use" or any of its synonyms. In light of the case law, it appears that Missouri has no constraints which would prevent the suggested definition for "most beneficial use." The only portion of this phrase which has been given specific meaning in Missouri is the term "most." It means "in the greatest or highest degree or to the greatest extent."³² If this is tied together with the economists' definition of "beneficial use" (*i.e.*, when marginal value product exceeds marginal factor cost), the projected meaning could be the "greatest net marginal value product." This is the goal toward which most economists believe we should strive; it is a definition acceptable to both professions.

31. To explain opportunity costs, suppose an irrigator uses three acre-feet of water per year and thereby increases his net profit by \$2,000 for federal income tax purposes. Suppose further that a municipality *could have used* this same water and thereby increased its net revenue by \$3,000. Most laymen would say that the net benefit of this supply of water to the irrigator was his increased profit of \$2,000. However, economists would include as a cost the \$3,000 revenue which *could have been realized* had the water been used by the municipality. Thus, they would conclude that the net benefit from the irrigator's use of this quantity of water was a negative \$1,000. In reality it is society that has suffered this \$1,000 loss, because total social product could have been increased by this amount if the municipality had used the water. Thus, the opportunity cost doctrine implies that total social product can be maximized only when a resource is employed in its highest and best use.

32. *Trower v. Missouri-Kansas-Texas R.R. Co.*, 353 Mo. 757, 768, 184 S.W.2d 428, 434 (1944).

IV. LEGISLATIVE MECHANISMS FOR ACHIEVING HIGHEST AND BEST USE

Economists' criticisms of the riparian rights system urge the utilization of certain characteristics which any system of water rights should logically possess. Given the inclusion of such characteristics, the number of statutory schemes which can be employed to achieve or approximate highest and best use is limited only by the degree of the drafter's ingenuity.

A. *Adding Certainty to Water Rights*

The current practice of permitting riparians to make only a reasonable use of water as it flows past has many undesirable facets. The only way one can determine the legality of present use is to be involved in litigation with another riparian. And the result of that litigation shows only what is reasonable (or unreasonable) as between the specific parties in light of the particular conditions existing at the time of the dispute. It does not tell what one's rights are if other riparians, for example, initiate new and varied uses. Thus, it does not provide the desired degree of certainty of one's rights; rather, it is so indefinite that riparians are unwilling to make cash outlays required to install diversion facilities for water use. As a result, less than maximal use of water is presently achieved.

A degree of certainty could be added in at least three ways. First, all landowners could be given the right to use a definitive quantity of water. This might be done by estimating physical supplies and using a unit of measurement such as an acre to determine the manner in which the water is divided. All landowners would thus receive a pro-rata share of total physical supplies. Users would have a better idea of the magnitude of their rights under this system than under the present, making it possible for them to better evaluate investment decisions. Admittedly, weather cycles and fluctuations in supplies would make it difficult to quantify the water right, but any system providing investors with more information is a step in the right direction.

A second possible method of making water rights more definite is to make a division by percentages among those presently holding usage rights in a given source. This may provide more certainty in times of excess or deficient supplies as recalculation of the right to use is simplified. This alternative still does not provide investors with the perfect knowledge they desire. But the degree of certainty that it does add would be an improvement over the present system.

Perhaps the most certain rights to use under present statutes are those existing in the so-called prior appropriation states. Here, the first person to divert and beneficially use a given quantity of water is awarded the right to continue to use that same quantity of water. With the order of diversion establishing the order of rights to water use, times of short supply do not produce disputes over usage to the same extent as in the true riparian rights system. Again, it is this added certainty which encourages development of water resources.

B. *Transferability*

Under the current riparian systems, rights to use are appurtenant to the land and can be transferred only as an incident thereto. Thus, as a general rule, significant changes in water use can occur only after a tract of land has changed ownership. This customarily requires large outlays of cash, thereby discouraging shifting from lower to higher valued uses.

It is submitted that making a water right freely transferable separate and apart from the land is a very important prerequisite to establishing a water law system which encourages the most beneficial water utilization. It would permit attainment of the highest and best use because those who can utilize the water more profitably will be willing to pay more for the water right. It would permit usage to shift freely from the agricultural to the industrial, municipal, or other sector of the economy. The applicable principles are essentially the same as for the land market. At some point, land becomes more valuable for residential development than for agricultural use, and transfers occur. Few would argue that municipalities should be confined to their present boundaries, and that agricultural land should not be adapted to new uses. Yet present systems of water law do exactly this with regard to water usage.

Improvement over the present riparian rights system could be achieved by combining free alienability with any of the three methods of adding certainty proposed *supra*—numerical quantification, percentage division, or establishing priority of rights.

C. *Parallel Approaches*

Highest and best use of water could also be achieved by various other legislative mechanisms adding the desired degree of certainty and transferability. Results obtainable from a freely transferable water right

in a purely competitive market constitute the standards against which alternative legal systems should be compared.

The trend toward establishing permit systems immediately suggests one alternative. A permit granted by the administering agency could be freely transferable. The agency would initially allocate water among competing users, and the market system would then determine future redistribution of water rights. The agency would be responsible for policing excessive and wasteful usage.

A second alternative might be an "administratively enforced transfer system," in which an administrative agency would determine when shifts in usage should be made. As long as the party forced to transfer his water right is fairly compensated, this system would possess the desired degree of certainty. The recipient of the permit would be required to pay for it. If the parties are unable to agree on the "sale" price, the administrative agency might then function as an arbitrator, or determine the amount of compensation after public hearings. Some type of compensation would seem necessary if permits are issued for limited time periods; otherwise users are again faced with economically undesirable and uncertain water rights.

The permit system might be used to approach the most beneficial use of water by another legislative mechanism which will be called "legislative determination of highest and best use." Under this proposal the legislation enacted would contain an ordered list of preferences among general usage classifications. This would be analogous to the preferences among uses in some prior appropriation states. For example, the numerical order of preferences might be something like: (1) domestic, (2) municipal, (3) manufacturing, (4) recreation, (5) irrigation, etc. Among competing uses, the one ranking highest on the preference scale would be the most beneficial use, at least in the eyes of the legislature. The potential weakness of the system is patent; social benefits and values of uses are not static, but change over time. They also vary geographically and with intensity of resource use. Thus, periodic changes in the ordered list of preferences would be necessary.

The "legislative determination of highest and best use" system might approach the norm of the transferable water rights system if accompanied by provisions for permitting higher ranking users to "condemn" the rights of those ranking lower on the legislative preference scale. The function of the agency here might be to provide an administrative forum to (1) deter-

mine the amount of compensation which is equitable under the circumstances and (2) rule on allegations by lower valued users that the preferred user did not need any or part of the water right sought to be condemned.

In the future it is possible that a water law system might exist which allows the administrative agency sole authority to determine which competing uses are higher valued. Economists might help set up the required administrative standards to guide the agency. This would require a "cost-benefit analysis" or "input-output model" to quantify and compare net benefits in alternative or competing uses. This system would have the advantage of being relatively flexible; it would permit the agency to determine when value changes occur in the societal preference scale. For example, it is possible that society presently considers industrial use of water more beneficial than recreational use, but it is also possible that the order of preference might change at some future date. The agency could recognize this at the time it occurs by using the appropriate economic analysis, producing more immediate adaptation than could be achieved by the "legislatively determined" system.

V. CONCLUSION

The concept of "highest and best use" calls for the use which will yield the greatest (positive) net profit. This is analogous to the "most beneficial use" concept in economic theory, as it envisions a *marginal allocation* among users. Rather than viewing one use as being categorically higher valued than another, it requires that each unit of water be allocated to the use wherein the *incremental value* of the product induced is a maximum.³³

Characteristics of the riparian rights system which prevent the highest and best use of water are those of uncertainty and inalienability. Greater certainty and free transferability are essential prerequisites to designing a legal system which maximizes societal satisfaction from water use. A simple system which would permit highest and best use could be realized by quantifying present rights and making them transferable separate and apart from the land. Many other possibilities could be realized through the creation of an administrative agency for water regulation. But any

33. See discussion note 27 *supra*.

system of regulation which makes the water right more certain while permitting free transferability is a long awaited step in the right direction.

The foregoing ideas obviously do not embody all possible forms that an economically sound system of water rights could take. However, the economists' demands for certainty and unencumbered transferability are such that specific proposals can be "dovetailed" in with almost any administrative framework. It is submitted that their inclusion is a step in the right direction if highest and best use of water is to be a reality.