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no. 6

Ground-Water Legislation

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Ground-water control measures, as with many other kinds of control over people and property, are both wanted and resisted according to how a person's interests may be affected. No one argues these days that ground water in any natural situation is inexhaustible. Further it has the attribute that the effect of use cannot be foretold, but must be tested by use. In other words, development of a ground-water basin must begin before a measure of its capacity can be ascertained. The ownership of such water is a matter of great public concern and its determination is a necessary part of legislation governing its use. Investments in land are often made because of the occurrence of this resource.

In a situation wherein there is not enough water for all, it is also understandable that the initial developers would want some protection for their investment. They would want to limit development to prevent ultimate exhaustion of the resource. It is obvious that automatically there will be two groups formed, one for and one against regulatory legislation. This conflict has appeared in every state where development has already reached a mature status. The fight between proponents and opponents usually becomes bitter and prolonged. However, this may not be the situation where ground-water development is still of small importance.

Good ground water legislation should have the effect of clearing up certain points of law, take into account economic implications and reduce litigation. Litigation, of course, can never be eliminated but power vested in administration tends to take care of many situations which would otherwise have to be settled by courts. With the increasing demand for more water, not just in the West, but throughout the nation, there seems to be no other solution to the problem than through some type of regulatory control.

All the 17 Western states have some type of legislation governing the appropriation and use of surface water. In nearly all instances such water is claimed by the State and in nearly all instances the priority system prevails. The Eastern states are nearly all without specific legislation and operate under the common law. Jurisdiction over water is exercised through the police powers of the state. However this situation is changing as the normal demand for water increases and the new demand expands for water for irrigation. Most of these Western states now have legislation covering the use of ground water. In general the

system adopted for surface flow has been the one extended into the category of ground waters. However, there still remains vestiges of riparian rights for certain classes of ground water in many states known by the legal fraternity as percolating waters.

There are two main philosophies of use of ground water. They are based on water ownership. One of these is the English or common law rule which grants to the owner of the overlying land the unqualified right to the use of the underlying ground water. Two variations under this rule have been developed in the United States: the rule of reasonable use and the rule of correlative rights. The second is the doctrine of priority of appropriation or first in time of use is first in right of use. They are quite different; one is predicated on private ownership and the other public ownership.

Let us examine first the English, common law, or riparian doctrine. As indicated, it stems from England and was naturally transported to this country. It is not legislation but the result of rules laid down by the courts. As strictly applied originally, it meant that flowing surface water adjacent to and riparian to the land must be allowed to continue without diminution in quantity nor defiled in quality. Its use was limited entirely to abbuting land owners. It is, of course, apparent that such a rule is incompatible with irrigated agriculture. As applied to ground water, the owner of the land has the absolute right to the underlying water as he sees fit regardless of the effect it might have on his neighbor drawing from the same supply.

This was a very rigid rule and as time went on it was seen to be unfair and the American rule of reasonable use evolved. This first appeared in 1862 in New Hampshire. Under it, a user was expected to use the water beneath his land in such a manner as not to unduly injure the rights of another. This rule has been applied in Colorado and in other western states. It is difficult of interpretation in that the court must determine what is reasonable use. Each case would have to be decided upon the peculiar circumstances involved.

A decision in 1903 in California provided an extension or modification of the reasonable use rule which has become known as the California rule of correlative rights. Under this rule every overlying land owner is entitled to his proportionate share of the underlying waters according to his ownership of surface area compared with the whole area. Transportation to distant lands in times of shortage would be considered an unreasonable use. Also in event of a shortage, the courts may apportion the remaining supply among the users.

At least 10 of the 17 western states have adopted the doctrine of appropriation as to ground water flowing in a defined course. All of these states do not adhere to the same rule as to percolating waters and there is considerable diversity of rule application for diffused water. Diffused water is water oozing out of the

ground as in bogs, marshes and sloughs not connected with stream channels. These distinctions between various kinds of water are those thought up by the legal fraternity. They do not make much sense to the ground-water hydrologist.

The appropriation doctrine needs little explanation to this audience. Its basic conception is that of public ownership and its origin lies in the consumptive use of water for irrigation. Although widely adopted in the West it must not be assumed that this system is the ultimate, it has many defects which we cannot go into. The system is similar in most respects as applied by the various states but various methods may be used to make appropriations. The idea of the first appropriator in point of time having the better right is the same. Beneficial use is the usual requirement as the limit of an appropriation, but it is often difficult of definition.

The operation of the priority system of appropriation as applied to ground water is not as simple as to surface flows. Surface flows, of course, are visible and fairly accurate methods of measuring them are available. Not so with ground water. We have made tremendous strides in developing means of determining ground water flow characteristics in the past 25 years. However, there are so many intangibles involved that our measurements yet are no better than intelligent estimates. This uncertainty has resulted in skepticism on the part of many of the workability of ground-water laws. This is particularly true in situations in which return flows are involved.

The declaration of public ownership of surface water has met with no serious opposition but not so with ground water. The common law and Homestead Act of 1862 conveys allsubsurface rights to the land owner. Although by definition water may be considered a mineral, yet the fact that ground water may change surface water and vice versa according to changes in topography and geology, places it outside such a category as normally conceived. The common law still applies to percolating water in many Western states where the appropriation doctrine has otherwise been adopted. Artesian water is generally considered percolating water. Much confusion has resulted from this division into several kinds of water. I might mention here that there is now in a Colorado court a case testing whether oil is a mineral. Reservation of mineral rights by a railroad is involved.

Let us look at how ground-water legislation is working in some of the western states. New Mexico has had the longest experience with such legislation and probably has had the best success of any of the states. The law of appropriation was inherited by them from Mexico. Since it fitted their requirements it was logical that they would adopt it. The 1931 law together with a number of later amendments declares that all ground waters of the state belong to the public and are subject to appropriation for beneficial use. It has endured several legal tests, the last being in 1950 when it was again sustained by the state Supreme Court. The Congressional

Desert Land Act of 1877 comes into the picture here as to what was conveyed with public land to a claimant. The Court held that the Act was not limited to surface water and the United States conveyed no interest in water that might be used for irrigation. The western states generally hold that they have the right to administer waters of non-navigable streams within their boundaries. Recent decisions of the U. S. Supreme Court seem to have invaded these rights and extended Federal control into the realm of ground water under Federal lands.

The method of administration of ground water use in New Mexico is known as the permit system. It is generally considered as the best under the prior appropriation doctrine. The State Engineer assumes jurisdiction only over designated ground-water basins. Seemingly the law does not cover, nor does the State Engineer have any authority over non-designated areas. The original legislation recognized existing rights but users were required to file declarations of their claims within 4 years. Following the passage of the Act, all appropriators of ground water had to make an application of appropriation to the State Engineer. This application had to be advertized in newspapers and if there were no protests and the State Engineer found that there was unappropriated water available, he would issue a permit to drill a well. If not the application would be denied. So far as I have been able to discover, the rule of priority has not been invoked by cutting off junior appropriators in an over developed area.

The situation in Lea County in the south-east corner of the state is interesting. In this, economics have come into the picture. This area has a very low replenishment rate and hence any serious size of development would mean withdrawal of water from storage. Such use is comparable with continually drawing on a bank account and never making any deposits. The result of such a procedure, of course is - no bank account. The State Engineer evidently decided that when the water table declined to a certain depth it would no longer be profitable to pump. In court testimony he indicated that about 40 years could be considered as a reasonable life for a water right. On some such basis he closed the basin to further development in 1948. It is my understanding that through court action the State Engineer was required to reopen the area in 1952 but in such a manner that the new wells would be widely spaced.

One of the outstanding accomplishments of New Mexico's legislation was the conservation of artesian water in the Roswell Basin. Artesian laws date back to 1905 but not until 1931 was it possible to start a real program there of repairing and plugging leaky wells. By 1951 some 800 wells had been repaired or plugged and no doubt much water was thereby conserved.

Utah has always held to the doctrine of prior appropriation from the time that the Mormons arrived in 1847. The courts have always followed this rule for ground water flowing in definite

channels. As to percolating water underlying lands in private ownership, however, decisions were first based on absolute ownership, then on the rule of correlative rights and lastly prior appropriation. Because of some court decisions in 1935, the year of the passage of their ground-water law, some uncertainty as to its status exists according to an opinion voiced by Wells A. Hutchins in 1940. The situation may be changed as of now.

Rights to appropriate ground water are acquired by application to the State Engineer. On petition, or by his initiation, the State Engineer may make studies of ground water basins to determine the adequacy of the supply. Should he find that all the water has been appropriated he can deny the application. Such action, as is usual in all states, is reviewable by the courts. Under certain circumstances his report and recommendations are brought before a court and the rights determined. In cases of a finding by the State Engineer of an inadequate supply for existing claims, he has the right to divide the supply among the claimants. I am not informed as to whether he has resorted to any such kind of rationing. It would be of interest to me to know how this could be done under the priority system.

Comments of those familiar with the functioning of the Utah law indicate that ground-water development has been over conservative. It has not allowed full development of the resources. In one area, Cache Valley, the bottom lands are restricted in agriculture because of lack of drainage. The soils overlie an artesian aquifer and leakage through the confining soils cause a wet condition. Drainage is possible by relieving the artesian pressure by pumping, but that would interfere with many flowing wells and injunctions have prevented its employment.

The Nevada Act of 1939 and amended in 1949, declares all ground water belongs to the public and subject to appropriation. It contains something in the nature of a grand-father clause in that those rights acquired for ground water in a definable aquifer and artesian water prior to March 22, 1913 and rights to percolating water acquired prior to March 25, 1939 were considered vested rights. A claim had to be filed by all appropriators subsequent to those dates and the date of priority was that when the application was made in proper form and filed with the State Engineer. All persons desiring to drill a well must first make application and obtain a permit from the State Engineer. The State Engineer may restrict further drilling in a basin if he finds: (1) that the safe yield has been reached, (2) when the water table has been lowered to appoint from which the pumping lift approaches the maximum economical limit, or (3) when further diversion will adversely affect the economy of the area in general, whichever occurs first.

Idaho in its statute of 1951 and amended in 1953 also declares all ground water as belonging to the state. All rights acquired before the effective date of the act were respected. All now

appropriations are perfected by application and permit. Critical ground water areas may be designated by the State Reclamation Engineer. Should a permit be requested from a critical area, the fact must be advertized in the area. If a protest is filed, hearings must be held in a prescribed manner and if it found that there is no surplus available, he may deny the application. The state Reclamation Engineer has drastic powers to limit withdrawals in times of shortages. The statute recognizes the possible effect of pumping upon stream flow and provides for the formation of two kinds of water districts, one where surface water could not be affected and the other where there was such a possibility. A rather complicated procedure involving a three-man local ground-water board is provided for settling disputes brought about by senior appropriators.

Under California's system of correlative rights there is no way of preventing overdraft. All have a right to a common ground water supply in proportion to their surface holdings. This results in a program of well deepening to keep up with a falling water table. Court rulings govern the administration of the supply in each situation. An important decision in 1903 prohibits the removal of water to land distant from the source of supply. The Raymond Basin case in 1949, Pasadena vs. Alhambia, is of great interest. Here the supply was determined to be 70 percent of the draft. The Court considered all rights equivalent and decided on a straight allocation of the supply regardless of the type of use and permitted a use of 70 percent of their actual previous use. Further development was prohibited. Pasadena could and did elect to use Colorado River water instead of ground water and should any right holder use more than 70 percent of his share he would pay Pasadena for the difference.

Arizona has had more trouble than any other state in its struggle to obtain ground water legislation. In 1948, after 3 or 4 unsuccessful attempts in regular sessions, the governor called a special session that lasted 56 days to consider a ground water bill only. They came up with such a poor bill that no one was satisfied and their Supreme Court found it unconstitutional. A stop gap bill, passed in the following session, had the effect of stopping drilling in critical areas. Outside of that regulation, Arizona is still without a satisfactory comprehensive ground-water law. Percolating water is still held as riparian to the land.

Ground-water development in Texas has been phenominal in the last decade, surpassing all other states. Legislation and court decisions contain a curious mixture of riparian rights and appropriative rights of non-riparian land owners as regards surface waters. Percolating waters are considered the property of the owner of the overlying land. The administration of all waters is under the Board of Water Engineers. The 1949 legislature provided for the creation of ground water conservation districts. The purpose of these districts was the conservation, preservation, protection, recharging and prevention of waste of water. The district may issue permits to

drill wells but no land owner may be denied a permit to drill. No permit is needed for a well producing less than 100,000 gallons per day. The district can specify distances apart that wells may be drilled. In the High Plains area, millions of new acres have been brought under irrigation from wells. About 95 percent of the water is being drawn from storage. Since there can be no way of limiting the draught under Texas laws, the water table will continue to be lowered. The present rate of lowering over a wide area is about 5 feet per year.

Colorado has no ground-water law as such. A well construction law was passed in 1953 and to it was hooked inadequate legislation that was supposed to take care of ground-water problems. Supreme court decisions have firmly fixed the rule that all ground water was presumed to be tributary to stream flow and those who claimed otherwise must show conclusively that it is not. Being tributary to stream flow it is therefore subject to appropriation. Before anyone thought of wells as a water supply, all surface water had been appropriated. This means that any rights that might have been acquired in ground water would all be junior to surface rights. Here lies the main stumbling block in ground-water legislation for Colorado. It is rather obvious that wells along the stream courses fed by ground water will intercept to some extent such underflow. Surface rights are superior and no law would be valid or acceptable that would materially damage such rights. All efforts in the past 5 years to produce an acceptable ground water bill have met with much opposition from many sources.

The ideal approach to this situation, of course, would be for a state to be prepared with legislative statutes on ground water before development started. But who ever heard of such a thing as legislation to anticipate trouble. We wait until it is upon us. As ground water comes into use, capital investment can become very large indeed. If we may ignore conflict with surface water users we have left then only a conflict between ground-water users, but an important decision has to be made. Should a water resource be mined and produce a boom and bust economy or shall it be used in such a manner as to produce a sustained economy. From what I have told you, you can see how some of the states are meeting the situation.

Not only is the individual's capital investment affected but his changing conditions under a falling water table lead to increasing cost of operation. Investments in roads, power lines, telephone lines and urban interprizes all are affected. One needs only to ponder the city of Lubbock, Texas. In 1940 its population was 31,000; in 1950 it was 71,700; and in January 1955 it was estimated at 113,000. All this growth was caused by the growth of agriculture from irrigation - mainly of cotton. What of its future?

When we introduce the added complication of interference with stream flow, troubles increase. In Colorado there are many pumping plants in the valleys of streams carrying appropriated water. Those

pumps are used mainly to supplement stream flow and are of great value to those holding late priorities and to all in times of low stream flow. Were these pumps not operating, no doubt the volume in the stream would be greater. Someone is being injured but it is very difficult to say who that someone is and how greatly he has been injured. These aquifers are recharged annually through losses from irrigation. They constitute a reservoir which can be filled up when there are surpluses. The greatest beneficial use occurs when such water can be made available at a critical time. However, there can be no doubt that property rights are being invaded in the process.

There seems to be no one rule that could be called best for all situations. The priority system, strictly applied in under-developed territory will doubtless meet requirements of preventing overdraft. However, where an overdraft has occurred, it would seem that the only rescue would be through cutting back use in the reverse order or priorities. Under many conditions this would do the trick, but in Colorado we have numerous situations where it would result in unfair hardships. Many aquifers occupy rather narrow and shallow, trough-shaped valleys underlain by shale. The older priorities may be located along the edges where the wells would be first affected by a dropping water table. They would not like the priority idea. Grandfather clauses, the idea of giving equal priorities to wells drilled previous to a given date, probably would be unconstitutional. Rationing seems improbable, at least I know of no instances of its being employed. Its validity would have to be decided by the courts. Wells along streams having priorities junior to stream rights conceivably could be shut down by administrative order during periods of shortage. Such action would cause a great disturbance among pumpers and the administrator would encounter untold difficulties.

California seems to have found a way under its correlative rights rule to curtail pumping in a basin where overdraft has occurred. This came about through court action rather than legislation. Apparently this would not be possible in Texas.

For those states with no legislation or inadequate legislation, a solution that would provide for the maximum use of ground water, yet be equitable and constitutional, will require the thinking of the best technical men, economists, and lawyers. Even if such a solution could be found, it still would have to be sold to the legislators through the people.