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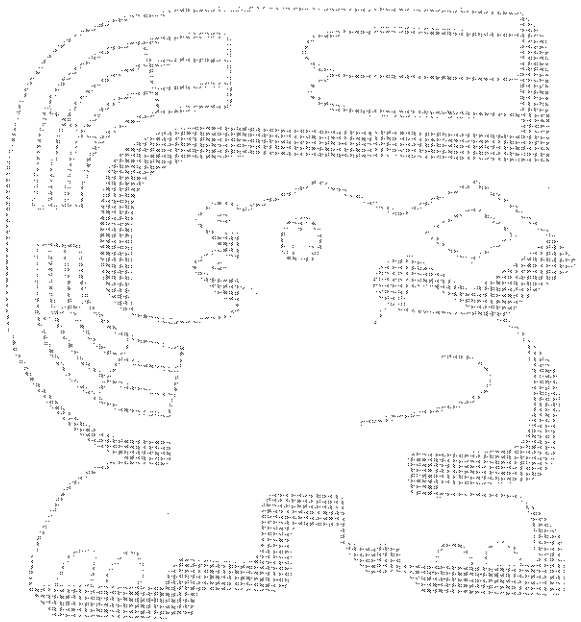

Water Regulation And Land Use: A Colombian Example

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Reprinted from

DEVELOPMENT DIGEST

Vol. V No. 3 October 1967

WATER REGULATION AND LAND USE: A COLOMBIAN EXAMPLE

by Joseph R. Thome*

/Political complications and conflicting interests can make it hard to establish a consistent, rational water-use policy that will promote agricultural development. Sometimes, the powers needed to remedy the situation are lacking, but sometimes officials are loath to use powers they already have./

The use of water regulation as a means of improving or modifying land use and tenure patterns has in recent years received great emphasis in Latin America. It is the purpose of this paper to examine the water-regulation powers, activities, and problems of one of Colombia's regional development corporations, on whom much of the responsibility for developing Colombia's water resources has devolved.

The Corporación Autónoma Regional de la Sabana de Bogotá y de los Valles de Ubaté y Chiquinquirá (CAR) was established in 1961 to operate in the Valley of Sopó. Among its specific functions, CAR was delegated the task of administering the public waters within its area of jurisdiction, including ground or subterranean waters.

The Setting

The Valley of Sopó is located about thirty miles north of the capital city of Bogotá. It extends westward along the River Teusacá

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from the site known as La Cabaña to the point where the Teusacá meets the Bogotá, the area's principal stream. The valley as a whole consists of 15,000 hectares, of which approximately 4,500 to 6,500 are suitable for intensive agriculture under irrigation. The main crops grown in the rich soils of the valley are barley, potatoes and wheat; there are also many dairy operations, some of which are very efficiently operated. Produce from the area has an easily accessible and vast market in the city of Bogotá.

Average annual precipitation for the region is approximately 980 millimeters (25.4 mm = 1 inch). This amount of rain cannot, however, ensure the two annual harvests which are common in Colombia, because it is very unevenly distributed over the year. Floods are not uncommon during the rainy months, while during the summers, particularly from December to March, the amount of water is generally insufficient to satisfy all of the irrigation, cattle, and domestic demands. Periods of drought are also common, the last one being from the years 1958-61, when the average annual precipitation was only 700 millimeters.

Water Problems

Most of the people who practice irrigation tend to use it very inefficiently. Water wastage and economically unjustified irrigation systems are common. At the same time, many who would benefit from it use little, if any, irrigation. Water consumption as a whole is much less than would be required for intensive agriculture. What irrigation exists is carried out only by riparians; under present conditions, there are no surplus waters available for non-riparian users.

Since most or all of the water used is public, its use is subject to the obligations and norms contained in present laws, dating largely from 1940, as well as to the special rules or conditions CAR is entitled to impose. If it so desired, CAR could regulate the use of all the public streams in the valley, and in this way establish fixed volumes for each user, in accordance with the particular needs, crops planned, etc. In the absence of such regulation, riparians may still utilize public waters without any permit. This has encouraged the excessive and inefficient use of the limited water resources.

In Sopó, these problems are particularly evident during the dry seasons, when it is common for upstream riparians to use up most of the available water, seriously affecting the downstream users.

This behavior violates the legal norms which regulate riparian use of public waters. CAR generally tries to issue orders or resolutions prohibiting such behavior, ordering the destruction of illegal works, and establishing a system of turns or quotas so that all users may satisfy their minimum needs. But these orders are often unheeded or not fully complied with.

Unfortunately, CAR personnel have never been assigned the police powers necessary to enable them to enforce the water laws or the resolutions it has adopted. Consequently, while CAR has jurisdiction to settle water conflicts, establish conditions, etc., it must rely on the local alcalde (mayor) or police chief to carry them out. In practice, this system is not very efficient. CAR has found itself obliged to exert pressure on local officials through the intercession of the governor of the department.

However, even if these local officials did wish to cooperate with CAR, they are under strong pressure from local vested interests--who almost without fail are also the largest landowners--upon whom their political future depends. It is not strange then that, when a conflict arises, local interests may prevail and the Corporation's orders may not be carried out with noticeable speed or efficiency.

Thus, the regulation of the use of public waters, which should basically be subject only to technical consideration, can become enmeshed in political games, making it difficult to establish a consistent and rational water policy.

Conflict with Bogotá's Municipal Water Company

The city of Bogotá has experienced an extremely serious population explosion, caused mostly by an influx of immigrants from Colombia's rural sectors. As a result, the city finds it necessary to increase drastically its public services, such as water, sewage, and electricity, in order to prevent shortages and to ensure the provision of these basic necessities in the years to come.

Among the planned projects is the construction of a dam across the Teusacá River at the site known as El Tambor, located upstream from the Valley of Sopó and very close to the northern sector of Bogotá. The necessary petition for a water concession has been filed with CAR, whose authorization is required.

In this petition, the Water Company promised to allow a constant flow downstream of 144 liters per second. CAR, while agreeing that the dam is necessary and would provide important supplementary benefits,

such as regulating the river flow, feels it cannot grant the concession unless the company allows the flow of a sufficient volume to satisfy the existing downstream uses and needs--particularly during the dry seasons. This would require the release of 264 liters per second during the dry seasons and only 24 during the wet season, for an annual average of 144 liters per second. The Water Company has filed objections, stating that this would require a much larger and costlier dam than planned, that municipal needs prevail over conflicting demands, and that the only solution for the lower valley is for CAR to construct a smaller dam downstream from El Tambor, where water could be stored during the winter.

This conflict between the present riparian users of the Teusacá, with their long established rights, and the Water Company, representing the new interests or rights of thousands of city dwellers justifiably demanding an adequate water supply, has not as yet been resolved. It will probably have to be settled in the courts.

What Can Be Done?

The use of public waters in the Valley of Sopó for purposes of irrigation could be improved through the exercise of existing or obtainable legal powers.

Under present laws, all streams which pass through more than one property, lakes or lagoons whose shores belong to more than one owner, and waters which flow through canals derived from public water sources are public waters subject to government regulation. A riparian can derive from public water the amount necessary for reasonable use within his own property, but he cannot assign or sell these water rights. Non-riparians are even more restricted in their rights to make use of public water.

Although riparians receive preference or indemnification, the water regulating agency may regulate the use of an entire public water source, establishing, through new concessions, a set distribution scheme among all its users, so as to ensure the most efficient use of the water supply and prevent conflicts. Expropriation, after indemnification and judicial review, is possible for reasons of public utility or social interests. Mayors, municipal police officers, and other government officials specifically assigned such functions are empowered to levy fines up to 500 pesos ($25) for violation of any of the conditions imposed on the users of public waters.

It is extremely important that CAR officials be provided with the same police powers which have been granted to other water regulatory

agencies but which have not yet been granted to it. Otherwise CAR's policies for settling the bitter conflicts during the dry periods will continue to be frustrated.

Completion of the El Tambor dam by Bogotá's municipal water company can also be taken advantage of by CAR, even in the absence of favorable settlement of the conflict between the two agencies. The El Tambor dam would prevent floods common during the rainy seasons and provide downstream users with, in any case, a larger volume of water than is now available during the dry seasons. Having a definite supply of water assured, CAR would usefully exercise its power to regulate all of the public water uses in the valley of Sopó. It should adopt an overall water plan for the valley under which a fixed volume or percentage could be allocated to each user in accordance to his needs, projected crops, etc. This plan or regulation would tend to assure an efficient and controlled use of the limited water resources in the valley.

However, full exploitation of the Valley of Sopó for intensive agriculture depends on the availability of water for supplemental irrigation during the dry seasons. This would not only assure higher production within presently irrigated lands, but would also allow the irrigation of non-riparian lands which now have no access to water.

CAR is planning a small dam downstream from the El Tambor at the site known as La Cabaña to provide this supplemental irrigation. Many advantages would derive from this project, the following being particularly obvious: 1) It would put an end to the conflict between CAR and the Water Company, since the latter's only obligation would then be to allow a constant 144 liters per second to flow downstream as it presently wants to do. Thus, the projected supply for the city of Bogotá would not be endangered. 2) It would enable CAR to store almost all of these 144 liters per second during the eight winter months for later use during the dry months. 3) It would allow CAR to adopt a controlled system of water allocation in accordance with the development program for the region.

Using water from the La Cabaña dam, canals could be built on the slopes surrounding the valley, from which smaller irrigation and drainage canals would make water accessible to non-riparian lands. This would permit most of the valley to be irrigated through gravity, thus avoiding expensive pumping, and also help to prevent flooding of small mountain streams during the rainy seasons.

The organization of an irrigation district to manage the water would seem to be advisable, particularly if construction of the canals is decided upon, for the following reasons:

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1) It would allow the recovery of at least part of the construction costs through special assessments.

2) Maintenance costs could also be covered through charging rates for the use of water.

3) Other tax or assessment powers could be used advantageously, such as imposing high assessments on lands not willing to receive irrigation.

4) Even if CAR is not assigned police powers, it would have greater enforcement powers as, having control over the water valves, it could refuse to service those who don't comply with its conditions.

5) It would enable the adoption and carrying out of valley-wide agricultural plans, since the district management would have to approve planned crops before allocating water. Extension services could also be more efficiently provided.

6) It would give the local users an opportunity to participate in the district management (initially only in an advisory capacity) through its representation on the board of directors.

7) It would encourage the Colombian Land Reform Institute (INCORA) to adopt an agrarian reform program for the area, if one seemed necessary; INCORA enjoys wider powers in such land-reclamation areas. INCORA participation would also be beneficial in that CAR could then be delegated certain powers which would enable it to apply faster eminent domain procedures, give it broader tax assessment powers, allow it to grant water easements, and otherwise widen its scale of activities.

/Excerpted from a paper presented to the First Pan American Soil Conservation Congress, April 1966, São Paulo, Brazil./