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## Water Policy, Administration and Law for Irrigation Projects

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The question of policy, administration and law in irrigation schemes is as important as other aspects, such as engineering, management, operation and maintenance for the success of any irrigation project.

The purpose of water policy is to achieve maximum benefit from water resources development and conservation. It involves the study and consideration of the institutions and organizations responsible for the planning, execution and control of water resources projects at every level; it includes the economic and financial problems connected with land and water resources at every level as well as water legislation as a means to implement and enforce policy decisions. All of these aspects are interrelated and should be considered in their entirety.

The lack of adequate water policy leads to detrimental consequences, such as the disruption of one existing beneficial use by another, the lowering of the level of the river downstream with all its consequences, and, in the case of underground water, depletion of aquifers, salinization, etc.

Planning the development and conservation of water resources requires a comprehensive or unified approach, and as much detailed knowledge as possible of (a) the availability of land and water (inventory aspects); (b) existing utilization; and (c) future needs and requirements on the basis of population growth. This, in turn, calls for the need of bringing water under a centralized administration through the issuance of water use permits. By modern standards, these needs cannot be met without appropriate institutions and organizations.

At the national level, the institutions and organizations may take the form of a National Committee or Council, in which all ministries having responsibilities on water are represented. Any such body would have the function to (a) frame the overall water policy of the country; (b) direct the allocation of funds and water for different purposes; and (c) decide on reimbursement policies, payment of water charges and other important policy issues.

In addition, a coordinated or unified water administration would be advisable for the purpose of (a) executing in its name and on its behalf the political decisions taken by the National Water Commission or Council; (b) serving as the technical and economic body which would recognize or re-allocate existing rights to use water for any purpose and grant water use permits for new utilizations; (c) evaluating and coordinating different projects before authorizing their execution; and (d) standardizing and pooling all information and data relating to water resources. In so doing, it would automatically ensure the existing and future uses of a well-defined amount of water to be utilized. In the case of irrigation, water legislation could give priority to it.

It would be advisable to create also a Technical Water Board composed of the senior water technicians and economists responsible for sectorial aspects of water resources from the various ministries and agencies represented in the National Commission or Committee (political body). Water users' associations could also be represented on this Board.

At the lower level, the institutions and organizations will depend on the degree of centralization or decentralization of the unified water administration which the government may wish to pursue.

This will depend on the governmental administrative machinery, availability of personnel, and size and hydrography of the country. Institutions may be envisaged as branches or departments of the unified water administration or within the framework of existing bodies or associations responsible for a particular project, utilization or area. Local government administration will be established, possibly by river basins, so that, from a hydrological point of view, water resources are not cut by administrative divisions.

An important point is the organization of water users' associations, which are formed for achieving better water utilization and distribution (irrigation associations, irrigation districts or areas, farmers' irrigation associations or cooperatives, watershed management associations, farm man-

water (drainage boards, districts or areas, farmers' drainage cooperatives, flood control boards, associations or cooperatives) or any other form of association of water users. Policy decisions are required for their formation, dissolution, organization, functions and eventual participation in the government water administration. They represent the best means of combining into one single group many users at the final stage of water distribution. Their organization provides a solution to conflicting customary and traditional water rights. The relevant policy decisions could be implemented in a basic water code or in special legislation.

In the case of international basins, proper institutions either exist or should be established in the form of river boards or joint commissions, for the purpose of (a) exchanging hydrologic data and submission of projects affecting another basin state; (b) establishing joint technical cooperation; (c) preventing and settling disputes; and (d) pooling efforts to secure international financing and assistance.

Water legislation is an important element to enforce policy decisions. The water law should consider availability of water in the country, basin or region, knowledge of existing uses and amount utilized, by whom and for what purpose, cost of different sources of water, as well as present and future water requirements in the country or region. This may be achieved by bringing past, existing and future uses of water under unified, coordinated or centralized administrative control.

Basic legal provisions could include the ownership status of water resources, the right to use waters, water conservation provisions, the organization of the administration of the rights to use water, the different procedures for granting permits for the use of water and for its discharge, provisions on underground water with licensing of drillers, the organization of water users' association and their legal status, provisions for the payment of water rates and procedures for their collection, relationship with other water-development agencies (for land reform, for hydropower generation, for municipal water supply and sewerage, etc.), for the control of hydraulic structures, for the establishment of protected zones or areas with special measures for their protection, and, finally, for the implementation and enforcement of the water law.

In the case of irrigated areas, it is obvious that, in the allocation of water, priority will be given to agricultural uses of water, after water is supplied for do-

mestic purposes. In addition, economic, financial and institutional incentives should be taken into consideration.

Because of their critical role in the country's development plans, there is ample justification for subsidizing some types of investment. For instance, agriculture may be so predominant in a country's welfare that subsidized irrigation and drainage costs are fully justified.

The establishment of water rates, charges and methods of collection deserves special consideration and policy decisions by the government.

Many factors influence the returns from a farmer's operations. Some of these may be beyond his control, such as decreased yields due to unfavorable weather or decreased income because of low prices for farm products. In the case of irrigation, it seems justified to set water charges, possibly in accordance with the farmers' ability to pay, either on a variable in accordance with market and weather conditions, or on a volumetric basis, according to the amount of water utilized. Consideration could be given to requiring a fixed minimum payment at least sufficient to pay annual operation and maintenance costs, as a deterrent for misuse and to promote financial awareness. Often, a water resources project, particularly for

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oratory of the legal profession, nor from the recitals of local traditional law, but from the peoples' daily experience regarding their normative environment, with all its ambiguity, variation and contradiction. It offers some theoretical and methodological tools to do just that.

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irrigation or flood control, creates an immediate increase in part of the land value which should be applied against project costs (tax on land sales) in order to discourage speculation in land values. A flexible policy with respect to water rates and charges is advisable. However, no clear-cut procedures may be recommended.

Irrigation projects require scientifically sound and well-engineered plans for the efficient use of water up to the last crop of the last farm; adequate arrangements should be made to prevent the misuse of water. These policy decisions include maintenance of the projects, as well as demonstration, training, pilot areas, credit facilities and services.

As to operation and maintenance, particular attention should be paid to users' associations or cooperatives. Policy decisions with respect to these will include consideration for the establishment or promotion of cooperatives, irrigation associations,

mechanization centers, drainage associations, flood control associations, etc.

As one of the major essentials for successful irrigation projects is well-conceived maintenance and improvement through the leadership of well-trained local people, demonstration and training become very important.

Finally, financial incentives are necessary when the farmers' ability to pay is low, particularly in newly irrigated areas. Through such incentives, the government agricultural policy may be influential in making available such facilities to a desired area or type of cultivation.

Most of the questions outlined above are of a general nature, and their implementation requires thorough consideration on the basis of the conditions prevailing in any one country.

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