
Water Laws in Pakistan: A Synthesis of Traditions and Enactments

Pakistan's legal framework for the water-related human conduct is the outcome of a stage-by-stage evolutionary development. As it exists today, the framework is an interesting product of commonly accepted traditions (informal rules), and the more recently established legislative enactments with their accompanying regulations and related manuals of procedure (formal rules). Also, the formal rules themselves are found to be largely based on principles derived from some customary practices. The traditions of water regulation and distribution have come down from various cultural influences of many different eras: the Indus Civilization of Mohenjo-Daro and Harappa periods, the Aryan, the Greek, the Arab and, more recently, the British. The enactments are mostly those introduced during the British colonial period. They were partly modeled on the earlier irrigation development experiences in Italy, France and Spain, which the British studied before introducing irrigation laws in the subcontinent.

The principle of equity in water distribution that is central to most of the existing traditions and laws in this region, finds a close similarity to the Islamic edicts relating to water. Informal irrigation rules based on communal ownership, equitable sharing

of water and the acceptance of social control over water, have the stamp of an influence of the Islamic principles. It is likely that the legislative enactments have also benefited from the same principles, which the British might have discovered in the Moorish elements of irrigation culture in Spain.

The primary objective of the legal framework for the development, delivery and use of water in Pakistan, has been the need to find solutions to the recurrent food shortages in the region. Basically, the idea was to divert whatever water was possible from the network of rivers to have the maximum cultivable area by spreading water thinly over the desert land in the valleys. The concept was to ensure "protective" rather than "productive" irrigation, so that as large a number of people as possible, could be settled and provided subsistence in these areas. The water was to be distributed as equitably as possible.

A Comprehensive Legal Base

A comprehensive set of rules were designed by the British aiming at their strict compliance to achieve the above objective. Whenever some prac-

tical needs and legal loopholes arose, the rules and procedures were amended occasionally to meet those specific purposes, but the basic structure of the original rules system has remained unaltered. The core of these formal rules governing Pakistan's irrigation operations is still the Northern India Canal and Drainage Act of 1873. Subsidiary legislation providing operating rules for the Canal Acts, various manuals of procedure, and revenue and rates manuals form the next layer of formal rules. The third layer is a series of new laws and regulations relating to other aspects impinging on water use, such as land reform, land reclamation and water users' associations.

Warabandi—from the Informal to the Formal

Warabandi, which is one important water-related tradition that the present legal framework has effectively absorbed for broad-based formal use, is chosen here for description in greater detail. In Pakistan's canal irrigation systems, tertiary-level water distribution had been traditionally practiced according to a rotation method known as warabandi. The term warabandi means "fixed (*bandi*) turns (*wahr*)," or a repeated rotation of canal water distribution within a watercourse, with a fixed turn and a time duration for each farmer. The time duration for each farmer is determined proportionally according to the size of the farmer's landholding to be irrigated by the particular watercourse. The slow rate in the watercourse is kept uniform depending on the allotted water duty or "water allowance." A certain allowance (*nikal*) is also given to farmers far from the outlet as a compensation for conveyance losses along the watercourse. Normally, warabandi is adopted under conditions of water scarcity, but is continued even when the supply situation is improved.

The traditional form of warabandi, popularly known as *katcha warabandi*, is still in practice in some areas, and is decided mutually by the farmers themselves without the involvement of any government agency. Before the advent of formal rules, there was flexibility in the old farmer-established *katcha warabandi* system, ensuring water for all the farmers, provided they could collectively manage the distribution pattern. However, with the introduction of formal rules, the irrigation agencies which were established to apply these rules observed an increasing frequency of water disputes among farmers and started to in-

tervene. In an attempt to formalize the traditional arrangement, a more regulated *pucca warabandi* system emerged in which a weekly rotation among all the farmers, worked out in detail based on the extent of land cultivated by each farmer, was fixed by the canal officer on request by the disputing farmers in a watercourse. Once fixed, it assumes common agreement; the turns are supposed to be followed unaltered and become binding on all the farmers who have to take water at this turn irrespective of his need.

The Punjab Public Works Department (PWD) Revenue Manual defines warabandi as "*Wahr-bandi*—the scheme or list of rotational turns or times at which each shareholder in a watercourse obtains his supply, or each outlet in a distributary is allowed to be open." Malhotra, in his pioneering study on this practice in Indian Punjab, describes warabandi as a water management system which aims to achieve high efficiency in water use by imposing water scarcity on each and every user, and by focusing on equity of distribution.

The underlying primary objective of warabandi is the distribution of scarce canal water equitably over the watercourse command area. However, to meet this primary objective, the application of warabandi has to rely heavily on the hydraulic performance of the canal system. The agency that delivers water has to establish some essential conditions in the canal system above the *mogha* (the head of the watercourse). These conditions are that the distributing points of the main canal should operate at full supply level, that the distributary canals should operate at no less than a particular level (75 percent of full supply level as designed for Pakistan's canal system), that only "authorized" outlets should operate drawing their allotted share of water from the distributary at the same time, that the outlets are ungated and deliver a flow rate proportional to the area commanded (remaining open all the time), and that each farmer receives the total allocated flow of the watercourse for a duration proportional to his area. These conditions and those who are responsible for maintaining them, together with the expected pattern of cooperative behavior by the farmers in the watercourse, form the concept of a warabandi system.

Thus, theoretically, the traditional water distribution system of warabandi in Pakistan is characterized mainly by an overall shortage of the water supply, and also by a set of conditions that serves

to achieve the objective of equitable distribution of these scarce water resources. However, a recent study on the warabandi practice has reached the following conclusions:

- * Warabandi as a broad concept has become deeply embedded in local irrigation tradition in the area, but has undergone change in its practice,
- * Attempts to escape from the warabandi-imposed rigidity in the allocation of water have caused many water-related conflicts among the farmers,
- * The conflicts have led to a heavy involvement by irrigation staff in conflict-resolution. The approach is officially on the basis of formal rules provided in the Canal and Drainage Act and the related Manuals of Procedure; but it actually has resulted in (rent-seeking) informal behavior,
- * In an administrative structure which is ostensibly for equitable access and distributive justice, warabandi has become vulnerable to manipulation by powerful and influential landowners,
- * In some areas where official warabandi had been established, state regulation does not operate, and instead, an indigenous warabandi (internally decided warabandi) form is practiced. In this, the water turns are determined locally by the farmers themselves, but often the decisions are with the influential landowners, and the turns are usually inequitable,
- * Observed deviations from the time-based "rota" system of warabandi include the sharing and trading of water by farmers, and
- * In many instances, the equity image of Warabandi is overshadowed by its reality founded on power and influence.

The reality that emerges in these situations debunks several myths associated with the popularly known concept of the warabandi system, described earlier. Some of the myths relate to the way warabandi is (or ought to be) applied and practiced and some to the effect of warabandi. Foremost among them is the notion that warabandi corresponds to equity on water distribution. On the contrary, equitable distribution is eroded by both the physical conditions such as

less than full supply level deliveries in the canal, and the institutional factors such as power and influence of the large landowners. At best, it remains as an equitable distribution of time, and not necessarily of water.

Water Laws and Implementation Organization

The story of warabandi in Pakistan illustrates the close linkage that is essential between water laws and their implementing machinery to make the legal system effective. The breakdown in the warabandi system, particularly as far as its main objective of equity is concerned, is clearly attributable to the collapse of the social organization underlying the tradition of warabandi, and the current ineffectiveness of the centralist state machinery that replaced it. The essential conditions of the warabandi system can only be maintained by a consistent pooled effort by a number of people, the operating staff and the farmers. Many other forms of water rights will require, for their effective application, the same degree of consistency and a greater responsibility vested with the local community. Both rule application and rule adjudication were performed at a local level. With the establishment of a network of officials belonging to a central authority, this responsibility was diffused and became remotely located. The close-knit, and intimately and consistently interacting implementation machinery needed for an essentially cooperative endeavor of this nature can only be achieved by bringing a fair degree of responsibility back to the local community level.

This does not mean a reduced responsibility of the state. An increased state responsibility will be required to ensure equity through effective rule adjudication and arbitration, by shifting from the present "soft state" conditions to an effective "law and order" situation. The State's increased attention will be needed to ensure the maintenance of the desired conditions of the physical system.

In this direction, Pakistan has taken an exemplary step forward by legislating for the formation of water users' associations. The good intentions behind such formalized rules in any context can only be realized by a conscious effort through appropriate strategies to implement them.

[Tissa Bandaragoda, Senior Management Specialist, IIMI Pakistan.]