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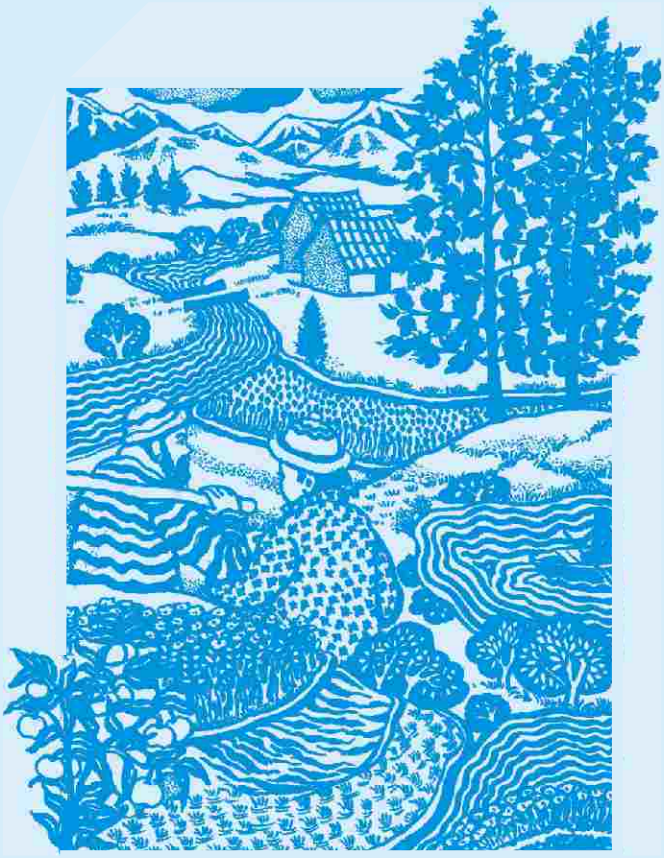
Highlight

Irrigation Management Transfer:
Kashmir in Contrast



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In many parts of the world, the trend is to transfer management of irrigation systems from government to farmers, and this trend is rapidly gaining credibility due to better performance of farmer-managed irrigation systems (FMIS).

However, Kashmir is moving in the opposite direction. The large and ancient network of *Zamindari Kuhls* (FMIS), which the region was once famous for, now is in a dilapidated condition and these systems are being transferred from farmers to government. A comparative study of the two management regimes shows that government managed irrigation systems (GMIS) are technically sound and perform better than FMIS and that the farmers are no longer interested in or capable of maintaining these age old systems on their own.

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Irrigation Management Transfer: Kashmir in Contrast[1]

Research Highlight Based on a Paper Titled: "Comparative Management Performance of Government and Farmer Managed Irrigation Systems"

In many regions of the world, the trend is to transfer management of irrigation systems from government to farmers' organizations. The transfer process is rapidly gaining credibility due to better performance of the irrigation schemes under farmer management, as documented by the vast literature on management turnover from different parts of the world. Kashmir, however, is moving in the opposite direction. The large and ancient network of *Zamindari Kuhls* (FMIS), which characterized the once-famous hydraulic society of the region, is now in a dilapidated state. The management of most of these FMIS has now been taken over by the irrigation bureaucracy of the state.

Area irrigated by FMIS was more than 85 percent of the total area irrigated by canal systems during the 1950s. This has now reduced to about 53 percent. On the other hand, there has been a remarkable increase of about 365 percent in the area irrigated by government managed irrigation systems (GMIS). This massive shift is caused partly by the commissioning of new irrigation schemes, particularly lift irrigation schemes, and partly by the takeover of FMIS by the state irrigation department. This study compares the performance of GMIS and FMIS in Kashmir, and identifies the reasons for takeover of FMIS by state irrigation department.

Methodology

The study looks at the performance of 21 irrigation schemes in one of the irrigation divisions of Baramulla district: the district with the largest number of irrigation schemes in Kashmir. Out of the 21 selected schemes, 10 belong to the irrigation department (GMIS) and 11 are farmer-managed (FMIS).

Participatory rural appraisal (PRA) technique was used for collecting data on various schemes. Descriptive statistics were generated to identify factors which help analyze scheme performance and other social aspects. The study draws on both primary and secondary data. Informal interviews were carried out with key informants with the objective of obtaining background information on the main issues facing each individual scheme.

Sources of Water and Irrigation Technology

All irrigation schemes draw water from three major *nallahs* which are fed by snow and glaciers. Majority of the *kuhls* (canals) had secure water source all through the year. However, when there is low snowfall in winters, systems are almost parched in the following summer. Irrigation systems under the control of the state irrigation department (GMIS) were found to be technically sound, with the necessary head-works and permanent structures to control flood water. On the other hand, FMIS are age-old structures devoid of head-works and other control structures. The valley experiences frequent floods, mostly during the spring season, which wreak havoc on mostly the FMIS by causing frequent breaches as none of these are provided with head-works and super-passages to manage the excess flood water.

[1]The research covered by this IWMI-Tata Research Highlight was carried out with generous support from Sir Ratan Tata Trust, Mumbai under the IWMI-Tata Water Policy Programme. The research paper can be downloaded from the IWMI-Tata Website http://www.iwmi.org/iwmi-tata.

Moreover, at places which are likely to have excessive seepage and are therefore more prone to breaches, the GMIS are provided with concrete works. About 28 percent of the GMIS canals are concrete and this also minimizes delivery losses.

Management Structure

GMIS have their own administrative and legislative structure. The chief engineer of the irrigation and flood control department (I&FC) is the apex authority. The superintending engineer is in-charge of the schemes at the district level while the *canal daroga*, who is of the rank of assistant collector and enjoys the powers of a sub-divisional magistrate (SDM), looks after the revenue cell of irrigation department. There are also hydraulic cells for each irrigation division which are headed by the divisional engineer/ executive engineer. The number of irrigation divisions in a district varies depending on the size of the command area in a district. Every irrigation division is provided with a *ziladar* who is at the level of a *tehsildar* or *mamlatdar*. He has his own court in which water disputes, encroachments and other related matters are resolved in accordance with the State Irrigation Act, 1978. Each irrigation sub-division is headed by an assistant executive engineer who is supported by junior engineers and works-supervisors while the works-watchmen and gang coolies act at the canal level.

The GMIS are technically sound. Whereas, the FMIS are traditional old structures with no head-works or other control structures for flood control, thereby becoming more prone to breaches.

The FMIS are maintained by farmers voluntarily (locally called *Halshari Basis*). Farmers appoint *miraab* (water man) for the upkeep of the canals. There is one *miraab* for every village and this person is generally someone who does not himself own land in the command. *Miraab* is given two *khirwar* of paddy (27 kg of rice) per acre and Rs 20 per year per beneficiary, irrespective of the holding size. The main duty of the *miraab* is to keep watch and ward of the canal, make water available to farmers' fields, and to keep farmers informed well in advance about some eventuality or default in water allocation.

Provision of Water Committees

The State Irrigation Act (1978) has a provision for the formation of water committees whenever there is a crisis or dispute for sharing of water among villages during the peak irrigation season. Such committees are formed under the supervision, guidance, and control of the canal officer. The *ziladar* of the irrigation department summons the elders of the conflict villages which may in most cases include the *numberdar* and the *sarpanch*. There are five members in the water committee and they are elected by the farmers for a tenure of three years.

***Rivaj Abpashi*, the customs of irrigation, prevailed in the state before the formulation of the State Irrigation Act. The *Rivaj Abpashi*, which was written during the times of the *Maharajas*, formed the basis for settling water-related disputes and enjoyed complete backing of the law.**

The water committee meets from time to time and lays down such rules and regulations as it deems fit for its functioning. Its main functions and responsibilities are: to make arrangements for irrigation of land coming under the scheme:[1] to ensure rational and equal distribution of water,[2] to decide about the crops to be sown during a season;[3] to manage the day to day operations of scheme including repairs and de-siltation; [4]to ensure and arrange regular supply of water from point of source to the farmers' fields; [5]to cooperate with and help the canal officer in connection with the running of scheme;[6] to collect information about unauthorized occupation of canal land and take necessary measures; and [7] to take preventive and precautionary measures against loss of irrigation water. The water committees have powers for penalizing water users with penalties upto Rs. 200 for unfair use of water and sowing seeds against the direction of the authorities.

Bye-laws formed by the farmers in the beginning of twentieth century for the functioning of FMIS are no longer in operation. Minor repair works are carried out by the farmers but in case of major repair works, they find themselves helpless and move to government authorities, particularly the block development office, for support.

Comparative Performance of GMIS and FMIS

The irrigation department carries out desiltation on a majority of the canals. However, there are some GMIS on which farmers undertake desiltation work themselves. This is in response to the government's request to farmers in the wake of financial problems. In FMIS, desilting and other necessary repair and maintenance works are carried out by farmers. For major breach or fault, repair work is done by the block development office on request from farmers.

Encroachment problem was found to be more severe in FMIS. In GMIS, there is a full-fledged department provided with proper legal powers to deal with the issue.

Paddy is the principal crop of the whole of Kashmir valley and is grown extensively. In majority of the selected schemes, more than 80 percent of the cultivated area was under paddy. However, owing to frequent droughts in the past few years, a large portion of the paddy-growing area has been converted into apple orchards. The productivity of paddy ranges from 28 to 35 quintals per acre in the selected schemes. Paddy yields get severely affected when there is a drought-like situation has been experienced in the past few years. In 1999, all irrigation schemes faced severe water shortage during peak summer and the paddy fields were parched after transplantation because of lack of water in the canals.

One major problem facing both GMIS and FMIS is encroachment. Farmers who have their land by the side of canals encroach on canal land/bund which lies next to their land. Some have made plantations, particularly willows and salix, and on a part of the encroached land canals are under construction.

Breaching and heavy siltation due to floods, mostly during the spring season (March-April), are common in canals. Even mild floods wreak havoc on canals and huge sums are required to make the schemes operational. Operation and maintenance (O&M) works, particularly desiltation, which is mandatory, are done almost in all GMIS every year. The irrigation department carries out all the necessary repair work before the start of irrigation season.

Transfer Process and Factors Responsible

Kashmir was once a lively hydraulic society with an elaborate network of irrigation systems owned and managed by farmers. All the GMIS selected for the study were actually FMIS during 1950s. These canals were maintained by the beneficiaries voluntarily. In those days, with very low population density and low requirement of foodgrains, the available water was sufficient to cater to the irrigation requirements. Most of the land as such used to remain uncultivated. However, with time and fast growth of population, the dependence on land increased and the inhabitants felt the need for exploiting each and every patch of land lying waste.

All the selected GMIS were actually *zamindari kuhls* (FMIS) during the fifties. These schemes were extended after transfer and were provided with necessary head-works and other permanent structures which did not exist previously.

Increased pressure on fallow land resulted in continuous increase in demand for water and farmers continued to maintain and improve *kuhls* to cater to the growing needs on a voluntary basis. However, their condition deteriorated as the farmers did not have enough means to carry out major repair work. Subsequently, various public irrigation assets were taken by the government under their control through the irrigation department for improving their physical condition and ensuring regular maintenance .

The state government formed an irrigation advisory board under the chairmanship of the development minister in January, 1957. The board made several recommendations, by which the canals meeting any of the following criteria were transferred completely to the irrigation department: [1] more than 5000 acres of command area; [2] possibilities of saving water; [3] possibilities of extension of irrigation; [4] frequent complaints about shortage of water; [5] disputes between stakeholders; and [6] need for technical repair work.

At present, there is demand from farmers that the government should take over the management functions of some FMISs in the irrigation sub-division under study. There are several reasons for the demand of transfer of FMIS to GMIS and better performance of the latter:

• Financial constraint is a major factor responsible for the poor performance of FMIS.

• Farmers are not able to irrigate the design command area whereas with the takeover, irrigation department is able to increase the command area.

• Actual water requirement of the command area is estimated in the case of GMIS and accordingly, the required quantity is made available at the canal head.

• GMIS are provided with necessary head-works, gauges, aqueducts, flumes, super-passages, passes with gauges, key locks and other permanent structures which are absent in the case of FMIS.

• All farmers can irrigate at a time without *warabandi* and equi-distribution of water is achieved in GMIS whereas in the case of FMIS, head reaches are better served compared to the tail-end in some cases.

• During floods, FMIS get silted up, breached and become defunct as there are no head-works to divert the excess water into *nallahs*.

• Farmers are unable to maintain the structures and repair major damages due to limited resources.

• Farmers are mostly marginal landholders and therefore are less concerned about and less capable of undertaking repairs and maintenance of the entire systems.

Conclusions

The social and political instability which prevailed in Kashmir for nearly two decades has taken a toll on the region's economic development. The governance of public systems particularly suffered a major setback and irrigation systems were no exception to this. With day-to-day improvement in the situation, public assets in the region are getting a new face-lift and remarkable investments are being made every year. Irrigation canals managed by the irrigation department are now remodeled and getting better care.

Our findings suggest that government should evolve an effective support system to improve the physical infrastructure. Taking over these systems as is being done so far would destroy the participatory management traditions that are the hallmark of *Zamindari Kuhls*. On such schemes, water committees may be formed which can look after the desiltation work from the farmers' side. These water committees are critical at times of crisis, when tensions arise over the sharing of water between farmers from different villages sharing the same canal. However, state intervention should be limited to extending financial and technical support to ensure improvement in physical infrastructure and up-keep of the systems. It should in no way infringe upon the institutional autonomy of FMIS. Well-performing FMIS may be kept untouched as long as they are well maintained. Excessive interference by the state in the functioning of FMIS could [1] undermine farmer initiatives; [2]result in gradual breakdown of indigenous farmer institutions;[3] cause increased financial burden for the state; and [4]ultimately weaken the irrigation economy.

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IWMI-Tata Water Policy Program

The IWMI-Tata Water Policy Program was launched in 2000 with the support of Sir Ratan Tata Trust, Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations.

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