

PARTICIPATORY REFORMS: IMPACTS FROM OTHER COUNTRIES OF THE WORLD.

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“Improved cost recovery, better water distribution, cheaper maintenance, increase in farmer’s income and reduction in the government expenditures, are the main impacts of reforms”.

BRIEF HISTORY OF PIM

Participatory Irrigation Management (PIM) is not a new thing. It has centuries old history. Rather, it tells us that the local groups developed the world’s first irrigation schemes.

At government level, before 1950s in America, the local groups were involved in irrigation management. Between 1950s and 19970s the PIM was started in France and Taiwan. In the developing countries PIM was promoted between 1980s and 1990s. Particularly, in mid 1980s, the international financial and donor agencies introduced the concept of PIM all over the world. In Pakistan, in mid 1990s, the PIM was adopted in its national strategy.

PIM is a global movement now. Different governments are implementing PIM according to their own economic, social, cultural, and political circumstances. Therefore, the PIM has different names in different countries of the world.

In Indonesia and Philippine it is called turnover, in Mexico “management transfer”, in Senegal it is “disengagement”, in China “post responsibility system” in Bangladesh “privatization” in Nigeria it is “commercialization” and in India and Sri Lanka it is called “participatory management” (Geijer, J. et al., 1995)

Areas of Impacts

The following section covers the impacts of irrigation management transfer around the world. The paper covers the following area of impacts.

- Abiana Recovery
- Income of Farmers
- O&M expenditure of Canals
- Water Supply
- Production
- Area under Cultivation and Crops
- Maintenance conditions of Canals
- Government Expenditure



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IMPACTS ON ABIANA RECOVERY

A study on irrigation management transfer in Turkey Plusquiellec (1995) reports that water charges are received from the water users in three installments for each irrigation season. The recovery of the first installment which was due in June 1995 varies between 75% to 90% which was much greater than the past performance of the government agencies.

Plusquellec (1995) reports that before the irrigation management transfer the Mexican government was recovering less than the 30% of the O&M and energy cost. After the transfer the recovery of the O&M cost of irrigation system as a whole has now increased from 30% to 80%, and the recovery of the transferred systems is 100% in Mexico.

A study conducted by Johnsan III et al. (1995) to assess the institutional changes and management performance changes in two districts in China. Their report revealed that prior to reform the water fee collection rate was 100%. However as the reforms were introduced the collection rate dropped significantly. It fell from 100% to 85%. The reported reasons for this drop in collection rate were confusion within the irrigation system about the management responsibility coupled with the factor of increase in volumetric water fee. Collection rate was improved through the improved management services and extensive education programs.

Pant (1995) discusses the results of a case study on the Turnover of Public tube wells in Uttar Pradesh and examines the changes associated with irrigation management transfer IMT. These changes are water use efficiency, cropping intensity and productivity, cost of water to the beneficiaries, control of water to the water users and gain or losses to the government. He has mentioned that with regard to the collection of water charges the data shows mixed results. For 1992-93 the water charges collection for the tube well show increase in both Kharif and Rabi as compared to the collection before the Irrigation Management Transfer. In case of Rabi it was US\$ 382 before IMT and US\$ 433 after IMT. The average per year revenue collection from the tube well shows increase after IMT, which is from US\$ 611 before to US\$ 620 after.

Musa (1995) examined financial sustainability for operation, maintenance and management on Kano River Irrigation Project KRIP after irrigation management transfer with the collaboration of the Federal Government of Nigeria and the International Irrigation Management Institute IIMI. He mentioned that the impact on cost recovery was also significant. Both the representatives of WUAs and the representatives of Hadejia-Jama'are River Basin Development Authority (HJRBD) admitted that the WUA contributed in mobilizing the farmers to pay their collected water charges even before the water was released to them. Recovery of the water charges was below 50 percent before the turnover of an irrigation system. The author has not mentioned explicitly the amount of increase in recovery of water charges, however the reports show that there was distinct increase in the recovery of the water charges after the turnover of irrigation system.

A paper presented at the Regional Workshop of the Farmer-managed Irrigation Network held at Khon Kaen, Thailand by U. Gautam (1990) describes the role of social organizers in improving the irrigation management in context of Nepal experience. In this paper the author says that after the formation of the user's *tolis* (associations) an overwhelming majority of farmers showed satisfaction about the assessment of the water cess. Before the water user's *tolis* the farmers were dissatisfied with the assessment.

Honorato L. Angeles reported that "the ability to collect irrigation fees in Philippines was well demonstrated by one system where fee collection reached a record 96 percent. Under government management, the rate of fee collection in that system was a little over 50 percent on the average."

IMPACTS ON INCOME OF FARMERS

IIMI (1995) reported that "the transfer of mesqa's in Egypt led to an increase in average annual farm income of US\$ 300 per hectare."

Norman Uphoff (1986) reported that "in Nepal, Production data gathered by the Agrarian Research and Training Institute (responsible for introducing the farmers' organizations), showed a net profit of 23 rupees per bushel from paddy production in that season. **This** figure was used to calculate the value of added production (rather than the gross sale price)."

Kolavalli and Raju (1995) conducted a study on the result of the turnover of public tube wells by Gujrat Water Resources Development Corporation. India reports that "three societies which had reported high profit ranging from Rs 8000 to Rs 18000 annually had broad based representation and appeared to be genuine cooperatives."

IMPACT ON O&M EXPENDITURE OF CANALS

Norman Uphoff (1986) stated that "in aggregated terms, Lowderlilk (1985:2) reports that farmers contributed \$7.6 million worth of labor in the large (\$42 million) program to rehabilitate turnout areas (chaks) in Pakistan."

Musa (1995) examined financial sustainability for operation, maintenance and management on Kano River Irrigation Project KRIP after irrigation management transfer with the collaboration of the Federal Government of Nigeria and the International Irrigation Management Institute IIMI. He mentioned the impact of irrigation management transfer on government expenditures. The government expenses on Operation, Maintenance and Management OMM of irrigation systems in 1983 were close to US\$750/ha/ year. While the irrigation water fees were approximately US\$95/ha/year. After the turnover the expenditures of OMM chipped in by the government has dropped to about US\$10/ha/year while the irrigation water fee is US\$25/ha/yaer.

IIMI (1995) reported that "in southern Luzon, Philippines, within 4 years the system's budget deficit declined from an annual average 1982-85 of Ps. 268,500 to an average of Ps. 7750 during 1986-89, the first four year after turnover."

Waheed-uz-Zaman (1998) conducted a study on impact impacts of fanner participation for water resources management for the farmer organization of the Hakra 4-R Distributary belonging to the Fordwah Eastern Sadiqa Canal System in Southern Punjab, Pakistan. He reported that The farmer organizations of the Hakra 4-R Distributary under took a five days maintenance campaign. Its five sub-system level water users' organizations (WUOs), participated separately for one day each in the maintenance campaign. A total of 794 farmers, their leaders, participated. Also, 120 tractors, mostly with rear-mounted-scrapers were mobilized.

The total cost of resources mobilized, including tractor traveling costs, man hours and tractor hours at the site, is equivalent to Rs 124,000/= (or US\$ 2,800/=). The estimated cost of the WUOs' maintenance activities was Rs 400,000/= (or US \$ 9,032/=). Thus comparative estimate of the maintenance work was provided by the Sub-divisional Officer (SDO) of Haroonabad Sub-division of the Punjab Irrigation Department in the presence of an Asian Development Bank Consultant during his visit to the Haroonabad area. The farmers now believe that they can undertake cost-effective maintenance activities.

IMPACTS ON WATER SUPPLY

A research conducted by Aziz (1995) on irrigation management turnover to private water users associations in Egypt provide the comparison after and before turnover of the mesqa system from a sample of an improved mesqa under the Irrigation Improvement Project (IIP). The study shows that mesqa conveyance efficiencies increased from an average of about 70% to about 90 and 95%. The overall irrigation efficiencies (conveyance \times field application efficiencies) for 26 observation of sample mesqas averaged about 40% before improvements and ranged from 70% to 80% after improvements. With regard to equity conditions data also shows that before the turnover of mesqas about one-third of 137 sample farmers interviewed reported serious problems of inequitable water distribution. After the turnover none of the 137 water users reported unequal water supplies between head-end and tail end. The report further points out that before the turnover, about 65% of the sample farmers reported that, in summer season, water supplies were insufficient for good crop production. After the turn over only 10% sample farmers reported problem of inadequate supplies. He also found that irrigation time per hectare for five main crops was decreased from an average of about 15 to 17.5 hours, to about 5 to 7.5 hours per hectare after the turnover of the new mesqas.

Musa (1995) studied financial sustainability for operation, maintenance and management on Kano River Irrigation Project KRIP after irrigation management transfer with the collaboration of the Federal Government of Nigeria and the International Irrigation Management Institute IIMI. He mentioned the impact of irrigation management transfer. The WUA for Aglose in 1991/92 cleaned 1.3 km length of distributary channel leading to a 12% increase in the discharge in middle and final sections of the channel.

IIMI (1995) reported that "in a post-facto design about turnover of a medium size pump scheme along the Red River in Vietnam there was an increase in irrigation efficiency from 50% to 81%. There was also a decrease in water consumption per ha from 8000 m³ to 5120 m³ (a 36% drop) over a four year period after turnover.

IIMI(1995) reported that "in another post-facto report, water delivery efficiency in the Azua system in the Dominican Republic increased between 25% and 30% after management transfer under the On Farm Water Management Project "

IIMI (1995) reported that "the turnover of a public tube well in Uttar Pradesh, India increased water and electricity use efficiencies. Average pumping time per irrigation was reduced from 42.4 to 39.3 hours per ha in Kharif season to 13.4 and 22.8 hours per ha in Kharif season during the first two years after turnover (1992-94)."

IMPACTS ON PRODUCTION

Project studies in Malaysia indicate that after the Irrigation Management Transfer farmers were able to achieve higher paddy production and cropping intensity (Soon, 1995).

With regard to impact on production after the Irrigation management transfer, reports from Turkey indicate farmers' production has increased by 10-25% (Cagil,1995)

A research conducted by Aziz (1995) on irrigation management turnover to private water users associations related to three canal commands in Egypt shows that one to three seasons after the turnover farmers estimate about 10% increase in cotton, 14% in maize and about 16.5% in sugarcane yields per hectare

The study on institutional management and performance changes in two irrigation districts in China indicates (Johnson 1995) that annual combined per ha production of wheat and maize has increased from 1125 kg in 1960 to 11905 kg in 1992 for Bayi ID. From 5250 kg in 1972 to 8500 kg in 1992 in Nanyao ID after the implementation of rural reforms.

IIMI (1995) reported that "in the Kano River irrigation Project in Northern Nigeria, taking over of management of distributary canals by farmers led to 12% increase in water volume reaching middle and tail ends of pilot canals, which resulted in an 80% increase in dry season cropped area."

IIMI (1995) reported that "in Uttar Pradesh, India, the average irrigated area in Rabi (winter) season was 103 ha during 1990-92 (before turnover) and 59.5 ha 1992-94 (after turnover). Cropping intensities were on average of 143% during two years before turnover and 162% afterwards."

Norman Uphoff (1986) reported that "in the Nong Wai scheme in Thailand, farmer organizations reportedly raised cropping intensity from 50 to 90 percent in two years' time."

IMPACTS ON AREA UNDER CULTIVATION AND CROPS

In Bangladesh, after the irrigation management transfer, the irrigated area has increased due to the adaptation of the tube well technology. The cropping average intensity has also increased due to the vagaries of irrigation development where irrigation water is available. (Sarkar 1995).

Turn over of the irrigation system in Indonesia to Water User's Associations resulted in better water management, increase in crop during **dry** season and adoption of high economic value crops. There was also significant improvement in cropping intensity from 194% to 282% and increase in crop yield during wet and dry season (Soenarno, 1995).

After turnover of state tube wells to farmers' cooperatives, Tushaar Shah et al (1995) have reported experiences from Indian Gujarat. The increase in area under irrigation in district Petland, India was 30% but in district Anand the increase was 4 times. The report, however, also indicated that performance of the cooperative tube wells (turned over tube wells) is much less than the private tube wells. Generally the price of the private tube well water is higher but 20% more and irrigates 45% more area.

IMPACTS ON MAINTENANCE CONDITIONS OF CANALS

Reports on Irrigation Management Transfer in Indonesia show that farmers participation in undertaking O&M operations have increased (Soenarno, 1995).

The initial results of pilot test from Basut, Malaysia reports that after Irrigation Management Transfer the cooperation among farmers has increased and they have started adopting good water management and farming practices. Operation and maintenance efficiency has increased. (Soon, 1995).

Musa (1995) studied financial sustainability for operation, maintenance and management on Kano River Irrigation Project KRIP after irrigation management transfer with the collaboration of Federal Government of Nigeria and the International Irrigation Management Institute IIMI. He mentioned the impact of irrigation management transfer on Operation and Maintenance conditions of the distributary channels. There was a major improvement in maintenance of the irrigation infrastructure. The WUAs of Bangaza were able to clean 70% of the distributary channels and 60% of the field channels. Similarly the WUAs of Agolas and Karfi cleaned 80 percent and 100 percent respectively.

IMPACTS ON GOVERNMENT EXPENDITURE

IIMI (1995) reported that "in the Columbia Basin Project in the USA, there were 612 US Bureau of Reclamation (USBR) staff in 1969 -- the year of transfer. By 1985 only 83 USBR staff remained. Staff decline was even steeper in the Irrigation and Land Management Division, dropping from 297 in 1969 to only 22 in 1985."

IIMI (1995) reported that "in Coello and Saldana of Columbia, in 1975 an average of 62 ha was served per staff, whereas in 1993, 147 ha was served per staff."

IIMI (1995) reported that "turnover system in Southern Luzon, Philippines led to a decrease in staff from 24 in 1982 to only 6 in 1987, which led to a 60% reduction in annual operating expenses."

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