

Using Irrigation Management for Poverty Alleviation: a Descriptive Analysis

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Abstract: This article reviews the Irrigation Management as a measure to mitigate various dimensions of poverty, particularly prevailing in the rural segments of society. Irrigation plays a crucial role to fight against poverty and thus has been the largest recipient of public agricultural investment in the developing world. Over the last 30 years, billions of dollars have been spent to assure water supplies, to raise yields and to improve rural livelihoods. In Pakistan irrigation charges amounted to only five per cent of the crop expenses. Communities at the tail end areas are victims of water scarcity. National Drainage Program project would directly benefit tenant farmers, small holders and tail enders in the form of improved availability of irrigation and drainage facilities, efficient delivery services and reduced costs.

Keywords: Management, alleviation

Introduction

Poverty alleviation has always been a top priority agenda of each successive government in Pakistan. But, unfortunately, the targets to alleviate poverty remained unachieved. It means that either the targets were unrealistic or the efforts made were misdirected. Poverty eradication as its declared priority, present government has been promising special grants and allocations for one third of its 138 million peoples, who live below one-dollar-a-day poverty line. Majority of our population resides in rural areas where 80 per cent of the total poverty prevails and the source of their livelihood is farming or farm related activities. As a major agricultural input, irrigation plays a crucial role in an effort to fighting against poverty, increasing rural welfare and reducing urbanization. High yields in the agricultural sector have also assured stable and affordable food prices for billions of poor segments all over the world. We need to remember that food production has to be doubled between now and the year 2030, which must be achieved with less available water and with more strict rules of operation. More than 50 per cent of the world's grain production comes from irrigated agriculture though it accounts for less than 20 per cent of the world's cultivated land (Crosson and Anderson 1992). Irrigation can make a very important contribution in reducing hunger and poverty by raising crop yields, allowing intensive use of land, and adding reliability to food supply systems and farm incomes. In several regions, competition for water is increasing among agriculture, industry and human populations. From the total amount (3,240 cubic km) of water withdrawal, 70 per cent is used for agriculture, 20 per cent for industry, and 10 per cent for domestic consumption (World Resources Institute, 1994). While per capita availability of water is declining in most countries for being misused. Of the 70 per cent of the world's water used for irrigation, half is lost to seepage and evaporation (Overseas Development Administration, 1993). Farmers engaged in irrigated farming may find themselves worse off if water supplies become unaffordable or unavailable. Water quality, both surface and groundwater, is being endangered by pollution, particularly from nitrates and pesticide residues. At the same time agricultural production accounts for a large and growing share of water pollution by fertilizers, pesticides, and in some

cases, by heavy metals. Many of the critical issues affecting water use efficiency and the success of investments in irrigation and drainage are not technical, but social and institutional, and related to macro-economic and fiscal policy.

In many circumstances, access to irrigated land and water by the poor not only alleviates poverty but also leads to higher productivity. Evidence shows that agricultural output per unit of land in smaller irrigated holdings is higher than in larger holdings (Koppen 1998). If large farmers obtain access to irrigated land and water, this may provide paid employment and a commercial offer of water to small holders, and thus alleviating poverty indirectly. Moreover, access to irrigated land and water by large farmers can also be at the direct expense of the poor. Such competition is likely to become more severe with growing water scarcity. Thus there is a need of micro strategy at grass roots level. Poverty alleviation accounts for an integrated process of economic, social, political and technological transformation. Poverty reduction program must focus on people's participation in the process of rural development. Development of water resources for irrigation and consumption purposes should be given top priority so as to mitigate poverty.

The objectives of this study are:

1. to visualize various dimensions of rural poverty, particularly emerging in the tail end users of canal water;
2. to understand the organizational, technical and financial support in the way of efforts to improve the performance of irrigation;
3. to see the changing trends of per capita availability of water in the country; and
4. to analyze the impact of rising water rates on its consumption.

Results and Discussion

There is considerable scope to improve the performance of the irrigation sector. A combination of the following approaches appears to be pivotal.

Organizational support: Targeting support is only possible if agencies work through inclusive forums at local

level. Organizational support is required for creating such forums since poor segments are not organized to that extent. By now, several governmental and non-governmental irrigation agencies at world level have succeeded in establishing such forums. The social fields in which rights are defined, evolve over time as the social fields in which rights are implemented. In the use phase this social field is currently called a water users' organization. Membership of these organizations is closely related to having legitimate rights to irrigated land. Only through inclusive forums technical and financial support can reach the poor and such kinds of supports, in their turn, further shape the organizational support required.

Technical support: In public irrigation, the technical support in the construction, operation and maintenance of infrastructure entails major inclusion or exclusion processes in two respects. First, the site-selection, layout and division structures heavily influence whose land can be irrigated, and how well. If land tenure in the command area does not change, the physical design directly determines whether the poor or the non-poor obtain access to irrigated land. In the past, the non-poor have often been favored in this way. If land reform in the command area is possible or needed, this usually offers good opportunities to provide primarily the poor with access to irrigated land. Second, agencies in public irrigation can vest users' rights to the newly developed water, and sometimes to irrigated land as well, by arranging co-investments in construction and maintenance work in the form of labor and/or other contributions. An effective mean to include the poor is explicitly opening up these opportunities to poor segments.

Financial support: Investments in infrastructure are often the most costly part of irrigation. The poor typically lack an access to capital and to longer-term credit facilities that prosperous farmers tend to have. Hence, subsidized investments in public irrigation infrastructure should support the poor, especially in obtaining access to irrigated land and water. In reality, however, these funds for irrigated land and water development have often leaked to the well off. In private irrigation long term credit facilities for the poor are very important. The productivity of irrigated land is significantly higher than that of rainfed land. In Pakistan out of 79.7 million hectares, 30.4 million hectares are under cultivation. Out of the total cultivated area, 21.28 million hectare is irrigated and remaining is dependent on rainfall. The irrigated area includes canal irrigated and tube-well irrigated in the ratios of 70 per cent and 30 per cent respectively. Pakistan ranks eighth in per capita fresh water withdrawals among 130 countries listed in the 1995 World Development Report. Pakistan depends on irrigation and water resources for 90 per cent of its food and crop production. The vast irrigation system in Pakistan is comprised of three major storage reservoirs, 19 barrages or head works, 43 main canals with a conveyance length of 57,000 kilometers, and 89,000 water courses with a running length of more than 1.65 million kilometers. This vast irrigation system feeds more than 40 million acres of irrigated land in Pakistan, a country with the highest irrigated and rain-fed land ratio of 4:1 in the world (Nizmani and Rauf 1999). In Pakistan the water charges for irrigation are known to be low. According to official statistics, the costs of

irrigation water are highly subsidized in Pakistan. Some experts assert that these low rates for water are the main cause for irrigation mismanagement, which results in the denial of water to the tail-end communities of the system. Irrigation charges amounted to only five per cent of the crop expenses and raising water prices would not affect water consumption in Pakistan (Kirmani, 1992). Entire communities and villagers in the tail-end areas are victims of irrigation scarcity, but the landless sharecroppers are the worst victims. Because the land could not be cultivated for many years that is why the sharecroppers were denied subsistence credit from the land owners, thus pushing large numbers of them into unemployment which is high in the extreme tail-end areas

A National Drainage Program project is about to start in Pakistan which will cost US \$ 785 millions. The Government of Pakistan and the World Bank have agreed a new long term irrigation and drainage strategy for Pakistan. The project's most significant direct benefits would be for tenant farmers, small land holders, and tail-enders in the form of increased efficiency of service delivery, improved availability of irrigation and drainage supplies, and reduced cost. The project's principal short term benefits will come from the physical drainage improvements and better irrigation, which in turn will result in an improved environment and increased output of agricultural produce. This will have a direct and positive impact on poorly drained land that falls within the command of each investment project, regardless of the socioeconomic characteristics of farmers. Estimates indicate that farmers benefiting from the drainage improvements can expect to increase their income by an average of 30 per cent, depending on the original condition of waterlogging and salinity and on the agro-ecological conditions (Palijo 1998). Claims that irrigation development improved the well-being of the poor groups do have a validity. Rapidly expanding and highly subsidized irrigation infrastructure development has improved food production. This, in turn, has lowered and stabilized food prices which was critical for poor consumers.

Suggestions and Recommendations: New policies should treat water as an economic good and priced it at its opportunity cost. In most developing countries, water for irrigation is heavily subsidized as an incentive for farmers to grow water-sensitive crops.

The issue of irrigation subsidies should be dealt carefully, and no subsidies should be provided that result in inefficient agricultural use of water. Management of irrigation systems and delivery of water services to farmers is characterized by an excessive reliance on government. Experience demonstrates that countries such as Mexico, Turkey and Colombia are achieving better-quality service by decentralizing the responsibility for delivering water to local governments and transferring operations and maintenance functions.

Technological means to a better use of water can be viewed both at the delivery system and at the field level. The latter is more crucial, and may be more responsive in preventing negative environmental impacts.

Water conservation efforts, leading to the use of water saving technologies and management practices are the key for water saving and reduction in environmental degradation.

Price policies for water, water-use technologies, and pollution-related issues should be tackled carefully

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Irrigation and water resource development projects should be designed in active consultation with the communities, affecting ecosystems directly and indirectly. Enhancing efficiency of existing irrigation equipment can be made through better repair and maintenance. Also improved water discharge, conveyance efficiencies, training of extension workers, including farmers and better on-farm water management technologies can be helpful in this regard.

References

- Crosson, P. and J.R. Anderson, 1992. Resources and Global Food Prospects: Supply and Demand of Cereals to 2030, World Bank Technical Paper 184, Washington, DC.
- Government of Pakistan, 1992, Pakistan National Conservation Strategy, Islamabad, Pakistan.
- Koppen B. V., 1998. More Jobs Per Drop: Targeting Irrigation to Poor Women and Men, KIT Publishersbus H.A., Amsterdam.
- Kirmani, S.S., 1992. 'Working Paper on Policy and Management Issues, In Water Sector Investment Plan, Volume 1, Government of Pakistan, Islamabad, Pakistan.
- Nizmani, A. and F. Rauf, 1999. Case Study Pakistan: Population and Water Resources, ICUN, Country Office, Islamabad.
- Overseas Development Administration, 1993, A Fresh Approach to Water Resource Development Research Report, U.K.
- Paliyo, A.L., 1998, National Drainage Program Pakistan Ecological and Environmental Effects, Sindh Research Council, Hyderabad, Pakistan.
- World Bank, 1996. World Development Report, Washington, D.C.
- World Resources Institute, 1994, World Resources 1994-95: A Guide to Global Environment, Washington D.C.