

Ex-ante Evaluation

1. Name of the Project

Country: Islamic Republic of Pakistan

Project: Punjab Irrigation System Improvement Project

(Loan Agreement: May 3, 2008; Loan Amount: 11,382 million yen; Borrower: The President of the Islamic Republic of Pakistan)

2. Necessity and Relevance of JBIC's Assistance

In Pakistan, agriculture is a mainstay of the economy and the most important resource for gaining foreign currency. It is also a key industry that provides raw materials for such major industries as textile and sugar manufacturing. Moreover, in Pakistan, the poverty rate is higher in rural areas than in urban areas, so developing the agricultural sector is important not only for economic growth but also for poverty reduction in rural areas by absorbing employment.

In Pakistan, since irrigation is necessary for more than 80% of its cultivated lands, it is acknowledged that developing the irrigation sector holds the key to promoting agriculture and revitalizing rural communities. Punjab Province, having the largest area of irrigated lands among all provinces, requires stable supply of irrigation water and its efficient use through voluntary irrigation management by farmers' organizations. The province must thereby enhance its agricultural productivity and raise the income of small-scale farmers, many of whom are impoverished.

To these ends, in 2005, the Punjab Irrigation and Power Department launched its Irrigation Sector Reform Program (ISRP), enhancing its efforts toward the policy goals of (1) improving the maintenance and management system of irrigation facilities; (2) enhancing the transparency of water distribution in the province; (3) improving the irrigation services for farmers; and (4) raising the water use efficiency and productivity of farm fields. The reform of tertiary waterways as well as the formation and development of farmers' organizations that will be carried out in this project are important for promoting ISRP.

To promote ISRP, the project will implement the reform of tertiary waterways (distributaries/minors), which determines fair and efficient water distribution among farms, and thereby performs a beneficial role for farmers. Additionally, the project will support the formation and development of farmers' organizations that will be assigned to maintain and manage the waterways. Moreover, to ensure continuous appropriate use of irrigation facilities, in addition to systematic irrigation facility reform, efforts will be made not only to transfer authority over water channels to farmers, but also to offer training programs for farmers to raise awareness of irrigation facility management, enhance the capacity of farmers' organizations, and promote efficient use of water.

In its Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005), JBIC sets forth "foundation for sustained growth" and "assistance for poverty reduction" as one of its priority areas. Thus, this project, which reforms irrigation facilities and supports the formation and development of farmers' organizations for irrigation facility management in the rural areas of Punjab Province, is consistent with the medium-term strategy. Consequently, it is highly necessary and relevant that JBIC should support the project.

Furthermore, efforts will be made to execute this project effectively by capitalizing on the

experience JBIC has thus far acquired in its National Drainage Program Project and Lower Chenab Canal System Rehabilitation Project, as well as by mutually collaborating with JICA projects in the irrigation sector.

3. Project Objectives

This project aims to improve agricultural productivity in Punjab Province by reforming irrigation facilities centered on tertiary waterways and water resources management facilities, supporting the formation and development of farmers' organizations, as well as by providing support for the management and preservation of underground water; thereby contributing to poverty reduction.

4. Project Description

(1) Target Area

Punjab Province (Bahawalpur Irrigation Zone, Dera Ghazi Khan Irrigation Zone, Faisalabad Irrigation Zone)

(2) Project Outline

- (a) Irrigation facility reform: Reform of tertiary waterways and related structures
- (b) Formation and development of farmers' organizations
- (c) Improvement of underground water management
- (d) Consulting services: Detailed design, bidding assistance, construction monitoring and supervision, etc.

(3) Total Project Cost / Loan Amount

12,832 million yen (Japanese ODA Loan Amount: 11,382 million yen)

(4) Schedule

March 2008–December 2013 (70 months). Project completion is defined as when all consulting services are completed.

(5) Implementation Structure

- (a) Borrower: The President of the Islamic Republic of Pakistan
- (b) Executing Agency: Irrigation and Power Department, the Government of Punjab (IPD)
- (c) Operation and Maintenance : IPD, The Punjab Irrigation and Drainage Authority (PIDA), farmers' organizations, etc.

(6) Environmental and Social Consideration

- (a) Environmental Effects / Land Acquisition and Resident Relocation
 - (i) Category: B
 - (ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in

April 2002). Thus, this project is classified as Category B.

(iii) Environmental Permit

The Environmental Impact Assessment (EIA) report concerning this project is not required under the domestic laws of Pakistan.

(iv) Anti-Pollution Measures

Measures will be implemented to prevent water pollution, such as by suspending supply of irrigation water during construction.

(v) Natural Environment

The area targeted by this project is not located in or around sensitive areas such as national parks, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

This project aims to improve existing irrigation facilities, and so involve neither land acquisition nor resident relocation.

(vii) Other/Monitoring

In this project, the executing agency will monitor water quality and other types of pollution

(b) Promotion of Poverty Reduction

At 32.3% (2004-2005), the poverty rate in the rural areas of Punjab Province is higher than the national average of 28.3%. Thus, this project falls under the category of anti-poverty project as defined by JBIC. In Punjab Province, since many farmers are small-scale farmers owning lands of 2 ha or less, it will be possible to realize higher agricultural productivity and raise the income of small-scale farmers, many of whom are impoverished, by stable supply of irrigation water and more efficient use of water resources through voluntary irrigation management by farmers' organizations.

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases

Including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

Efforts will be made to promote awareness of gender issues in agricultural work and in the management of irrigation, along with efforts to promote women's participation in the activities of farmers' organizations, by providing farmers with the necessary training in the process of the formation and development of farmers' organizations.

(7) Other Important Issues

None

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

(Combined indicators of three districts: Bahawalpur, Dera Ghazi Khan, Faisalabad)

Indicator	Baseline (2005–2006 average)	Target (2018, 5 years after completion)
Area benefited by the project (ha)	664,200	664,200
Acreage of crops (ha)		
Rice	47,454	48,169
Cotton	121,654	127,962
Maize	49,613	50,839

Sugar cane	55,613	56,935
Wheat	274,409	282,427
Oilseed	29,855	30,511
Collection rate of irrigation charge (%)	36.5%*	85%
Number of farmers' organizations	105	179
Number of underground water monitoring points	45	400

* The numerical value in the targeted areas where farmers' organizations have already been formed and developed.

(2) Number of Beneficiaries

Approximately 1.92 million (estimated population of 3 target irrigation districts as of 2007, based on the 1998 national census).

(3) Internal Rate of Return (Economic Internal Rate of Return)

Based on the conditions indicated below, the economic internal rate of return (EIRR) is 22%.

- (a) Cost: Project cost (excluding tax), operation and maintenance expenses
- (b) Benefit: Increase in income from agricultural products
- (c) Project Life: 25 years

6. External Risk Factors

None

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

Project impacts are largely influenced by operation and maintenance of facilities set up under the project. The lesson learned from the ex-post evaluation of past irrigation projects is that attention should be paid to the establishment of operation and maintenance systems during project formation and supervision. Based on this lesson, the sustainability of the project will be secured by including in its components support for the formation and development of farmers' organizations that bear the responsibility for the project's operation and maintenance.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Area benefited by the project (ha)
- (b) Acreage of major crops (ha)
- (c) Collection rate of irrigation charge (%)
- (d) Number of farmers' organizations
- (e) Number of underground water monitoring points
- (f) Internal rate of return: EIRR (%)

(2) Timing of Next Evaluation

Two years after project completion