

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: AB1425

Project Name	FERGHANA VALLEY WATER RESOURCES MANAGEMENT PROJECT
Region	EUROPE AND CENTRAL ASIA
Sector	Irrigation and drainage (80%);General water, sanitation and flood protection sector (20%)
Project ID	P084035
Borrower(s)	REPUBLIC OF TAJIKISTAN
Implementing Agency	Ministry of Melioration and Water Resources Management Attn.: Mr. Ahad Ahrorov Coordinator of the Project Preparation Unit 5/1 Shamci Street Dushanbe, Tajikistan 734054 Tel: 992-372-36-62-08 Fax: 992-372-36-62-08 a.ahrorov@mail.ru
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
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1. Country and Sector Background

Tajikistan has an area of some 141,000 Km² of which some two thirds form the foothills and high mountains of Turkistan, Zarafshan, and the Pamirs. Several regional ethnicities are represented in its 6.3 million (m) population. Independence and turmoil followed by a bloody civil war left it among the poorest countries in the world, but the economy is now growing. Real annual GDP growth has ranged from 8% to 10% over the past few years. As of 2004, annual per capita income was estimated to be around US\$300, but some 57% of the population remains below the poverty line.

Regional and system characteristics: The Ferghana Valley is an important region of Central Asia with a total population of about 11 million people, of whom 70% live in rural areas, spread among Uzbekistan, Kyrgyz Republic and Tajikistan. The Valley contains the Syr Darya which is the main source of water supply in the area. The Sughd Oblast of Tajikistan is situated in the Ferghana Valley which includes some 700,000 ha of agricultural land of which 200,000 ha are irrigated but only 134,00 ha cultivated because of the dilapidation of the systems. After the collapse of the Soviet Union, the irrigation and drainage systems have fallen into disrepair, leading to unreliable supply of irrigation water, drainage and water-logging problems, reduced soil fertility and crop yields and reduction in irrigated area. The valley's principal water control feature is the Kayrakkum dam and reservoir, located on the Syr Darya river upstream from (east of) Khujand. The dam operates primarily for irrigation releases to downstream agricultural areas in Uzbekistan, and also for hydropower generation for Tajikistan. The adjacent valley lands (northern and southern) are served for irrigation from (i) the reservoir and river, by large

pumping stations, (ii) two main irrigation contour canals that enter the area from Uzbekistan (in the east), and (iii) a number of tributaries of the Syr Darya river and Kayrakkum reservoir. There are also numerous drainage pumping stations and irrigation/drainage tubewells for evacuating drainage flows and controlling high groundwater levels.

Cross border water management problems. The mountains of Tajikistan and Kyrgyzstan are the main water reserves for the Aral sea basin and as such have several large dams that need to be recharged during the spring months so as to provide for water for irrigation to their neighbors, Uzbekistan, Turkmenistan, and Kazakhstan to a lesser degree. The irrigation networks built under Soviet central command with a layout designed for carrying of water to great distances several hundred miles away are today often points of contention among the countries where each country sees its right to water as unalterable. In addition, to the cross border problems, the systems further suffer from deterioration from years of neglecting maintenance, and a general belief that water and its infrastructure is a free resource for which there is little willingness to pay.

Conflict on water use priorities. The two upstream countries use water for energy generation during the winter months, which prevents the dams to recharge sufficiently to supply the abundant water volumes needed for irrigation in the riparian countries. In addition, water releases during the winter period has in some cases led to serious flooding problems downstream where water flows are inhibited by frozen canals. Under the Soviet period, large yearly shipments of coal, and arrangements for gas distribution to upstream countries prevented these problems. While agreements exist between the countries for fuel transfers in return for water, they are often broken or neglected on both sides, upstream countries not supplying agreed water quotas, and riparian countries not delivering the necessary fossil fuel to keep residents of mountain countries warm.

Agriculture: Importance of Agriculture for poverty alleviation and economic growth: Tajikistan is an agrarian society and agriculture is critical to poverty reduction and economic growth. Some two thirds of the population is directly dependent for their living on of which the greater part is rainfed pasture land and agricultural production represents a fifth of the economic output. Of Tajikistan's 4.6 million ha of agricultural land, only about 850,000 ha are arable and irrigated, some 800,000 ha of which in lowlands are under rotation between cotton and cereal crops, with about 320,000 ha under cotton at any one time. Cotton the dominant cash crop and its trade represents a fifth of foreign hard currency trading

Land privatization: Farm privatization is an important element of irrigation sustainability since water users need to be motivated through incentives to reducing the volumes (cost) of water. Individuals can only be motivated to lower use if they have a direct stake in the land they are working. It is that motivation together with more interest in the management of irrigation and drainage services that will make it possible to collect fees and render many of these systems sustainable. The first Bank-financed Farm Privatization Support Project (FPSP) privatized 10 pilot Collective/State farms (CSFs) located in the lowlands, transferring land to some 5782 farm families with secured land use certificates that clearly define the parcel boundaries, coordinates, and registered with a Universal Parcel Number (UPN) in a central database. This project will be implemented simultaneously with the Land Registration and Cadaster System for Sustainable

Agriculture Project that will provide capacity to the State Land Committee as the body responsible for land records and issuance of title certificates in Tajikistan

Economic and Financial viability of the Irrigation Sector: Irrigation is high on the agenda of the government, however, as in the rest of Central Asia, the sector is confronted with issues of sustainability and cost recovery, especially in light of energy liberalization. Irrigation in Tajikistan is split in two categories, about 2/3 as gravity irrigation and about 1/3 as lift irrigation, some of which up to 250 meters. Yet, only 1/3 of budgeted operational and maintenance costs got to gravity irrigation and about 2/3 of budgeted resources go to lift irrigation. With reforms in the electricity sector, cost recovery is a major objective and pumping of irrigation water together with the large aluminum smelter are the two main consumers of electricity. With full cost recovery on irrigation, including full cost of electricity, lift irrigation's economic viability is facing increasing difficulties, unless farmers switch to higher value crops, and adopt more efficient irrigation technologies so that pumped water volumes drop dramatically.

Government Strategy: The GoT's Poverty Reduction Strategy Policy has been emphasizing economic growth, provision of basic social services, and targeted support to the poor and improved governance. For the agricultural sector, the government strategy supports the efficient use of, and access of the poor to land and water, financial and other resources, and the reduction of government intervention in private farm decision making. Because high yield agriculture in Tajikistan is dependent on irrigation, the government has been emphasizing the need to rehabilitate main irrigation infrastructure and improve water management. It also seeks to improve drinking water infrastructure and build significant institutional capacity in local water management by creating WUAs and VWOs (for domestic water) to take over management of water at the farm and village level.

Government Actions: The Government is in the process of reforming the irrigation sector, promoting the creation of private family farms, and providing a liberalized price and trade environment. In the irrigation sector, a revised draft Water Code is in process for submission to the Majlis Oli (parliament) that will regulate rules of water extraction, use and discharge. It is the government's stated strategy to increase the contribution of users to the overall sustainability of such systems through collection of water fees, and involvement of user groups in management of the local infrastructure.

2. Objectives

The defined overall project objectives are (i) to improve the capacity of irrigated agriculture and the income of the rural population in the Ferghana Valley by improving land and water management, and (ii) to improve Kayrakkum dam and reservoir safety and regulation thereby contributing to enhanced water management security and efficiency at the basin level.

The vast majority of water resources available for irrigation in Central Asia originate from Tajikistan and Kyrgyzstan, both of which have large reservoir structures and dams where water is to be collected from snow melt for release during the dry summer season to riparian countries for whom this water is the only source. This project, focused on the northern region (Sughd Oblast) of Tajikistan, the easternmost portion of the multi-national Ferghana Valley, aims to combine purely national benefits in terms of improving local irrigation and drainage systems,

while simultaneously reestablishing the safety and improve operations of Kayrakkum Dam and Reservoir, thereby, benefiting riparian, as well as Tajikistan herself.

3. Description

The four project components that have been formulated to meet the project objectives are as outlined below:

Component 1. Irrigation and Drainage System Rehabilitation and Improvements. This component finances design and works for rehabilitation or improvement of (i) main off-farm irrigation and drainage gravity and/or pumped water supply, conveyance, delivery, removal, evacuation infrastructure systems, and (ii) selected inter-farm and on-farm irrigation and drainage distribution and collection systems related to the irrigation of some 30,000 ha of farm land in the Kanibadam and Bobojon Gafurov rayon not in immediate proximity and operating independently from the Kayrakkum reservoir and dam structures. These include both surface and subsurface water control and usage systems.

Component 2. Strengthening Kayrakkum Reservoir Dykes and Related Drainage Control Works. This component finances design and works related to limited rehabilitation of the Kayrakkum reservoir structures so as to increase operational performance and improve management of reservoir related water issues. Investment include works for rehabilitation of dykes at the upper end of the reservoir, repairing, replacing and installation of tube well pumps along the dykes that reduce water logging of land area in proximity of dykes, including electromechanical controls and necessary pipelines and canals.

Component 3. Institutional Development and Technical Assistance. This component will fund the necessary institutional capacity building for (i) establishment of water users associations, (ii) improving agricultural productivity and more efficient water use patterns, (iii) ensuring proper environmental mitigating activities, and most importantly, (iv) provide the necessary TA to improve reservoir and dam operations as well as developing effective safety and emergency procedures for the Kayrakkum dam. Activities will include training, demonstration activities as well as information dissemination exercises and technical assistance from international and local specialists.

Component 4. Project Management. This component will fund assistance to the CPMU and RPIU established for project implementation. Items to be covered include (i) establishment and support of two project implementation entities, namely a Central Project Management Unit (CPMU) in Dushanbe within the MMWRM and a Regional Project Implementation Unit (RPIU) in Khujand, (ii) local and international technical assistance for managerial, technical, financial and administrative supervision of implementation activities, (iii) setup and operation of a project monitoring and evaluation (M&E) system, and (iv) a supportive institutional strengthening program including relevant training and study tours.

4. Financing

Source:	(\$m.)
BORROWER/RECIPIENT	1.17
INTERNATIONAL DEVELOPMENT ASSOCIATION	10
IDA GRANT FOR POOREST COUNTRY	3
Total	14.17

5. Implementation

A Central Project Steering Committee composed of the Minister of Irrigation, Ministry of Agriculture, Ministry of Finance, Ministry of Energy, Minister of Health, as well as the chairmen of the SCNP and SLC, and the director of the CPMU will be established. This body would be chaired by Prime Minister and the Minister of Irrigation would be Deputy Chairman. Its main role will be to provide (i) administrative direction and guidance to resolve problems that cut across several ministries, (ii) formulate policy that are interrelated to the various concerned sectors, review and approve annual work programs and budgets, and (iv) resolve any implementation bottlenecks that may arise and need top level intervention.

A Central Project Management Unit (CPMU) established within Ministry of Melioration and Water Resources Management (MMWRM) but with budgetary independence will be responsible for the implementation of the project. Staff working for the CPMU will be selected on a competitive basis and will be paid by the project resources at a rate agreed with the Bank. This CPMU headquartered in Dushanbe would be largely responsible for the administration, procurement and financial management of the project.

Technical support and coordination related to irrigation and drainage infrastructure would be lead by a Regional Project Implementation Unit located in Khudjand and would also ensure the quality of execution of any works contracts and work with WUAs established under the project. In its work the RPIU will closely coordinate its efforts with the Oblast and Rayon offices of the MMWRM and other pertinent line offices of involved ministries. The agricultural support component will be implemented in close coordination with the FIAS structure that had been established under the FPSP and now has been turned over to the MoA. It has equipment, materials and training courses that will help to successfully implement this component. The environmental component is expected to be implemented by the RPIU but in close coordination with the SCNP which has been supporting other Bank projects in the implementation of environmental mitigation measures during works construction and assuming the institutional responsibility to ensure continuity of necessary soil and water testing.

6. Lessons Learned from Past Operations in the Country/Sector

The conceptualization and design of the project draws on Bank experiences with similar projects implemented in ex-Soviet countries and internationally. The particularly relevant lessons learned and reflected are outlined below.

- (a) Integrated and all-inclusive approach. Development interventions that improve only physical infrastructure systems have been shown to be generally unsustainable over the long term. The potential for long-term sustainability is improved by also attending to key associated social, environmental, institutional and financial development aspects. The project addresses this issue through an approach that covers both physical and non-physical improvements to the irrigated agriculture sector in an integrated manner. .
- (b) Flooding, waterlogging and high groundwater levels. For water source security reasons, rehabilitation of Kayrakkum reservoir pumping stations for improved irrigation water delivery capacities is a high priority for the GOT. However, much of the project area is adversely affected by flooding, waterlogging and high groundwater levels. International experience shows that irrigation and drainage problems need to be resolved jointly. Water and environmental management factors, and economic considerations, also dictate that water abstraction and disposal volumes should be minimized. In addition to physical system interventions there are to be studies and initial implementation activities relating to non-physical water management improvements.
- (c) Power systems. It has been a common finding in ex-Soviet countries that both power and water infrastructure systems are greatly deteriorated. Because both the irrigation and the drainage systems are heavily dependent on power systems for their adequate functioning, it follows that a program for their rehabilitation needs to also address power system deficiencies, to provide the conditions for proper long-term operation. The project therefore includes support for securing needed reliable power supplies for the electromechanical installations to be rehabilitated.
- (d) WUAs. Much experience has been gained internationally on the instituting of water user organizations for the management of irrigation and drainage systems by the beneficiary farmers and rural communities. This is to be applied for the development of such organizations under the project. Two particular lessons learnt that are to be followed are that (i), for successful democratic functioning, individual WUA members need to be system users who are owners, or who have secure and long-term tenancy of the lands being serviced, and (ii), for sustainable viability in terms of financial self-reliance, WUAs would normally need to be of a certain minimum size, assumed to be in the order of 3,000 to 6,000 ha. Land privatization is being addressed under a Bank project that is expected to be effective by the time activities under FVWRM project will be implemented.
- (e) Agricultural production and socio-economic conditions. The ultimate determinants of sustainability of the irrigation and drainage systems to be managed in part by WUAs are the levels of agricultural output and farm incomes that can be achieved, since the resources for proper systems O&M are to originate largely from these. Therefore, as in the case of many similar development projects elsewhere, suitable agricultural enhancement, training and extension programs are to be carried out and supported under the project.

7. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[]	[X]
Pest Management (OP 4.09)	[]	[X]
Cultural Property (OPN 11.03 , being revised as OP 4.11)	[TBD]	[]
Involuntary Resettlement (OP/BP 4.12)	[TBD]	[]
Indigenous Peoples (OD 4.20 , being revised as OP 4.10)	[]	[X]
Forests (OP/BP 4.36)	[]	[X]
Safety of Dams (OP/BP 4.37)	[X]	[]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[X]	[]

An Environmental Assessment (EA) and Environmental Management Plan (EMP) were prepared during project preparation, financed from the PHRD funds. These documents will be available from the Bank's InfoShop and also in the Borrower's MM&WRM) in early March 2005.

The EA report describes the necessary environmental management procedures and technical prerequisites for maintaining good environmental practice regarding the proposed interventions at the project sites. Each major technical design will be subject to the applicable environmental procedures of Tajikistan, which currently includes an environmental permit procedure and, for most activities, an environmental impact assessment (known as State Environmental Review, or SER). The EMP establishes a framework for the identification and implementation of environmental protection, mitigation, and monitoring and institutional strengthening measures to be taken during project implementation to avoid or eliminate negative environmental and social impacts.

The EMP is considered part of overall project implementation and will be annexed to the Project Implementation Plan. The Development Grant Agreement has a covenant requiring execution of the EMP by the Borrower, which has been fully budgeted. Oversight of the implementation of the EMP will be the responsibility of the Borrower. The PIU will act on behalf of the Borrower and will have an environmental specialist for the duration of the project. Monitoring of environmental and social indicators will allow the PIU to determine the direct and indirect environmental and social impacts of project activities and, where necessary, take appropriate actions or make corrections to project activities in order to prevent or lessen any adverse impacts detected. The PIU will report on EMP implementation in its regular project reporting to government and IDA, and supervision missions will evaluate progress in its implementation.

Summary of Key Safeguards Issues

[Environmental Assessment \(OP/BP/GP 4.01\)](#)

A draft EA has been prepared and is currently under review by the Bank.

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

Cultural Property (draft OP 4.11 - [OPN 11.03](#)-)

The draft EA indicated that there will be no impact on cultural property as a result of the project. However, this needs to be substantiated in the final version of the EA. This also needs to be confirmed by the final Social Assessment report.

Involuntary Resettlement ([OP/BP](#) 4.12)

The team confirmed that no new tube wells will be established under the project. There will be no restriction of access for grazing as a result of project activities. However, it was agreed that this issue would be revised upon completion of the Social Assessment, which will be received by the end of February 2005.

Safety of Dams ([OP/BP](#) 4.37)

The team is consulting the Dam Advisor on actions related to dam safety issues. The project activities include updating the dam safety studies; providing provisional funds to deal with critical issues of dam safety; establishing a panel consisting of local and international experts in the country to conduct annual inspection and monitoring of the dam.

Projects on International Waterways ([OP/BP/GP](#) 7.50)

Since the project involves irrigation rehabilitation works and is on the Syr Darya River, which is an international waterway for the purposes of the Bank [OP/BP](#) 7.50, the ISDS triggered the [OP](#) 7.50. The project team is currently seeking an exemption from the Bank, since the main works will involve rehabilitation and improvement of existing irrigation and drainage systems, and no new schemes will be developed. The rehabilitation of irrigation and drainage schemes will not involve any adverse impacts on the quality and quantity of water in the international waters, but rather it will lead to more effective irrigation and drainage of the water. Any development in upstream countries' water use regimes will not have adverse effects on the areas to be rehabilitated. The team is consulting Legal and Safeguards teams to see whether a waiver to notification is appropriate.

8. List of Factual Technical Documents

- Environmental Assessment (Consultant Report, December 2004 – updated March 2005);
- Rapid Social Assessment (Consultant Report, December 2004 – updated February, 2005)
- Irrigation Technical Report (Consultant Report, September 2004)
- Economic and Financial Cost-Benefit Analysis (FAO Consultant Report, December 2004 – updated February, 2005);

9. Contact point

Contact: Usaid I. El-Hanbali
Title: Sr. Water Resources Engineer
Tel: (202) 458-1925
Fax: (202) 614-1115
Email: Uelhanbali@worldbank.org

In Borrower's Country:

Ministry of Melioration and Water Resources Management
Attn.: Mr. Ahad Ahrorov
Coordinator of the Project Preparation Unit
5/1 Shamsi Street
Dushanbe, Tajikistan 734054

Telephone: (992-372) 36-62-08 Fax: (992-372) 36-62-08

Email: a.ahrorov@mail.ru

10. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-5454
Fax: (202) 522-1500
Web: <http://www.worldbank.org/infoshop>