PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE

Report No.: AB5688

Project Name	On-Farm Water Management (OFWM)
Region	SOUTH ASIA
Sector	Irrigation and drainage (100%)
Project ID	P120398
Borrower(s)	GOVERNMENT OF AFGHANISTAN
Implementing Agency	Ministry of Agriculture, Irrigation and Livestock (MAIL)
Environment Category	[ ] A [X] B [ ] C [ ] FI [ ] TBD (to be determined)
Date PID Prepared	April 22, 2010
Estimated Date of Appraisal Authorization	April 30, 2010
Estimated Date of Board Approval	June 28, 2010

1. Key development issues and rationale for Bank involvement

2.1 Key development issues

About 80% of Afghanistan's population lives in rural areas largely dependent on agriculture and livestock-related livelihoods, which contribute an estimated 53% to total GDP. Growth in the agriculture sector, which is seen as a major driver of the economic growth and food security[1], was badly affected by three decades war and violence to the extent that the irrigated cropped area decreased by almost 70% and crop productivity plummeted, to less than 50% of the pre-war levels. Water is one of the most limiting factors for agricultural and horticultural production. Low productivity is often attributed to insufficient irrigation. Most of the modern irrigation systems in Afghanistan were damaged during years of warfare and are mostly in a state of disrepair as a result of long-term neglect. Even today after years of rehabilitation efforts, irrigated areas remain well below the levels achieved in the late 1960s and 1970s. Rehabilitation and improvement of farm production and productivity by improving the efficiency of water available at the farm gate is, therefore, a priority for reviving economic growth in rural areas and raising farmer income.

Key development issues related to reviving and improving the irrigation efficiency at the farm level and, therefore, enhancing farm production and productivity in Afghanistan include the following:

[1] The National Agricultural Development Framework (NADF) emphasizes that economic growth and food security depend upon increasing agricultural production and productivity, better natural resource management, and improved physical infrastructure and market development. Together these are seen as the path to poverty reduction.

1. Formerly some 3.2 million hectares of cultivated area were under various irrigation methods while at present only 1.8-1.9 million hectares are being irrigated. Of the 3.2 million ha only 10% is being irrigated using properly engineered systems and up to a third of irrigated land is not currently planted due to water constraints. Traditional irrigation methods and low quality hydraulic structures do not allow proper control of irrigation water, which often leads to unnecessarily high losses of water due to leakage and seepage as well as poor return flows, shortage of water for tail-end users for some, and over-irrigation, increased siltation and flood damage for other users of irrigation water.

2. The social disruption of rural communities and local governance mechanisms, institutional irregularities and an over-dependence on foreign aid have led to a weakening of traditional systems (*Mirab*) for Operation and Maintenance (O&M), poor water management, and inability to address many water-related problems. Inequitable, unreliable and economically inefficient water distribution often leads to conflict between users while further degrading irrigation assets.

3. Poor water management and inadequate or even absence of O&M of tertiary water distribution channels (commonly known as watercourses) often hamper the optimal utilization of water delivered from the properly working or rehabilitated off-farm irrigation systems to the head of watercourses. There are substantial water losses due to leakages and seepage in the earthen watercourses and lack of control structures, estimated around 25% to 35% of the water supplied in similar situations elsewhere in South Asia. Another issue is the lack of proper water distribution systems (continuous versus rotational water distribution) reported in several cases. In many other cases, absence of proper farm level irrigation systems (basins, furrows) leads to wastage of water supplied from the watercourses.

4. These issues have to be addressed in the context of public sector responsibilities and functions that are to be identified under the Afghanistan's National Agriculture Development Framework (NADF[2]). Under the Agriculture Production and Productivity Program (APP), which is one of the four pillars[3] of the NADF, the first step is to rehabilitate and improve the productivity of agriculture. That would lead to marketable surpluses if on-farm water management practices are widely adopted by farmers in

[2] The NADF provides a structure for the identification of key public sector responsibilities and functions which need to be strengthened to support program implementation. There are four program elements (pillars) in the NADF. Each program also provides guidance for establishing effective collaboration within the agricultural sector and with other sectors, by building partnerships with relevant ministries, private sector stakeholders, donors, non-governmental organizations and civil society.

[3] The other three pillars are Natural Resource Management, Economic Regeneration and Change Management.

irrigated areas where water losses in the conveyance channels or during application to crops, or both, are pervasive.

2.2 Project rationale

Several investment projects are already being implemented in the irrigation sub-sector. These include the Bank assisted Emergency Irrigation Rehabilitation Project (EIRP, originally US$40 million, now US$134.5 million)[4] and several other donor-assisted irrigation projects, such as the Balkh River Integrated Water Resource Management Project (ADB, US$10 million); the Western Resources Management Project (ADB-CIDA, US$75 million); the River Basins Integrated Water Resource Management Program (EU, Euro 80 million); and a few others that are in the pipeline. These projects are mainly dealing with the rehabilitation of main canals and construction of the main infrastructure. In order to maximize the returns of these investments, the on-farm utilization of the water made available to these command areas needs to be optimized. The proposed on-farm water management (OFWM) project deals with the development of the tertiary units in medium and large scale projects and with 'stand-alone' smaller scale projects.

In April 2009, Afghanistan's New Water Law, which defines the mandates and functions of the government agencies involved in water resource development, has been gazetted. The mandate of MAIL is described in Article 11 of the Law and includes, amongst others: (i) maintenance and fair distribution of water, (ii) establishment of Irrigation Associations, (iii) introducing technologies to minimize water losses, and (iv) conducting research to enhance the economic effectiveness of water use. All these functions are related to On-Farm Water Management.

OFWM is relatively new in Afghanistan. The Irrigation Directorate of the Ministry of Agriculture is one of the most recently established directorates and its capacity is still relatively low - though improving. Capacity building of the Irrigation Directorate will therefore be a major component of the project.

The project is also fully consistent with the Bank's latest (2009) ISN (Interim Strategy Note) which includes increasing agricultural productivity and improved social water management as two important components of Pillar II of the ISN (promoting growth of the rural economy and improving rural livelihoods).

3. Project Objectives, Components and Expected Outcomes

[4] Three additional grants have been approved by the Bank during the course of the EIRP.

3.1 Proposed objective(s)

The overall development objective (PDO) of the proposed Project is to assist farmers to adopt improved farm practices that increase agricultural production and productivity.

3.2 Project components

The OFWM Project will have three components:

A. Component A: Establishment of 5 OFWM project areas comprising in total some 25,000 ha and approximately 100,000 families. This component contains three sub-components
   i. Establishment and/or strengthening of water user organizations (IAs) in order to enable them to assume their role in operation and maintenance (O&M).
   ii. Improvement of the physical irrigation infrastructure (water courses) to reduce system water losses and facilitate equitable water distribution.
   iii. Dissemination of improved water saving techniques including (i) more efficient irrigation methods, (ii) more efficient water distribution systems, (iii) agronomic water saving measures.
B. Component B: Strengthening MAIL's capacity in OFWM at the national, provincial and district levels in the project areas.
C. Component C: Project management, implementation and coordination.

3.3 Expected outcomes

Component A

- Increase of 15% in irrigated area achieved three years after completion of project improvements.
- Productivity of agricultural crops in the selected project areas has increased by 30% compared to the baseline situation in three years.
- Irrigation Associations are capable to adequately perform O&M tasks.
- Water use efficiency improved as a result of a 25% reduction in water losses compared to losses prior to project improvements; more equitable water distribution systems; and introduction of water saving measures and technologies.

Component B

- MAIL staff at national level and at provincial and district levels in the project areas are capable to plan, implement and monitor OFWM programs.
- Farmers and *Mirabs* are capable to know when and how to irrigate and how much water and in how much time to apply.

Component C

- An effective and efficient project organization established for the planning, implementation, monitoring and evaluation of the OFWM Project.

4. Project Description and Institutional Arrangements

4.1 Project description

4.1.1 Component A: On-farm water management

The project will select 5 project areas. These areas may consist of small scale irrigation projects or tertiary units in medium and large scale irrigation schemes. The Project will be demand driven, i.e. farmers and farmer groups should show a clear willingness to participate in the Project, which should be shown through preparedness to enter into cost sharing arrangements. In each project areas, one to three demonstration farms will be established where improved irrigation practices will be demonstrated. The project areas will be selected prior to project implementation and according to the following criteria:

- The project areas should be easily accessible in terms of physical access and security;
- The project areas should have guaranteed water supply;
- The project areas should cover major agro-ecological zones;
- The project areas should represent major cropping systems (e.g. wheat, rice, orchards, and vegetables).
- The project areas should have clearly identified OFWM problems (tail end water shortages, infrastructural problems (water leakage and seepage), etc)
- Synergy with other programs and projects such as:
  - EIRP, Balkh River IWRM project, River Basins IWRM program, to optimize the investments already made in major irrigation infrastructure;
  - HLP (Horticulture and Livestock project) to optimize the investments made in horticultural development;
  - AWATT to achieve synergy in the program's activities in OFWM.

Based on the above criteria a tentative site selection has been made for the project including the following areas: Herat, Bamyan, Jalalabad, Mazar-e-Sharif and Kabul. These are relatively secure areas where the EIRP has already a significant presence and where farmers have shown a keen interest in irrigation development. Given that the current phase of EIRP will terminate in 2011, the OFWM project will also bring a degree of continuity as far as irrigation development is concerned.

The following interventions are envisaged:

a) Establishment and/or strengthening of Irrigation Associations

At the level of the water users, the Project will establish and strengthen irrigation associations (IAs) in line with the new Afghan Water Law (1388). In strengthening IAs, the Project will build on existing organization structures, such as the *Mirab* system. The Project will (i) provide training on organization and management of IAs; (ii) develop legal rules and regulations for establishment of IAs; (iii) prepare IAs for registration; and (iv) provide technical training to IAs regarding crop water requirements, soil moisture contents, water distribution, maintenance, irrigation methods and good agronomic practices.

b) Improvement of the physical irrigation infrastructure

Improvement of tertiary infrastructure may consist of canal lining, construction of control structures, land leveling, field-level irrigation methods (furrows/basins), water storage and regulating ponds and tanks, intakes in case of small scale irrigation schemes, etc.

c) Dissemination of improved water saving techniques

Technology transfer will focus on: (i) introduction of improved irrigation methods (furrow, basins, etc), (ii) improvements in water distribution (rotational versus continuous supply), and (iii) introduction of agronomic water saving measures (water-saving crops and cropping systems).

In addition, modern water management and irrigation systems will be introduced in farmers' fields like high efficiency irrigation equipment, including laser land levelers (for precision land leveling), drip/trickle irrigation systems, sprinkler irrigation systems, and furrow bed makers.

4.1.2 Component B: Capacity building

The Project will engage in institutional strengthening activities in the Irrigation Directorate of the Ministry of Agriculture, Irrigation and Livestock (MAIL); and capacity building activities for MAIL staff at the provincial and district levels where the Project areas will be located. Training of MAIL staff at various levels will be done through on-the-job training as well as through formal training. Training of MAIL staff will focus on:

- Institutional development of water user organizations (Irrigation Associations);
- On-farm irrigation infrastructure requirements: canal lining, design and construction of control structures, land levelling, etc.;

- On-farm water management issues, like water distribution, crop water requirements, introduction of water saving techniques, water saving crops etc.

2. Preliminary description

4.1.3 Component C: Project management, implementation and coordination

To implement and manage the Project, a Project Management Unit (PMU) will be established within the MAIL. The PMU consists of a Project Implementation Unit (PIU) at the national level, five Area Teams and a Technical Assistants / Advisors Team. The latter will assume the role of supervisors whose tasks would include (but are not limited to) reviewing and checking of surveys carried out by the Area Teams; reviewing of watercourse improvement designs; checking the quality of completed works; and certify financial resource withdrawal applications. The PIU will have a Project Director who reports to the Irrigation Director as well as to the Director of the Program Implementation & Coordination Unit (PICU) in MAIL. The PICU is responsible for the general monitoring (and also evaluation) of the project and will report in the weekly Coordination Meetings chaired by H.E the Minister of MAIL.

The PIU will be responsible for the planning, implementation and monitoring of the project. The PIU will supervise and coordinate the five Area Teams. The Area Teams will be attached to the provincial Departments of Agriculture, Irrigation and Livestock (DAIL).

The PIU as well as the Area Teams will be assisted by a team of Advisors. The composition of the PMU in terms of key staff is shown in the table below:

National level	
PIU	*Technical Assistance / Advisors Team*
• Project Director • Water Management Specialist • Irrigation/Design Engineer • Agronomist • Economist (M&E) • Institutional Specialist • Env. & Soc. Safeguards Officer • Computer Data Analyst • Finance Specialist • Procurement Specialist • Support Staff	• Water Management Sp. • Irrigation Engineer • Agronomist • Economist/M&E Sp. • Institutional Specialist
Provincial level	
Five Area Teams	
• Water Management Sp. • Agronomist • Economist (M&E) • Social Mobilizer	

- Jr. Social Mobilizer
- Design Engineer
- Surveyors
- Support Staff

4.2 Institutional arrangements

The institutional arrangements for implementation of the project as described in section 4.1.3 would be discussed and agreed with MoF and MAIL. Regarding procurement and fiduciary responsibilities, the team would propose that the project help MAIL develop its own capacity in these areas based on the proven systems established by the ongoing projects (HLP, Avian Influenza) being implemented by MAIL, but with adjustments as appropriate. The project preparation team of the Bank will carry out the usual procurement and fiduciary assessments before finalizing the institutional arrangements for the project.

4.3 Monitoring & Evaluation

Monitoring and evaluation will receive due attention in the Project. A monitoring Team (see staffing above) will be formed at national level from the PIU and the Advisors Team as well as in the Area Teams. Monitoring will be at three levels:

- Progress Monitoring: achievements against the targets as set in the annual work plans;
- Effect Monitoring: achievements of the formulated outcomes following identified key indicators, such as increased effectively irrigated area, reduction in water losses, adoption rate in technology transfer;
- Impact Monitoring: increased production and productivity as a result of the interventions

A baseline survey assessing the key indicators will be conducted prior to the interventions.

3. Safeguard policies that might apply

[Guideline: Refer to section 5 of the PCN. Which safeguard policies might apply to the project and in what ways? What actions might be needed during project preparation to assess safeguard issues and prepare to mitigate them?]

4. Tentative financing

Source:		($m.)
Borrower		0
Afghanistan Reconstruction Trust Fund		24.56
	Total	24.56

5. Contact point

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