

Water Sector Briefing and Recommendations¹

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Overview

Afghanistan is a water short country and faces many challenges in supplying adequate water for agriculture, human consumption and economic development. Twenty years of war and neglect has severely impacted the existing water infrastructure that provides irrigation water, as well as domestic water to the vast majority of the people. Currently, only 30% of the agricultural farmland receives adequate water and modern domestic water supply and waste treatment systems do not exist.

Thus, Afghanistan faces the dual challenge of repairing its existing infrastructure as well as modernization in order to promote economic development and to be able to compete in the world market.

Repair and development of new water infrastructure will require billions of dollars and take generations. Thus, in the short term, the US should focus more on addressing the critical issues that could affect internal stability (see Appendix A: *Water Related Strategic Concerns and Threats in Afghanistan*) and creating a framework for the long-term orderly development of the water sector.

Conflicts over water could affect internal stability. These concerns include disputes between upstream/downstream water users, groundwater depletion (which affects the urban and industrial sectors the most), refugee and displaced persons, and transboundary water conflicts (see Appendix A).

Except for winter wheat and similar plants that mature in early spring, all crops must be irrigated in Afghanistan. The lack of sufficient volumes of water for crop production may also be contributing to the expansion of poppy production which requires less water and has higher returns than traditional crops.

The major players in the water sector are the World Bank and the ADB (Asian Development Bank) whose loans and grants are focused on infrastructure. The US military is also funding some water works projects through the PRTs and PMI. Another large donor is the EU (European Community) which has an integrated infrastructure and capacity building program in one river basin. There are also numerous smaller efforts by NGOs and European governments. However, in spite of these programs, there are major gaps in necessary programs, particularly data collection, analysis and interpretation, resource assessment, and institutional support.

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USAID is terminating its funding for water programs. I believe that this decision should be reconsidered and have outlined my rationale in Appendix A. Below are some modest recommendations designed to re-initiate a water program by the US.

Recommendations

1. Expedite the execution of the USGS contract with USAID.

USAID and USGS signed a contract approximately three months ago extending funding for resource analysis and data collection. However, the paperwork is being held up at USAID headquarters in Washington DC. This work by the USGS is critical and the continuing delay is affecting their ability to continue the program and retain project staff.

2. Restore USAID funding for Water.

Some funding in the water sector is needed in order to ensure that critical issues are addressed and to lay the foundation for orderly development of water resources.

3. Direct funding to critical areas not being addressed by other donors.

Most of the funding provided by the World Bank and ADB goes towards infrastructure, leaving a void in such important areas as resource assessment, strategic planning and prioritization, data collection, analysis and interpretation, and water resource planning. The costs of such programs are small relative to the costs of infrastructure repair and development.

4. Increase funding for water resource analysis, particular groundwater availability and sustainability.

The increased reliance on groundwater and its uncontrolled exploitation could place municipal, industrial and rural drinking water supplies at risk. Studies are needed to define the extent and sustainability of groundwater.

5. Actively support efforts by the US Embassy in Dushanbe to establish a working group on water issues between Afghanistan and Tajikistan.

The transboundary water issues faced by Afghanistan are severe (see Appendix A), and currently, the country does not have the capacity (human and informational) to enter into discussions with downstream nations. Agreements with Tajikistan are needed in order to allow proposed large hydro facilities projects on the Panj River (Amu Darya river basin) to move forward. Such agreements should be easy to obtain as both nations are net donors to the Amu Darya. These discussions and agreements will improve Afghanistan's capacity to handle the more complicated negotiations to come.

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- 6. Cooperate with the MEW (Ministry of Energy and Water) on the stream gauging network being funded by the World Bank by providing technical assistance and training in data collection, management and interpretation.**

Funding for reestablishment of a stream flow monitoring network is being provided by the World Bank. However, MEW will still require technical assistance and training on data acquisition, management and interpretation.

- 7. Support the creation of a National Water Secretariat. Provide funding to initiate the secretariat and seek matching funds from other donors.**

Appendix B provides details on the role and justification for a National Water Secretariat. The US should support the creation of the Water Secretariat which provides the best hope for Afghanistan to be able to deal with water resource management and development issues into the future.

- 8. Collaborate with the US military on targeted water infrastructure projects that would expand irrigated lands for refugee settlement and provide rural drinking water. Encourage other nations with PRTs in the border region to implement similar programs.**

New irrigated land is needed particularly in the border region with Pakistan for resettlement of refugees and displaced persons. Due to security issues in this region, the military and PRTs are the only organizations able to implement water infrastructure projects. However, the US military and perhaps other missions could use technical support for the selection, prioritization and design of such facilities.

- 9. Establish a team of two NRCS engineers to provide technical assistance to PRT's, USAID contractors, and others receiving US funds for the design of water works and related projects.**

There is an on-going need for engineering design services for projects implemented by the PRTs and US supported organizations. Improper or poor engineering analysis and design is putting the US at risk of blame if such projects fail.

- 10. In cooperation with the Ministries of Higher Education and Agriculture and the US irrigation industry, establish a network of irrigation teaching farms.**

There is a lack of know-how and experience with modern irrigation technologies and management practices which is need to increase crop yield and farm income, while conserving water.

Appendix A: Water Related Strategic Concerns And Threats In Afghanistan

Water is good, more water is better...
(Afghan proverb)

In GOA (Government of Afghanistan) and NGO strategic planning documents, Water is universally recognized as a key, and usually as the key to Afghanistan's future.² Water has the same urgency as security, energy and roads, and it is even more critical to the long-term stability and economic development of the country. Water shortages, internal water conflicts, and international water disputes will increase and become more serious, with destabilizing consequences, unless effective programs are implemented.

MEW (Ministry of Energy and Water) documents state that 85% of the population is involved in irrigation dependent agriculture, 98% of all water diverted from the rivers is used by agriculture, with 60% or more of that water lost to seepage and poor on-farm efficiency.³ These same irrigation canal systems also provide drinking water to the vast majority of the population.

Improving irrigated agricultural production and livelihoods is critical for maintaining social order. Increasing the water supply to farmers to pre-war levels would improve yield and economic return and reestablish the two-crops per year system practiced by Afghan farmers. This income would help counter the pressure to grow poppies, a crop with modest water requirements and high economic value.

New irrigated land needs to be opened in order to resettle the large numbers of refugees living in Pakistan and the many displaced persons in Afghanistan. Some believe that the continuing insurgency would be greatly reduced by the resettlement of these peoples into Afghan society and agricultural system.

Three major and several smaller river systems originate in Afghanistan and flow into the bordering nations of Pakistan and Iran. The longest river in central Asia, the Amu Darya originates in Tajikistan and Afghanistan and flows to the downstream nations of Uzbekistan and Turkmenistan. Additional diversion/use of water from these rivers in Afghanistan may spark international disputes.

Iran is eyeing the Helmand River and wants to revise the existing agreement on the minimum amount of water that Afghanistan must allow to flow into Iran. Reports are that during the Taliban rule, Iran entered Afghanistan and dredged 30 km of the Helmand

² Examples: Regional Economic Cooperation Framework, 2005; Interim Afghanistan National Development Strategy, 2006; The Water Sector Development Plan, 2005-2015, Ministry of Energy and Water; United Nations Development Assistance Framework for the Islamic Republic of Afghanistan 2006-2008).

³ On-farm efficiency includes the type of technology and water delivery methods, and management of the water by the farmer in terms of the amount of irrigation, timing and duration.

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River in order to divert the flow to storage basins where the water is pumped to other regions in Iran. The net result is decrease flow to Afghan farmers in the region and an increase in the flow taken by Iran to levels exceeding the treaty amount.

Internal Afghan conflicts between up-stream and down-stream water users are increasing. These disputes are beyond the capability of the traditional tribal systems to deal with, and may lead to regional conflicts within Afghanistan. For example, reports are that Kabul is planning a dam on the Panjshir River to help meet the growing demand for municipal and industrial water in the city, while Kapisa Province is planning on using the Panjshir to supply water for refugee resettlement and expansion of irrigated land for economic development.

Water resource management in Afghanistan involves balancing water demands for irrigation, hydropower, environmental, water supply, sanitation, groundwater, while also considering international treaties and flood control issues. This will involve creating national water policies and regional watershed management plans. A major challenge is how to integrate the ancient Afghan Mirab system into the more complex interrelationships and water competition in a regional river basin system as proposed in the draft Afghan water laws.

Hydro-power generation water requirements differ from that of irrigation in the timing and amounts of water needed. Peak energy demand is in winter, while peak irrigation demand occurs during the summer. Thus, any hydro-power development must consider the seasonal demands of agriculture to avoid conflicts between the two uses.

2006 – Critical Year for Decisions

Over the next year, the major water programs first initiated by organizations such as the World Bank, ADB (Asian Development Bank) and USAID are coming to the end of their project lives. Generally, these projects were implemented as an emergency response and not a part of an overall strategic plan and coordinated effort.

The World Bank and ADB are planning new programs as part of their 2007 loan agreements that build upon the lessons learned over the last few years. These programs will emphasize infrastructure and not be directed at addressing the threats to internal stability that may be caused by water availability and conflicts.

On the other hand, USAID is terminating all water programs except for some small irrigation works as part of the planned ASAP program. However, as a percentage, USAID has spent only a small fraction of our total funding on water, and that amount of money spent has been declining: from 3% in 2004 to 1 % in 2005⁴. Besides leaving large holes in the international water effort in Afghanistan, not being actively engaged in Water will make it difficult for the US to exert influence over other donors. It likely will also affect our ability to be a major player in other trans-boundary issues, since Water is a

⁴ Approximate money spent on Water programs: 2004 - \$40 million out of \$1.4 billion; 2005 - \$13 million out of \$1.4 billion.

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key limiting factor affecting the prosperity and economic development of all the surrounding countries.

Unique Capabilities of the United States

Afghanistan has many similarities in water resources and agricultural production possibilities as the US, with the terrain and climate of the Western United States very similar to Afghanistan. The US is capable of providing specific skills and technical resources particularly applicable to Afghanistan that other nations simply do not possess.

We can draw on a large resource pool, which includes expertise from the land-grant university system, Federal and state agencies, and the private sector (i.e., “anyone can build roads, but no other country has the expertise and experience in water as the US”). Many donor nations and organizations are active in constructing water resource projects but there is a recognized vacuum in coordination and expertise to guide management of the scarce water resources.

The US already has existing relationships with donor countries and agencies, which make the US the natural coordinator and catalyst for joint strategic planning and implementation. However, this does not mean providing all of the water funding that will be required. For example, the many dams and flood control structures needed are more suitable for funding from organizations such as the World Bank and the ADB. However, the US has unique capabilities in working with the Afghans in the planning for these water works and dealing with serious problems such as siltation.

Over View of Water-related Strategic Threats in Afghanistan

Regional conflicts over water supply

- Short term: Iran and the Helmand River (Iran has raised the issue of minimal flows, and the first bi-national talks were held in Dec 2005)
- Looming: Pakistan and the Kabul River; Uzbekistan, Turkmenistan and the Amu Darya
- Other rivers that flow into Iran and Turkmenistan
- Unresolved Water issues could affect energy and other agreements

Rapid and uncontrolled exploration of groundwater

- No data is available on the extent, sustainable yield and recharge mechanisms
- Falling water tables reported nation-wide
- Depletion of groundwater will have widespread impact on water supply for municipal, industrial and agricultural sectors; however, the impact would be more devastating on cities, rural villages dependent on wells, and new industries
- Depletion of local/regional aquifers could create internal social instability and will increase competition for surface water

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Conflicts between up-stream and down-stream water users

- No formal mechanism in place for conflict resolution at the river basin level
- Concern is regional fragmentation over water supply
- Water supply for hydropower and releases for irrigation are interdependent and must be jointly developed and managed.

Eighty five (85%) percent of the population is engaged in irrigation-dependent agriculture

- Economic development is a long-term endeavor; majority of population will need to remain in rural areas for orderly economic and social development
- Water allocation and supply conflicts will increase as irrigation systems are rehabilitated and agricultural production is expanded for economic development
- Hydro-power and value-added processing will increase water demand and conflicts
- Returning refugees are putting additional strains on water supplies and land resources

Water laws and regulations

- Mechanisms are needed for settling water disputes at the river basin or watershed level
- Internal conflicts over allocation of surface and ground water once laws and regulations are enacted
- Poorly structured water laws and regulations will strain the developing judicial system of Afghanistan

Reoccurring drought

- Drought intensifies conflicts over water, particularly between up-stream and down-stream water users
- Groundwater depletion accelerates during droughts, leaving cities and industries vulnerable
- The limited success of our water effort could receive wide-spread attention if drought occurs

Major Constraints in Afghanistan

Consideration should be given to addressing the constraints to the long-term development and management of water in Afghanistan, including:

- Lack of laws and regulations
A National Water Secretariat is needed composed of water engineers, economists, and policy and law experts to assist ministries and emerging river basin agencies on water planning and the enactment of laws and regulations that will provide for the long-term orderly development and management of water resources.
- Lack of data/knowledge base on water resources
A much larger effort is needed for water resource assessment and monitoring in order to provide the technical framework for laws, projects, and management plans. Particular emphasis is needed to determine if the current rate of increased groundwater reliance and development is sustainable, and for stream flow monitoring to support negotiations on trans-boundary water issues.
- Lack of local technical and engineering support services
The capacity building program of the EIRP (Emergency Irrigation Rehabilitation Program) has been successful at the regional level. Building upon this success, a technical support system, similar to the Natural Resources Conservation Service in the United States, should be created and institutionalized in order to meet the continuing need for repair and redesign of irrigation and water works in the country.
- Lack of an extension service
Improving the management of water by farmers is a complicated process and will require a long-term, integrated farmer education and demonstration program.
- Lack of know-how and experience with modern irrigation technologies and management practices
A national and coordinated series of irrigation technology and management demonstrations should be initiated that includes both low-cost improvements to the traditional irrigation systems, as well as more efficient irrigation methods for crops with cash potential and economic development benefits

Recommendations

- The US Embassy and USAID should remain engaged in Water in Afghanistan since it is critical to the long-term internal and external stability of the country
- The US should reinstitute funding for water resources, but direct such funding to filling holes in the water programs of other donors to ensure that strategic threats and concerns are effectively addressed.

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- At a minimum, the US must ensure that a critical mass of water experts, engineers, economists and policy makers are engaged in and outside of the Afghan government and the within the donor missions
- Funding for data collection and water resource assessment programs should be continued and increased
- The US should work together and in close cooperation with the Afghan Government and other donors on strategic planning for water development, that includes cooperative project implementation and cost sharing
- Options for improving the programs and capabilities of the PRTs (Provincial Reconstruction Teams) for addressing critical water issues should be explored including technical support and strategic planning.

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Appendix B: National Water Secretariat

Background

The High Council for Water was created in 2005, is chaired by the Vice President, and is composed of the following:

- Minister of Agriculture
- Minister of Energy and Water
- Minister of Urban Development
- Minister of Rural Reconstruction and Development
- Minister of Health
- Ministry of Mines and Industries
- Mayor of Kabul
- Directors of the River Basin Agencies

The High Council has only met twice and does not seem to have fulfilled its vision for increase coordination and progress in the water sector.

In an email to the High Council dated August 1, 2005, Vice President Masood laid out future steps for the High Council. He also proposed that the High Council seek funding to establish a National Water Agency or Water Secretariat. The secretariat would be located under the office of the Vice President and have the mission to “link sectors and ministries” and to help formulate strategies and policies that “better serve the Afghan people.”

Masood envisioned that the secretariat would be staffed by specialists with expertise in

- (i) river basin management
- (ii) surface and groundwater,
- (iii) water law
- (iv) erosion control and environmental protects.

The secretariat is to become a storehouse for data from the ministries that relate to water. Over time, he wanted to build the capacity of the secretariat for water planning. This water planning would involve the projection of water supply and demand in each region, and where deficiencies existed, the development of plans for addressing the identified water shortages.

Recommendations

The National Water Agency or secretariat should be implemented. Donor funding should be obtain to cover salaries and operational costs for a minimum of five years. Separate training and technical assistance programs will also be needed.

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One approach for implementing the secretariat is outlined below:

I. Purpose

The Secretariat shall work under the direction of the High Council for Water to:

- Facilitate the enactment of laws and regulations
- Coordinate activities among the Ministries and river basin agencies with Water responsibilities
- Centralize data collection and analysis
- Conduct water planning and needs assessment

II. Steering Committee

The High Council for Water shall appoint a Steering Committee that will direct the work of the Secretariat.

- Members may be appointed from the High Council or from persons in the public or private sectors as determined by the High Council.
- The Steering Committee will direct the Secretariat to act on high priority items within specified time periods.

III. Officers

The High Council shall appoint the Chair of the Secretariat and other officials.

IV. Organizational Structure and Responsibilities

The Secretariat will consist of technical and policy experts working in three offices: Regulatory, Water Planning and Development, and Coordination.

Regulatory Office

- In consultation with the Steering Committee, this office through the Secretariat shall advise the Parliament on needed water laws and help draft legislation.
- The Secretariat shall develop regulations to implement and enforce enacted laws through a process that allows for input from the public and affected sectors.
- Regulations will include penalties and enforcement procedures as is appropriate.
- A process for updating and revising the regulations will be implemented.

Water Planning and Development Office

- This office, in cooperation with regional water authorities and local officials, will be responsible for assessing water demand and availability in each of the river basins and other hydrological units as is appropriate over a planning period as directed by the High Council.

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- In areas with more demand than available supply, the Secretariat, in consultation with regional water authorities and local officials will develop a plan to meet the demand.
- The Secretariat will centralize data being collected by the Ministries and other organizations, and implement additional data collection activities as are needed to effectively assess water needs or for water developing planning.
- In cooperation with the Ministries and other organizations, the Secretariat will assess the need for water storage, flood control and groundwater recharge facilities.
- In cooperation with the Ministries and other public and private organizations, the Secretariat will conduct feasibility studies and seek funding for water storage, flood control and groundwater recharge facilities, and other water works.
- The Secretariat will work with the Energy Secretariat or appropriate Ministries to insure that irrigation and public water supply considerations are given to the design of hydro-generation dams and other water works.

Coordination Office

This office will assemble information on programs, facilities and personnel involved in technical assistance and education programs related to the Water sector and recommend ways to coordinate these activities to improve their effectiveness and to reduce needless duplication of effort.