

CHARTERED WATER USER ASSOCIATIONS OF AFGHANISTAN SELF-FINANCING, SELF-MANAGING, SELF-GOVERNING

John E. Priest, PE¹
Eng. A. Tawab Assifi, PE²
Eng. M. Ibrahim Sultani³

ABSTRACT

Ninety percent of the irrigators of Afghanistan own, operate and maintain canal systems. Traditionally, “Mirabs” manage water deliveries. They are chosen by water users, collect revenues and administer a limited O&M budget.

The canal systems were in poor condition and delivered adequate water to approximately 1/3 of irrigated areas in 2003. Yet, international agencies, UN and IBRD, reported that agriculture provided 75 to 90 percent of GDP and employment. The 3-year “Rebuilding of Agricultural Markets Program” (RAMP) was designed by USAID and awarded to Chemonics International, July 2003. RAMP Infrastructure undertook the rebuilding of irrigation systems. Since government lacked financial resources, a program to incorporate Mirabs into a Self-Governing Water User Association (WUA), based on legal chartering, was designed by Chemonics International and executed by Development Alternatives Inc (DAI). Undertakings, to form a WUA for the 14,500-hectare Injil Canal Command of Herat Province, were:

- Scoping and funding to achieve chartering of a WUA.
- Convince an Afghan of stature to lead the program (Eng. Tawab Assifi).
- Form capable Afghan Organizational Team (included noted jurist - Islamic and Civil law).
- Review and possibly modify laws and regulations (chartering of WUAs was written into a New Water Law).
- Map system and set up accurate voter (water user) registers.
- Conduct elections for a General Assembly of water users.
- Rebuild structures, Hari Rud/River (Head Works with silt ejector) to water intakes (200 each).

Elections were held early during 2006, key personnel were trained, and equipment was transferred to the Injil WUA at mid year by RAMP/Chemonics.

INTRODUCTION

USAID awarded a contract for \$150 million to Chemonics International for the Rebuilding of Agricultural Markets Project (RAMP) July 2003. The infrastructure component of the project resulted, by June of 2006, in the construction of 600 kilometers of roads, 150 market processing

¹ Consultant, 2442 West Dry Creek Court, Littleton CO 80120, Priestjohn@aol.com

² Consultant, 12493 Whitworth Place, Tustin CA 92782, tawabassifi@yahoo.com

³ Director of Infrastructure, ASAP, Chemonics International, Ministry of Agriculture, Kabul Afghanistan, mibrahimk1344@yahoo.com

buildings, 10 cross river weirs and gated river intakes, and the rehabilitation of canals and canal structures serving 500,000 hectares of irrigated lands. It soon became clear that the government was neither organized nor did it have the financial capacity to manage, maintain and operate the rebuilt irrigation systems. A special program to establish self-financing, self-managing water user groups was formulated by Chemonics and awarded to DAI for execution. Our two companies working together, succeeded in establishing a functioning Water Users Association (WUA) for the 14,700-hectare Injil Canal Command that lies along the Hari Rud (River) in the vicinity of the City of Herat in the west of the country, Figure 1. This was accomplished in a short period of 18 months due to our taking advantage of circumstances that prevailed in Afghanistan. Four factors of importance were: 1) persons of stature were available and dedicated to the task, 2) the Afghan traditions of owner operation of irrigation systems, 3) the ancient Mirab (Water Master) system of imperfect water control and financing, and 4) the coincidence that a new water law was being formulated.

Importance of Self Sustaining Agriculture to the Afghan Economy

Agricultural production along with related enterprises is variously reported to generate 75 percent to 90 percent of the GNP, employment and commerce of Afghanistan. Irrigated agriculture and livestock production is the mainstay of agriculture. The program to develop replicable WUAs was directed specifically toward changing the agricultural sector from one that anticipates financial transfers from the Central Government to one that becomes self-sustaining and ultimately returns revenues to the provincial and central governments.

It also is envisioned that WUAs and Federations of WUAs will maintain an entire canal and drainage system from farm gate to the river. At that point they will interface with River Basin Commissions that now are being formed.

Program for Reconstruction

From the time of the Soviet invasion in the late 1970s until the expulsion of the Taliban in 2002, river diversions and irrigation systems deteriorated due to lack of financing and turmoil. In coordination with the Minister of Irrigation an approach based on priorities was adopted by RAMP/Chemonics. River diversions would be rebuilt to maximize timely water diversions and canal cleaning, and structures rehabilitation would be undertaken using hand methods where possible to transfer money immediately to villagers. The cleaning of canals and rebuilding of water dividers, control structures and turnouts was intended to reestablish flows to water users along the middle and lower reaches of canals that had been out of operation sometimes for as much as 15 years.

Some fifty contracts were awarded by RAMP/Chemonics for construction of infrastructure – river structures, canals, drains, roads, and buildings. As the contracts were completed and handed over to representatives of concerned ministries, provincial authorities and citizens groups, commitments were made to carry out management, operation and maintenance. However, it became apparent that resources and organization for sustaining the irrigation systems were inadequate to the task.



Figure 1. Newly Established Water User Associations of Afghanistan
The Injil Canal Area of Herat Province and Marja and Nadi Ali Areas of Helmand Province

The Importance to Restructuring of System Ownership, Management and Operation

Several conditions unique to Afghanistan in the ownership, management, operation, and maintenance of irrigated lands and irrigation systems presented opportunity to proceed rapidly to institutional restructuring.

Some 90 to 95 percent of irrigated land is privately owned, and for centuries irrigators have constructed and operated canal systems to provide water to the seasonally parched agricultural lands. Government intervention for the development of irrigation has been minimal with the exception of two major developments.

One development is serviced from the Helmand/Arghandab Rivers, in the south of the country. The total area served is in excess of 150,000 hectares. The major dams and storage reservoirs with a large hydro power plant, canals, and drains were built a half century ago by the US Government on the model of TVA. Current operations are being continued by the under-funded and disorganized Helmand Area Valley Authority (HAVA). The second government development is that for the 50,000-hectare Nangarhar Valley (NVDA) project built by the Soviets. The system lies along the right bank of the Kabul River and receives its water supply from the Kabul River which is headed up at a reservoir near the City of Jalalabad.

Even in Helmand, Kandahar and Nangarhar land is privately owned. It is the canal and drainage systems that remain under government control. Thus there is not strong resistance in government circles to the landowners managing their affairs. It is recalled that during a visit to the Governor before program initiation in Herat, he noted that the development of WUAs would simplify his burdens. No longer would he be faced with gunshot resolutions of disputes because there would be a controlled well established dispute resolution process, to be exercised by the landowners themselves.

There exists an ancient and imperfect system of water control and revenue collection through Mirabs. The Mirab system is practiced throughout the Central Asian countries that formerly were part of the Persian Empire. Mirabs are water masters who are elected by the water users to supervise water distribution, provide system maintenance and to resolve disputes among water users. Mirabs are individuals and there are several in the Injil Canal Command. They are influenced by a Mirab Bashi who is the senior Mirab and often has a dual political role of Wakil or sub-Governor of a District of a Province. Mirabs do not have the legal, organizational, or institutional capacity to efficiently respond to the needs of water users, to effect changes, and to maintain and operate a system. In practice, Mirabs are often dominated by power structures (local and government) to the detriment of water users.

As in many parts of the world, irrigation waters are over appropriated to the upper laterals of a canal command, with some water reaching the middle reaches of the system and little to no water reaching the tail portions. This condition has been exacerbated in Afghanistan due to turmoil-generated neglect over the past 25 years and due to the emergence of armed power brokers who have illegally appropriated water. Because lower canal water users have been deprived of adequate water and because maintenance has been difficult to achieve, the lower reaches of canal have silted

and fallen into disrepair to the point that lands have gone out of production or have reverted to rain fed agriculture. The tradition of Mirabs provided a firm basis in society for the acceptance of and the need for a Chartered WUA with strong organizational capacity based firmly on legal authority.

Mirabs collect from each producer a percentage of crop value. Funds are disbursed at the discretion of the Mirab and are inadequate to the maintenance and rehabilitation needs. The important aspect of this element of the Mirab system is that there is a tradition of user pays and Afghanistan is not saddled with the certainty that God provides the water and therefore it is entirely free.

With the recognition of both the need for WUAs and the unique potentials that exist in Afghanistan, the elements necessary to successful implementation were presented to USAID and were budgeted and approved.

Elements Key to Successful Development of WUAs

The program was formulated in the context of the situation that prevailed in 2004.

The first and primary task was to enlist the right person to lead the effort. He was Eng. A. Tawab Assifi. His distinguished career and great strength of character justify his legendary status and access to government circles including the President of Afghanistan and the Ambassador of the United States and conversely with water users across the country, particularly in Helmand and Herat Province. Tawab was Chief Engineer of HAVA during the 1970s, he was Governor of Herat Province for three years, and then was Minister of Mines and Energy. From that post he was imprisoned by the Communists for three years in the infamous Pul-i-Charki. He was imprisoned with some ten other ministers most of whom perished. Tawab made his way to California where he was involved for 20 years with Water Districts. He had returned to Afghanistan as COP of the DAI AREA program for rebuilding of irrigation works and was well situated to take charge of a water user program. The program was designed to: 1) review laws and regulations with a view to making amendments and/or drafting new legislation, 2) accessing ministers to be sure the cabinet would approve enabling legislation for the chartering of water users, and 3) develop a model charter and bylaws that would be acceptable to the water users themselves. Once there was a model, Tawab had to sit with the Shuras (councils of local elders) and religious leaders to gain acceptance and participation.

Tawab recruited a talented, dedicated team, Dr. Basir Ahmed, Deputy Team leader, Dr. Abdul Hakim, a jurist knowledgeable of both Civil and Shura law, and a team of engineers, economists, and sociologists who conducted technical, census, and organizational work along with training of trainers and conduct of workshops.

Both Dr. Basir and Dr. Hakim are experienced and affable persons who work well with government officials, members of the donor community, the local Shuras (councils of elders and natural leaders) and individual water users.

As noted above, *the program was carefully formulated and received USAID approval for sub-contracting to DAI with an adequate budget.* The program was initiated in November 2004 in two Districts of the Middle Helmand Irrigation system, Nad-i-Ali (14,000 hectares) and Marja (15,000 hectares). Ten months into the program, chartering models and bylaws had been formulated, a model had been selected by the water users, and two General Assemblies had been formed based on elected representatives from the communities of sub-laterals. Efforts to form a Management Board were suspended due to deteriorating conditions of security that developed in Helmand Province.

Concurrently with the election of General Assemblies at the field level, the review of laws and regulations proceeded to the point that the National Water Law was being modified to legalize chartering of WUAs from the abstract to the specific. Thus, *the twin approach of working from the top down and from the bottom up resulted in success at both levels in a relatively short time.*

However, with the deteriorating security situation, the program was transferred to the Injil Canal system in Herat province where a program of construction and reconstruction was well under way. The DAI contract was extended through April 2006 and the budget was increased to somewhat more than \$1.3 million.

MODEL DEVELOPMENT

It was deemed essential that two or more models be conceptualized and presented to water users to facilitate adoption with adaptations that would fit local circumstances. Existing laws, regulations and customs were reviewed, analyzed, and discussed at workshops to facilitate development of model constructs and bylaws that would be easily applied with the force of law. Input to model development included information from WUA Congresses that are held annually in Turkey and from a visit to India where several forms of WUAs are in use, some successful and some not. There are in the ministries of Kabul, advisors from the EU, IBRD, USAID, the ADB, the UN, JICA, and other donors. As well, the Department Heads and Deputy Ministers are knowledgeable of the potentials for organizations that can manage canal systems. Knowledge resident with each of these groups, as recorded at a series of workshops, was factored into the process of charter development.

Laws, Regulations, and Customs

The existing body of law (2004) authorized the formation of associations and other provisions of the law would have permitted management of a large group. However, provisions of the law were not specific to WUAs. Fortunately, the National Water Law was being redrafted. Engineer Tawab Assifi engaged the key members of his team on the committee of the Ministry of Energy and Water Resources that was preparing the new draft. The result is an article that specifically authorizes the chartering of WUAs with powers to manage, finance and operate and maintain canal systems. Drafting of the water law had been completed by mid-2006 and a majority of ministers had been briefed and agreed to the new law in a cabinet session. Yet to be defined is which ministry will authorize and be a repository of charters; our initial preference was the Ministry of Justice, essentially a neutral party to water distribution and use.

Provisions of Models

Models are comprised of Charters and Bylaws, entitled “Internal Regulations of Water Users’ Association”. The provisions of the two documents were developed taking into account the results of extensive surveys among water users that tested and determined attitudes toward payment of dues, work-in-kind, use of labor and machinery, misappropriation of water, and the appropriate role of government.

Key provisions of the adopted charter determine the structure of a WUA with regard to formation and governance. The Bylaws are directed toward important issues of management including Article 14 of the Injil documents entitled “Method of Dispute Resolution”. A hierarchy of appeal and arbitration is established for the settlement of disputes regarding water delivery and turns, non-payment of dues, and failure to participate in collective efforts of cleaning and maintenance.

ESTABLISHMENT OF A WUA, INJIL CANAL, HERAT PROVINCE

Two activities were carried out in parallel for establishment of a WUA for the Injil Canal, a physical survey and introduction of the parameters associated with establishment of governing institutions.

Physical Survey and Mapping

Surveys using GPS units were made to locate the courses of the main and branch canals of the Injil command. Laterals and sub-laterals were stationed and numbered and identified on existing maps of the area. Separate maps were prepared for three reaches of the canal, the upper (bala bulok), middle (meeyan bulok) and lower (payeen bulok). Water users are organized according to these three divisions of the canal command. Figure 2 is for Bala Bulok and it shows the system from the area of the intake on the Hari Rud to Lateral number 30. Table 1 is a tabulation of coordinates and station locations for the first 27 of the 99 laterals and sub-laterals of the system. Additionally the table presents data for the number of farm families and the number of jeribs (1/6th of a hectare) served by each sub-lateral. The census was completed following principles of a Participatory Rural Assessment (PRA) with Mirabs and water users participating.

Basics of Institutional Model for Adaptation by Water Users

Irrigation systems and practices differ by region of the country. Ownership, structure and water rights practices differ by irrigation system. Therefore, for each new WUA to be established, the basic model will have to be adapted to local conditions.

Socio-economic aspects including capabilities and capacities of residents and their willingness to finance administrative costs of the association are among the primary considerations that determine the form of the WUA. The structure chosen should be that which is simple, cost effective and easy to run.

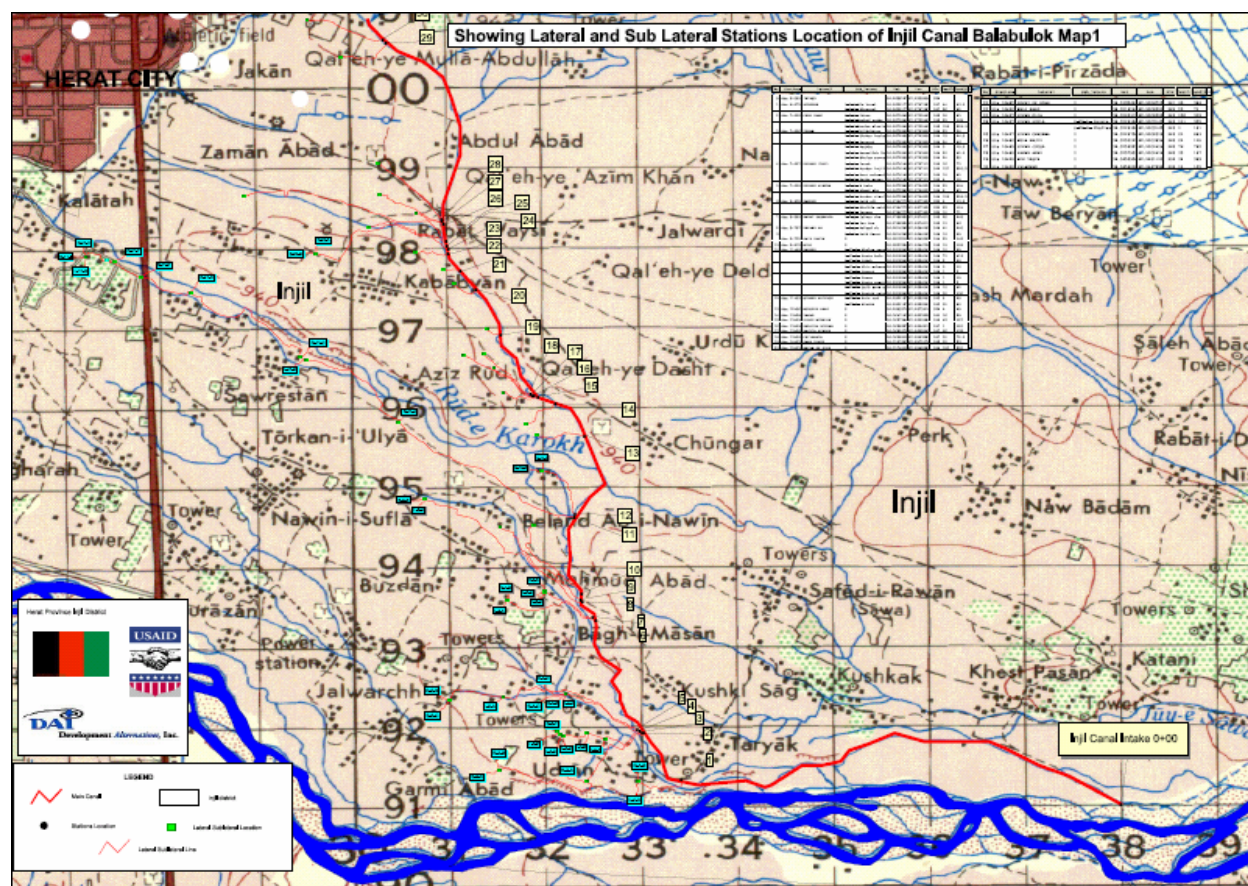


Figure 2. Head Reach (Bala Bulok) of Injil Canal

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The basic model consists of an elected General Assembly and a Management Board. The General Assembly includes the elected representatives of all water users. Members are to be elected directly by the water users for a fixed term. Day to day operations of the WUA are to be run by the Management Board, which is elected from among members of the Assembly.

The Management Board is to appoint a General Manager who as Head of an Executive Board has the authority for recruitment of personnel, distribution of water, appointment of Mirabs and

O&M of irrigation systems. The Executive Board is to consist of a General Manager, a Deputy General Manager, a Hydro-technical Manager, a Treasurer, an Accountant, a Secretary and the Mirabs who are to work under the direction of the Hydro-technical Manager. The General Manager and his deputy may wear more than one hat.

The Mirabs, in their respective command areas, are to be responsible for distribution of water in accordance with an operational plan.

The budget for the association is to be prepared by the General Manager and approved by the Board and the General Assembly. The members are responsible to fix the authority and ceiling of the expenditures to be incurred by the General Manager. General Management is to prepare and present Annual budgets and programs of expenditure for approval by the Board two months before the end of a year.

The basic Charter and Regulations have been prepared to promote transparency in the receipt and disbursement of funds by the WUA. Income of a model association typically will come through contributions and commitments of land owners and water users in accordance with provisions of the Charter, By-laws and Regulations as adopted by the particular Association.

The Injil WUA

The Injil WUA consists of a General Assembly and a Management Board. The General Assembly has 55 members and the Management Board has 11 members. The members of the General Assembly are elected by the water users of the Injil Canal, and the members of the Management Board are elected by members of the General Assembly.

The Management Board is comprised of a Chairman and 10 members who have active management duties. It was elected on April 9, 2006 and immediately began a program of training.

Election of the General Assembly

Election of the Members to the General Assembly of the Association took place based on laterals and sub-laterals along the Injil Canal. The Injil canal has 99 laterals and 54 sub-laterals that provide water to the irrigators as well as to the water users in urban areas of Herat City.

There are 30 laterals and 37 sub-laterals in the upper segment of the Injil Canal. There are 37 laterals and no sub-laterals in the middle reach of the canal. In the tail reach there are 32 laterals and 17 sub-laterals. Besides irrigators of the middle canal reach, governmental units including Herat City, the City Prison, and the Education, Agriculture and Police departments are using water from the Canal. Each department administers a number of laterals.

Thirty representatives were elected from the head reach based on the 30 laterals and the 37 sub-laterals there. Twenty-four representatives were elected from the tail reach to represent water

users of 32 laterals and 17 sub-laterals. Five representatives only were elected to represent water users of the 37 laterals of the middle reach of the canal.

Table 1. Laterals and Sub-Laterals of the Injil Canal from River Intake to Station 11+495

No	Stations	Lateral	Sub latera	Lat	Lon	Elv	Famili	Landjir
0	Sta 0+000	INTAKE		34.2638127	62.2930994	954		
1	Sta 6+679	ATAKHAN	L-1-A-Ala kozai	34.2622177	62.2767183	947	44	69.5
			S-1-B- Khogyani	34.2622177	62.2767183	947	26	42
2	Sta 7+655	CHAR BAGH	R-2-A- Udran	34.2670440	62.2732460	945	39	83
			R-2-B-Gonbad ponba	34.2670440	62.2732460	945	29	169
			S-2-C-Buzdan alenja	34.2670440	62.2732460	945	129	528.9
3	Sta 7+656	UDRAN	L-3-A-Childokhtar	34.2672500	62.2729990	946	23	34
			L-3-B- Chahar kocha	34.2672500	62.2729990	946	15	24.5
			L-3-C- Zeyarat	34.2672500	62.2729990	946	24	46
			L-3-D- Baghha	34.2672500	62.2729990	946	9	10.5
			L-3-E- Besmellah kh	34.2672500	62.2729990	946	20	42.5
			S-3-F- Ghulam sarwa	34.2672500	62.2729990	946	24	55
4	Sta 7+657	BUZDAN INJIL	L-4-A- Tezak	34.2674140	62.2727110	942	16	73
			S-4-B- Buzdan injil	34.2674140	62.2727110	942	137	580.5
			S-4-C- Dost muhamad	34.2674140	62.2727110	942	19	85
			R-4-D- Baghe masan	34.2674140	62.2727110	942	4	10
5	Sta 7+658	BUZDAN ALENGA	L-5-A- M Azim	34.2675380	62.2724230	944	29	904
			R-5-B- Ahmad sha	34.2675380	62.2724230	944	8	83
			S-5-C- Buzdan alenj	34.2675380	62.2724230	944	129	528.5
6	Sta 9+438	NAWEEN	L-6-A- Said ali	34.2794771	62.2677939	950	5	19.5
			R-6-B- Khalifa sahi	34.2794771	62.2677939	950	25	124
			L-6-C- Paygaw	34.2794771	62.2677939	950	11	71
7	Sta 9+500	RABAT SAGHARIA	L-7-A- Jalwar cha	34.2798856	62.2674019	949	26	246
			R-7-B- Pay Gaw	34.2798856	62.2674019	949	10	46
8	Sta 9+707	BELAND AB	L-8-A- Beland ab	34.2816982	62.2664105	948	41	240
9			S-8-B- Said Qanat	34.2816982	62.2664105	948	19	90
	Sta 9+730	SAID QASIM	0	34.2815210	62.2665602	946	29	146
10	Sta 9+815	MIRI	0	34.2823964	62.2664756	949	19	109
11	Sta 11+499	KARTAH	R-11-A- Gholam sarw	34.2918540	62.2654040	948	10	20
			L-11-B- Karte bala	34.2918540	62.2654040	948	70	415

The apparent disproportionate representation of the middle reach is due to the fact that each government department that administers a number of laterals is represented by one delegate. Thus, there were 5 representatives to the General Assembly for the entire middle canal area that is served by 37 laterals.

Based on the greater area irrigated in the upper reach compared to the tail area, one representative was elected for each of the 30 laterals. The tail reach elected only 24 representatives from 32 laterals.

The 55 member General Assembly is the highest body of the Association. It makes policy and has exclusive power over the budget and elects the Management Board.

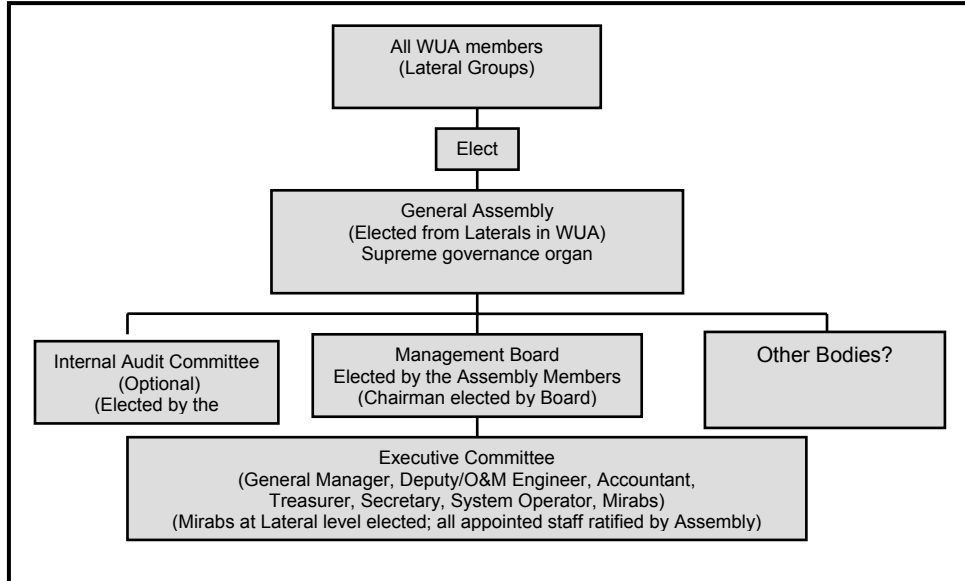


Figure 3. Bodies of the Implementing Organization

Election of the Management Board

Article 33 of the Charter of the Injil Canal WUA states that, “Any member of the General Assembly may nominate candidates for election as members of the Management Board and may vote at the election of members of the Board.” And Article 34 further states that, “(1) The Management Board of the Association will consist of representative members. (2) The representative members will be elected from among members of the General Assembly. Those members who secure the highest votes shall be elected as members of the Management Board.”

However, the Charter is silent on the composition and number of members of the Management Board. This is for pragmatic reasons. It is to allow flexibility in the composition of the Board to make it adaptable to different circumstances. The decision making is based on the two systems of simple and absolute majority. The activities of the WUA will be decided based on two-thirds of the total members. And decisions with respect to matters such as entering into contract and financial transactions is based on absolute majority vote, as stated in Article 39 of the Charter.

The Chairman of the Management Board is to be elected from among the Board Members. The Chairman of the Management Board also is Chairman of the Association.

The General Assembly members discussed a number of options for the composition of the Management Board. The head and tail differences became the main cause of disagreements in discussing the options. The water users from downstream, who had been deprived of water for a

long period, wanted equal representation to that of the upstream members. The water users from upstream expressing disagreement to the proposal asserted that the size of their representation in the General Assembly was bigger than the downstream; therefore, they should lead the Association. The upstream has 30 and down stream 24 representatives in the General Assembly based on the number of laterals at both ends of the canal.

After lengthy discussions and disputations, the water users came to a consensus that became acceptable to all sides. The upstream agreed to equal representation, proposed by the downstream, with the condition of reserving the Chairmanship of the WUA to the upstream. And both sides nominated 5 members each to the Management Board with 1 member from the middle. Thus, an 11 member Management Board, including the Chairman, was elected.

Based on the Charter, “The members of the Management Board shall serve for a period of two years. Each elected member shall retire at the ‘Annual’ meeting at the end of their two year period and shall be eligible for re-election.” Article 36 (2).

The Executive Body

The Management Board appointed a General Manager (GM) who heads the Executive Board. The GM is vested with the authority for management of the WUA, recruitment of personnel, appointment of Mirabs, managing distribution of water, and O&M of irrigation systems. The authorized key staff of the Executive Body includes the G M, a Deputy G M, a Treasurer, an Accountant, a Secretary, Hydro-technical Operator and the Mirabs. Staff may function in more than one of these management positions.

Training of Members of the Management Board

Following election of the Management Board and identification of key members of the Executive body, the Institution Building Team of DAI held a 3-day training workshop for them. The workshop was held from 11 to 13 April 2006 in Herat City.

The objective of the workshop was to review and analyze the Charter and By-Laws in the context of the legal status and framework within which the Injil WUA was to operate. Training sessions were conducted in classroom settings. It was again designed as a participatory exercise involving extensive discussion and give-and-take regarding the Charter and the By-Laws. Trainees provided important, positive feedback regarding practices in Injil as they will affect implementation of a number of articles of the adopted Charter and By-Laws.

Training of Key Personnel of the Injil WUA in Turkey

Staff of Chemonics International sponsored and Eng. Ibrahim Sultani accompanied two key persons from the Injil Board to a two-week seminar and training session at the Annual Water Users Congress at Izmir, Turkey during May and June 2006. Hundreds of international delegates attend the Congress. The experience of traveling from villages of Herat Province to Turkey and

participating in field observations of successful irrigation systems and institutions of management were invaluable for the start-up of the WUA of the Injil Canal.

Two members of the RAMP/Chemonics team had collected, two years earlier at Izmir, a large body of literature that documented a number of models, successful and failed. Reasons for success and for failure proved to be important to the development of the basic model for Afghanistan.

An Infrastructure Program in Parallel

Usually there is limited utility in the formation of a WUA if a canal system is deteriorated and not functioning to carry design flows. Therefore, once the effort in Helmand was halted due to security concerns, the Chemonics/DAI institution building team turned their attention to the 14,500-hectare Injil Canal. RAMP/Chemonics, a year earlier, had undertaken reconstruction of all structures (numbering in the 100s). An additional favorable factor was that there were, after 25 years of chaos, no illegal water diversions that could not be amicably resolved.

The Hari Rud (river) rises in north central Afghanistan near the fabled city of Bamiyan where the giant Buddas stand. The river flows west some 200 kilometers to the Province of Herat where it defines the international boundary with Iran as it flows northward into Turkmenistan in Central Asia. The river rises in high mountains some of which top out above 17,000 feet elevation. Even though snow is present nearly year round, snow melt floods are not severe in the low lands because the basin is narrow at the high elevations. Therefore, it is the early rainfall floods of February and March that often do damage. These floods occur both along the Hari Rud and emanate from Hill Torrents that cross the canals.

The Hari Rud is a braided channel approximately one kilometer wide where the intakes for the Injil Canal are located. Diversions are made through two channels, a flood flow channel and a spring channel. The spring channel is operational during summer, the low flow season. The shingle and gravel of the Hari Rud are deep and the flows of springs along the river are allocated to some 22 canals. Spring (summer) flow to the Injil Canal approximates 2.0 to 8.0 m³/s. Design flow for the main canal is 18 m³/s.

Uncontrolled flood flows from the Hari Rud and the flow of hill torrents historically have greatly exceeded canal capacity with the consequence that some parts of the system performed in the past like a creek. The most important structure of the RAMP/Chemonics program was that built at a head reach location where gravel, sand, and sediment could be returned directly to the Hari Rud.

Aqueducts that carry the canal over hill torrents, water dividers at branch canals, and lateral and sub-lateral structures were repaired and rebuilt to account for established water rights.

Now that flood flows and sediment are excluded from the canals, the water users can clean the canals in confidence that they will not be refilled with the next flood. The rebuilt structures will permit Mirabs to control flows and to realize the delivery of water in the right quantity at the required time.

Implementation of a WUA with Capacity to Control Water Delivery

The newly realized capacity of the Injil WUA to control water distribution institutionally and physically brings important benefits that did not exist with the traditional Mirab system. Important attributes of a WUA are compared with the functioning of a Mirab, Table 2.

Table 2. Outcomes - Traditional Water Management and WUAs

Current Situation	WUA
O&M: Mirabs are effective in their zone; but O&M and rehabilitation requirements exceed resource and organizational capacity	Have mandate and are organized to plan and execute work. Financing can be secured through fee collection and capital mobilization
Trust: water users place very great emphasis on trust; there is some accountability through Shuras; but Mirabs mix “use payments” for public good and their income	WUAs follow established accounting procedures and are accountable; abuses that have occurred with mixing of funds no longer are possible
Equity: there are pronounced differences in water availability in the upper, middle and lower reaches of the canal system	The WUA has procedures and personnel to manage water distribution according to rights; a process of dispute resolution is detailed in the By-Laws
Investment: use payments vary enormously among systems and are only sufficient for minimal maintenance	Establishes regular collection and use of fees and water charges; have capacity to enter into agro-business arrangements and borrowing
Government planning: Mirabs have an influential role.	Organized to ably represent interests of the people for water management

Socio-Economic Benefits of Institutionalizing Water Control Through the Injil WUA

Benefits to the community that were recognized early were a sense of ownership on the part of individual water users, that there are now in place mechanisms for resolving issues and disputes, and that illegal connections and inequitable distribution of water can be eliminated amicably.

A Sense of Ownership. A principle guiding establishment of a WUA in Herat was to meet the challenge of sustaining participation of water users in irrigation management. The Charter and by-Laws developed for the Injil WUA govern day-to-day activities of the WUA and due to the closeness of the communities each water user is effectively engaged through their representatives in the General Assembly.

The give and take that took place during the training of the members of the Management Board, made clear that the WUA was going to play an important role in resolving issues that could not be settled working through the Mirab system.

Elimination of Illegal Connections. Illegal use and stealing of water by the upstream water users is a common problem country wide. This problem results from twenty three years of war, increases in population and development of new lands that need irrigation water. Following these travails, water users were afraid of change as it often benefited only the few. Traditionally, the upstream water users had been taking considerably more than their share. In the case of the Injil Canal, some 2000 hectares near the tail of the canal remained un-irrigated for years and there were water shortages in the mid-reaches of the system.

However, water users in the Injil canal command were helped to realize that equitable distribution of water and re-establishment of water rights can be accomplished only by the water users themselves working through the legal framework of a WUA type institution.

Now that infrastructure has been rebuilt and the WUA established, the Injil Canal water users are resolving the head and tail differences amicably and have paved the way to equitable distribution of water.

TOWARD THE FUTURE

Water users are facing immense problems in irrigation water management due to destroyed irrigation infrastructure, weak organizational capability, and lack of financing. The introduction of WUAs will bring new hope for the revival of irrigated agriculture by establishing a framework for better and sustained irrigation water management and maintenance of irrigation and drainage systems. The major challenge is to inform, educate and interest international donors to finance and implement programs based on a proven model in Herat.

The Challenges of Replication

Besides the need for educating and informing donors, there is a need to engage and train a considerable body of implementers. The irrigation systems in each region of the country have their own water rights regime, physical characteristics and nature of ownership. Thus, WUA models need to be adapted to local conditions for well over 100 canal systems. Key to success will be implementation of research and surveys that are carried out with the participation of local water users before a model can be selected for each region or river basin.

Potential for Application of a Similar Model to Agriculture, Agro-industry, Extension, Transport, Storage and Marketing

USAID has in progress its ASAP program for institutional strengthening of the Ministry of Agriculture. There should be opportunity within this program to foster alliances of WUAs and Cooperatives and/or to model Cooperatives on the chartering principle now established for WUAs.

The objective would be to put all facets of agricultural production and marketing on the basis of user pays. An additional objective would be to engage agro-industry by contracting for specified crops and using the contract as security for loans to carry out capital expenditures. Likewise storage could be developed along with transport and machinery pools. For example, transport could be used to market produce and to return from the marketplace with inputs.

CONCLUSION

The Water User Association for the Injil Canal was formed rather quickly over a period of six months. This was due to the fact that the new National Water Law had been modified to permit chartering and a model charter for WUAs had been developed. Also there was available an experienced team of institution builders that had worked in Helmand for nearly a year. Additionally, the team members were men of prestige who could interface as readily with the water user as with a minister or governor.

A contract was in place and funds were available to move forward.

Should there be interest in creating WUAs in other countries on this model, one would do well to review the entire process and observe the important elements that contributed to the success of the formation of the Injil Canal WUA.

REFERENCE

Development Alternatives, Inc. The Final Report submitted to Chemonics International, RAMP Program Office of USAID, "Water User Associations (WUAs) in Middle Helmand and Herat", Kabul, Afghanistan, pp 168; 31 May 2006