

Irrigation Specialists Help Farmers Make Best Use of Scarce Water

Water allocation from the Amu Darya, one of the most important rivers in Central Asia, is a pressing issue. Turkmenistan and Uzbekistan are both experiencing serious water shortages. More efficient irrigation could avert a political and economic crisis. Locally managed water user associations (WUA) help farmers make the best use of this scarce resource.

USAID-funded Farmer-to-Farmer volunteers have helped establish two model water user associations in Turkmenistan. The Farmer-to-Farmer Program assisted these two associations to draft a set of by-laws based on successful irrigation districts in the United States, plan improved water delivery, and seek funding for these plans. They have since become known as the Bereket WUA, in Garaulgala Village, Dashoguz Region, and Independence WUA, in Turkmengala, Mary Region.

Bereket Water User Association

In 1998, collective farmers near Garaulgala Village approached Winrock for assistance in improving irrigation water delivery to the lease holdings of 63 female and 100 male brigade members. This is one of the last communities to receive water from the Amu Darya before it turns north into Uzbekistan and the Aral Sea. Consequently it is the most adversely affected area of Turkmenistan when the Amu Darya flow is reduced by lack of rainfall and/or snowmelt at its headwaters.

Winrock provided \$1,730 of private seed money to construct a checkgate on the main canal. Beneficiaries donated labor valued at about \$1,300. This checkgate provides more reliable water to 340 hectares, as well as irrigating another 60 hectares of previously un-irrigated land. Additionally this checkgate eliminated the need for three large pumps (and related operating and maintenance costs) previously required to serve this cropland. [\[see map\]](#) FTF volunteers advised local water engineers on construction, management and registration of the 163-member Bereket WUA. Eleven volunteers have assisted since 1998. With Winrock support, the association has secured approximately \$10,000 for member-driven water delivery construction and repair.

In January 2000, a \$5,606 grant request was submitted to Counterpart Consortium to support for the Bereket WUA and construct four additional checkgates and seven turnouts. These improvements will provide improved water delivery to about 400 hectares of land. Association members contributed labor to clean 9,610 linear meters of ditches, at an estimated value of \$17,106. In October 2000, a US Embassy grant for \$4,101 was approved. This grant will also assist a neighboring community (through the Bereket WUA) to highlight the benefits of collective member management of irrigation water. Toward this purpose, two large checkgates were rehabilitated in April 2001. These two checkgates have been dysfunctional for several years. When canal water delivery returns to normal, the cropland and private gardens of several hundred families is expected to improve.

The US Embassy grant was revised in early July, to allow construction of 28 shallow wells to supply more reliable water for both irrigation of kitchen gardens and watering livestock. Such wells may provide a partial solution to the overall shortage of (canal) irrigation water. Each well is designed to serve four families.

Independence Water User Association

In 1999, 12 male and 10 female private farmers in Turkmengala Village requested technical assistance from Winrock to physically redesign their irrigation delivery system and to acquire related grant financing. These farmers have separated from the state farm system of crop quotas and input subsidies. All other farmers must comply with government production orders, and both crop input prices and market prices are government mandated.



While these private landholders do not have an official title to their land, they may cultivate crops of their own choosing and market them privately. Winrock assisted them in winning a \$4,800 Counterpart Consortium grant, which substantially increased the quantity and reliability of irrigation water to 55 hectares of cropland through the installation of a siphon pipe. Besides fielding five FTF irrigation consultants, Winrock financed local irrigation engineers to draft a detailed technical plan. [\[see map\]](#)

This WUA is not as seriously affected by flow reductions in the Amu Darya because it is much nearer the river's headwaters. Since the installation of the siphon seven additional nearby leasehold farmers have joined this WUA because water delivery to their land is more reliable from the WUA than from the state farm.

Spelling Success

Both model WUAs are committed to improving the crop production capability of their individual members. Increased water delivery was the first priority. Currently, overall delivery of irrigation water to Bereket WUA members has declined because they are at the 'tail end' of the delivery system during a national water shortage. Therefore the priority need remains to increase water availability. The greatest impediments for the Independence WUA members has shifted from overall water availability to uniform coverage of all irrigable land through better land leveling practices, and reduction of salinity through improved drainage systems.

When the delivery of water to the Toranny Canal is restored to normal flow, the benefit will be immediate. In the meantime it is difficult, if not impossible to measure the impact of the interventions. Improvements to the Independence WUA water delivery system are more visible and concentrated. Land that was previously unproductive due to unreliable water delivery, now has a reliable nearby water source. High salinity continues to be a problem, but adequate water is available to do effective crop watering. The original target was to irrigate 55 hectares following installation of the siphon. This year Independence WUA is actually irrigating 70 hectares with the siphon. Twenty-seven

hectares of wheat have already been harvested, with an estimated average yield of three ton per hectare. Their cotton fields are currently some of the healthiest in the area. Democratically managed associations are a new idea in Turkmenistan. A complex set of political, economic and environmental issues must be addressed in coming years, before these model WUAs can be declared a long-term success. However, the past two years of experience clearly show that farmers benefit when they work together to address resource management and agricultural production concerns.