

# Afghan Ambassador

*Professor advises war-torn country on water resources*



*In December 2005, Dr. Guy Fipps, a Texas A&M University biological and agricultural engineering professor, traveled to Afghanistan to become an ambassador of water for the U.S. Department of State....*



*As* senior advisor for water at the U.S. Embassy in Kabul, Afghanistan, Fipps' mission was to conduct strategic analysis and water planning for the war-torn country and advise the ambassador on related policies and programs. He also provided technical assistance to the U.S. Agency for International Development (USAID), the military and non-governmental organizations involved in reconstruction efforts in Afghanistan. Stationed in Kabul, Afghanistan's capital, he traveled throughout 14 provinces in the country, examining water infrastructures, evaluating issues and, finally, recommending solutions.



Fipps worked closely with the Afghan Deputy Minister for Water and the First Vice President in developing a strategy and organizational framework to address the highly contentious issues related to water-use, allocations and development.

Water is recognized as a key, and usually as the key to Afghanistan's future, he said. According to Afghanistan's Ministry of Energy and Water, 85 percent of the population is involved in irrigation-dependent agriculture and 98 percent of all water diverted from the rivers is used by agriculture, with 60 percent or more of that water lost to seepage and poor on-farm efficiency. In addition, the irrigation canal systems also provide drinking water to the vast majority of the population.



After 20 years of war, Soviet occupation and then Taliban rule, what little water infrastructure for irrigation and domestic drinking water the country had was destroyed or had deteriorated, Fipps said. Only 30 percent of the irrigation infrastructure was functioning when Fipps was in the country, and modern domestic water supply and waste treatment systems do not exist.

"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," he said. "Unless effective programs are implemented, water shortages, internal water conflicts and international water disputes will increase and become more serious, with destabilizing consequences."

Since the majority of the population is involved in agriculture, Fipps said improving irrigated agricultural production and livelihoods is critical for maintaining social order in the country. With so many refugees who fled the country during the Soviet occupation and Taliban rule returning to the country, he said there is a need to develop new irrigated farmland for these displaced people, some of whom are involved in the insurgency against the government.

"The thinking is by getting them back into Afghan society through farming, they will no longer need to seek payment from the insurgency," he said.

He recommended increasing water infrastructure projects that would expand irrigated land and provide rural drinking water.







“Rehabilitation of irrigation systems and increasing the water supply to farmers is important,” he said. “There’s an urgent need for rural residents to see some benefits from the new government.”

The rural economy and standard of living would improve vastly if the traditional two-crops-per-year system could be reestablished, and would reduce the need for farmers to grow poppies, Fipps said.

Another major problem Fipps said he saw was the lack of standards for the water infrastructure projects being implemented by organizations and the military. He documented through photographs examples of poor workmanship or inadequate design or use of insufficient materials. Before leaving, he presented a plan for developing standards for design, materials and performance of water structures.

Because he identified transboundary water issues between Afghanistan and its neighbors as a major issue for long-term stability of the country and the region, Fipps helped implement a memorandum of understanding between Afghanistan and neighboring Tajikistan to cooperate on joint development of water resources, such as a large hydro facility on the Amu Daya River.



Other threats Fipps identified were rapid and uncontrolled exploration of groundwater, conflicts between upstream and downstream water-users, the lack of water laws and regulations and recurring droughts.

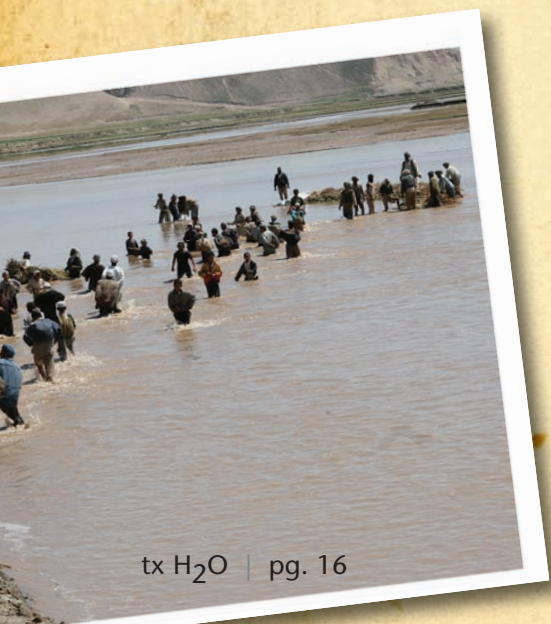
Besides working on the water planning, Fipps said his best memories are of spending time with the military. When he first arrived, he visited provincial reconstruction teams or PRTs, which are military units that provide security for the reconstruction projects.

“I was able to help them out on what they are trying to accomplish in the PRTs,” he said. “We all should be proud of our young men and women serving in Afghanistan. They’re very dedicated and committed to the mission in spite of the tough and dangerous conditions they have to deal with.”

Because of his diplomatic status, he was escorted by the military when traveling beyond Kabul.

“It’s a rather unique experience to be taken out to look at an irrigation project escorted by three to four Humvees and guarded by 10 or more armed soldiers,” he said.

While his official work as water advisor is over, Fipps remains involved in Afghan water concerns. He continues to advise the Afghan government on water issues, and USAID has asked him to return for a short-term assignment to help establish a national water agency for the country, an idea that he promoted while in Afghanistan.





In the Spring 2007, he will return to Afghanistan for a few weeks to help USAID in planning its water sector development program and to assist the Afghan government in developing its international transboundary water policy.

He will follow up on his project of designing the water supply and irrigation systems for irrigation teaching farms at three Afghan universities and introduce polypipe, a thin-walled, flexible pipe material used in irrigation to save water. He said Afghans suffer from a lack of expertise and experience with modern irrigation technologies and management practices needed to increase crop yield and farm income, while conserving water.

“Introducing polypipe could have a major impact on irrigation in Afghanistan,” he said.

This training is important, he said, because the country lost a whole generation of college-trained Afghans during the Soviet war and Taliban rule.



Top photo, page 15

Afghan farmers and their sons work to repair a dike that was destroyed in a rainstorm.

Middle photo, page 15

A group of Afghan men weave ropes from thick straw brought in from 50 km away. The farmers use these ropes to transport dirt clods on their backs to the dike and bind together bales of reeds.

Bottom photo, page 15

An Afghan farmer weaves ropes from thick straw that looks like dried water reeds.

Top photo, page 16

Afghan men wade out into the river to fill the dike with straw and dirt clods, leaving gaps in the dike to reduce pressure and erosion from the river.

Middle photo, page 16

Twenty men float the large bales of dried reeds into the river to plug the gaps left in the dike. Once the bales are in the dikes, dirt clods are then layered onto the bales.

Bottom photo, page 16

As time goes on, more layers of clods and straw are built up and the dike expands further into the river.

Top photo, page 17

Restoring the diversion dike is demanding but necessary work for the Afghan farmers.



*“Outside of Kabul, the country is essentially still in the 13<sup>th</sup> century....”*

### **An excerpt from Guy Fipps' journal**

*Dr. Guy Fipps, a Texas A&M University professor in the Department of Biological and Agricultural Engineering, spent nine months in Afghanistan as senior advisor for Water of the Afghan Reconstruction Group. “There are lots of disadvantages to these structures,” he said, recounting Afghan farmers and their families rebuilding an irrigation water diversion dike. “They wash out two or three times a year and they don’t provide good control of water. It’s a big strain on their subsistence economy to take the time to rebuild the dikes. But they work.”*

*The following is an excerpt from his journal:*

Kunduz is the capital of Kunduz Province in Northern Afghanistan, a regional center surrounded by vast expanses of agricultural land. Every trip out is eye-opening, but in Kunduz, I saw something really extraordinary: the construction of an irrigation diversion dike using methods and materials that have not changed for centuries, maybe for thousands of years....

For thousands of years people have lived along the rivers of what is now Afghanistan and diverted water into hand-dug canals to irrigate their crops. Taking advantage of the mountains and slopes, a single canal can run many miles and provide water to many villages, tens of thousands of people and large irrigated areas.

Afghans construct earthen dikes extending out into the river to divert water. Unfortunately, these dikes frequently wash out when the rivers rise in the spring and early summer as the melting of the mountain snow accelerates. It is the snow that falls in winter that gives water and life to this arid land.

Such was the case of the KZ canal. A weekend rainstorm just three days ago caused the river to rise high enough to completely wash out the existing diversion dike. Now, very little water is flowing into their canal, and approximately 20,000 families cannot irrigate their crops. It’s early in the growing season; plants are short and cannot go more than a week without water. As of today, the local farmers have only five days to get the dike rebuilt before facing the danger of crop failure....

...we’re amazed at the size of the operation, approximately 400 men and adolescents hard at work.



And what an operation it is. The men are divided into several different work crews. One crew digs up large dirt clods, each weighing around 50 pounds.... The Afghans hope that the grass will take root and help hold the dikes together.


A group of men are busy weaving ropes from a thick straw that looks like dried water reeds.... Some of these ropes are used by the men to cradle the dirt clods on their backs. A group of men lift the dirt clods and help secure them on the backs of the workers who then carry them to the river and wade out into the moving water to drop them onto the expanding dike. Layers of clods and straw are built up, and the dike is extended farther into the river.

The work is very hard and demanding; it must be extremely difficult, first carrying a large load of dirt on your back, then wading through the water with the thick underfooting of river bottom silt.

We watch as the dike quickly forms and extends farther into the river. Such a massive and organized operation is amazing and fascinating to watch. Each farmer along the canal contributes labor or money proportionally to the size of his land.

I watch as the straw men make huge rectangular bales of dried reeds held together by the thick ropes of woven straw. Finally, their purpose becomes clear. As the dike is constructed, gaps are left in the dike in order to reduce the pressure and erosion caused by the moving water in the river. It takes 20 men to roll the huge bales into the river and to float them out to the dike to plug these gaps. Dirt clods are then layered on the straw bales to complete the dike....

The dike will wash out a few times a year, taking money and labor away from cultivation and harvesting of crops, further hurting the subsistence agriculture of the region.

Three weeks later, I visit the site. The dike is still standing even though the river has already risen a foot since my last visit. The dike is working perfectly and diverts large amounts of water into the KZ canal. 



Dr. Guy Fipps of Texas A&M's Department of Biological and Agricultural Engineering was escorted by the U.S. military as he traveled throughout Afghanistan to inspect water resources projects.