

## WATER, CLIMATE, AND DEVELOPMENT ISSUES IN THE AMUDARYA BASIN

On 18–19 June 2002, Michael Glantz, senior scientist in the Environmental and Societal Impacts Group (ESIG), in cooperation with NOAA's Office of Global Programs, convened an Informal Planning Meeting to discuss climate and trans-border water and equity issues in Central Asia in general and, more specifically, in the Amudarya (river) basin.

Discussion centered on climate, water, political, and development issues. Although the meeting was based on the Amudarya basin, discussions included the roles of other countries in the region – China, Pakistan, Iran, and especially Afghanistan – in addition to the five Central Asian Republics.



*The receding shoreline of the Aral Sea. The former fishing port of Muynak is now more than 150 km from the Aral Sea's shoreline. (photo by M.H. Glantz)*

Before 1960, the Aral Sea was the fourth-largest inland body of water on Earth. Today, it is on the edge of extinction. The Sea is fed by Central Asia's two major rivers, the Amudarya and the Syrdarya, with a flow, respectively, of about 70 and 35 cu km per year on average. The Amudarya is formed by the Pyanj River (Afghanistan) and the Vaksh River (Tajikistan). The Syrdarya is formed in the Tien Shan mountains and flows through Kyrgyzstan, Uzbekistan and Kazakhstan, making its way toward the Aral Sea. By the 1970s, the Syrdarya failed to reach the Sea, and in the late 1980s the mighty Amudarya also failed to reach the Sea. In the early 1990s some river water reached the Sea, but

by then the Sea had split into two parts, the Small Aral (fed by the Syrdarya) and the Big Aral (fed by the Amudarya). In 1954, construction began on the Karakum Canal in order to bring Amudarya water to oases in the desert of the Karakum.



*The Central Asian region, with a dark blue line showing the Amudarya's watercourse from its headwaters to the Aral Sea.*

Today, the Aral story is quite well known to environmental groups within and outside the region, and it was brought to worldwide attention as the result of a February 1990 *National Geographic Magazine* article. The rivers' waters still flow out of the Pamir Mountains and the Hindu Kush toward the Aral Seas (Big and Small). Its watercourse serves as an international border between Tajikistan and Afghanistan and between Uzbekistan and Afghanistan. The Amudarya crisscrosses Turkmenistan and, for the most part, traverses the length of Uzbekistan and its subregion known as Karakalpakstan. Although an upstream riparian country, Afghanistan, 17% of which lies within the Amudarya basin, has been at war for a couple of decades and in-country conflict remains. As a result, it has had little opportunity to lay claim to its legitimate share of Amudarya water. With an end to the Russo-Afghan war and the Taliban regime, and with international involvement to bring a semblance of peace and stability to the country in the conflict-laden post-Taliban period, the new Afghan government will surely lay claim to a significant share of Amudarya water as it reconstructs the nation's agricultural sector.

A key premise for the meeting was to discuss the consequences of the likelihood of demands by Afghanistan for its fair share of Amudarya water, now that the Taliban regime has been replaced. Even though the supply of water from the Amudarya could be sufficient for all the inhabitants of the basin, under the current situation water is scarce, especially in the downstream regions in Uzbekistan and Turkmenistan, which cannot afford to lose any more water to diversions than has already occurred since their independence in 1991.

Equity concerns were voiced about the continually deteriorating plight of the Karakalpak people who inhabit the lower reaches near the Aral Sea. They are the end users of very polluted water, land, and air in the disaster zone near the Sea. The multi-year regional meteorological drought, food shortages, and news about the declining extent of glaciers in the Pamirs (an indicator of long-term climate change in the region) has led to an attitude change in Central Asian governments concerning climate issues. They are increasingly aware of their growing vulnerability to climate variability, extremes, and change. As a result, there appears to be a resurgent interest in Uzbekistan (and from some Russian political figures) for water transfer from Siberian rivers to arid Central Asia.

*Several activities proposed relate directly to water resources, climate considerations, capacity building, equity issues, and regional cooperation and development:*

- A central point of concern is the widely acknowledged inefficiency in the use of water in Central Asia's three major rivers (the Amudarya, the Syrdarya, **and** the Karakum Canal, among the longest manmade canals in the world). Improved efficiency in agriculture, a reallocation of water among sectors using water more efficiently, such as industries and services, as well as a shift from food self-sufficiency to food security should precede attempts to bring water supplies from other sources outside the basin.
- Central Asia is caught between the blades of a proverbial pair of scissors: growing populations, and a possible dwindling supply of water in the region. Climate projections (scenarios) must be made in tandem with demographic projections (scenarios) over the next few decades.
- There is an urgent and strong need for capacity building in the areas of water resource management, and climate studies and forecasting for Afghanistan specifically, and for the other states in the Amudarya basin in general. This will involve considerable coordinated support from donor nations.
- There is a need to identify all of the climate- and water-related national and regional early warning systems in the Central Asian Republics and

Afghanistan. This includes a restoration on a regional basis of the climate and climate-related monitoring networks. It is important, if not crucial, to consider how best to combine them and make them more effective.

- There is a need for transparency with respect to streamflow withdrawals, usage, and efficiency of use ratings by Amudarya basin states, as well as Aral basin states, and overall climate monitoring (glacial melt, climate change, etc).
- The inhabitants of Karakalpakstan are in dire need of international assistance with regard to health, access to clean water, employment (re-education and training).
- Donor organizations need to consider how best to coordinate their activities in "Greater Central Asia." Donor countries need to deliver on their pledges for assistance in a timely fashion.

This Informal Planning Meeting was hosted by The Franklin Institute (Philadelphia, Pennsylvania), and was supported by NOAA's Office of Global Programs and by ESIG at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado. A full report for the meeting was prepared by ESIG with input from all of the 23 participants. It is available on line and in hard copy upon request. See the website at [www.esig.ucar.edu/centralasia/](http://www.esig.ucar.edu/centralasia/) or write to



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*The IPM participants on the roof of The Franklin Institute, Philadelphia, during a break from deliberations. They represented 9 different countries as well as the United States.*