

THE UNIVERSITY OF NEBRASKA AT OMAHA
Water Resource Management in Afghanistan and Pakistan

FINAL NARRATIVE REPORT

1 January 2014 to 31 December 2015

SPONSOR:

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March 2016

SUMMARY

Water scarcity in parts of South Asia is creating tensions within the region that may lead to worldwide instability. The University of Nebraska at Omaha (UNO) cross-border networks and problem solving project entitled, *Water Resource Management in Afghanistan and Pakistan*, convened scholars, faculty, and students from Afghanistan, Pakistan, and Tajikistan universities to develop national linkages and encourage cross-border collaborations in scientific research to address water management issues. UNO partnered with Kabul University (KU) in Afghanistan and Quaid-i-Azam University (QAU) in Pakistan to address and begin to solve critical regional water management problems. Distance learning modules (DLMs) were developed through the partnership and are accessible through the program web portal. Results included sustained linkages with the potential for collaboration and government and institutional awareness of critical water management concerns in Afghanistan, Pakistan, and throughout South Asia.

KEY ACTIVITIES

I. In mid-September 2015, professors McNamara and Shroder led a seminar on transboundary water at The Department of Earth Sciences, Quaid-i-Azam University, Islamabad, Pakistan. About 150 faculty and students were in attendance to listen to and participate in the program, including 26 university professors and government bureaucrats, 15 doctoral students, 11 Masters of Philosophy Students, 65 Masters of Science students, and 31 Bachelors students. Four speakers were set to raise the main issues at hand with transboundary waters.

First Dr. John (Jack) Shroder spoke for an hour on “Transboundary Water Resources of Pakistan and Afghanistan,” which was a summation of his new book on Transboundary Water from Afghanistan, which is to be published by Elsevier in 2016. Dr. Shroder had asked Dr. McNamara to mind the time and head Dr. Shroder off with a question-and-answer (Q & A) period after one hour. This approach worked very well and got the students engaged in detailed questions, during which we discovered that the students very much appreciated the direct engagement with foreign faculty who were willing to come to the difficult environment of Pakistan.

Dr. McNamara used a portable microphone most effectively to elicit questions and comments from the students, which one of the administrators remarked on later was a technique that he had not seen before in a scientific meeting. He thought that it was quite effective and that he would try it later. During the Q & A, we discovered that the students were quite surprised by our openness in discussing the important topic of water in their region, especially because their politicians seemed inadequate at handling these issues, including new dam construction, hydroelectric production, or flood control. Dr. McNamara was especially good at encouraging the female students to speak out, even those in full face-covering veils, some of whom spoke through less covered, more open female students and faculty who were willing to speak more freely in front of so many men. Several new female faculty members also spoke openly in the

Q& A. Several of the female students expressed thoughts that seemed to indicate that students were too much ignored, or their thoughts and opinions were disregarded by the higher ups.

At one point a student asked in terms of the seminar topics, “But what can we really do?” Dr. Shroder quickly replied that she and the rest of the students were the future [of Pakistan], so it was important to work hard on these most important water issues, especially as the climate was changing and the future of water in South Asia was so uncertain for many millions of people.

Dr. Shroder’s comprehensive and fact-filled talk was followed by a report from retired professor, Dr. Zulfiqar Ahmad, on, “Transboundary Water Resource Hydrograph of the Kabul and Indus Rivers in Relation to Earth Fill Dams.” This PowerPoint talk was an example of the best science work produced in Pakistan and a comprehensive look at water issues in the country. Key water issues identified by Dr. Ahmad, included:

- Strong dependence on [snow and ice] melt water
- Pakistan was naturally water stressed
- A large irrigation system existed
- Transboundary water occurred (among Pakistan, Afghanistan, and India)
- A huge and growing population existed
- Many national and international activities occurred
- Low coordination, collaboration, or sharing of knowledge and information were common

Furthermore, in Pakistan the prospect of the predicted coming severe water scarcity and a huge increase in population was a most frightening prospect.

- The result is that great attention must be paid to dealing with these looming crises. The consequences were that the Water and Power Development Authority (WAPDA) of Pakistan had to attend to the following:
 - Construction of large and medium reservoirs
 - Development of hydropower projects
 - Water resources management (WRM)
 - Establishment of a Glacier Monitoring Research Centre within WAPDA and conduct studies on WRM
 - Strengthening and upgradation of data-collection networks and management infrastructure

Dr. Ahmad discussed in detail a number of other issues dealing with water in Pakistan, in relation to water coming from Afghanistan, and made several serious and somewhat enigmatic statements (see below). Some of these are in opposition to much current observation and thought elsewhere, so could be mistaken as future projections or government “spin,” but that, if true, would indicate a high complexity of hydrologic processes that are in need of additional study, as follows:

- Analysis of both the upper and lower belts show notable increasing trends in temperature and precipitation that will enhance the outflow runoff downstream from Pakistan to Afghanistan and will have a positive climate impact.

- Temperature and rainfall have shown recent increasing trends for the Chitral and Peshawar valleys [which are directly adjacent to Afghanistan and have interlinked transboundary drainage basins].
- The increase in rainfall will have a positive impact on water discharge for transboundary rivers. The increasing temperature will have impact on the glacier and snow reservoirs in Chitral Mountains and it would generate the melt water.
- The retrieval of classified areas in remote sensing has shown that water declination causes the changing pattern of vegetation and invention of barren/reddened [false color infrared] land.
- Due to the decreased water supply from Afghanistan, the agriculture sector would face negative impacts in Khyber Pakhtunkhwa Province, especially in Peshawar valley.

These two lectures were followed by a formal Q & A session, and then several additional talks, starting with Dr. Shakeel Ahmad, a Major in the Pakistan Army, who had studied the transboundary impact assessment of Indian dams on the Chenab River basin from the perspective of the well-known Indus Water treaty, which in spite of numerous negative provocations and three wars between the Pakistan and Indian signatories, has held firm in much of its entirety for over half a century. His data do show that a decline in discharge on the Chenab has been noted in Pakistan downstream, which has been primarily caused by unannounced manipulation of dams upstream in the Himalaya foothills in India. Such changes cause great fears in Pakistan in the event of eruption of future hostilities. Dr. Ahmad's most striking recommendation, especially coming from a high ranking military officer, was that hydroelectricity produced in abundance by the many Indian dams could be imported by Pakistan, whereas Pakistan has been having so many political problems in getting very many, if any, new dams built on its own territory.

Dr. Arshad Ashraf then gave the last talk of the day, which was on the impact of climate change on water resources of the upper Indus Basin. His material from a subdivision of the Ministry of Agriculture was well known to Dr. Shroder, who had actually participated in the earlier collection of much of the data when he was working with Mrs. Rakhshan Roohi from the Ministry of Agriculture, who was originally responsible for the project in the 1990s and 2000s, as well as with Mr. Ghazanfar Ali when the two (Ali and Shroder) had a joint research project on glaciers and climate change in Pakistan funded by the USAID PEER program through the US National Academy of Sciences a few years ago.

In the late afternoon of the conference the Q & A sessions facilitated by Dr. McNamara continued with the students joining in most enthusiastically. Much discussion ensued over the idea that Pakistani and Afghan professors and students actually could travel to each other's countries and engage in discussions about their mutual water resources. The students exhibited considerable surprise that there would be interest and not fear in doing that. Dr. Shroder pointed out that science is about finding the truth of matters and, as with the weather, water respects no national border boundaries and is a shared resource, not usefully subject to being kept as a secret between countries. Only by being discussed openly between the countries could good relations

be developed and maintained on into the future. Open dialogues on these topics were seen by all as the scientifically and politically acceptable best means.

The ceremonies concluded with the awarding of certificates of achievement to a number of students, as well as the presentation of plaque awards to Drs. Shroder and McNamara as tokens of goodwill. The desire was in evidence to prolong and enhance further developments between Quaid-i-Azam University in Pakistan and Kabul University and Kabul Polytechnic University in Afghanistan with the University of Nebraska at Omaha as a goodwill ambassador and broker of peaceful relations between the universities of the two nations. This occurred because of UNO's long four decades of such work throughout much of the latter half of the 20th century and the decade and a half of the new century. Several of the Quaid-i-Azam administrators and faculty noted that UNO's interest in continuing to do this work was well known and much appreciated, and we responded that we were hoping for similar good results in Kabul and that we would do our best to help improve relations between the two nations by continuing our work on this most vital of human resources, that of the absolutely essential water.

II. Meeting with Afghanistan Ministry of Energy and Water – Kabul 2015: In the meeting in Kabul in late September and early October, Mr. Farooq Qazizada, the Deputy Minister of Energy and Water, related at the outset that he was quite aware of the long association of UNO with his country. He mentioned the enhancement of the engineering college at Kabul University in the 1970s and the large UNO presence on Peshawar, Pakistan, during the Soviet – Afghan War in the 1980s, when UNO, as a kind of Ministry of Education in exile, helped Afghanistan with its primary and secondary education. The Deputy Minister noted that the many problematic issues in his country had included a lack of political will to address problems with water but now that UNO was back in his country, perhaps some difficulties with water could be addressed with the assistance of UNO.

The lack of peace in Afghanistan for decades has meant great losses in all normal things, not the least of which is knowledge about water. Considerable amounts of training and development of new expertise are needed, and enhancement of capacity concerning water at the university level is essential. Sustainable capacity building appears to require development of a long-term strategy that would include a robust capability to engage in new research on water. This would require establishment of a new integrated and comprehensive Transboundary Water Resource Center in Kabul that could host analytical hydrologists who had also been educated in the unusual hyropolitics of Afghanistan.

The well-known lack of water data in Afghanistan after four decades of war is especially noteworthy and in need of serious remediation. Coupled with the lack of data sharing in the region, the fact that some water data are kept as state secrets in adjacent countries, and the lack of water infrastructure; these major water discontinuities are a striking absence in such arid countries replete with citizens who absolutely require plentiful water to maintain life. Knowledge gaps about water in Afghanistan are, of course, terrible impediments to any sort of negotiation with neighboring countries about water, and preclude any sort of joint water projects with them; as well as denying reasonable formulation of water policies. Development of new policy on water is now seen at the government level as an essential aspect for the country to undertake.

In terms of existing relations over water with neighboring countries, because the political will in Afghanistan has now changed favorably with the election of President Ashraf Ghani, the situation has changed greatly. Afghanistan and Pakistan are now seen to sometimes work well together on water discussions, but in recent requests by Afghanistan to Uzbekistan and Turkmenistan for discussions about water, no response has been given. Some limited discussion has occurred with Pakistan about development of water in the Kunar River tributary to the Kabul River. The British-built Durand-Line border between the two countries, however, is a bugaboo that no Afghan government is ever likely to recognize as a valid dividing line between them, because to do so would be to repudiate over a century of strong Afghan viewpoints to the contrary. Any negotiation over transboundary water between the two nations would require some sort of normal recognition of territorial sovereignty, and Afghanistan is unable politically to do that, thus an impasse. So at the outset in the development of transboundary water policy, Afghanistan is seen as needing: (1) a new water research center; (2) capacity development about water; (3) good technical relations with neighboring countries; (4) water data sharing with neighboring countries; and (5) training in climate-water aspects and climate-change characteristics.

ACHIEVEMENTS

Our project has been successful on many levels. An essential aspect is our discovery that considerable eagerness exists in South and Central Asia for access to hydrological data and information, much of which can be provided by the distance learning modules that we have developed in English and translated into the regional languages of Dari, Pashto, and Urdu in Arabic script, and Tajiki in the Cyrillic alphabet. Most striking in the course of doing this work was our discovery that these new educational ideas for additional DLMs and one or more transboundary water resource centers could be developed much further in order to greatly improve administrative capabilities in Afghanistan to improve water management in the country. In this fashion the looming threats of water diminution in the region could be at least partly alleviated, a fact that would greatly relieve all the governments of South and Central Asia who must deal with emerging unpleasant realities about water for a long time into the future.

Although the project did not bring together the water experts from Afghanistan and Pakistan for inter-country dialogues, the intra-country dialogues described above lay important groundwork for transboundary cooperation in a second phase of this work.

EVALUATION

The assessment was done by Dr. Patrick McNamara. This section will include (a) some project-wide data framed by the criteria in the original evaluation plan, (b) an evaluation of each of the intra-country water symposiums, (c) overarching lessons learned, and (d) recommended next steps.

- a. The following data are in response to the specific categories in the evaluation plan:
1. Over 220 faculty, students, researchers, government officials, and others that participates in the three workshops held in Islamabad, Kabul, and Dushanbe.
 2. Although the DLMs are created and translated, we have not had a high volume of visitors to the web portal. So, this is an expectation for the coming months as we promote these DLMs to our partners.
 3. Nearly 80% of those surveyed expressed a positive change in knowledge as a result of participating in our project.
 4. Based on observations by our project team 85% of the participants demonstrated active interest and participate in discussions, brainstorming, and problem-solving sessions during intra-country workshops.
 5. There were 22 DLMs, 8 conference papers, and a very significant book which were the result of this project. Please see section C.4. above for a summary of those.
 6. It is harder to determine what percentage of participants overall attest to our project specifically impacting peacebuilding and water management concerns in South and Central Asia. It is probably best to take each intra-country dialogue separately and examine whether the participants were open to further dialogue on transboundary water cooperation. In Pakistan, no participant said that they would not be interested in talks or joint research with Afghans. Likewise, in the Tajikistan dialogue every participant was open to dialogues with Afghans. However, in Afghanistan the situation was quite different. The Afghans did not trust the Pakistanis, did not feel that their scientists were at the level where they could engage with their neighbors, and almost everyone - with the exception of an Afghan who worked for the Asian Development Bank - did not want to enter into dialogues on transboundary waters with Pakistanis, but most were open to talking with Tajiks.
- b. In each of the three water symposia, we had a separate evaluation summarized below.

Quaid-i-Azam University, Islamabad, Pakistan (September 17, 2015)

Approximately 150 faculty, students and guests attended the water symposium on "Transboundary Water Resources of Pakistan and Afghanistan." This included 26 university professors, military officers, and government bureaucrats, 15 doctoral students, 11 Masters of Philosophy Students, 65 Masters of Science students, and 31 Bachelors students. We distributed an evaluation survey and received 64 responses. Summary scores to each of the questions are below. A Likert Scale was used with 1 being not satisfied, 2 somewhat satisfied, 3 neutral, 4 satisfied, and 5 very satisfied.

Are you satisfied with the presentations at this Conference? 3.86

Are you satisfied with the dialogues that took place at this Conference? 3.64

Are you satisfied that you have more knowledge about the scientific data regarding transboundary waters and water resource management as a result of this Conference? 3.48

Are you satisfied with the ideas shared on ways to decrease water demand? 3.46

Are you satisfied that some of the presentations and dialogues were focused on the international dimensions of water management? 3.59

Are you satisfied that presentations and dialogues have increased capacity to better understand and deal with the volatility in demand and supply of water? 3.83

Additional qualitative data from the Islamabad symposium included the following quotes from participants:

- "Trustbuilding is the key to Pakistan - Afghanistan water relations."

- "Trust starts at the government level solutions."

- "We need MOUs between Pakistan Universities and Afghan Universities so we students can study together and build relationships in the next generation."

- "The problems they talk about are Taliban and bomb blasts, but there are so many other issues such as cooperation on building dams."

- "The situation cannot be controlled by politicians. Scientists must be dialoguing too."

- "The main problem is the international influence in Pakistan. You must go back and educate the U.S. politicians about these issues."

- "What the nation wants in Pakistan and what our politicians want is different."

Ministry of Energy and Water, Kabul, Afghanistan (September 28, 2015)

This water symposium was held in the conference room of MEW and attended by 26 people. (See list attached.) The Deputy Minister of MEW, Mr. Farooq Qazizadah, opened the session. Sher Jan Ahmadzai gave an overview of the Center for Afghanistan Studies. The presentation by Dr. Shroder on transboundary waters was well received. Many commented on how much they appreciated the scientific commitment of Dr. Shroder to Afghanistan over so many years. It was during the open dialogue period facilitated by Dr. McNamara that participants really engaged.

We did not use a survey in this meeting. But we did ask for an evaluation of the process and suggested next steps before the meeting ended. Some relevant comments from participants included:

- "Till now the government feels lack of capacities in political side of the transboundary water issue between the neighbors."

- "To deal with these transboundary water issues we need to stop war and have sustainable security."

- "Also, we should negotiate with Pakistan and Tajikistan to jointly do water projects."

- "The political will to deal with these issues is changing now. We are ready, but we need politicians to lead."

- "On the political side, positive changes are visible about trans boundary water policy among the government."

- "Our treaty with Iran is the best in the region, but everyone is afraid to talk about water because Musa Shafiq was killed and accused of selling our water."

- "Yes, this is a discussion in Parliament about water law, but one parliamentarian who has a Ph.D. from France said, 'All water belongs to Afghanistan.'"

- "International associations specially UNO needs to work with the government and persuade them that experts have the capacities to deal and facilitate inter-dialog in regional base."

- "Beside the short term training program, we need long term academic program to reach up to the level that our neighbor countries are there right now."

- "Dealing and dialogue with the neighbor countries needs to be more educated, and skillful with data and complete knowledge. At the time now we are not in the position to deal with them on both academic and political sides."

- "Joint studies between countries is the start for finding solution in the future."

- "Jointly work with neighbor countries needs to be started. And trust needs to be created. At the time now we do not trust on some countries."

- "Building trust is most important. I visited the El Paso Center working on Mexico - U.S. waters. We need that here."

- "If we developed a water plan for just one of the water basins, that would be good."

- "The main challenge at the time now is lack and shortage of water resource infrastructures in Afghanistan. Flood is one of those challenges. It needs to control floods and keep water in safe mood."

- "Most donors are asking notification from downstream countries to work on big projects. Without solving the Transboundary issue implementing of big projects are facing to challenges."

- "Turkmenistan, Uzbekistan and sometime Tajikistan are not cooperative to talk on water issue and even some time they rejected the request of afghan government for proper use of water sources."

- "There is no problem with academic dialogues but political issue is behind it. To build relation and trust is belong to the government policies."

- "UNO can work to start a capacity building result based program with all stock holders and academic associations."

- "First establish a center at the Ministry of Water and Energy and start study on internally and externally base through international organization. Only after that negotiation with neighbor countries that have kind of conflict between them will be useful."

- "Negotiation skill for Afghans needs to be improved with the help of international assistance."

- "Updated information about transboundary water is still not accessible to all or maybe not available."

- "Ministries are hiding the data. We all need to share information."

- "Not just the ministries, even the donors don't share information and cooperate."

- "Keep hiding the information is another challenge here among the all related water sectors."

- "Sustainability of the project is the main point and important."

- "Invite expertise from other university of Afghanistan and share and talks about the water issue in the future."

- "For continuation of such programs in the future needs to establish a network among themselves."

c. Lessons Learned

Two themes frame the overarching lessons learned. The first is a pessimistic one; the second more optimistic.

The first lesson learned is the importance of political will. Our original vision for this project was inter-country dialogues around transboundary water. That did not happen as we hoped. The political realities of the region, and especially in Afghanistan, made this regional approach difficult. We shared in previous interim reports the resistance of former Afghanistan President Hamid Karzai to engaging with neighbors on water. The President's office blocked our team coming in and convening a water symposium during that Karzai Administration. However, with the election of Ashraf Ghani there was an opening for us to facilitate dialogue.

The second lesson learned is the importance of in-country partners to champion the projects. With the foundations now set for transboundary water dialogues, having convened these three sessions last year, we believe that a regional dialogue is possible. Key partners who are outside of government - either academics, civil society, or advisors to ministries - seem to be our best champions. They are less bound to the politicians' agenda, although in this region of the world the political is always on people's minds. And these champions are often bolstered by having an international partner who is working with them.

By working with these key partners in Pakistan, Tajikistan, and Afghanistan, we are hopeful about the prospects for a regional water dialogue. The issue of trustbuilding, especially between Afghanistan and Pakistan, seems the major roadblock. But if some progress might be made on the Track Two efforts we are working on, maybe that roadblock can be slowly removed.

NEXT STEPS

We are in talks with other funding agencies about a continuation project which will build upon the good momentum from the current project. We are particularly excited about the prospect of working with Duran Consultancy. The prospect of convening a regional water dialogue remains the ultimate goal. Although we were unable to do that as we planned in this first round, we firmly believe that with the right in-country champions and trustbuilding processes this is possible in round two.