

**Project name\***

Transboundary water management adaptation in the Amudarya basin to climate change uncertainties

**Family/Last Name of PEER applicant\***

Dukhovniy

**Reporting Period Start Date\***

10/01/2017

**Reporting Period End Date\***

12/31/2017

**Quarterly Project Summary\***

*Please provide a brief summary of project activities carried out during the reporting period, including specific events, ongoing research, planning, and data-gathering activities. You should include PEER project-related events from the previous quarter, only if you did not include them in your previous quarterly report or if this is the first report you have submitted on your project.*

The key project results have been shown in the annual report. Additionally, the following activities have been completed over the reporting period:

1. The project results have been reviewed to outline more clearly prospective water development along the Amudarya River. Expected water losses due to climate change and other challenges were assessed and the ways to cover potential water and energy shortage through close cooperation among the riparian countries were grounded.
2. Additional research on shifting to multiyear regulation by the reservoir of Roghun HEPS, assessment of sedimentation in reservoirs in the basin and of regulating capacity losses, etc. was conducted. This investigation was unplanned but necessary for more comprehensive understanding of basin development processes. Our estimations show that multiyear flow regulation is needed for increased energy generation (while avoiding the loss of HEPS heads in dry periods of time) and guaranteed water yields for irrigated agriculture in the Amudarya basin. Only this way could be achieved an optimal effect from operation of all reservoirs in the basin and increased degree of flow regulation after commissioning of the Roghun hydroscheme (full design volume of the reservoir of 13.3 km<sup>3</sup> corresponds to the full reservoir level of 1290 m, while useful volume of the reservoir is 8.6 km<sup>3</sup>). Moreover, Roghun and Nurek hydroschemes should be operated jointly so that energy generation is not in contradiction with irrigation needs, and additional water releases are available for irrigation during the growing season. It is expected that after 2020 (in case of completion of the Roghun project) sedimentation of the Nurek reservoir will be diminished as a portion of sediments will be captured in the section of Roghun hydroscheme. By 2055, the total loss of regulating capacity of three reservoirs (Roghun, Nurek, Tuyamuyun) is estimated at 7.5 km<sup>3</sup>.
3. The research on legal aspects of transboundary water management in the Amudarya basin was completed that includes an outline of a new multilateral agreement on Amudarya basin and a reference document to help riparian countries in their future negotiations.
4. A book that summarized the key project results was prepared for publication. The focus of the book is on development perspectives of the Amudarya basin until 2050 (through modeling, comprehensive scenario assessment, and recommendations for adaptation). The book is intended for a large public, from students to practitioners in the field of long range planning, mathematical modeling in economics, hydrology, hydropower, land reclamation, ecology and climate.
5. The project team actively works on the dissemination of the project results at the region and beyond. The most prominently the key project results were presented at the Central Asian International Scientific-Practical Conference "The 25 years of Water Cooperation in Central Asia: Lessons Learnt

and Future Outlook” that was held on 23-24 November 2017 in Tashkent and demonstrated at the Central Asian International Exhibition “Water Technologies and Industry – WATER-2017” that was organized during the Conference ([http://cawater-info.net/projects/peer-amudarya/expo\\_23-11-2017\\_e.htm](http://cawater-info.net/projects/peer-amudarya/expo_23-11-2017_e.htm)). Presentations at other events are shown in section 'Technical Research Presentations'.

### **Project Events\***

*Please complete and upload the below spreadsheet detailing the events organized by the project. Events include workshops, conferences, short courses, and stakeholder outreach events. Technical presentations given at events organized by others should not be included in this section. If there are no events to report for this quarter, please note it in the spreadsheet.*

**During the reporting period, how many events did you organize in total?\***

1

**Total number of females that participated in these events.\***

45

**Total number of males that participated in these events.\***

182

### **Major Equipment Purchased**

*Please list any major equipment purchased during the reporting period, such as computers, lab equipment, etc. It is not necessary to list supplies or reagents purchased.*

No equipment was bought during the reporting period

### **Outreach and Collaborations\***

Please describe any connections or collaborations developed with parties outside of your organization interested in implementing the results of your project, such as USAID staff, government agencies, community groups and nongovernmental organizations, or private companies. Please describe these collaborations.

On 8 November 2017, a meeting was held at SIC ICWC with K.Dubrovsky, Chief of Regional ESTH Office in Central Asia, G.Zhumabayeva, Scientific affairs specialist of the Regional ESTH Office in Central Asia, Jonah Schein from Water infrastructure division, US Environmental Protection Agency, and representatives of the US Embassy in Tashkent Mrs. Claire Thomas and Mrs. Ekaterina Biryukova. During the meeting Prof. V.Dukhovniy, Director of SIC ICWC presented the mission, tasks and activity of the Scientific Information Center of ICWC and A.G.Sorokin, Head of division of SIC ICWC presented progress on the PEER Project “Transboundary water management adaptation in the Amudarya basin to climate change uncertainties”, its results and the developed recommendations.

**Please indicate if you have met with the organizations listed with regard to your PEER project.\***

*Only meetings discussing research findings and applications should be included.*

USAID Local Mission

Government agencies in your country

Community groups or non-governmental organizations

### **Technical Research Presentations\***

*Please provide details regarding all research presentations made at conferences on projects or work funded under your PEER project. After your description, please enter the total number of presentations below.*

The below technical presentations describing the research undertaken as part of the PEER Project were made at various conferences:

1. During the “Global workshop on water allocation in transboundary basins” held on 16-17 October 2017 by UNECE in Geneva Dr. Ziganshina made her presentation on “Historic water allocation in the Amudarya basin: achievements and challenges”. This presentation was included as a lecture into the Distance Learning Course on International Water Law and the Law of Transboundary Aquifers (<https://www.unige.ch/formcont/waterlaw/ipel/>);
2. At the International Summit "Water and Climate - Meeting of the Great Rivers of the World", which was held in Rome, Italy on 23-25 October 2017, Prof. Dukhovniy made his presentation on the “Amudarya - the great river on the threshold of signature decisions” (Prof. Dukhovniy V.A., Dr. Ziganshina D.R., Sorokin A.G.), where he mentioned the PEER Project and its results;
3. During the International Conference on Ensuring Security and Sustainable Development in Central Asia - «Central Asia: Shared Past and Common Future, Cooperation for Sustainable Development and Mutual Prosperity» (Samarkand, 10-11 November 2017 r.) Dr. D.Ziganshina in her presentation demonstrated the project results;
4. At the Central Asian International Scientific-Practical Conference “The 25 years of Water Cooperation in Central Asia: Lessons Learnt and Future Outlook” that was held in Tashkent:
  - Sh. Muminov presented "Agricultural Development Forecast Scenarios for the Amudarya River Basin for 2050" (based on PEER Project results) during roundtable 1: "Transboundary water cooperation as an important driver of food, energy, and environmental security in Central Asia" (23.11.2017), <http://www.cawater-info.net/projects/peer-amudarya/pdf/muminov-1117.pdf>;
  - A.Sorokin addressed key issues of the project demonstrating its importance for the region in his presentation “Transboundary Water Management Adaptation in the Amudarya Basin to Climate Change Uncertainties (based on PEER Project results)” during roundtable 2 “Integrated water resources management as a tool for ‘green growth’ and adaptation to climate change” (23.11.2017), <http://www.cawater-info.net/projects/peer-amudarya/pdf/sorokin-1117.pdf>;
  - D.Ziganshina in her presentation “International Law, Diplomacy and Water Resources in Central Asia” stated proposals on legal development in the region during roundtable 3 “Improving legal framework of water cooperation and promoting water diplomacy as a prerequisite for good neighborly relationship between the Central Asian countries” (24.11.2017), [http://www.cawater-info.net/projects/peer-amudarya/pdf/ziganshina\\_1117.pdf](http://www.cawater-info.net/projects/peer-amudarya/pdf/ziganshina_1117.pdf);

#### **Number of technical presentations made during the reporting period.\***

6

#### **Potential Development Impacts (evidence to action)\***

*Please provide an update on any new potential development impacts. For example, a new product is being developed as a result of your PEER research, a policy document is being created based on your research, your research is informing a private sector strategy document or NGO program, 1000 children received a vaccine, or 200 nurses were trained.*

In the future, as the project research shows, one should expect that the situation with water management in this basin and environmental balancing in Eastern body of the Aral Sea will worsen. There are several causes of that: demographic pressure, climate change, growing water use in Afghanistan, risks related to river flow regulation by large reservoirs with hydropower. Solutions of all those challenges are definite: conservation of water, control of water and energy losses, enhancement of cooperation and joint water management, and clearly formulated water allocation and river flow regimes for various flow conditions by agreements between riparian countries. The project allowed quantitative assessment of all challenges until 2050 and outlined the ways for effective and adaptive development in the Amudarya basin for presentation to the general public and experts.

## **Future plans\***

*Please give a detailed summary of your plans on the project for the coming 3-6 months (including training or outreach events, field work, **exchange visits**, purchasing of equipment, etc.). Please note: if your project is scheduled to end in the next 3-6 months and you will need a no-cost extension, please include that request in this section and make sure to e-mail your grant manager as well regarding the extension request*

It is planned to hold the final project workshop “Transboundary Water Management Adaptation in the Amudarya River Basin to Climate Change and Future Challenges: Tools and Recommendations” on 31 January-1 February 2018. The main objective of the workshop is to present and discuss with key stakeholders (representatives of regional and basin organizations, concerned national ministries and departments, academia, international organizations) the PEER Project results on comprehensive assessment of development in the riparian countries of the Amudarya basin and their respective individual zones by 2050 and on adaptation measures to climate change in the basin. It is planned to exchange future plans with key national, regional, and international partners on dissemination of the project results in order to undertake coordinated and complementary actions for the improvement of water management and enhancement of cooperation in the Amudarya basin.

After the final consultation with stakeholders, a set of recommendations on institutional adaptation and reform will be completed.

## **Additional information**

*Please include additional information that you would like to share with us, for example if you have published any journal articles or made conference presentations on your project results. Please list reference citations, but **please do not include detailed research analysis or raw data**.*

Prepared "Collection of scientific papers on the occasion of the 25th anniversary of the Interstate Commission for Water Coordination in Central Asia"/ edited by Prof. V.A.Dukhovniy - Tashkent: SIC ICWC of Central Asia, 2017 - 212p. [http://cawater-info.net/library/rus/25\\_icwc\\_scientific\\_papers.pdf](http://cawater-info.net/library/rus/25_icwc_scientific_papers.pdf).

This collection included papers of the project executors:

- D.A.Sorokin. Modeling flow transformation in the Amudarya river;
- Sh.Kh.Muminov, B.V.Gozhenko, N.Kh.Umarova. Agricultural development forecast for the Amudarya basin until 2050: case-study of the Republic of Uzbekistan

## **Photos**

*If available, please upload photos highlighting your project. The photos will be added to your PEER project page and may be shared with USAID.*