

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*

04/01/2017

Reporting Period End Date*

06/30/2017

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.

Over the reporting period (April 1 – June 30, 2017), progress was made in the following directions.

Stage 3 “Numerical experiments”:

- Task “Calculation of water balance and productivity of planning zones for 2017-2055” was done in part of planning zones located in the Amudarya lower reaches for a period until 2055,
- under Task “Assessment of climate impact & HPP operation and water withdrawal by Afghanistan on water resources and river channel balance for 2017-2055”, scenarios were built on operation of Nurek HPP until 2055 and the data was processed for calculations of the river channel balance for 2017-2055,
- under Task “Optimization of cropping patterns”, draft methodology – formulation of the optimization problem for the case of irrigation water shortage – was developed; data classification was completed,
- under Task “Account of positive effects of climate change in the basin”, information was collected on the agrometeorological conditions suitable for growing winter wheat, including duration of growing season, sum of effective temperatures for the whole season, sum of effective temperatures for particular phenological phase; probable changes in agrometeorological parameters were analyzed in the CC context,
- under Task “Legal and institutional assessment”, a draft agreement on water sharing in the Amudarya River Basin is in the process of development, and mapping of key organizations involved in water management in the basin is underway.

Stage 4 “Dissemination”:

- The training workshop on “Approaches to efficient water resource management by BWO Amudarya and its territorial branches in the context of climate change”, May 4-5, 2017, Urgench,
- Drafted papers demonstrating project results, particularly for the International scientific-practical conference “Challenges and prospects of effective water management against a backdrop of globalization”, which was held at the Tashkent Institute of Irrigation and Mechanization on 11-12 April 2017.
- Some findings of the PEER project were discussed during deliberations

- at the 3rd Third Workshop on Central Asian case study of EU-funded project “IMPRESSIONS: Impacts and Risks from high-end Scenarios: Strategies for Innovative Solutions”, Berlin, Germany 20-21 April 2017
- at a round-table “Current Challenges and a Possible Future of the Aral Sea” held during the VIII Nevsky International Ecological Congress, St. Petersburg, Russia, May 25, 2017 (Reports by V.A.Dukhovniy “Prearalie and the Aral Sea: recent dynamics” and G.V.Stulina “Review of SIC’s studies on the Aral Sea and Prearalie”)
- Abstract “Adapting to climate change in the Amudarya River Basin: Enhancing Science and Policy to deal with droughts” based on the PEER project findings has been accepted for the XVI World Water Congress and included into the program.
- Published collection of selected agreements dealing with water management in the Amudarya River Basin. This collection is unique as it puts together full texts of agreements related to the Amudarya Basin. Those texts were classified as follows:
 - ~ Key multilateral agreements among the Central Asian countries
 - ~ Institutional documents
 - ~ Bilateral agreements between Turkmenistan and Uzbekistan
 - ~ Bilateral agreements between Afghanistan and Tajikistan
 - ~ Selected agreements between the Soviet Union and Afghanistan

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.

Event Title	Brief Description of Event	Event Organizer (s)	Event Date(s)	Description of Participants	Number of Female Participants	Number of Male Participants	Costs of event in US dollars			Cost of event in US dollars		
							Instruction costs (registration fees, workshop fees, supplies, instructor transportation costs, etc)	Travel costs (International and/or local travel)	Participant costs (e.g. allowance or per diem, lodging, meals etc.)	Instruction costs (registration fees, workshop fees, supplies, instructor transportation costs, etc)	Travel costs (International and/or local travel)	Participant costs (e.g. allowance or per diem, lodging, meals etc.)
The training workshop “Approaches to efficient water resource management by BWO Amudarya and its territorial branches in the context of climate change”	The training workshop was held at the Training Center of BWO Amudarya in Urgench to: - present results of the first project year to project partners and beneficiaries and discuss the tasks related to preparation of recommendations for adaptation and the dissemination; - instruct the staff of BWO and its territorial branch, partners, lecturers, graduate and postgraduate students in approaches to efficient water resource management in the context of climate change; - provide practical training on the DB and models developed or improved by the Project	SIC ICWC	May 4-5	Staff of central office and territorial branches of BWO Amudarya from Tajikistan, Turkmenistan and Uzbekistan (Upper Amudarya, Middle Amudarya and Lower Amudarya branches, Upradik, and Dashoguz Directorate); lecturers and students of Khorezm State University, Khorezm Rural Advisory Support Service (KRASS), Director of Director of the Analytical Agency “Ynanch-Yepa”, SIC ICWC research team	13	27	272	2095	4067			

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

1

Total number of females that participated in these events.*

13

Total number of males that participated in these events.*

27

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 purchased 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.

A roundtable was held at the U.S. Embassy in Uzbekistan to review implementation of the PEER Program.

- On the 3rd of April 2017, the U.S. Ambassador Pamela Spratlen in her opening remarks has underlined the importance of adaptation in the Aral Sea basin countries to climate change on the basis of cooperation. She has expressed a hope that the current conditions offer wider opportunities for better interactions between the riparian countries. In this context, research activities of local scientists in cooperation with the U.S. peers will be beneficial. The PEER program grantee-institutions based in the Republic of Uzbekistan (IWMI, SIC ICWC, CAREC, UNCAWR/ICBA) presented the results of work under their projects.

- a meeting held at SIC premises on the 7th of April 2017 between the project executives and Dalal Najib, Senior Program Officer National Academy of Sciences International Affairs and Jason R. Porter, Research Advisor, USAID. Work progress, logistical and financial matters were discussed during the meeting.

- On 9 June 2017, the Presidential Science Envoy and Director of the Tufts Institute of Environment Dr. Linda Abriola made a presentation on "Groundwater Contamination: Progress and Perspectives on Restoration and Risk Reduction". Then the brief information on the projects implemented under PEER Program was presented by the representatives of IWMI, SIC ICWC, CAREC, and UNCAWR / ICBA. Claire Thomas, Ekaterina Biryukova and Haley Smith from the Embassy also took part in the meeting.

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
- Private companies

┌ Not Applicable

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.

Sorokin A., Sorokin D. and Ergashev I. made their presentation “Approaches to formulation of effective water management strategy in Central Asia” at the International scientific-practical conference “Challenges and prospects of effective water management against a backdrop of globalization”, which was held at the Tashkent Institute of Irrigation and Mechanization on 11-12 April 2017.

On 18-19 May 2017, the International Conference “Challenges of River Basin Management in the context of Climate Change” was held in premises of the Russian Research Institute of Hydraulic Engineering and Land Reclamation (VNIIGiM) in Moscow. Dukhovniy V.A. (SIC ICWC), Stulina G.V. (SIC ICWC), and Tilyavova G.K. (BWO Amudarya) mentioned the project results in their presentations.

Number of technical presentations made during the reporting period.*

4

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.

During the reporting period, the REMO scenario-based climate data until 2050 were inputted into the Project database ([http://cawater-info.net/peer/.](http://cawater-info.net/peer/)) in form of grid and used in the assessments of climate impact on the basin (so any user may use this data for his/her own purposes). The database (DB) is filled partially with the results of project calculations until 2055.

DB and models developed under the project were demonstrated at the workshop “Approaches to efficient water resource management by BWO Amudarya and its territorial branches in the context of climate change” in the city of Urgench. The training was held for the participants of the workshop (staff of BWO Amudarya and its territorial branches, partners, teachers, postgraduate students) on example of the planning zone model (which uses the American IDEF methodology) accessible on <http://asbmm.uz:2016/>. This information-analytical resource represents an important regional research and practice potential created under the PEER Project

Supplemental Grant Summary

If you received a supplement, please provide a summary on the progress towards achieving the proposed activities

Challenges

Please give explanations on any particular difficulties that have arisen during the quarter (visas, funds transfers, problems purchasing equipment, etc.).

While working on the assessment of alternative climatic scenarios, we attempted to search information from open sources in order to compare their data with the REMO scenario. This was recommended by a group of researchers from the Johns Hopkins University as an additional task. There is communication with B.F. Zaitchik, Assistant Professor, Department of Earth and Planetary Sciences to find possibility to get the data for comparison.

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*

By the 1st of October 2017, numerical experiments will be completed, a package of preliminary proposals on water management in the context of climate change and preliminary recommendations on adaptation will be prepared and will take account both negative and positive climate impacts on water resources and their use.

The final seminar will be organized in November 2017 to discuss main project results as a comprehensive, scenario-based assessment of water balance and prospective development of irrigated agriculture in the basin in the context of climate change, HPP operation, and demands by Afghanistan and Prearalie.

Major results of numerical experiments will be inputted into the DB, while a package of proposals and seminar report will be uploaded on the project web-site. Policy briefs and articles will be prepared.

Next 6 months it is planned to activate the promotion of the project and dissemination of its findings. For example, preparations were started on presentation of the PEER project results at the forthcoming large events dedicated to water and climate:

- ~ Global workshop on water allocation in the transboundary context, which is organized by UNECE in Geneva on 17–18 October 2017. SIC ICWC was invited to submit, until August 31, materials on adaptation of the water allocation system in the Amudarya River Basin to probable climate change that was done as part of the PEER Project.
- ~ 15th International “Europe-INBO 2017: for the implementation of the European Water Directives”, Dublin, 20-23 September 2017.
- ~ Conference “Water and Climate: meeting of the great rivers of the world” organized by INBO in Rome, 23-25 October 2017.
- ~ Global workshop on climate change adaptation, with the focus on water scarcity and drought management, organized by UNECE in Geneva on 11–12 December 2017.

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**.*

Over the reporting period, certain important additions were made to the algorithm of the planning zone model. Those have allowed calculations and assessments of evolution of crop

water consumption and irrigated agriculture production and its losses for the period until 2055 in the CC context (REMO scenario) and for three agricultural development scenarios – Business as Usual (BAU), Food security and diet change (FSD), Export-oriented sustainable adaptation (ESA) – under different options of transboundary water supply (100 % of the established water limit, 90%, 80%, and 70%) for planning zones in the lower reaches of Amudarya. The water supply largely depends on strategies of flow regulation by reservoirs and HPPs (energy and energy-irrigation regimes) and growing water use by Afghanistan (decrease of flow in Kokcha and Kunduz Rivers). Currently, such assessment is performed for planning zones in the middle and upper reaches of Amudarya. The indicators of agricultural development in Turkmenistan were estimated until 2055 and water consumption by the household and industrial sectors was estimated for all planning zones in the Amudarya Basin.

Scenario calculations on runoff regulation in the Vakhsh River were made until 2055 and allowed assessing the impact of HPP operation on runoffs in the Vakhsh and Amudarya Rivers. Based on the natural cycles of rivers (adjusted with climate impact – REMO scenario), we derived new hydrographs of regulated river runoff for the two scenarios of Nurek HPP operation: energy regime (maximizing energy generation in autumn and winter) and energy-irrigation (maximizing energy generation over a year). In addition, energy production by the Vakhsh HPP cascade was assessed for those scenarios until 2055.

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.

[meetings_on_projects_april_may_2017.pdf](#)

Documents

Please upload any relevant documents (agendas, papers, posters, etc.) in a single file, if available.

[MINUTES_workshop_PEER_May_2017_Urgench.doc](#)