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*

01/01/2017

Reporting Period End Date*

03/31/2017

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.

Over the reporting period (January 1 – March 31, 2017) progress was made in the following areas of work.

1. Continued work on stage 3, “Numerical experiments”:
    - Prepared input data for calculations on the task “assessment of the impacts of climate & HPP operation regimes and water withdrawal by Afghanistan on water resources and channel balance for 2017-2055”,
    - Prepared input data for calculations on the task “calculation of water balance and productivity of planning zones for 2017-2055”, continued testing of planning zones (Uzbekistan, Turkmenistan),
    - Calculations completed on the task “calculation of water requirements of main crops for planning zones” for the period from 2000 to 2055 for five planning zones, on monthly basis, with account of climate change (REMO scenario) and changed growth and development parameters, and for three agricultural scenarios – Business as Usual (BAU), Food security and diet change (FSD), Export-oriented sustainable adaptation (ESA). For examination of the positive effect of climate change (namely shortening of crop growing periods), phenological data on growth and development phases of winter wheat are collected and analyzed,
    - Completed model interface in part of data export/import (MySQL), determined optimization criteria and prepared input data on the task “optimization of cropping patterns”.
2. Started work on stage 4, “Dissemination”:
    - Finished preparatory work on organization of the training workshop “Approaches to effective water management by BWO Amudarya and its territorial divisions in the context of climate change” planned for March 4-5, 2017 in the city of Urgench; drawn up agenda, determined list of participants, and prepared some presentations,
    - Developed DB architecture (tables with data, interface); DB filled with historical data by category for the base period 2010-2015,
    - Prepared papers showing some project results for the International science-to-practice conference “Challenges and prospects of effective water management against the backdrop of globalization”, which is to be held at the Tashkent Institute of Irrigation and Mechanization (Uzbekistan) in April 11-12, 2017.

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.
The spreadsheet template can be downloaded here.

Upload a file [4 MiB allowed]

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

0

Total number of females that participated in these events.*

0

Total number of males that participated in these events.*

0

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 meeting was held in the office of SIC ICWC on the 23rd of February 2017 among the leadership of SIC ICWC and PEER project experts and Dr. Ingrid Verstraeten of the U.S. Geological Survey, Claire Thomas, Second Secretary from the US Embassy in Uzbekistan, Ekaterina Biryukova, Environment, Science, Technology and Health Assistant of the US Embassy in Uzbekistan. The participants of the meeting discussed the possibilities for scientific and technological cooperation in the areas of land reclamation and fishery restoration, drinking water availability in the Amudarya Delta, groundwater issues, geology and minerals, mitigation and adaptation strategies for climate change, development of a gender water network in Central Asia.

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.

- [x] 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.

Number of technical presentations made during the reporting period.*

0

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.

Developed Project DB, which includes the tables with data and the interface that helps the user to select period, categories, scenarios (for future) and indicators of interest. The Database is located on http://cawater-info.net/peer/. The DB was filled partially with historical data over 2010-2015. By the end of the project, the DB will also contain the calculated indicators that characterize the water-related situation in the context of future scenarios (2017-2055). Information in the DB is grouped into four categories: climate; planning zone; transboundary network; and, hydropower. The “transboundary network” category contains the reconstructed data, for 2010-2015, on river basins, including Pyanj (for which the data is not available in open and official sources), and the components of channel balance of the Amudarya River by river reach. The “planning zone” category provides the data on water use and drainage water disposal (by economic sector), irrigated area under each crop, and unit indicators (irrigated area per capita, crop yields, etc.). The “hydropower” category provides the data on operation regimes of reservoir hydrosystems and HPPs, while the “climate” category contains the climate data from meteorological stations.

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.).

The applied methodology for calculation of crop water requirements requires that in case of “rice” the percolation losses be accounted during watering of rice check plots. To this end, we needed to have a soil map with the soil textures in planning zones. Such maps were not found for planning zones in Tajikistan. Therefore we decided to adjust the calculation methodology for rice by incorporating into our calculation algorithm the transition empirical coefficients that increase rice water requirements as compared to estimated evapotranspiration.

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

A training workshop “Approaches to effective water management by BWO Amudarya and its territorial divisions in the context of climate change” will be held in the office of BWO Amudarya in Urgench (Republic of Uzbekistan) from March 4 to March 5. The aims of the workshop are: i) presenting project results to major partners and beneficiaries, discussing matters related to preparation of recommendations on adaptation and dissemination of project results; ii) training the staff of BWO Amudarya and its territorial divisions, partners, lecturers, PhD students and postgraduates in approaches to efficient water resources management in the context of climate change; iii) holding practical training in handling DB and models, improved or developed as part of the PEER Project.
By June 1, 2017, all calculations will be completed on the assessment of the impacts of climate and HPP operation regimes and of water use by Afghanistan on the basin water balance; by July 1, 2017, work will be completed on the assessment of water requirements and water balance of planning zones in the context of climate change; recommendations will be prepared (for some zones) on optimized cropping patterns.
In August-September, a package of proposals on water management under conditions of climate change will be developed and recommendations on adaptation will be prepared and take into account both negative and positive climate effects on water supply and demand depending on operation regimes of hydropower stations. The main results of calculations (development indicators of basin countries and their zones for 2017-2055) will be stored in DB, while reports containing project results will be uploaded to the web-site. Organization of the final workshop will be started

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.***

The research and calculations made over the reporting period allowed drawing up water/river channel balances for the Amudarya River basin as a whole and for its sections and zones (Vakhsh, Kafirnigan, and Surkhandarya rivers, country planning zones), as well as for large main canals of Uzbekistan and Turkmenistan, such as Karshi, Amu-Bukhara, and Garagumdarya (former Karakum canal). The channel balance of the Amudarya River calculated for the data over 2010-2015 was achieved with the annual discrepancy of 5…15 %. This indicates to unrecorded losses in rivers and reservoirs in the basin. The water balance calculated for the whole Amudarya Basin shows that the current demands for water intake into canals can be met for average year. Furthermore, water supply to the Aral Sea can be guaranteed at a level of 7…7.5 km3 a year. For dry year, it is necessary to cut intake into canals by 10%, and water supply to the Aral Sea will diminish to 2 km3 a year. The total losses in river channels and reservoirs are estimated at 14%...15%.
The water balances allow minimizing probable errors in calculations when doing numerical experiments, i.e. forecast calculations for 2017-2055.
Based on the first year's project results, as part of the task on calculation of crop water requirements we identified a new important research direction to identify the positive effects of

climate change. In this context, the project staff was added by SIC' expert G.Stulina at the expense of funds allocated for this task, partly funds allocated for GIS-work, the bulk of which was completed in the first project year, and reallocation of funds from BWO Amudarya for this activity (request for approval is sent)
During the reporting period a project proposal was submitted for a PEER supplemental grant under the focus area “Policy impact”. The main objective of the proposed work is to impact policies/strategies undertaken at basin (transboundary) and national levels of the four riparian countries in the Amudarya basin (Afghanistan, Tajikistan, Turkmenistan, 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.

A meeting on the 23rd of February 2017

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