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**ADVANCED SCIENCE & PARTNERSHIPS
FOR INTEGRATED RESOURCE
DEVELOPMENT PROJECT
QUARTERLY REPORT**

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List of Acronyms

AAB	Ararat Artesian Basin
ASPIRED	Advanced Science and Partnerships for Integrated Resource Development
BMO	Basin Management Organization
CEW	Clean Energy and Water
CoP	Chief of Party
COR	Contracting Officer's Representative
DO	Development objective
DSS	Decision Support System
EA	Environmental Assessment
EC	European Commission
EIMC	Environmental Impact Monitoring Center
EMMP	Environmental Mitigation and Monitoring Plan
ESS	Environmental Scoping Statement
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Fund
GIS	Geographic Information System
GOA	Government of Armenia
HMC	Hydrogeological Monitoring Center
ICARE	International Center for Agribusiness Research and Education
IEE	Initial Environmental Examination
IR	Intermediate Result
JICA	Japan International Cooperation Agency
ME&A	Mendez England and Associates
MoA	Ministry of Agriculture
MNP	Ministry of Nature Protection
MoENR	Ministry of Energy and Natural Resources
NGO	Non-Governmental Organization
PEER	Partnerships for Enhanced Engagement in Research
PMP	Performance Management Plan
QA/QC	Quality Assurance and Quality Control
SCADA	Supervisory Control and Data Acquisition
PEER	Partnership for Enhanced Engagement and Research
SCWS	State Committee on Water Systems
SOW	Scope of Work
SWCIS	State Water Cadaster Information System
TO	Task Order
WRMA	Water Resources Management Agency
WADIDIQ	Water and Development Indefinite Delivery/Indefinite Quantity Contract
WUP	Water Use Permit
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USATF	United States-Armenia Task Force
USGS	United States Geological Survey

1. Executive Summary

This Report describes the programmatic activities implemented by the Advanced Science and Partnerships for Integrated Resource Development (ASPIRED) Project in the first quarter of FY 2016 (October – December, 2015). The Report reviews progress and achievements in each of the Program areas during the reporting period, describes planned activities for the next quarter, and summarizes interaction with the counterparts. It also highlights any possible challenges and actions taken.

1.2 ASPIRED Summary

On September 29, 2015, the United States Agency for International Development awarded the contract to the Mendez England & Associates for the implementation of the ASPIRED project under Water and Development IDIQ (WADI). The purpose of the ASPIRED project is to support sustainable water resource management and sustainable practices of water users in the Ararat Valley through the use of science, technology, innovation and partnership initiatives. The ultimate goal is to reduce the rate of groundwater extraction in the Ararat Valley to sustainable levels.

To this end, the ASPIRED project focuses on several critical areas:

1. Water Resource Data
2. Technology
3. Regulatory framework/enforcement of laws
4. Coordination across stakeholders

A strong emphasis is placed on building partnerships with USAID Global Development Lab, the US Geological Survey, private sector, research organizations, and other donors to pilot innovative water and energy efficiency technologies and to promote better water resource monitoring, planning, and sustainable management.

1.3 Highlights from the Reporting Period

- ASPIRED project team submitted to the Work Plan for Year 1 and received approval from USAID in December 2015. The work plan outlines critical activities and targets to be met during the first year of the project.
- The project PMP and Monitoring and Evaluation Plan were submitted together with the work plan.
- At the inception phase of the project, meetings were set-up with existing and potential project parties from various sectors, including the government, donor community, and private and public sectors. Meetings were held with USAID PEER grantee ICARE, KfW, FAO, JICA, UNDP, USGS and Global Development Lab to identify common areas and streamline collaboration.

- The teams outlined collaboration directions with the USGS and Global Lab as well as ICARE, the PEER grantee.
- A potential partner for the irrigation project was identified and negotiations on the terms of cost share were started.
- The Data Component team compiled the list of datasets required for development of water resources database and decisions support tools for the Ararat Valley and shared with USGS and USAID Global Lab, who will be providing assistance in receiving some datasets and high resolution satellite images.
- The tender for the inventory of wells in the Ararat Valley was announced.
- Important support was provided to the MNP/WRMA on the Southern Basin Plan and Ecological Flow Calculation Method. The team worked with the WRMA representative on incorporating the comments in the management plan and provided the training to the Ministry staff for understanding and making calculations of ecological flow with the new methodology
- The Pilot Technologies team started the market research of potentially feasible energy and water technologies to be applied in fish farms. The data will be summarized in the respective report.
- ASPIRED facilitated the establishment of the Interagency Task Force to accomplish the study of optimal water fee rates for water abstraction by fisheries and provide recommendations to the Government. The first meeting of the Task Force will take place in January 2016.

2. Summary of Performance Indicators

The project PMP as well as M&E Plan were submitted to USAID in December 2015. Since there were no updates with indicators in the past quarter, the PMP is not reported now.

3. Program Implementation

Task 1: Water Resource Data

During this reporting period, the team focused on the following activities:

- Together with other team members, the team conducted introductory meetings with the key stakeholders from the ministries, research institutes and other partners working in the sector. The project goal and objectives, as well as activities planned in Year 1 were presented and discussed, to identify common areas of collaboration and recommendations for inclusion into the Year 1 work plan.
- Work planning, identification of main tasks and sub-tasks, including timelines and targeted indicators.
- Implementation of activities planned in the first quarter.

The Project data team worked on inventory of data and information on the Ararat Valley and their availability in various stakeholder organizations. A list of datasets required for development of water resources database and decisions support tools for the Ararat Valley was compiled. The Team shared the information with USGS and USAID Global Lab, who will be providing assistance in receiving some datasets, particularly from Turkey, and high resolution satellite images.

The Project technical team started a review of the open-source models and tools that could be

used for modeling and analysis of the hydrogeological system of the Ararat Valley, such as MODFLOW, ArcGIS Hydro Groundwater Toolbar, etc. This supports the team's understanding of the concepts and approaches used for hydrogeological modeling, as well as supports the compilation of a list of datasets required for modeling and identification of the datasets, including format, frequency, etc. to be requested from government institutions.

In December 2015 the Project team finalized preparation of a package of bidding documents (in Armenian and English) for conducting inventory of groundwater springs, deep groundwater wells and fish farms in the Ararat Valley. The Terms of Reference was finalized based on the findings of the Project team as a result of the courtesy and working meeting with the key partner and stakeholder organizations. The Project technical team also developed templates to be used during the field inventory for collecting data on groundwater springs, wells and fish farms. These were shared with the USGS team for their comments.

In December 2015 the ASPIRED Project team discussed with USGS the following programmatic issues: inventory of groundwater springs, wells and fish farms in Ararat Valley, including the main tasks to be performed and the timeline, datasets to be gathered during the inventory; arrangements and format for training on inventory to be provided by USGS in February 2016; possibilities of sharing tabular and spatial data on Ararat Valley between the Project and USGS; etc. Following the discussion, the Project team finalized and sent to USGS the datasets to be collected during the inventory for their review and recommendations.

In December 2015, the ASPIRED Project team hosted William Pfeffer, a USAID Jefferson Science Fellow, who presented data needs for hydrogeological modeling of the Ararat Valley. The meeting was followed by a reconnaissance visit to selected sites in the Ararat Valley, such as Aknalich springs and lake, irrigation infrastructure and selected fish farms.

Additional Support to MNP/WRMA:

In December 2015 the ASPIRED Project team provided support to the WRMA with the agency's follow up activities on the Southern Basin Management Plan and improved method for calculation of ecological flow in the rivers developed by the CEW Program. This support included the following:

1. During the meeting with Norayr Vardanyan, Acting Head of the WRMA, the Project team was informed that the MNP circulated among the stakeholder ministries and Syunik Marzpetaran the draft Southern Basin Management Plan after its submission to the Ministry by the CEWP in September 2015. About 25 comments were made by sub-divisions of the MNP, while other Ministries provided about 22 comments (six comments from the Ministry of Territorial administration and Emergency Situations; four comments from the Ministry of Finance; seven comments from the Ministry of Energy and Natural Resources; four comments from the Ministry of Agriculture; and one comment from the Ministry of Health). Ministries of Economy, Urban Development, and Syunik Marzpetaran provided their formal response informing that they have no comments.

The team worked with the WRMA representatives on incorporating the comments in the management plan (about 7 hours were spent by the team on December 23 and 24). About 90% of comments were of an editorial nature, mostly on bringing the document in compliance with requirements of the RA Law on Legal Acts and other laws. Revisions were made on the sections on hydropower generation and hydro-potential based on comments from the MENR; an additional table was provided on preliminary cost-estimate of priority

measures on an annual basis for the period of 2016-2021 as requested by the Ministry of Finance, etc.

2. The Team presented the improved method for calculating ecological flow in rivers of Armenia to the Minister of Nature Protection. Following the WRMA request, the Project Hydrologist worked with the WRMA representatives on calculating the ecological flow for water use permit applications using current and new methods on December 23 (about 3 hours). The purpose was to demonstrate to the Minister the difference in volume of ecological flow to be maintained in the river calculated with current and new methods. The DSS developed by the CEWP was used in the demonstration.

At the time of preparing this report the legal package for adopting the Southern Basin Management Plan, and the new method for calculation of ecological flow were included in the Government agenda of priority issues for consideration and further action during the first quarter of 2016.

Task 2: Low Cost and Water Efficiency Technologies

During this reporting period, the team was involved in the work planning activities and meetings with the potential partners and stakeholders including: the ICARE through its PEER grant, the Ministry of Agriculture, the donor and international organizations with potential interest in the Ararat valley as well as fish farms. Numerous visits were held to fish farms to understand the potential for the introduction of water and energy efficiency technologies into fish farms. The sector is highly contingent upon availability of export markets and there is very limited export opportunity to the Russian market now because of the Ruble depreciation in Russia.

Based on collected information, the team is assessing the project opportunities for application of energy and water efficient technologies at fish farms. The Team completed the brief survey of international and local markets for possible components of future projects (hydro turbines, solar panels, heat pumps, etc.) and developed worksheets for the calculation of project costs. This information will be summarized in a report on opportunities for piloting water and energy efficiency technologies at fish farms in Armenia.

An important factor is to identify partners for the piloting technologies – both fish farms and cost-share partners. Currently, the ASPIRED team is negotiating with UNDP/GEF grantee Environmental Research and GIS Center NGO the opportunity for implementing irrigation project at Hayanist village, with the aim of channeling the water from fisheries for irrigation purposes on nearby land. ASPIRED is still in the process of negotiations. It is anticipated that the concept paper will be submitted to USAID for approval in February if both parties reach agreement on cost-share.

Task 3: Water Regulation and Enforcement

A short-term objective for the project's legal component is to provide recommendations to the GOA on acceptable water fee rates for the use of groundwater by fisheries. In coordination with the Ministry of Nature Protection, ASPIRED facilitated the establishment of the Interagency Task Force to accomplish the study of optimal water fee rates for water abstraction by fisheries and provide recommendations to the Government. The first meeting of the Task Force will take place in January 2016.

Task 4: Stakeholder Coordination

The ASPIRED team was tasked by USAID to ensure sufficient coordination with the stakeholders at different levels, which will be aimed at avoiding duplication of efforts and attaining the most efficient utilization of available resources. As it comes to pilot projects, this collaboration will be aimed at leveraging cost share funding for the pilot projects. Important partners of the project are the USAID Global Development Lab and US Geological Survey (USGS)

At the inception phase of the project, the Team met with the existing and potential project parties from various sectors, including the government, donor community, and private and public sectors. Meetings were held with USAID PEER grant, KfW, FAO, JICA, UNDP, USGS and Global Development Lab to identify common areas and streamline collaboration. During work planning activities, ASPIRED streamlined its partnership with USAID LAB and USGS. Both USAID LAB and USGS will support the Data component of the project with the inventory of wells, DSS, and other sub-tasks.

ASPIRED and ICARE as the PEER grantee agreed to collaborate by sharing information, organizing joint visits to fisheries and implementing complementary activities. Both visited fisheries in Ararat marz to assess pilot project opportunities with application of modern technologies for energy and water saving.

The majority of other organizations do not consider Ararat and Armavir marzes as their target area, so identifying partners among the major donors seems to be problematic at the moment. FAO, in collaboration with the Ministry of Agriculture, started implementation of the water efficiency project in one of the fisheries, yet the project was at the design phase at the time of our visit. Potential partners for ASPIRED for the Technology component might be UNDP/GEF through the NGO Environmental Research and GIS Center if negotiations are successful.

4. General Administrative Issues

After signing the Contract, the non-expendable property for USAID's Clean Energy and Water Program was transferred to the ASPIRED project and properly inventoried. We have also completed the staffing of the project team and signed employment contracts.

During this reporting period, the ASPIRED Team developed the Annual Work Plan and submitted it to USAID for approval. USAID approved the Annual Work Plan on December 30.

ASPIRED also posted the announcements for the STTA positions of Economist and Policy Coordinator to provide services for the legal component. ASPIRED announced the competitive bid for the implementation of the inventory of wells in the Ararat Valley in December 2015. The deadline for receiving technical and financial proposals by the interested companies is January 21, 2016.

5. Environmental Compliance

During the reporting period, the Project Environmental Specialist prepared the implementation strategy for environmental compliance component of the ASPIRED Project as a part of the Project Work Plan for Year 1. It follows requirements of the Initial Environmental Examination of the Project (DCN: 2015-ARM-010) prepared by USAID.

The implementation strategy, as well as templates for the environmental compliance documents for the Project activities, such as Environmental Review Checklist, Environmental Mitigation and Monitoring Plan (EMMP), Certification of No Adverse Significant Effects on the Environment, Site Observation Checklist as a part of the environmental compliance monitoring were presented during the Staff retreat on November 23-25.

The Team's Environmental Specialist will work with the Engineers on environmental screening of the project opportunities identified on water and energy efficient technologies, based on documentation prepared by the engineering team, site visits, etc. Provide recommendations to the Team on avoiding and/or effectively mitigating the likely environmental, health and safety hazards for considering in the next phases of developing project opportunities into projects.

6. Planned Activities for the Next Quarter

6.1 Data

- Finalize a Sub-contract with a local company for conducting inventory of groundwater wells, springs and fish farms in the Ararat Valley based on review of technical and financial proposals submitted to the Project in a response to Request of Proposals.
- Finalize the filed survey templates for data collection and recording on groundwater wells, springs and fish farms in the Ararat Valley taking into consideration comments by USGS and review of the technical proposals. These templates will become a part of the Subcontract.
- Jointly with USGS, organize a training program for the Subcontractor on groundwater springs and wells inventory. Prepare and submit to USAID proceedings of the training program in March-April 2016.
- Review the draft Inception report by the Subcontractor, including technical approach and timeline proposed for implementation of the inventory works. Conduct regular meetings with the Subcontractor to learn about the progress, issues, etc.
- Finalize the letter and list of datasets to be sent by USAID to the stakeholder institutions for providing data and information in support to development of hydrogeological framework/ model of the Ararat Artesian Basin and Management information system. Initiate assessment of datasets received in a response to the request.
- Develop GIS layers using currently available datasets.
- Continue reviewing available open-source groundwater modelling packages, including the GIS-based extensions and work on datasets.
- Continue working with USGS, USAID Global Development Lab, and Jefferson Science Fellowship Program on identification of remote sensing data and technologies, characterization of data availability for designing the hydrogeological framework of the Ararat Valley, etc.

6.2 Pilot Technologies

- Complete the Summary Report on the Opportunities for Application of Pilot Technologies;
- Start the process of drafting the pilot project concepts.

6.3. Legal and Policy Issues

- Organize the first meeting of the Interagency Task Force.
- Develop the road map of activities for the Task Force and their timeline

6.4 Performance Management, Communication and Donor Coordination

- Prepare the mapping of existing donors based on the information obtained from meetings with the counterparts.
- Prepare information material for the project (web site, news releases, flier, banner, etc) as needed.
- Participate in planning the program launch event.
- Attend/facilitate communication with the stakeholders.