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# **ADVANCED SCIENCE & PARTNERSHIPS FOR INTEGRATED RESOURCE DEVELOPMENT PROJECT**

**QUARTERLY REPORT**

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# Advanced Science & Partnerships for Integrated Resource Development

## QUARTERLY REPORT SECOND QUARTER FY 2019

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## List of Acronyms

AHGW	Arc Hydro Groundwater
ASPIRED	Advanced Science and Partnerships for Integrated Resource Development
ATTC	Aquaculture Technology Transfer Center
AAB	Ararat Artesian Basin
BMO	Basin Management Organization
BMP	Basin Management Plan
CADI	Computer Assisted Development, Inc.
CoP	Chief of Party
COR	Contracts Officer's Representative
DO	Development objective
DSS	Decision Support System
EA	Environmental Assessment
EC	European Commission
EE/RE	Energy Efficiency/Renewable Energy
EGO	Economic Growth Office
EIA	Environmental Impact Assessments
EMIC	Environmental Monitoring and Information Center SNCO
EMMP	Environmental Mitigation and Monitoring Plan
ERGIS	Environmental Research and Geographic Information Systems
EU	European Union
FAO	Food and Agriculture Organization
FAR	Fund for Armenian Relief
F2F	Farmer to Farmer Project
GIS	Geographic Information System
GMS	Groundwater modeling system
GOA	Government of Armenia
IR	Intermediate Result
ITF	Interagency Task Force
The Lab	U.S. Global Development Lab
LOP	Life of project
ME&A	ME&A, Inc.
MoA	Ministry of Agriculture
MNP	Ministry of Nature Protection
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
PMP	Performance Management Plan
PURE-Water	Participatory Utilization and Resource Efficiency of Water
SCADA	Supervisory Control and Data Acquisition
SCWS	State Committee on Water Systems
SWCIS	State Water Cadaster Information System
3D	Three-dimensional
TO	Task Order
USAID	United States Agency for International Development
USGS	United States Geological Survey
WRMA	Water Resources Management Agency

## 1. Executive Summary

This report describes the programmatic activities implemented by the Advanced Science and Partnerships for Integrated Resource Development (ASPIRED) Project during the second quarter of Year 4 of the project. It covers the period from January 1 through March 31, 2019. The report reviews progress and achievements in each of the project areas during the reporting period, as well as describes planned activities for the next quarter. The report also highlights challenges and actions taken to address these challenges.

### 1.2 ASPIRED Project Summary

On September 29, 2015, the United States Agency for International Development (USAID) awarded ME&A, Inc. (ME&A) a Task Order to implement the ASPIRED Project under the Water and Development IDIQ. 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 the 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

The ASPIRED Project places a strong emphasis on building partnerships with the public and private sectors, research organizations, and international donors to pilot innovative water and energy efficiency technologies, and to promote better water resource monitoring, planning and sustainable management.

### 1.3 Main Highlights from the Reporting Period

- Data component:
  - Completed testing and debugging of the database on Water Use Permitting database of the State Water Cadaster Information System (SWCIS) Data Warehouse
  - Completed the testing and debugging of the enhanced surface water quality assessment component of the DSS
  - Fully executed a service agreement with Hybrid Telematica on installation of the remaining sets of flow meters and data loggers on four groundwater wells in the second fishery, owned by Max Fish company
  - Conducted a 10-day training course on calculation of ecological flow in the rivers of Armenia for the specialists of the Water Resources Management Agency (WRMA) and

Basin Management Organizations (BMOs), Environmental Impact Expertise Center of the Ministry of Nature Protection (MNP), Ministry of Agriculture (MOA), and the Inspectorate for Nature Protection and Mineral Resources

- Technology component:
  - Selected the sub-contractors and started preparation of the designs for Hovtashat well optimization project and Vedi Urban Irrigation Project
  - Submitted the concept paper of Pokr Vedi Project to USAID
- Legal component:
  - Started activities towards development of the method for assessment of self-purification capacity of rivers.
- Communication and Donor Coordination component:
  - Presented the interim results and partnerships of the ASPIRED Project at the World Water Day event on March 22, 2019;
  - Hosted the aquaculture expert for the Aquaculture Technology Transfer Center as a result of the partnership with the USAID-funded Farmer to Farmer (F2F) Project.
  - Received approval of the All-Armenian Fund (AAF) on co-funding in the Pokr Vedi Irrigation Project.

## 2. Summary of Performance Indicators

Summary of performance indicators for the second quarter of FY 2019 (Year 4 of the project) is presented in the table below. IR 2 indicators consist of annual data that is reported by the end of each fiscal year.

	Indicator	Year 4 Target/Actual	Actual Quarter 2 of Year 4	LOP Target/Actual	Notes: Descriptions/Comments/Assumptions
<b>IR 1: Establish a comprehensive, user-friendly, open data system that is accessible to all stakeholders.</b>					
<b>Sub-IR 1.1: Ararat Valley Geocoded, real-time, publicly accessible data system that incorporates water resource, groundwater, and hydrological datasets from multiple stakeholders built and shared with the GOA</b>					
<b>Indicators</b>					
1.1.1	Percent (of total) of datasets for the Ararat Valley publicly accessible	20/0	0	80/43	This indicator refers to the datasets related to the water resources in the Ararat Valley which will be accessible for the general public. By the end of the project life cycle, ASPIRED will make 80% of all datasets available on Ararat Valley public, which accounts for 100% of all the data that can be available to the public according to the Armenian legislation.
1.1.2	Percent (of total) wells mapped in the Ararat Valley.	N/A	N/A	100/100%	This indicator corresponds to the inventory of the wells, natural springs and fish farms in Ararat Valley, which the project team successfully completed during Year 1. Therefore, collecting data for this indicator has been completed for the project.
1.1.3	Number of stakeholders engaged in the data collection activities	1/1	1	16/13 <sup>1</sup>	This indicator refers to the number of stakeholders engaged in the groundwater-related data collection activities in the Ararat Valley from different sectors – government, private, and public. ASPIRED started installation of the flow meters and data loggers in a fishery owned by Max Fish.
<b>Sub-IR 1.2: An online tool for hydrogeological modelling and decision-support for the Ararat Valley that incorporates hydrologic, economic, energy, social equity and environmental data generated</b>					
<b>Indicators</b>					

1. MNP with its subdivisions, PEER grantee, Institute of Water Problems, USGS, EU Water Initiatives Project, MOA, Metsamor power plant which are/were involved in the data collection process, fisheries: Alex Grig, Interaqua, Golden Fish and in a fishery owned by Max Fish.

1.2.1	GIS-based decision support tools for Ararat Valley developed	1/0	0	2/1	This indicator refers to the GIS-based water resource management tools to be developed by the ASPIRED Project on the Ararat Valley. ASPIRED completed the Hydrological Model of the DSS for the Ararat Valley during Quarter 4 of Year 3. The project anticipates completion of the Groundwater Flow Model for the Ararat Valley by the end of Year 4.
<b>Sub-IR 1.3: A publicly accessible system that maximizes the use of open source technology and produces reports based on high-quality, real-time monitoring data created</b>					
<b>Indicators</b>					
1.3.1	Number of fisheries with automatic data system installed	1/1	1	6/4 <sup>2</sup>	Following the recommendation by the MNP, ASPIRED is currently installing the remaining set of flow meters and data loggers at a fishery owned by Max Fish.
<b>Sub-IR 1.4: Plan for decentralized, sustainable data collection methods to monitor groundwater resources and strengthened implementation capacities of partners developed in partnership with the Government of Armenia (GOA) and local stakeholders</b>					
<b>Indicators</b>					
1.4.1	Percent (of total) coverage of the groundwater extraction points monitored	1.7/1.2	1.2	10/6.5	This indicator measures the percentage of the groundwater extraction wells monitored with the use of the online automated system installed by the ASPIRED Project versus the total number of the operational groundwater wells available in the fisheries <sup>3</sup> . By July 2018, ASPIRED installed groundwater monitoring systems on 19 water use points. This indicator also includes three (3) systems installed under the European Union's Water Initiative + Project.
<b>IR 2: Introduce locally appropriate, cost effective technologies to improve water resource management</b>					
<b>Sub-IR 2.1: Technologies developed, piloted, and evaluated at different-sized fish farms with the objective of improving water resources management</b>					
<b>Indicators</b>					
2.1.1	Number of groundwater extraction reduction technologies piloted and evaluated	4/0	0	7/3 <sup>4</sup>	This indicator refers to technologies introduced at fish farms or other water use points that contribute to the reduction of the groundwater extraction by users. This indicator also provides information on annual water saved, measured in cubic meters.
2.1.2	Thousands of cubic meters of water saved annually in Ararat Valley	8,777/0	0	9200 <sup>5</sup> /8,385 <sup>6</sup>	This indicator measures the amount of water savings from the demonstration of innovative water saving technologies by the ASPIRED Project at fish farms and other water use points, as well as the implementation of water rehabilitation projects in the communities of the Ararat Artesian Basin (AAB) affected by the shortage of groundwater resource (in collaboration with PURE-Water Project).

<sup>2</sup> The ASPIRED team installed online groundwater use monitoring systems in Alex Grig, Interaqua, and Golden Fish during Year 3.

<sup>3</sup> During the latest inventory of the groundwater wells, natural springs and fish farms of the Ararat Valley, ASPIRED inventoried a total of 2807 wells in the Ararat Valley, of which 1795 were found to be operational. Out of 1795 functioning wells, 336 are reportedly located in the fisheries of Ararat and Armavir marzes.

<sup>4</sup> The data refers to the Water Reuse Project in Hayanist and the Well Sealing and Well Optimization Projects in Sipanik village

<sup>5</sup> Refers to water savings to be achieved by the ASPIRED Project by year 5.

<sup>6</sup> This includes total amount of savings generated from ASPIRED pilot projects over 5 years.



					The annual data for Year 4 counts also recurrent savings provided by completed water projects (Hayanist 1.1 mln, Sipanik well sealing 1.9 mln, Sayat-Nova 1.92mln, and Sipanik well optimization 465,000), which will be reported during the last quarter of Year 4 upon completion of the program year. Projections include projects in Aratashen and Yeghegnut, Hovtashat, Vedi and Pokr Vedi Projects.
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**Sub-IR 2.2: Technologies with the objective of increasing energy efficiency and/or renewable energy generation of water users developed, piloted, and evaluated**

**Indicators**

2.2.1	Number of energy efficiency and/or renewable energy (EE/RE) technologies piloted and evaluated	3/0	0	4/0	This indicator refers to water-use related EE/RE technologies to be piloted during project implementation. ASPIRED will install renewable technologies at the Aquaculture Technology Transfer Center (ATTC) and Vedi Urban Irrigation Project. Data for this indicator will be available after completion of the ATTC Project and Vedi Urban Irrigation Project.
2.2.2	Megawatt hour of energy saved annually	453/0	0	500/48 <sup>7</sup>	This indicator refers to the kilowatt-hour energy savings generated due to more efficient use of energy. Recurrent savings generated by completed projects are counted in the subsequent years and will be reported on an annual basis upon completion of the programmatic year. Year 4 projections are based on ATTC, Aratashen, Yeghegnut, and other ongoing pilot projects.
2.2.3	Clean energy generated annually, MWh	82/0	0	82/0	This indicator refers to the clean energy generation capacity resulting from the introduction of RE technologies aimed at minimizing extraction of the groundwater. The data of this indicator depends on the implementation of EE/RE technologies, tracked under Indicator 2.2.1.
2.2.4	Gains in the reduction of GHG emissions as a result of USG assistance, in metric tons	1,414 <sup>8</sup> /0	0	1440/472.4 <sup>9</sup>	GHG emission reduction quantities are estimated based on the kilowatt hour of savings resulting from application of energy saving technologies in metric tons/year. Since the 4 <sup>th</sup> quarter of Year 3, ASPIRED, in concurrence with USAID, started counting the CO2 reductions resulting from irrigated farmlands of the implemented projects data for this indicator is reported on an annual basis.
2.2.5	Number of people receiving improved service quality from an existing basic or safely managed water service as a result of USG assistance.	9814/0	0	12000/986 <sup>10</sup> (500 women; 486 men)	This indicator tracks qualitative improvements <sup>11</sup> of the water resource resulting from the infrastructure projects implemented by ASPIRED <sup>12</sup> . The term “water users” refers to households, local farmers, and other groups benefitting from these improvements. (Gender disaggregated whenever possible). Data on Aratashen and Yeghegnut will be reported upon completion of the projects.

<sup>7</sup> LOP data refers to energy savings during the two years of operations following completion of Hayanist project (24 MWh/year).

<sup>8</sup> Year 4 data refers to GHG emissions reductions from farmlands in Hayanist & Sayat-Nova projects, solar installations at Masis-Dzuk, Vedi, and ATTC and GHG reductions from Yeghegnut and Aratashen energy savings.

<sup>9</sup> Data refers to Hayanist, Sayat-Nova, and Sipanik projects starting from the date of their completion to date.

<sup>10</sup> The LOP data refers to the beneficiaries of the two water reuse projects in Hayanist and Sayat-Nova, as well as the well optimization project in Sipanik.

<sup>11</sup> ASPIRED will conduct pre- and post-implementation water tests to detect the qualitative changes in water.

<sup>12</sup> Initially, this indicator referred only to the drinking water supply projects. Following the recommendation of USAID, ASPIRED will collect data from all water supply projects (both potable and irrigation water supply) which resulted in the improved service quality for the beneficiaries.

2.2.6	Number of water users experiencing improved efficiency of water resources	7/0	0	13/5 <sup>13</sup>	This indicator tracks improved efficient use of water resulting from the pilot projects implemented under the ASPIRED Project. Examples of such projects can potentially reduce water abstraction by fish farms due to new technologies installed. Year 4 data refers to the ATTC fish farm, and the community projects, including those implemented in Hovtashat, Yeghegnut, Aratashen, Vedi, Pokr Vedi, and Khachpar.
<b>Sub-IR 2.3: Based on the pilot process and available research, recommendations developed for successful water and energy technologies for policy-makers and stakeholders shared</b>					
<b>Indicators</b>					
2.3.1	Number of successful technologies recommended and shared with the stakeholders and policy-makers	6/0	0	11/5 <sup>14</sup>	ASPIRED will pilot at least six technologies by the end of the project as well as conduct an evaluation and provide recommendations during Year 5 of the project.
<b>Sub-IR 2.4: Technology or method to permanently close illegal and/or abandoned wells, developed, piloted, and evaluated</b>					
<b>Indicators</b>					
2.4.1	Number of piloted technologies to permanently close illegal or abandoned wells	1/0	0	3/2	ASPIRED initially planned to pilot at least two well optimization/sealing projects during Year 3. During Year 3 Quarter 4, the ASPIRED completed the well optimization project in Sipanik village.
<b>IR 3: Introduce new policies and regulations to improve integrated water resource management.</b>					
<b>Sub-IR 3.1: Trainings to build groundwater monitoring capabilities, capacity strengthening, and knowledge of how to use equipment; and follow-up assessments to test knowledge on groundwater monitoring and analysis of the basin management organizations (BMOs) and relevant water management agency officials to improve enforcement.</b>					
<b>Indicators</b>					
3.1.1	Number of trainings for building capacity of MNP in groundwater monitoring	1/0	0	6/4	This indicator refers to trainings on the enhanced up-to-date State Water Cadaster Information System (SWCIS) and Management Information System (MIS) for the Ararat Valley and on enhanced transparent water use permitting, control, oversight systems and decision support tools.
3.1.2	Number of people educated on tools, approaches, and/or methods for water security, integrated water resource management, water source protection and sustainable water use as a result of USG assistance.	25/16 (7 women; 9 men)	16 <sup>15</sup> (7 women; 9 men)	126/108 (24 women and 84 men)	This indicator refers to trainings on enhanced up-to-date SWCIS and MIS for the Ararat Valley; enhanced transparent water use permitting, control, and oversight systems; and environmental compliance procedures and efficient water use trainings for the beneficiaries of the communities. This indicator is not cumulative and is reported on a quarterly basis. In January 2019, ASPIRED conducted the ecological flow calculation training.

<sup>13</sup> The results refer to Sipanik community, water reuse projects in Hayanist and Sayat-Nova communities, including communities and the fish-farm owners. Based on the results of Hayanist and Sayat-Nova projects (a) two communities avoided drilling of wells for irrigation needs; (b) two fisheries, Samvel Lablajyan's fish farm and Masis Dzuk fishery, became more efficient water users.

<sup>14</sup> Aeration technology piloted Masis Dzuk fish-farm; Hayanist water reuse project; Sayat-Nova irrigation; Sipanik well sealing project; and Sipanik well optimization project.

<sup>15</sup> The training on the ecological flow calculation method in January 2019.

<b>Sub-IR 3.2: Rigorous, evidence-based analysis of optimal water fee levels completed, shared with engaged stakeholders and recommendations provided to the GOA</b>					
<b>Indicators</b>					
3.2.1	Number of workshops and consultations with stakeholders to discuss water fee levels	N/A	N/A	9/9	The target for this indicator was met during Year 2 /Quarter 2; therefore, ASPIRED has completed data collection under this indicator for the project.
<b>Sub-IR 3.3: Water permitting monitoring and enforcement measures assessed and publicly available and recommendations, including development of regulations, provided to the GOA.</b>					
<b>Indicators</b>					
3.3.1	Package of recommendations to address water permitting monitoring and enforcement measures provided to GOA.	2/1	0	4/3 <sup>16</sup>	This indicator refers to the package of recommendations that the ASPIRED Project drafted and submitted to the GOA.
<b>IR: Ensure communications and coordination with stakeholders to avoid duplication of efforts</b>					
<b>Sub-IR: 4.1 Systems-mapping to gain and apply knowledge of points of influence, incentives, and resources of stakeholders in water and the water-energy nexus completed and shared</b>					
<b>Indicators</b>					
4.1.1	Number of international and local organizations participating in the system mapping activities	1/1	1	26/25	This indicator refers to newly identified stakeholders and points of influence in water and water-energy nexus for the ASPIRED Project. The ASPIRED Project identified the All-Armenian Fund (AAF) as a donor of energy and water saving projects.
4.1.2	Number of partnerships made by ASPIRED with other organizations	3/4 <sup>17</sup>	2	16/17	This indicator refers to partnerships, collaboration with other public and private sector organizations, donor projects for the implementation of joint projects, and/or other initiatives contributing to the accomplishment of ASPIRED objectives. Quarter 2 data refers to the partnership with the F2F Project and Vedi town.
<b>Sub-IR 4.2: A transformative partnerships model to respond to needs for research, pilots, analysis and other coordinated efforts that is demand-driven, flexible, and has a plan for financial sustainability created</b>					
<b>Indicators</b>					

<sup>16</sup> The expert opinion on (1) program of measures in national Water code to USAID; (2) the Strategy for Policy and Regulatory Improvements and a Road Map for Improved Participatory Management of Water Resources developed under USAID's PURE Project; (3) the draft Government decree on establishment of the requirements for the protection of water resources in the recreational zones submitted to the MNP.

<sup>17</sup> The indicator refers to partnerships with the communities of Aratashen, Hovtashat, Vedi, and F2F Project. No data for the Yeghegnut pilot project was reported during Quarter 2, since the project is currently on hold and the ASPIRED team is discussing next steps with the village council.

4.2.1	Percent of total funding leveraged from stakeholders for water resources management activities.	35/0	0	35/30 <sup>18</sup>	This indicator refers to the total in-kind and financial contribution by ASPIRED partners versus the total contribution of the ASPIRED Project for a given year. Targets are not cumulative and refer to a specific year of the project cycle. The figures on current projects will be reported after their completion and adjustment of the cost share figures.
<b>1. Portfolio-level indicators</b>					
5.1	Percent of population living in targeted areas with improved water management	41.8 (women: 4.2; men: 4)/0	0	52/8.2 <sup>19</sup> (women – 4.2%; men - 4%)	The geographical target area is the Ararat Artesian Basin (AAB), a territory of 13,075 hectares with a population of 58,373 people (28,392 men; 30,345 women).
5.2	Number of key implementation steps taken to improve water management in the Ararat Valley	2/2	2	10/8 <sup>20</sup>	This indicator refers to policy, analysis, and other activities targeted towards improvement of water data-related activities, including training and pilot projects. The result refers to the 3D model of the Ararat Valley groundwater basin, developed by the ASPIRED Project and the training and consultations in Ecological Flow calculation for the WRMA and BMOs of the MNP.
5.3	Number of private sector firms that have improved management practices or technologies as a result of USG assistance	2/1	1	9/7 <sup>21</sup>	This indicator refers to (a) the number of fisheries with automated groundwater use monitoring systems installed; and (b) fisheries which have adopted innovative water or energy efficiency (including renewable) technologies.
5.4	Number of innovations supported through USG assistance.	1/1	1	5/5 <sup>22</sup>	Innovative technologies, management/monitoring tools or practices introduced by the ASPIRED team in fish farms, at water use points and/or communities of Ararat Valley which contribute to the reduction of the groundwater use.

<sup>18</sup> This figure represents the actual cost-share of partners (Coca-Cola HBC, ERGIS and Hayanist community –for Hayanist project; VALML LLC for Sipanik, Sipanik community for well optimization; Partnerships for Rural Development Project (PRP), Fund for Armenian Relief (FAR) and Sayat-Nova community for water reuse project in Sayat-Nova) versus the total cost of the projects. Since the ASPIRED Project has different share in different projects, the total percentage of the leveraged funding may be lower than that for a particular year.

<sup>19</sup> The results refer to the population size of Sipanik, Hayanist, and Sayat-Nova communities versus the total size of the population in the AAB.

<sup>20</sup> This figure refers to (1) ASPIRED completed the inventory of groundwater wells, and springs in September 2016. (2) USAID presented two reports to the GOA - Achieving Sustainable Groundwater Use in the Ararat Valley: the Role of the Fisheries Sector and the Final Report on the Inventory of Groundwater Wells, Natural Springs, and Fisheries of the Ararat Valley; (3) ASPIRED was involved into the Interagency Task Force (ITF) established by the Prime-Minister's assignment in January-February 2017. In May 2017, the Armenian Prime-Minister Karen Karapetyan approved the Program of Measures for Efficient Management of the Groundwater Resources of Ararat Valley. Developed with the expertise and data support of the ASPIRED Project, the Program envisages an array of regulatory, legislative, institutional and technical measures for a more rational use of water in the Ararat Valley for different purposes such as fish farming, irrigation, drinking, and drainage system; (4) ASPIRED implements pilot projects aimed at improving water management on by the communities, fish-farmers. (5) Installation of the automated online groundwater use monitoring system in the fisheries of the Ararat Valley; and (6) hydrological model of the decision support system (DSS); (7) 3D model of the Ararat Valley groundwater basin, (8) Capacity building activities.

<sup>21</sup> The LOE result includes six fisheries with improved water management practices: four have been equipped with online monitoring systems and three fish-farms participate in the infrastructure projects – ATTC and water reuse for irrigation (Lablajyan and Masis Dzuk).

<sup>22</sup> The LOP data refers to the (1) practice of the secondary use of outlet water from fisheries for irrigation purposes, which has never been practiced at a community scale; (2) well sealing/optimization activities; (3) the ATTC; (4) installation of the online monitoring system in the fisheries; (5) decision support tools developed by the ASPIRED Project.

5.5	Number of innovations supported through USG assistance with demonstrated uptake by private and/or public sector firms	1/0	0	4/2 <sup>23</sup>	This indicator refers to the uptake/replication by the public and/or private sectors of projects, technologies, innovations and/or practices introduced by the ASPIRED Project at fish farms, water use points, and/or communities of the Ararat Valley. Hovtashat community initiated the well optimization project. ASPIRED will report the pilot project results, upon the project's completion.
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<sup>23</sup> Replication of the water reuse project in Hovtashat community (with assistance from ERGIS NGO) and Sayat-Nova community.

## 3. Program Implementation

### 3.1 Water Resource Data

#### **SWCIS Enhancement**

In January and February, ASPIRED completed testing and debugging of the database on Water Use Permitting database of the SWCIS Data Warehouse. ASPIRED met with the personnel of the Water Use Permitting division of the WRMA to discuss the issue of populating the database with the real data and generating queries and reports. In March, ASPIRED discussed the integration of the actual water use database into the SWCIS Data Warehouse with the Inspectorate for Nature Protection and Mineral Resources and the actual water use annual reporting formats with the Information-Analytic Service of the Environmental Monitoring and Information Center (EMIC) of the MNP. Based on these discussions, the ASPIRED team started designing the new component of the SWCIS Data Warehouse that will incorporate the actual water use data and provide linkages to the water use permitting data for further comparisons. This task also includes building new annual reports on actual water use based on the templates provided by the Inspectorate.

The ASPIRED Project's Data Specialist participated in interviews conducted by the USAID-funded Participatory Utilization and Resource Efficiency of Water (PURE-Water) Project with the candidates for a web developer who will develop a simplified platform for online submission of applications for water use permits. The selected web developer will work jointly with ASPIRED Project's database programmer on the implementation of the platform and provision of linkages to the SWCIS Data Warehouse.

#### **Decision Support Tools**

During the reporting period, the ASPIRED team continued calibrating the decision support tools for the Ararat Valley. Specifically, the ASPIRED Project completed the following tasks:

##### **DSS:**

- Completed the testing and debugging of the enhanced surface water quality assessment component of the DSS. This module allows qualitative classification of the surface waters of the Ararat Valley by using surface water monitoring data. The module also allows assessing the surface water resources based on their suitability for drinking and irrigation purposes, using the water quality norms defined by the Armenian legislation for drinking water and norms for irrigation recommended by the Food and Agriculture Organization. The ASPIRED team summarized the datasets and methods used for classification and assessment of surface water resources into a technical description to be further included into the DSS User Manual.
- Re-programmed the ecological flow calculation component of the advanced version of the DSS based on the new methodology adopted in 2018. The component will provide automatic calculations of ecological flow values for the given year for any of the rivers in the Ararat Valley. The component is a prerequisite for calculation of the water supply and demand balance

of the Ararat Valley.

- Initiated calibration of the Climate Change Model of the DSS for the Ararat Valley for analysis of changes in climatic and hydrologic parameters in the project area, for the periods of 1961-1990 and 1990-2017. ASPIRED received datasets from the Armenian State Hydro-Meteorological Service for seven meteorological stations in the Ararat Valley: Ararat, Artashat, Armavir, Urtsadzor, Ashtarak, Yerevan Agro, Yerevan Arabkir, and the Aragats high mountainous meteo-station. The project team processed and used the data in the calibration process.

### **Groundwater modeling tools**

The ASPIRED team is currently developing the numeric groundwater flow model for the Ararat Valley, which builds on the 3D model completed in 2018 using Arc Hydro Groundwater (AHGW) software. Particularly, the team transferred the lithological structure of the Ararat Valley groundwater basin from the AHGW software to the groundwater modeling system (GMS), mapped the data on surface and groundwater inflow to the Ararat Valley groundwater basin in GMS and proceeded with constructing the two- and three-dimensional) numeric grids for the main hydrogeological units of the basin. These are consequent steps of modeling groundwater flow in GMS using MODFLOW tools.

In February, the ASPIRED team facilitated a conference call with specialists from the US Geological Service (USGS) Dakota Office and EMIC. Participants discussed questions by the Armenian specialists on the Hydrogeologic Framework published by the USGS in 2018, as well as technical questions on the next steps of developing groundwater flow model for the Ararat Valley.

### **Introduction of the automated online system for groundwater use monitoring**

In February, ASPIRED fully-executed a service agreement with Hybrid Telematica on installation of the remaining sets of flow meters and data loggers on four groundwater wells in the second fishery, owned by Max Fish company. The agreement is based on the technical and cost proposals for implementation of the required works that ASPIRED received from Hybrid Telematica in January.

In March, during preparatory works for installation of steel protective cases on the wells' casing, the fishery owner expressed concerns to ASPIRED and Hybrid Telematica regarding the welding the steel chambers around the wells casing, as it envisaged in the technical proposal. Due to concerns that the steel boxes would damage the well casing and pose high risks for the fish stock, representatives of the ASPIRED Project, Hybrid Telematica, and Max Fishery agreed on an alternative solution of preparing dry chambers around the wells casing with stone masonry, provided with insulation and mechanical pump. This new solution will be implemented at the expense of the farm owner and he will assume the further maintenance of the chamber. The ASPIRED team and Hybrid Telematica provided the exact requirements for the dry protective case, and the farm owner agreed on building the dry chambers by mid-April 2019. At the time of preparing this report, the sub-contractor built two of the dry chambers. Based on the visual inspection conducted by the ASPIRED team and Hybrid Telematica, the dry

chambers are suitable for protection of flow meters. ASPIRED extended the terms of Service Agreement with Hybrid Telematica through April 2019.

### **Preparing the Ararat Valley Atlas:**

During the reporting period, the ASPIRED team worked on designing the Ararat Valley Atlas. The Atlas will incorporate all the spatial data and information that is gathered since the start of the ASPIRED Project, as well as relevant data and information available at the various stakeholder agencies. Once the Atlas is finalized, the ASPIRED team plans to publish and present the Atlas to the large group of stakeholders, as well as distribute both hard copies and electronic copies during the last year of the ASPIRED Project.

In February-March, the Project team drafted the initial outline of the Atlas and consulted with relevant stakeholders on the outline and format of the Atlas. In letters sent to the key government agencies, ASPIRED described the initial outline of the Atlas, data, and information ASPIRED intends including in the Atlas, as well as requested the types of data and information each of the agencies could provide for the Atlas. Meetings and consultation with the stakeholders will start during the next reporting period.

### **Interns**

During the reporting period, the ASPIRED Project recruited interns to help the team with the data collection, processing, and analysis, as well as to support decision-making on water resources. To facilitate the interns' selection process, the ASPIRED team collaborated with Yerevan State University's Alumni and Career Center on disseminating the announcement to university students. On February 20, the team presented the main objectives of the ASPIRED Project, the activities within the data component, and the application requirements for the Data Analyst Internship. The ASPIRED team answered the questions of prospective applicants to the internship.

In March, following interviews with seven applicants, the ASPIRED team selected Nara Mnatsakayan and Inga Siradeghyan as the most successful candidates for the internship. Starting in April, both candidates will be working with the ASPIRED team for six-to-ten months on preparation of datasets for hydrological calculations and various analyses, using the DSS and groundwater modeling software.

### **Additional assistance to the MNP**

In January, the ASPIRED team conducted a ten-day training course on calculation of ecological flow in the rivers of Armenia. Sixteen specialists representing the WRMA and BMOs, Environmental Impact Expertise Center of the MNP, MOA, Inspectorate for Nature Protection and Mineral Resources were provided with in-depth knowledge and skills required for calculation of the ecological flow in rivers of Armenia, using ArcGIS and MS Excel software. The course combined both theory and practice, with course content including a general overview of the data management, GIS systems, and general hydrology, followed by methods to determine monthly and annual ecological flow values of both studied and unstudied rivers of Armenia, using Arpa River as a case study. ASPIRED provided all



participants with the user manual, the template file in MS Excel format, and the geodatabase (the GIS files) needed for the calculation of the ecological flow.

The ASPIRED Hydrologist continued facilitating on-the-job training for the deputy head of the Water Cadastre and Monitoring Division of the WRMA on calculating ecological flow in the rivers of Armenia. ASPIRED team members provided approximately 20 hours of individual coaching during this quarter.



*ASPIRED GIS Specialist Aram Gevorgyan conducting the training.*



*Site visit to prior to installation of the flow meters and data loggers at the fishery belonging to Max Fish fishery.*

### 3.2 Low Cost and Water Efficiency Technologies

The table below summarizes the status of the pilot projects as of March 31, 2019. As of the end of the reporting period, ASPIRED has completed four pilot projects and five projects are currently in progress.

Project Name/ Technology	Status	Total cost, USD	ASPIRE D cost- share, USD	Partner cost- share, USD	Partner
Hayanist irrigation rehabilitation project	Completed in April 2017	131,705	89,524	27,212	Coca Cola HBC
				11,269	ERGIS
				3,700	Hayanist community
Sipanik well sealing project	Completed in August 2017	51,546	47,823	3,723	VALML LLC
Sipanik well optimization project	Completed in September 2018	24,554	22,002	2,552	Sipanik community
Sayat-Nova water reuse project	Completed in September 2018.	124,871	80,409	20,876	Partnership for Rural Prosperity Project
				14,395	Fund for Armenian Relief

Project Name/ Technology	Status	Total cost, USD	ASPIRE D cost- share, USD	Partner cost- share, USD	Partner
				16,420	Sayat-Nova community
<b>Aquaculture Technology Transfer Center (ATTC)</b>	<p style="text-align: center;"><b>Ongoing</b></p> <ul style="list-style-type: none"> <li>• In February, ASPIRED brought the aquaculture expert to provide consultations to the ATTC owner and the ASPIRED engineering team on ATTC's current operational capacities and recommend steps towards improvement of the facilities. The expert made several site visits and conducted meetings with the owner of Armavir Farmer fishery accompanied by the ASPIRED and F2F Project staff. USAID COR joined the team during one of the site visits.</li> <li>• ASPIRED and the Armavir Farmer owner are discussing the next steps to be made both by the Project and the ATTC owner to ensure the operation of the site, i.e. to populate the fish and crayfish ponds.</li> <li>• ASPIRED compiled the list of the additional equipment and clarified with the owner of the fishery the responsibilities of each party.</li> </ul>	178,028	114,542	63,486	Armavir Farmer LLC
<b>Yeghegnut community water supply project</b>	<p style="text-align: center;"><b>Ongoing</b></p> <p>The sub-contractor completed construction of the chlorination and pumping stations, fenced the perimeter, repaired the well casing, and completed grading and improvement of the area. The construction of the network is on hold due to the delay in the announcement of the tender for the trenchwork services by the community.<sup>24</sup></p>	120,809	79,777	41,032	Yeghegnut community
<b>Aratashen community water supply project</b>	<p style="text-align: center;"><b>Ongoing</b></p> <p>The sub-contractor completed construction of the chlorination and pumping stations, fenced the perimeter, repaired the well casing, completed grading and improvement of the area.</p> <p>Over this period, the ASPIRED started the network construction. By the reported period, around 80% of all the pipework is over.</p>	125,365	87,455	37,910	Aratashen community

<sup>24</sup> See Section 6. Existing Problems or Issues for more details.

Project Name/ Technology	Status	Total cost, USD	ASPIRE D cost- share, USD	Partner cost- share, USD	Partner
<b>Hovtashat well optimization project</b>	<b>Ongoing</b> ASPIRED conducted the tender for the network design and selected the local sub-contractor who is currently working on the assignment. The sub-contractor plans to submit the network design during the next reporting period.	43,539	28,587	14,952	Hovtashat community
<b>Vedi urban irrigation project</b>	<b>Ongoing</b> USAID approved the project on February 1. During the reporting period, the ASPIRED team announced the tender for the design and selected the sub-contractor to work on the assignment. The deadline for submission of the design blueprint is May.	147,538	59,632	87,906	Vedi Municipality
<b>TOTAL</b>		<b>955,185</b>	<b>609,752</b>	<b>345,433</b>	



*Drinking water pipework in Aratashen community.*



*Village residents backfilling the trenches near their homes.*

### Design of New Projects

The ASPIRED Project finalized the concept paper of the irrigation project in Pokr Vedi and submitted it to USAID for review. The concept paper includes the cost-share of the All-Armenian Fund, who has agreed to cover nearly 50% of the total project cost. USAID approval of the Pokr Vedi project is pending since the PURE-Water Project is currently preparing the environmental review documents for USAID's review.

During the reporting period, the ASPIRED team inspected two wells in Masis region recommended by the MNP as potential sealing projects. The site visit revealed that both wells had users and their sealing might be problematic. In consultation with the COR after a follow-up visit, the ASPIRED team decided to assess the feasibility of project implementation after the MNP terminates the water extraction by the existing users.

### **3.3 Water Regulation and Enforcement**

During the reporting period, the ASPIRED Project coordinated the activities of the experts and the working group on the development of the method for assessment of self-purification capacity of rivers. By the end of the quarter, the team completed the following task:

- Completed the requirement of experts and final composition of the working group, consisting of the representatives of the MNP, the Ministry of Emergency Situations, and the local experts
- Finalized the list of hydrobiological, hydro-morphological, and chemical parameters subject to sampling and the timing of measurements.
- Selected Qasakh River as the pilot river for the elaboration of the method.
- Received the draft analysis of the international practice on self-purification methods.

During the kick-off meeting on February 15, the members of the working group selected the Qasakh River basin as the pilot river for testing the method, taking into consideration the water quality, hydrological, biological, and hydro-morphological characteristics of rivers. During the follow-up meetings, the working group agreed on the schedule of the site visits and the details of sampling. The

team conducted field visits on February 22 and March 6, during which the working group visited nine hydrological observation and sampling points (seven during the first field visit and two during the second visit) and fixed their coordinates with the GPS device.

The ASPIRED Project sent cost inquiries to the local organizations that can potentially perform the water sampling and analysis from the selected observation points based on the predefined parameters. On March 15, the ASPIRED Project conducted meetings with the management staff from EMIC and Scientific Center of Zoology and Hydroecology of the National Academy of Sciences, who provided their cost estimates on sampling and analysis.

By the end of the reporting period, the experts presented the draft analysis of the internationally applied self-purification methods to be discussed further among the working group members during the next quarter.



*The members of the working group selecting observation points on Qasakh River Basin.*

### 3.4 Donor Coordination and Communications

During the reporting period, the ASPIRED and F2F teams worked with international aquaculture expert Gerard Pinto, who provided advisory services to the ATTC Project. Mr. Pinto prepared a report with the recommendations on additional steps and equipment needed to improve the technical facilities of the ATTC. The expert also improved the Crawfish Manual, which was prepared by the Birthright Volunteer Talene Baghdassarian during a three-month assignment in 2017. ASPIRED translated the documents and provided them to the owner of Armavir Farmer.

In February, ASPIRED received a commitment from the All-Armenian Fund (AAF) to provide funding for the irrigation project in Pokr Vedi. In April, the ASPIRED team will prepare the bilateral agreement between the ASPIRED Project and the AAF after the approval of Pokr Vedi Irrigation Project by USAID.

On March 14, the representatives of the AAF and ASPIRED Project met with USAID/Armenia's Mission Director Deborah Grieser to discuss collaboration opportunities between AAF and USAID on

a more global level. AAF expressed interest in co-funding infrastructure projects that contain innovative components. To this end, the ASPIRED Project engineer compiled a list of six potential projects where AAF's contribution would help upscale the projects.

On February 6, ASPIRED met with the newly appointed Governor of Armarir region, Hambardzum Matevosyan, to present the USAID-funded water sector projects in the province and discuss possible support of the regional government in community infrastructure projects. As a follow-up, the governor's office arranged a meeting between the mayor and local council members of Yeghegnut with participation of the ASPIRED and PURE-Water Project representatives to discuss the delay in trenchwork implementation.

On March 21 and 22, the ASPIRED team participated in a two-day seminar on Best Practice in the Ararat Valley Fish Farming, organized by the PURE-Water Project and International Center for Agribusiness Research and Education. The seminar covered an evaluation of the best water management practices in small fish-farms, including the stories about secondary use of water for irrigation in Hayanist and Sayat-Nova communities as successful case studies. During the event, the ASPIRED team presented an overview of the groundwater resources of the Ararat Valley, the results of recent studies and the water-saving projects.

### **Communications and Outreach:**

During the reporting period, the team marked 's World Water Day on March 22. The purpose of the event was to present the interim results of the project for the period 2015-2019, as well as showcase the joint activities with the partner organizations aimed to protection of the groundwater resources in the Ararat Valley. Event attendees included key government stakeholders, the project partners, and non-governmental and academic institutions representing the water sector. USAID/Armenia's Mission Director Deborah Grieser and the Minister of Nature Protection, Erik Grigoryan also attended the event. During World Water Day, the ASPIRED Project presented the 3D model of the groundwater basin and the computer-based Decision Support System– the tools to aid in more informed decision making on the groundwater management in the Ararat Valley. The event enjoyed extensive media coverage.<sup>25</sup>

The ASPIRED team prepared the event agenda, press release, list of invitees, invitation letters, information for Mission Director's briefer and talking points as well as media advisories. The team sent

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<sup>25</sup> <https://www.shantnews.am/news/view/320585.html>; <https://www.shantnews.am/news/view/321208.html> (at 10:24 min); <https://www.shantnews.am/news/view/320992.html>; <https://www.shantnews.am/news/view/321096.html>; <https://yerevan.today/all/society/29663/6-amsum-irayin-resursneri-het-kapvats-280-khakhtumner-en-haytnaberverl-erik-grigoryan> <https://www.youtube.com/watch?v=yWHin5c6byo>; [https://www.youtube.com/watch?v=utrc1-8AfeM&feature=youtu.be&fbclid=IwAR0lDaL8TD5ViRpSnmUIJDShUtYOH-WVY1OVW6fNKcdxVB2Bh48RQ5\\_70Xc](https://www.youtube.com/watch?v=utrc1-8AfeM&feature=youtu.be&fbclid=IwAR0lDaL8TD5ViRpSnmUIJDShUtYOH-WVY1OVW6fNKcdxVB2Bh48RQ5_70Xc); <https://www.youtube.com/watch?v=6lkFr6WtUys>; <https://www.youtube.com/watch?v=WBypqeZDTN4> (at 1:37 min); <http://news.1tv.am/hy/2019/03/22/%D5%8B%D6%80%D5%AB-%D5%B0%D5%A1%D5%B4%D5%A1%D5%B7%D5%AD%D5%A1%D6%80%D5%B0%D5%A1%D5%B5%D5%AB%D5%B6-%D6%85%D6%80/114969>; <https://armenpress.am/arm/news/968453/>; [http://arka.am/ru/news/economy/armeniya\\_s\\_2015\\_goda\\_sekonomila\\_9\\_2 mln\\_kubometrov\\_podzemnykh\\_vod/](http://arka.am/ru/news/economy/armeniya_s_2015_goda_sekonomila_9_2 mln_kubometrov_podzemnykh_vod/); <https://armeniatv.am/hy/73112-73112>; <http://mnp.am/am/post/3812>;

media invitations and made follow-up calls to secure proper media coverage. The outreach team also prepared the story board of the project, including the success stories and fact-sheets of ongoing projects for distribution.

Other routine tasks of the outreach team during the reporting period included preparation of pilot project fact sheets, updating of the Project web site and Facebook page (news, photo stream, description of pilot projects, posting of the tender announcements and related updates), monitoring visits to the pilot project sites.



*ASPIRED Chief of Party Magda Avetisyan presenting the interim results of the Project at the event on March 22.*



*ASPIRED engineer Hayk Petrosyan and F2F aquaculture expert Gerry Pinto during the site visit at the ATTC.*

#### 4. General Administrative Issues

During the reporting period, the ASPIRED team completed the tenders for the selection of the design sub-contractor for the Hovtashat Well Optimization Project (announced on February 1, 2019) and Vedi Urban Irrigation Project (announced on February 22, 2019). Based on findings from the proposal evaluation process, the ASPIRED Project fully-executed contracts with Jinj for the Hovtashat Project and Kommunnakhagits for the Vedi Project.

In January, the ASPIRED team fully-executed a service contract with the short-term expert to complete hydro-morphological and biological tasks for the development of the method of self-purification capacity of rivers under ASPIRED's Legal Component. In March, the ASPIRED recruited two interns to provide support to the data team with data entry and other tasks.

During the reporting period, the ASPIRED team initiated the procurement process for a portable flow meter, camera for monitoring of the groundwater wells, and one computer and printer for EMIC requested by MNP. The ASPIRED team acquired and handed over the flow meter, computer and the printer to EMIC in March. ASPIRED will provide the camera to EMIC in April, once delivered.



## 5. Environmental Compliance

In January and February, the ASPIRED Project conducted an environmental compliance and safety training for the personnel of the ASPIRED Project and village subcontractors for construction of pumping stations in the Aratashen and Yeghegnut communities and installation of water supply network. Subcontractor employees and community administration representatives were instructed on implementation of mitigation measures during the construction works as specified in the project-specific Environmental Monitoring and Mitigation Plans (EMMP). Over the reporting period, the ASPIRED and PURE-Water Projects' environmental specialists worked together on drafting the checklist for public monitoring of pilot projects implementation in the Aratashen and Yeghegnut communities.

During the reporting period, ASPIRED's technical specialists regularly monitored progress of the works and compliance with the requirements of the project-specific EMMPs. At both sites, ASPIRED determined that the subcontractors were mostly compliant with the safety measures and that sites were properly marked and free of construction waste. In a few cases, instructions were provided to the sites supervisors for improving marking and signalization of the construction sites.

During the next quarter, the ASPIRED team will continue monitoring the ongoing projects in Aratashen community and Metsamor (ATTC). The ASPIRED Project's Environmental Specialist will continue collaborating with the PURE-Water Project in preparing the environmental review documentation for the upcoming projects in Pokr Vedi and Khachpar communities. The Environmental Specialist will also design and conduct health and environmental safety training programs for the project implementing partners for the upcoming pilot projects in Hovtashat, Vedi, Pokr Vedi, and Khachpar.

## 6. Existing Problems or Issues

ASPIRED suspended the pipework in Yeghegnut due to the continuous conflict between the new acting village mayor and the local council members. The community did not approve the village budget to allocate resources for the trenchwork under the water supply project, which was the community's responsibility. Pending the new elections which will take place on June 9, ASPIRED team has suspended all the pipework in Yeghegnut village until further notice. Meanwhile, the ASPIRED Project will complete the pumping station and transfer it to the community.

Under the ATTC Project, the ASPIRED Team and the fish farm owner are discussing issues regarding the population of the ponds with fish and crayfish. Despite the opinion of the aquaculture expert that the ATTC system would be viable at the pilot project level, the fish farm owner has expressed concerns that the system installed at the ATTC may not operate properly because of some important technical characteristics missing. The ASPIRED team and the fish farm owner discussed the technical improvements and additional equipment needs that the fish farmer determined as necessary to install

at the ATTC for its operation. The list also takes into consideration the recommendations of the aquaculture expert and includes the following:

1. Modification of airlift pumps to improve the output;
2. Modification of the biofilter tank based on the recommendations of Gerard Pinto;
3. Purchase of biofilter media;
4. Modification of the sludge removal system in accordance with the preferences of the owner of the fish-farm;
5. Purchase and installation of a circulation pump;
6. Purchase and installation of a UV disinfection equipment in accordance with the preferences of the owner of the fish-farm and the recommendations of Gerard Pinto;
7. Installation of a new flow and level control system.

By the end of the reporting period, the ASPIRED team and the fish farmer agreed that the fish owner would populate the ponds once the ASPIRED team completes the technical upgrades.

## 7. Activities for the Next Quarter

### 7.1 Data

- Complete the integration of the actual water use database into the SWCIS Data Warehouse, including programming of the built-in annual reports on actual water use, testing and debugging of the programmed database;
- Collaborate with the WRMA on design of a package of procedures for operation and maintenance of the SWCIS data warehouse, including data provision by the various government agencies, data sharing with government agencies participating in the SWCIS data warehouse and other stakeholders;
- Complete the customization of the Water Supply and Demand Balance component of the DSS for the Ararat Valley. Calculate the values of water supply and demand balance of the Ararat Valley for 2016. Test and debug of the customized component;
- Complete the construction of the numeric groundwater flow of the Ararat Valley using the GMS/MODFLOW software. Simulate the model with well inventory and water use permitting datasets for the 2016;
- Test and debug the historic trends analysis component of the Climate Change model of the DSS with data of the Ararat Valley;
- Conduct a one-week training course on GIS mapping for the four technical staff members of the WRMA;
- Complete the installation of the flow meters and data loggers in Max Fish.
- Organize the hand-over of the installed systems in Interaqua, Alex-Grig, Golden Fish and Max

Fish fisheries to the MNP;

- Conduct several consultations with EMIC, State Geological Fund, Water Committee, and other stakeholder organizations to identify available geo-spatial datasets to be included in the Ararat Valley Atlas. Based on the outcomes of the meetings, finalize and discuss the structure of the Ararat Valley Atlas with the WRMA.

## 7.2 Pilot Technologies

- Follow up on the completion of the designs for Hovtashat Well Optimization Project and Vedi Urban Irrigation Project and prepare information for the construction tenders;
- Monitor completion of the water supply project in Aratashen;
- Begin the implementation of the Pokr Vedi Irrigation Project after the approval of USAID;
- Work on the procurement of the equipment and implementation of the technical improvements at the ATTC.

## 7.3. Legal and Policy Issues

- Send letters to the Laboratory of Sevan National Park, EMIC, and the Scientific Center of Zoology and Hydroecology to seek quotations for biological and hydrological analysis;
- Review the quotations provided by the relevant institutions and proceed with sampling from the selected observation points on the Qasakh River;
- Start the first phase of sampling in April, analyze the data, and classify the results according to the selected method for assessment of self-purification capacity of rivers;
- Follow-up with the experts to finalize the study of the international experience on self-purification method based on the suggestions of the working group members.

## 7.4 Performance Management, Communication and Donor Coordination

- Draft the cooperation agreement between the ASPIRED Project and the AAF for further execution;
- Follow-up on the pilot projects for possible outreach events;
- Prepare the fact sheets of the pilot projects in Hovtashat, Vedi and Pokr Vedi, once the projects enter into the construction phase;
- Conduct site visits to the project sites;
- Conduct project monitoring to collect the data and the background documentation for the PMP indicators.

## 7.5 Environmental Compliance

- Conduct health and environmental safety training programs for the new project implementing partners under Hovtashat, Vedi and Pokr Vedi Projects, depending on their implementation progress;

- Conduct regular monitoring of the ongoing pilot project activities in Aratashen and Yeghegnut communities, and ATTC;
- Collaborate with the ASPIRED Engineers and PURE-Water Project specialist in providing environmentally and socially safe implementation of the pilot projects.

## **7.6 Project Management**

- Follow-up on the implementation of the contractual commitments by Jinj and Kommunakhagits;
- Prepare the documentation for the construction tenders under Hovtashat, Vedi projects and design tender for Pokr Vedi Project.
- Select the quotations from respective laboratories for biological testing of the water under the regulatory component.