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World Water Day

LEAVING NO ONE BEHIND



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Advanced Science and Partnerships for Integrated Resource Development (ASPIRED) Project

World Water Day

Magda Avetisyan
Chief of Party

March 22, 2019
Marriott Hotel



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Project Purpose

Assist:

- ✓ Sustainable water resource management in the Ararat Valley through the use of science, technology, innovation and partnerships.
- ✓ Introduction of sustainable practices of water users at the core of water-energy nexus.



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Duration:

5 years

(29/09/2015 – 29/09/2020)

Value:

USD 4 991 630

Geographical coverage: Armavir and Ararat regions

Implementer:

ME&A Inc.



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Project Components

- ✓ Collection and management of water resource data;
- ✓ Introduction of pilot technologies;
- ✓ Improvement of regulatory framework, including enforcement mechanisms;
- ✓ Coordination across stakeholders.

ASPIRED Project

Achievements up to date

- ✓ **Inventoried:** 2 807 wells and a group of 14 springs in the Ararat Valley
- ✓ **Completed:** Water balance of the Ararat Valley
- ✓ **Implemented:** Comprehensive study of groundwater use in the Ararat Valley
- ✓ **Introduced:** Automated control and monitoring system at 19 water abstraction points in 4 fisheries
- ✓ **Saved:** 9.2 million m³ of groundwater and 500 MW of energy
- ✓ **Beneficiaries:** 23 000



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ASPIRED Project Achievements up to date

- ✓ Date used in development of the Program of Measures for Effective Management of Water Resources in the Ararat Valley of Armenia.
- ✓ Expert opinion on the draft phased Action Plan for implementation of the RA Law “On National Water Program”.
- ✓ Approved draft governmental decree “On establishing the requirements for protection of water resources in recreation zones of Armenia” approved.



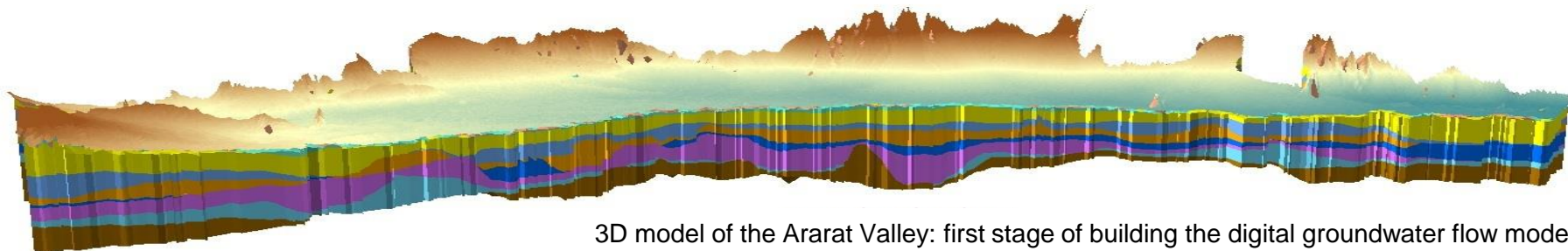
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Water Resource Data



Training on ecological flow calculation

Field measurement training by USGS



3D model of the Ararat Valley: first stage of building the digital groundwater flow model

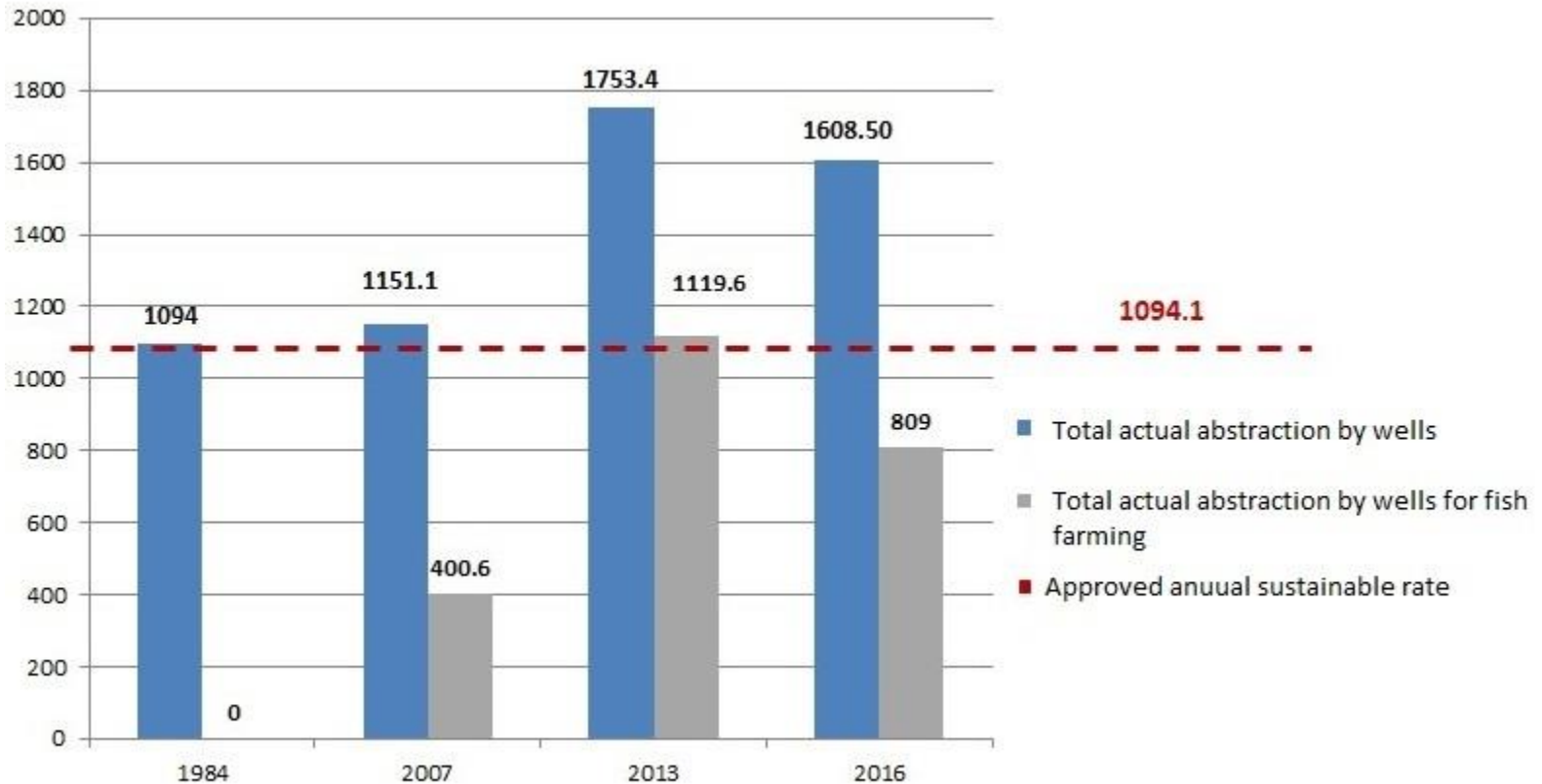
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Water Resource Data

Inventory of wells, natural springs, and fish farms in the Ararat Valley - 2016

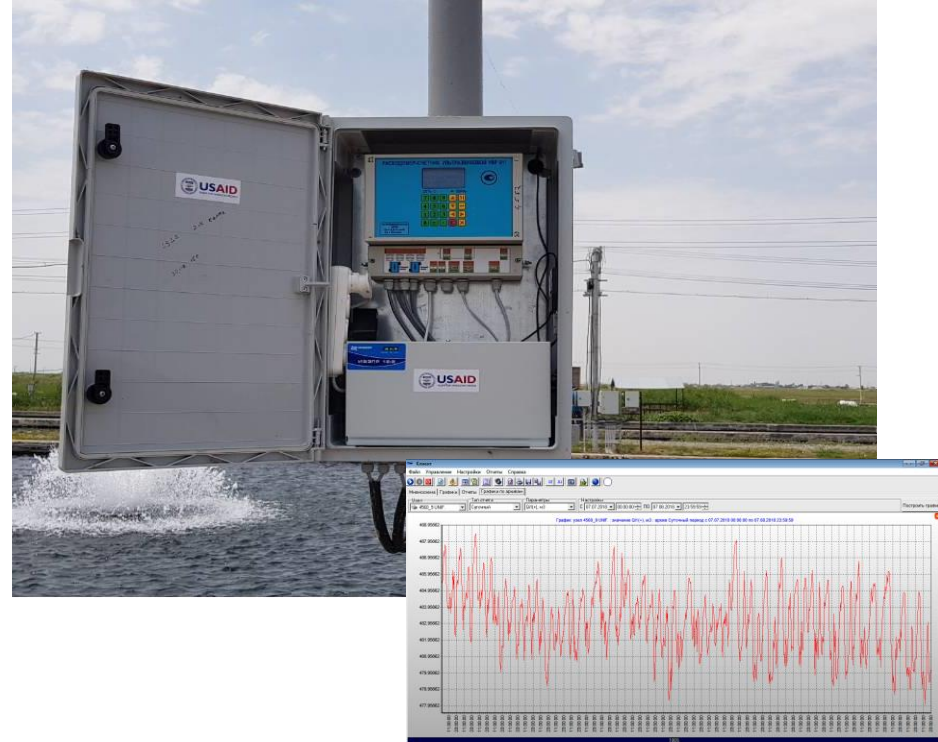




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Water Resource Data

Introduction of automated online groundwater use monitoring system in 4 large fisheries.



Refurbishment of groundwater observation wells in the recharge zone of the Ararat Valley groundwater basin, to extend the National Reference Groundwater Monitoring Network of the MNP.



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Water Resource Data

Enhancement of the State Water Cadaster Information System

- ✓ Surface water and groundwater
- ✓ Lake Sevan
- ✓ Ecological flow
- ✓ Water use: permitted and actual
- ✓ Water infrastructure
- ✓ Reservoirs
- ✓ Hydropower plants, etc.





Development of the Decision Support System

- ✓ ***Customizing the Decision Support System (DSS) for the Ararat Valley***
 - Water balance
 - Climate change assessment
 - Water supply and demand balance
- ✓ ***Building the digital groundwater flow model of the Ararat Valley***
- ✓ ***Development of the Ararat Valley Atlas***



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Applying Pilot Technologies

- ✓ Using return water from fish farm for irrigation
- ✓ Establishment of an experimental center for applying new technologies
- ✓ Improvement of drinking and irrigation systems in communities
- ✓ Optimization of wells with free discharge



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Applying Pilot Technologies

Irrigation using return water from fishery

Hayanist community - 2017

- 1.1 million m³ of groundwater saved annually;
- 40 ha of arable lands irrigated;
- Potential coverage of extra 40 ha of land;
- 370 people benefited.



Chemical analysis of water

Chemical analysis of crops

Assessment of flavor characteristics of crops



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Applying Pilot Technologies

Sayat-Nova community - 2018

- 1.9 million m³ of groundwater saved annually;
- 60 ha of lands irrigated, with potential coverage of extra 130 ha,
- 2400 people benefited.





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Applying Pilot Technologies

Decommissioning of an artesian well in Sipanik village



Around 1.1 million m³ of
groundwater saved annually



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Applying Pilot Technologies

Optimization of community wells



Sipanik community - 2018

- ✓ 0.5 million m³ of water saved annually
- ✓ 20 ha of arable lands irrigated
- ✓ 200 people benefited

Hovtashat community - *ongoing*

- ✓ Around 1.5 million m³ of water saved annually
- ✓ 60 ha of arable lands irrigated
- ✓ 400 people benefited



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Applying Pilot Technologies

Experimental center for applying innovative technologies



Laboratory



Greenhouse



Ponds

- Recirculation of at least 70% of water flow
- Use of aquaponic system
- Crayfish farming
- Use of renewable energy (biogas + solar energy)
- Biological treatment of wastewater
- Resource center



Drinking and Irrigation System Improvement Projects

- ✓ **Water supply improvement in Aratashen**
 - Around 560 000 m³ of water saved annually;
 - Around 205 000 kWh of energy saved annually;
 - 2700 people benefited.

- ✓ **Water supply improvement in Yeghegnut**
 - Around 300 000 m³ of water saved annually;
 - Around 115 000 kWh of energy saved annually;
 - 2200 people benefited.



- ✓ **Improvement of urban irrigation of green areas in Vedi**
 - Around 27 274 m³ of water saved annually;
 - Around 46 481 kWh of energy saved annually;
 - 3.5 ha of green areas irrigated;
 - 14800 people benefited.

- ✓ **Improvement of community irrigation system in Pokr Vedi**
 - Around 936 000 m³ of water saved annually;
 - Around 341 640 kWh of energy saved annually;
 - 160 ha of arable lands irrigated;
 - 500 people benefited.



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Improvement of Regulatory Framework

- ✓ Comprehensive study on groundwater use in the Ararat Valley: the role of fishery sector - **2017**

Support to the Government of Armenia

- ✓ Involved in development of the draft Prime Minister's decree "On approving the Program of Measures for effective management of water resources in the Ararat Valley of Armenia" - **2017**.
- ✓ Provided expertise on the draft phased Action Plan for implementation of the RA Law "On National Water Program" - **2018**.



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Improvement of Regulatory Framework

- ✓ Establishment of the requirements for protection of water resources in recreation zones of Armenia - **2018**

Field measurements in Qasakh river basin



Work Group meeting

- ✓ Development of the method for assessment of self-purification capacity of rivers in Ararat Basin Management Area, and its enforcement mechanisms



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Stakeholder Capacity Building

- Trainings - 2016-2019
 - Data bases and information systems
 - Geographical Information System (ArcGIS)
 - Groundwater modelling
 - Calculation of ecological flow of rivers in Armenia



- Providing commodity and technical support to “Environmental Monitoring and Information Center” SNCO under the MNP



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Water Resource Stakeholder Coordination

Purpose: mobilizing available resources, using effectively and avoiding overlaps

- ✓ Partnerships for pilot projects

Co-funding by partners:30%

- ✓ Institutional support, professional cooperation, advisory services, and information and knowledge sharing



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Water Resource Stakeholder Coordination

PARTNERS

- USAID PURE Project
- USAID PRP
- ATC
- FAR
- AAF
- USAID F2F
- USAID Global Lab
- USGS
- UNDP
- EU
- MNP
- MA
- MES
- Coca-Cola Hellenic Armenia
- Ararat and Armavir Regional Authorities
- Birthright Armenia
- Armenian Volunteer Corps
- Fish farms
- Local NGOs
- Other



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THANK YOU!

<http://www.aspired.wadi-mea.com/hy/>