



ARMENIA

INTEGRATED WATER RESOURCES MANAGEMENT / AKHOURYAN RIVER CONSTRUCTION OF KAPS RESERVOIR AND GRAVITY IRRIGATION SYSTEM



Client	Water Sector Projects Implementation Unit SA of State Committee of Water Economy of the Ministry of Territorial Administration
Financing	KfW Entwicklungsbank
Duration of Services	10/2013 – 03/2015
Consulting Fee	1 107 750 EUR

Scope of Services

- Familiarizing with existing feasibility studies, reports, designs of Kaps Reservoir and Gravity Irrigation System
- Inventory of implementation and operation capacities
- Establishment of an updated feasibility study for both the Kaps dam and the irrigation schemes
- Supporting the PEA
- Carrying out supervision and administration of supply and works contracts as well as disbursements during the implementation of Phase 1 (optional)
- Developing a basin management strategy and a basin management plan

Brief Project Description

More than one third of the Armenian population is involved in agriculture providing between 20 and 30% of the gross domestic product (GDP) of the country. Most of the agricultural production is obtained under irrigation which plays a decisive role for crop yield. To regulate seasonal varying river discharges, dams and reservoirs were designed and built until the 1980s. The construction of Kaps Dam and Reservoir at the Akhouryan River near Gyumri, Province of Shirak, was started, but not completed due to worsening of the economic situation which followed the devastating Spitak earth-quake in 1988 and the collapse of Soviet Union in 1991.

Therefore, it is intended to first restore the water conveying system (Kaps reservoir and the pipeline system) as an immediate measure during self-contained Project Phase 1, while the irrigation system itself shall be developed during a later Phase 2.

Under Phase 1, a certain completion of the dam though with a lower height than originally planned is foreseen in order to decrease the risk emanating from the incomplete dam structure and provide water per gravity for irrigation to the surrounding farm lands. This will imply the construction of a dam, a spillway and the provision of a gated irrigation outlet. Phase 1 thus foresees the construction of a small dam of about 10 m height on the existing dam body (crest level at 1708 m amsl) with its appurtenant spillway and outlet facilities, securing the safety of the site. The created storage capacity of 6 Mm³ will provide irrigation water and improved water provision for about 2200 ha of land.

Furthermore, the transportation of water to the irrigation schemes requires a pipeline connection to the sites of the present pumping stations. These pumping stations are old, partially out of operation and highly energy consuming. The hydraulic pressure created by the restored dam would substitute pump pressure allowing the elimination of 8 pumping stations, irrigation by gravity and thus the saving of energy.

As a second project component during a further stage (Phase 2), the improvement and modernization of the field irrigation systems and technology is envisaged. Canals and water distribution systems are in bad shape and applied techniques on low level causing high water losses. Phase 2 shall be based on a holistic approach for an Integrated Water Resources Management (IWRM) for the Akhouryan River Basin (Basin Action Plan) - including Lake Arpi National Park - that promotes coordinated development and management of water, land, and related resources to maximize economic and social welfare equitably, without compromising the sustainability of vital ecosystems.

Detailed Description of Services provided by CES

- Familiarizing with existing feasibility studies, reports, designs of Kaps Reservoir and Gravity Irrigation System
- Inventory of implementation and operation capacities available within the PEA, Shirak Water Users Association, "Akhouryan-Araks" Water Supply Agency and the future operators, specification of operation requirements, verification of operation facilities and proposed operation concepts and elaboration of a proposal for the qualification of the PEA and future operators;
- Establishment of an updated feasibility study for both the Kaps dam and the irrigation schemes
- Supporting the PEA, Shirak Water Users Association, "Akhouryan-Araks" Water Supply Agency and other stakeholders during tendering and contracting procedures for the implementation of Phase 1, e.g. by preparing the detailed design, tender documents according to the standard terms and conditions for tenders, including the estimate of quantities, technical description of equipment and facilities, preparing a draft contract; update of the project cost; evaluation of bids; evaluation report and award recommendation (optional);
- Carrying out supervision and administration of supply and works contracts as well as disbursements during the implementation of Phase 1 (optional);
- Developing a basin management strategy and a basin management plan for the Akhouryan River Basin to provide a blue print for rationally managing and developing the basin water resources for multisectoral needs.