

**PROJECT INFORMATION DOCUMENT (PID)  
IDENTIFICATION/CONCEPT STAGE**

Report No.: PIDC53947

<b>Project Name</b>	Eurasian Development Bank Mastara Reservoir Preparation
<b>Region</b>	EUROPE AND CENTRAL ASIA
<b>Country</b>	Armenia
<b>Sector(s)</b>	Irrigation and drainage (100%)
<b>Theme(s)</b>	Water resource management (100%)
<b>Lending Instrument</b>	Lending Instrument
<b>Project ID</b>	P158899
<b>Borrower Name</b>	Republic of Armenia
<b>Implementing Agency</b>	Water Sector Projects Implementation Unit State Agency
<b>Environment Category</b>	A - Full Assessment
<b>Date PID Prepared</b>	21-Apr-2016
<b>Estimated Date of Approval</b>	01-May-2016
<b>Initiation Note Review Decision</b>	The review did authorize the preparation to continue

**I. Introduction and Context**

**Country Context**

Armenia is a small (29,800 km<sup>2</sup>) landlocked country with a population of about 3 million, a large diaspora population of around 7 million, and an average per capita Gross National Income (GNI) of US\$3,720 in 2012. In the decade preceding the global economic and financial crisis, real Gross Domestic Product (GDP) growth was more than 10%, strongly fueled by remittances. In 2009, there was a substantial contraction, but growth has since resumed, although at a slower pace, reaching 4.7 % in 2011 and 7.2% in 2012. Services including construction and tourism (43%), industry including mining and energy (33%) and agriculture (23%) are the largest components of GDP. Inflation has dropped to about 2.5% in 2012 from a high of 9% in 2010, but was less than 5% throughout most of the last decade.

**Sectoral and Institutional Context**

Over recent decades, though the agriculture sector has added more value in absolute terms to the economy, its overall share of GDP has steadily decreased (around 18 percent in 2012). Yet, Armenia is still an agrarian society with the agriculture sector providing around 40 percent of total employment. Moreover, with important links to the growing food processing industry, agriculture will continue to play an important role in the Armenian economy.

Agriculture in Armenia is heavily dependent on irrigation. More than 80 percent of the gross crop output is produced on irrigated lands. Wheat, potatoes, and vegetables claim two thirds of the total irrigated arable land. The consumption of irrigation water has fluctuated significantly over time, mainly due to fluctuations in overall water availability, and reached almost 2 billion cubic meters in

2012. Total irrigable area in Armenia is around 208,000 hectares. In 2005, the net income per hectare for wheat was 65,000 Armenian drams, twice as much as on rain-fed lands in the mountainous areas. Due to agro-climatic conditions, the most fertile regions are also the greatest consumers of irrigation water. At the same time, they show the lowest water productivity: while taking 80 percent of the country's irrigation water, they generate 53 percent of the Armenian gross crop output.

In order to address temporal variations in river runoff, the country has built 87 dams with a total capacity of 1.4 billion cubic meters. Most of these dams are single purpose, mainly for irrigation. Thirty-five reservoirs have capacities greater than 1 million cubic meters and three have capacities greater than 100 million cubic meters. There are 9 incomplete dams, 28 dams at the design stage, and a further 67 dams for which feasibility studies have been undertaken that were planned or prepared during the Soviet era. For the government of Armenia, the highest-priority dams for irrigation expansion and conversion from pump to gravity schemes are the Kaps, Vedi, and Yegvard. These are currently being financed (for feasibility studies and designs) or considered by several international donors. Lake Sevan, the largest freshwater body in Armenia, is another important multipurpose water reservoir for irrigation, hydropower, and recreational uses. The safety conditions of more than 20 of the existing reservoirs, found to pose an imminent threat to human life, were improved under two earlier World Bank-funded projects. The proposed Mastara reservoir preparation project will contribute to the Government's efforts in this direction.

### **Relationship to CAS/CPS/CPF**

The Government of the Republic of Armenia sees construction of reservoirs as one of its priorities that is stated in the Republic of Armenia 2014-2025 Strategic Program of Prospective Development (RA Government Decree N 442, March 27, 2014). And the proposed Mastara Reservoir Construction Project (MRCP) is included in the Republic of Armenia Government Program of priority actions and objectives for 2015 (RA Government Decree N 111, January 15, 2015). In addition, this project is aligned with the Country Partnership Strategy for FY14-FY17 and in particular the Engagement Area 2 - Rural economy sustainably improved. The preparation of this infrastructure project will assist the Government of Armenia in moving towards greater sustainable development of the rural economy by providing more reliable and predictable irrigation supplies to farmers and local water user associations. Similarly, enhancement of agriculture development and thereby increasing rural incomes aligns with the Bank's twin goals of ending extreme poverty and boosting shared prosperity.

## **II. Project Development Objective(s)**

### **Proposed Development Objective(s)**

To improve readiness of the Eurasian Fund for Stabilization and Development-financed Mastara Reservoir Project by supporting the relevant project preparation studies, and to enhance capacity of the Water Sector Projects Implementation Unit to prepare and implement projects.

### **Key Results**

Outputs from this grant include a feasibility study for the reservoir, including preliminary designs; a draft procurement plan; terms of reference for final designs; a draft monitoring and evaluation plan; preliminary Environment and Social Impact Assessment report (including Environmental and Social Management Plan), a Resettlement Policy Framework (including Resettlement Action Plans if sufficient information exists), and a draft Project Appraisal Document (PAD). This project will also provide training to the Government of Armenia Project Water Sector Implementing Unit (WSPIU) on a range of project implementation areas (e.g. procurement, environment and social safeguards).

### III. Preliminary Description

#### Concept Description

At this stage, only very preliminary information exists concerning the Mastara Reservoir. Based on an earlier feasibility study (from 1970), the command area of the proposed Mastara Reservoir is located in one of the water-shortage areas in the Ararat Plain. Mastara will provide additional supplies into the Armavir irrigation system. The proposed location is about 15 km from the town of Armavir, near the Mastara railway station. The total capacity of the reservoir is expected to be around 10.2 million m<sup>3</sup>, useful capacity - 8.2 million m<sup>3</sup>, the dam height will be around 30 m. The area under the command of the Armavir canal is over 20,000 ha which includes supplies from the Akhuryan Reservoir [commissioned in 1980]. Currently, additional water supplies to Armavir main canal during the most critical irrigation months (July-August) is implemented through the Talin canal from the Selav-Mastara River. The volume of supplementary supply varies between 1-2 m<sup>3</sup>/sec. Downstream of this point, irrigation is supplied to the lands of 5 communities (Nairi, Myasnikyan, Khanjyan, Lukashin and Norapat) for a total area of around 4,000 ha. About 8,000 Mm<sup>3</sup> of water are required for full water supply of these lands. After full development of lands under the command of the 1st stage of the Talin canal up to the design level of 12,000 ha, flow availability during the critical irrigation months (July-August) may be problematic. Thus, it becomes clear that construction of a reservoir on the Selav-Mastara river for regulation may be beneficial. Construction of the Mastara reservoir is expected to generate the following benefits:

- Guaranteed quantity of irrigation water on the area of about 4,384 ha located within the service areas of two existing water users associations (WUAs).
- Decrease the use of groundwater in the Ararat Plain by about 5.3 Mm<sup>3</sup> annually.
- Reduce costs of irrigation water through the conversion from pump to gravity irrigation and save annually about 2.1 million Kwhr (about USD 232,000) and associated operations and maintenance (O&M) costs (about USD 65,000 annually).
- Increase the agricultural production and the incomes of rural population: The main crops in this area are orchards, vineyards, vegetables, wheat, and alfalfa. Improved irrigation will result in higher yields/ higher share of cash crops.

As a result of the Mastara Reservoir, about 4,400 water users from six communities will benefit from the project.

This project is financed through a recipient-executed grant from ECAPDEV. These funds, which are administered and managed by the World Bank, have been selected for use in the preparation of the Mastara Reservoir project (most likely to be financed by the Eurasian Fund for Stabilization and Development) to ensure outputs that are of high quality and consistent with World Bank standards. The grant will support the procurement of consultant services whose main tasks will be to prepare, inter alia, a feasibility study for the reservoir, including preliminary designs, a draft procurement plan, terms of reference for final designs, a draft monitoring and evaluation plan, preliminary

environment and social assessment documents (consistent with World Bank safeguard policies), and the draft PAD. It is expected that the feasibility study will review various design solutions (which date back to the 1970s), specify geological and hydrogeological conditions in the reservoir area, review the quality of the hydrological data, identify irrigated lands and provide initial cost estimates and a preliminary economic analysis. Finally, the grant will also be used to support the strengthening of the operational capacity of WSPIU staff through relevant trainings. This will enhance the quality of future project implementation.

#### IV. Safeguard Policies that Might Apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	x		
Natural Habitats OP/BP 4.04			x
Forests OP/BP 4.36		x	
Pest Management OP 4.09	x		
Physical Cultural Resources OP/BP 4.11			x
Indigenous Peoples OP/BP 4.10		x	
Involuntary Resettlement OP/BP 4.12	x		
Safety of Dams OP/BP 4.37	x		
Projects on International Waterways OP/BP 7.50	x		
Projects in Disputed Areas OP/BP 7.60		x	

#### V. Financing (in USD Million)

Total Project Cost:	0.67	Total Bank Financing:	0
Financing Gap:	0		
<b>Financing Source</b>			<b>Amount</b>
Free-standing TF for ECA			0.67

#### VI. Contact point

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