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“Water Management in the South Caucasus”

Case Study: Integrated River Basin Planning of the Khrami-Debed River Basin

Armenia is a landlocked country in the Southern Caucasus region, one of the world’s oldest civilizations, yet a very young country as one of the Newly Independent States formed following the breakup of the Soviet Union in 1991. It is a mountainous country, rising from 375 meters above sea level along the Debed River Basin in the south-west to a maximum of 4,095 m at Mount Aragatz. Average annual precipitation varies from 1,000 mm in the mountains to 300 mm in the Ararat Valley, with a countrywide average of 570 mm.

Because of the dry climate the surface water run-off on the territory of the country is low. Of the total mass of rainfall (15,000-18,000 million cubic m a year), two-thirds evaporate and only one-third enters the rivers or soaks into the ground.

Armenia faces several water resources management challenges: spatial and temporal imbalances of water resources, localized areas suffering severe water shortage, huge water losses in irrigation and water supply systems, inefficiency in the use of water resources, source pollution, and increasing competition for water among irrigation, hydropower and environmental demands.

The Khrami-Debed is a part of the Kur-Araks basin. Debed is the second most abundant river in Armenia (second to Araks). The Khrami-Debed River Basin between Armenia and Georgia has been selected as a demonstration area for the process of integrated river basin planning and is the first attempt to introduce the approach in this region.

The total Khrami-Debed watershed area is 8340 km. In Armenia the area of the basin is 3790 sq. km, and in Georgia it is 4550 sq. km. In Armenia the project area includes Lori Region and partially Tavush region, and in Georgia, the Kvemo-Kartly administrative area. (Fig.1.)¹

To ensure the bilateral basis of project implementation, an Armenian-Georgian consortium has been established to work in the region.

The Armenian-Georgian team has collected and analyzed all available and accessible data related to conservation, utilization, and management of water resources in the pilot areas in order to prioritize and develop the activities on the improvement of water management in the basin.

¹ All maps were prepared for Development Alternatives, Inc. within the framework of USAID project “Water Management in the South Caucasus”

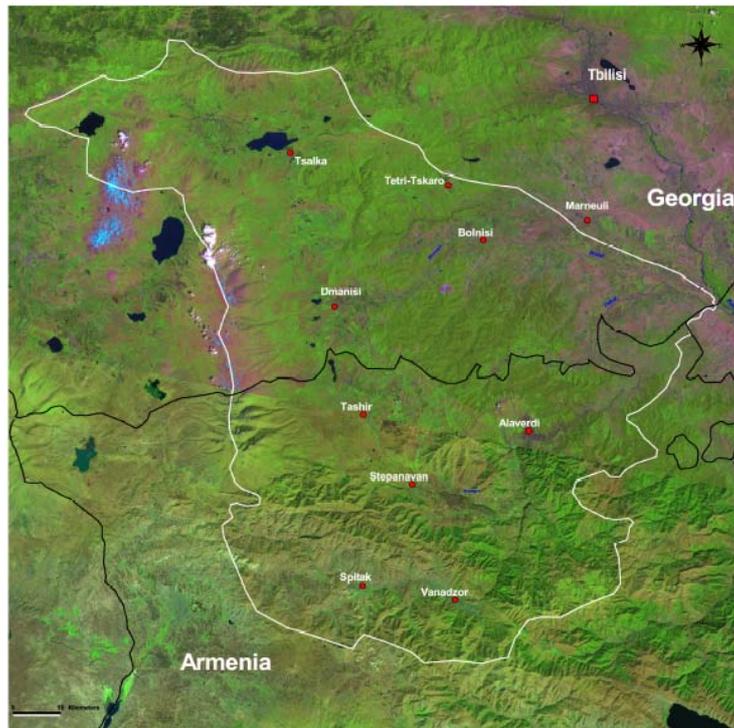


Figure 1. Mosaic of Khrami-Debed River Basin in Georgia and Armenia

The main objective was to demonstrate the process of integrated river basin planning at the local level, and to focus on capacity building in the region. The planning report was developed for the Khrami-Debed River basin in a bilateral setting between Georgia and Armenia. The main steps of the integrated river basin planning approach are:

- Selection of stakeholders in the pilot area;
- Inventory of water use in the basin;
- Assessment of water management issues;
- Promotion of public awareness;
- Preparation of proposals and implementation of pilot projects in both Armenian and Georgian basins; and
- Preparation of an integrated river basin report.

The consortium identified the stakeholders through questionnaires, and a training seminar for the stakeholder has been conducted in both Armenia and Georgia aiming to discuss and prioritize the main water resources issues in the basin, including conservation, management, and utilization of water resources.

The Armenian-Georgian team has collected and analyzed all available data related to conservation, utilization, and management of water resources in the pilot areas. An inventory of water quantity and quality monitoring facilities, and water intake and discharge sites has been prepared.

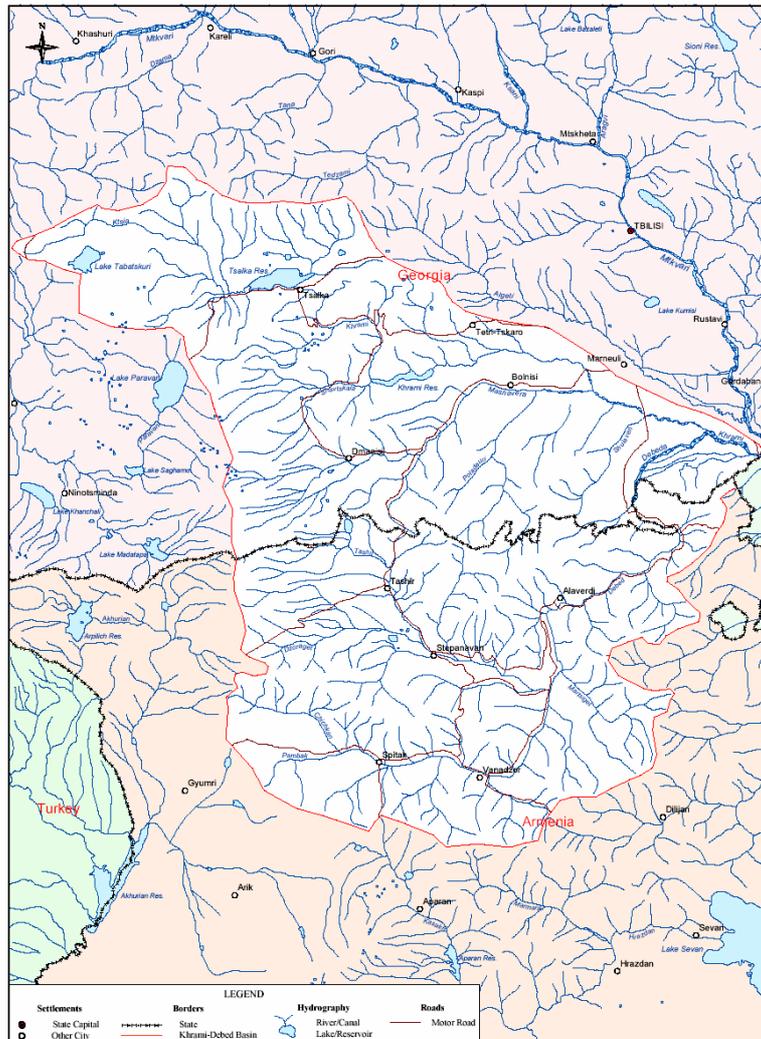


Figure 2. Khrami-Debed River Basin in Georgia and Armenia

The following issues have been identified in the Khrami-Debed River Basin (Figure 2) with regard to the conservation, management, and utilization of water resources:

- low service level in supplying drinking water to residential areas (deterioration of the network, poor reliability of supply and water treatment, high level of leakage loss, poor sanitary conditions, absence of sound management practices);

- low service level in wastewater removal (network deterioration, insufficient operation of treatment plants);
- low level of irrigation water supply (network deterioration, insufficient water volume, absence of storage, unstable operation of pump stations);
- poor technical condition of flood and mudflow protection systems (technical deterioration and obstruction of drainage channels, absence of mudflow protection measures);
- unregulated solid waste disposal (low level of residential solid waste disposal and storage, poor condition of waste dumps, absence of organized disposal of industrial waste);
- inadequate environmental protection measures (deforestation, reduction of biodiversity, low level of environmental education and training);
- low level of public awareness about environmental and water resources issues and lack of public involvement in environmental decision-making process;
- underdeveloped institutional and legal framework (imperfect laws and institutions, poor enforcement of laws).

A series of project proposals was developed with the assistance of stakeholders, in order to address the management needs in the Basin (Figure 3). Proposals were evaluated, prioritized, and divided into three main groups:

- Investment measures that provide restoration, repair, construction and other physical activities for implementation;
- Technical evaluation and assistance projects that envisage support to the organizations for the operation of water systems, and improvement of the monitoring and the methods used for data collection, analysis, dissemination, and sharing; and
- Public awareness and education that would provide support to these specific areas including environmental and other training.

For the effective implementation of the integrated river basin approach it is absolutely necessary to involve the local stakeholders. With this purpose, seminars were organized in both Armenian and Georgian pilot areas to present the proposed projects to the stakeholders and consider their suggestions during the process of prioritization of the projects. A total of 121 projects were identified through this process.

Public awareness campaigns were conducted both in Armenia and in Georgia, with the active participation of a broad range of the public. The meetings and seminars were aimed at raising public awareness on water resources management and environmental issues. Information leaflets in Armenian, Georgian and English languages have been prepared and distributed among participants and interested parties. Various articles about the project goals, the current implementation status, and about existing procedures for conservation, management, and

utilization of water resources have been published in local and national newspapers. A television appearance and a contest among the journalists for the best coverage of Khrami-Debed River Basin issues have been organized.

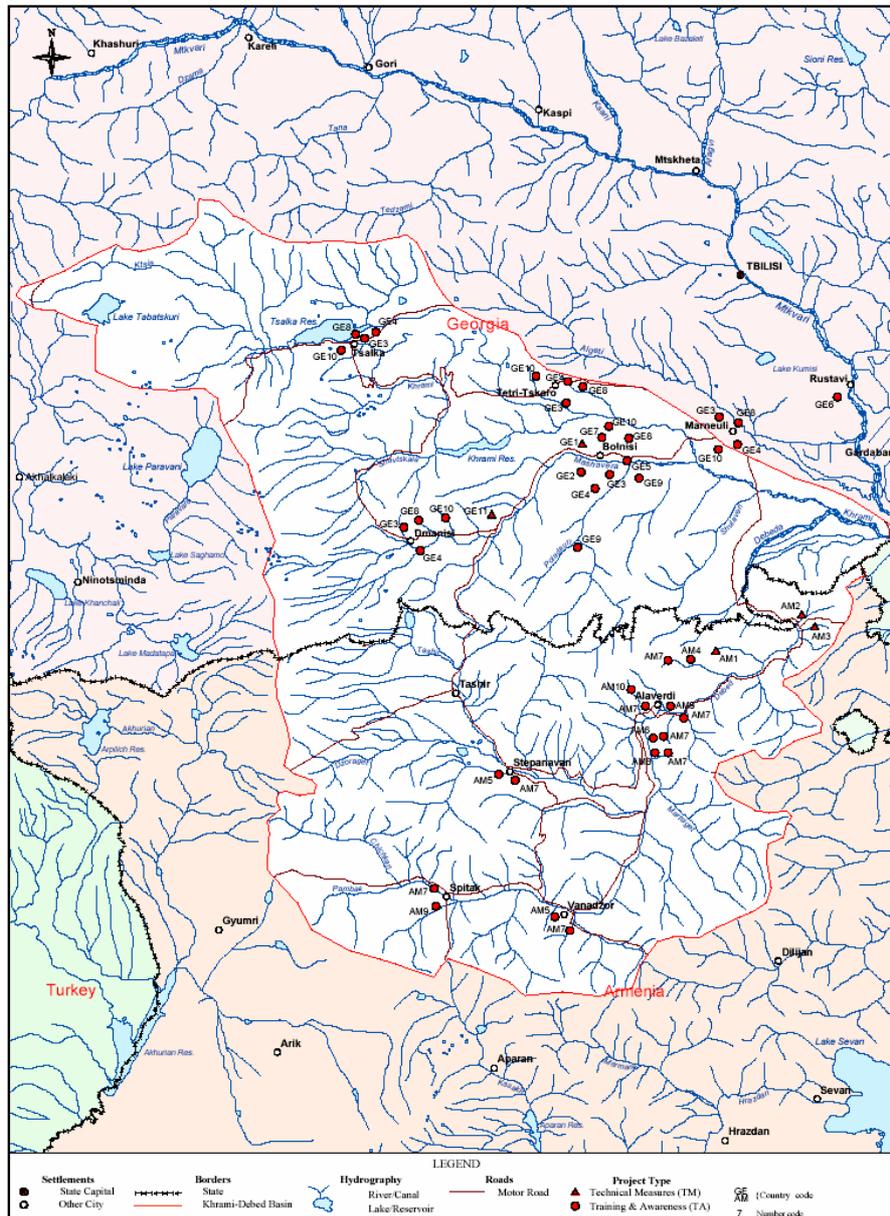


Figure 3. Location of Pilot Projects in Khrami-Debed River Basin.

A preliminary integrated river basin report was prepared by the Consortium in order to support the concept of integrated river basin planning in the region and facilitate the implementation of

this approach. The preliminary report was submitted to stakeholders in Armenia and Georgia and later discussed in a joint Armenian-Georgian seminar.

Twenty one pilot projects that require small investment and can be implemented in a short-term have been prepared. They could be divided into two categories: technical measures, and training and awareness. These projects are aimed at mitigating local problems while getting the local population, NGOs and community-based organizations involved in water resources issues.

A final integrated river basin planning report for the Khrami-Debed Basin was developed by the Armenian-Georgian team and included the proposals for river basin management and implementation of priority projects. An action plan including possible implementation deadlines and required investments has been developed, based on the information obtained during the project and discussions of the preliminary integrated river basin report. The investments are envisaged to be from both local and donor sources.

Another principal task in the implementation of Integrated Basin Management approach is the formation of a River Basin Council (RBC), and at this stage of the integrated basin planning it was recommended to focus on the following issues:

- Gradual implementation of the basin management approach for the river basin,
- Development of an institutional management structure for the basin, and
- Establishment of a council framework defining the functions and responsibilities.

A series of issues remains to be addressed for effective river basin management in the Khrami-Debed River basin. This demonstration project, as well as a recently conducted seminar on Basin Council, which has initiated discussions with stakeholders on considerations for a basin council aimed at supporting river basin management in Debed River Basin, has shown that there is great interest in the pilot area to proceed with this approach.

The draft institutional framework for River Basin Council in Debed River Basin has been prepared, which implies the establishment of two functional units (technical and advisory board) and a secretariat. The Technical Unit will have the following functions:

- collecting hydrological and water quality data from the regional offices of Hydrometeorology and Environmental monitoring Agency, Health and Sanitary-Epidemic institutions, etc.;
- maintaining the water resources database, and conduct the GIS simulation of the basin hydrology (floods, disaster management, erosion control, pollution control, etc.);

- dissemination of technical and assessment reports in user-friendly format for general public, and
- public awareness activities (through newsletters, leaflets, posters, television and the mass media).

Advisory Board will:

- prepare expert reports and recommendation for decision makers and the Debed River Basin stakeholders;
- prepare investment proposals for donor organizations, and conduct fundraising activities for RBC;
- conduct public monitoring and quality control on use of water resources and wastewater treatment;
- serve as a liaison/coordinator for inter-sectoral activities within the local government and other responsible institutions for integrated river basin management and effective use of water resources.

Two alternative suggestions for the structure of a River Basin Council are: a government-related organization (financially independent of government, but “sponsored” by the department responsible for water management to provide advice on management-related issues), and a registered NGO. In the initial stage of operation, practical considerations may dictate the type of structure used for the council.

The Council must be perceived as a stakeholder group to provide advice and feedback on water management issues, providing a real channel of communication and interaction on such issues.

In order to succeed with the development of River Basin Councils it is necessary to harness the momentum already gained in the mobilization of stakeholders into the expectation of a role in water management issues.