



Akhuryan River Basin District

DRAFT MANAGEMENT PLAN



The project is funded
by the European Union



This project is implemented by a consortium
led by Hulla & Co. Human Dynamics KG



The Environmental Protection of International River Basins (EPIRB) project aims to improve the quality of water in transboundary river basins in the wider Black Sea region and Belarus, including Armenia. One of the objectives of the EPIRB project is to improve technical capacities by developing river basin management plans (RBMPs) that conform to the EU Water Framework Directive (WFD) for selected river basins.

The Akhuryan River Basin District is one of five pilot basins chosen for the project.



ABOUT THE AKHURYAN RIVER BASIN DISTRICT

The Akhuryan River Basin District combines the Akhuryan River Basin and the Metsamor River Basin into a single management area.

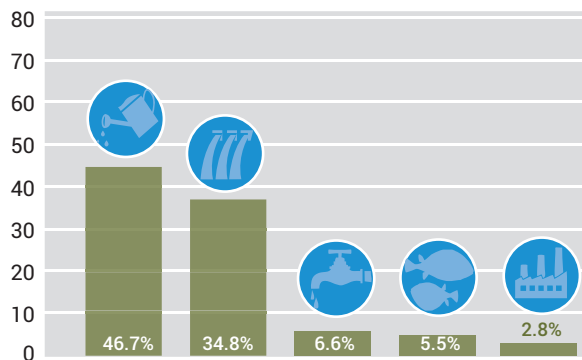
Total area:
5,029 km²

Location: The Akhuryan River Basin is located in western Armenia. It is bordered by Georgia to the north and Turkey to the south and west. The Metsamor River Basin runs along the Akhuryan River Basin's eastern border, also bordering Turkey to the south.

Population: 548,000 people, living in six urban and 253 rural settlements. The largest settlement is Gyumri, in the Akhuryan River Basin, with a population of 121,000.

WATER USE

Total permitted water use: 1,193 million m³ (2014)



- Akhuryan - Metsamor Pilot Basin
- Larger Akhuryan - Kars Basin

- Irrigation
- Hydropower
- Drinking water
- Fisheries
- Industry

The EU Water Framework Directive

is a comprehensive and ambitious body of EU environmental legislation that aims to protect and restore the quality of waters across Europe. It organises water management efforts based on natural geographical formations, such as river basins.



What is a river basin management plan?

River basin management plans (RBMPs) are integrated planning documents that describe the characteristics and challenges of a river basin. Their purpose is to outline a comprehensive set of measures in order to find solutions to complex problems that threaten the aquatic environment. River basin management is a continuous process of planning and delivery, and it is recommended that plans be updated every six years.

The Draft Basin Management Plan for the Akhuryan River Basin District was developed according to the approaches and methodologies of the European Union Water Framework Directive (WFD) and national water legislation of Armenia.

This draft plan describes the river basin district and investigates the pressures that pose a threat to its water environment. It shows the impact of these pressures on the state of the waters, identifies what types of improvements are possible, and recommends taking specific actions to ensure that the combined efforts achieve the improvements needed in the Akhuryan River Basin District.

Cooperation between stakeholders has been of vital importance in drafting the plan, and will also be necessary in performing actions that can preserve suitable conditions for both the human population and the natural environment. Government bodies, local communities, NGOs and enterprises now have an opportunity to benefit the entire region by working together to achieve the sustainability of the water environment.

A river basin is an area of land with the characteristic that all of its surface water runoff is conveyed to the same outlet, such as a river, lake or sea.

A river basin district is a land area covered by a river basin management plan. River basin districts may comprise one or more river basins, as well as associated groundwater and coastal waters.

The role of the Water Framework Directive

The availability of safe, high-quality water is essential to society. People need water for drinking, farming, producing electricity and manufacturing goods.

Modern society also imposes many pressures on water – from pollution to overuse. And because water is constantly flowing from one place to another, threats to water quality in one river may harm an entire river system.

The aim of the EU Water Framework Directive (WFD) is to establish an integrated approach for protecting the quality and availability of freshwater resources. It is implemented through river basin management planning and requires that other environmental priorities, economic considerations and social issues are considered and taken into account.

The WFD stresses the importance of frequently studying plant and animal species that are directly dependent on surface waters. Ecological aspects are a top priority in river basin management and should therefore be monitored extensively. Living organisms are good indicators of the health of rivers and lakes because they react quickly to changes in their environmental conditions.

According to WFD requirements, “good” status must be achieved in each water body in a river basin district. This means meeting targets for minimising both the level of pollutants and damage to natural ecosystems in surface waters. Groundwater must also meet targets for minimum pollutant levels, and aquifers must not be depleted by overuse.

A water body is an area of surface water or a supply of groundwater with characteristics that distinguish it from other waters around it. A water body may be a lake, a reservoir, a whole or part of a river, a stream, a canal, transitional water, a stretch of coastal water, or a groundwater aquifer.

Good ecological status is defined as a slight variation from undisturbed natural conditions. As artificial and heavily modified waters are not able to achieve this status, the target for these waters is good ecological potential.

WATER FRAMEWORK DIRECTIVE PLANNING SEQUENCE



Water monitoring

involves the collection of data according to a consistent methodology in order to determine and evaluate the status of a given water environment. Field-based inspection, automated monitoring stations and laboratory measurements conducted on samples are performed in combination to monitor water status.



MONITORING

In order to ensure good water quality, water bodies must be frequently monitored. The monitoring programme for river basin management is based on a wider range of assessments than those carried out in the past. As such, in the Programme of Measures (PoM), a new monitoring system is proposed for the Akhuryan River Basin District that will meet the requirements of the WFD by 2021. The system will monitor flow rates, ecological status and chemical status in surface waters, and chemical and quantitative status in groundwater.

Monitoring is essential for effective river basin management. The use of monitoring data helps to classify water bodies, assess human threats and natural changes, and determine the effectiveness of measures for improvement. Comprehensive water quality monitoring provides not only the means to monitor progress in improving water quality, but also the ability to quickly identify and resolve new threats.

KEY STATISTICS

CURRENT MONITORING SYSTEM IN THE AKHURYAN RIVER BASIN DISTRICT

MONITORING LOCATIONS	AKHURYAN RIVER BASIN	METSAMOR RIVER BASIN
Surface water	13	13
Groundwater*	0	7

* Based on EPIRB project recommendations, 30 groundwater monitoring posts have been added since January 2015, financed by the Government of Armenia.

STATUS CATEGORIES UNDER THE WATER FRAMEWORK DIRECTIVE

A water body's status indicates the degree of deviation from its natural condition. The further a water body deviates from its natural condition, the worse its status.

Ecological status may be affected by modifications to the physical shape of a surface water body (its hydromorphology). Modifying a water body's hydromorphology may damage its natural ecosystems.

For surface waters, "good" status consists of an ecological and a chemical component, and the classification uses the poorest individual element result to set the overall classification. For groundwater, quantitative and chemical components are assessed separately but are then combined to provide a single, overall classification.

Heavily modified and artificial water bodies

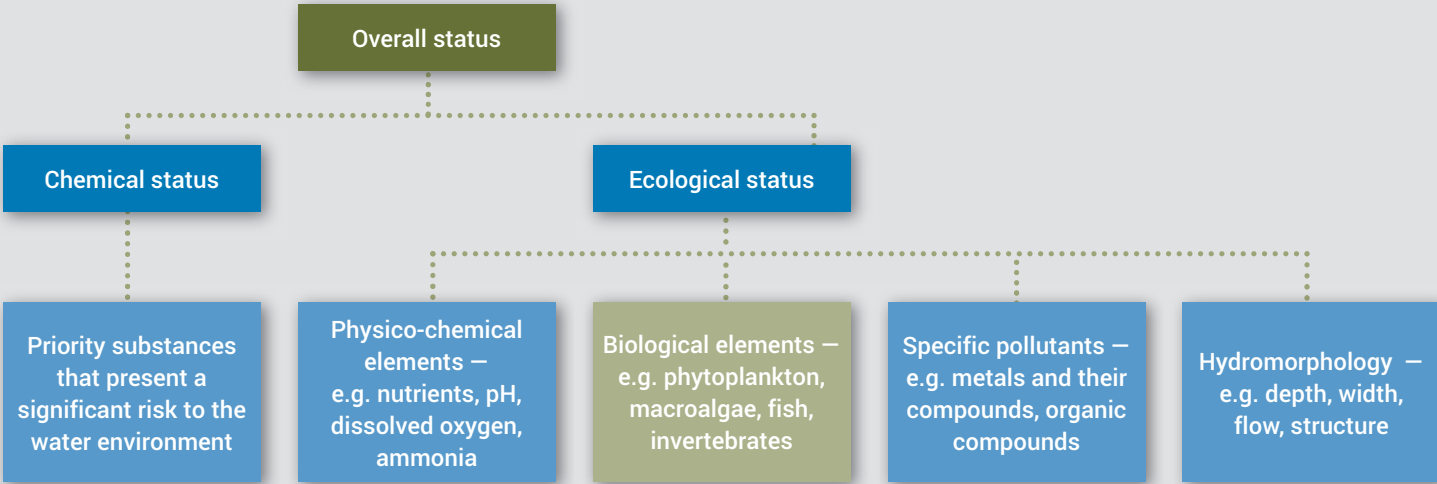
are bodies that have been altered for human use — irrigation or power generation, for example.

AIMING FOR IMPROVEMENT

While the goal of the WFD is to achieve "good" status in all water bodies, this is not always immediately possible. In some water bodies, environmental objectives may have to be lower if reaching "good" status is unfeasible or prohibitively expensive.

Heavily modified and artificial water bodies must meet as many characteristics of "good" status as possible, given the physical changes that have been made. Artificial and heavily modified water bodies are measured against "ecological potential" rather than status.

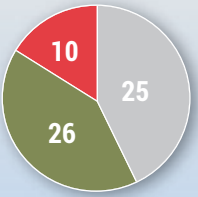
THE COMPONENTS OF OVERALL STATUS FOR SURFACE WATER BODIES



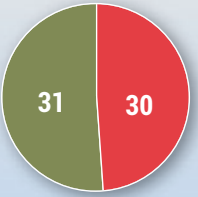
ENVIRONMENTAL OBJECTIVES

SURFACE WATER

In total, 61 surface water bodies have been delineated, of which 21 are heavily modified or artificial.



2015



2021



2027

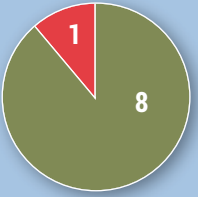
WATER BODY STATUS ASSESSMENT

- Good or better
- Moderate or worse
- WFD-compliant monitoring not available

The chart indicates both the number and percentage share of water bodies for each status category.

GROUNDWATER

In total, 9 groundwater bodies have been delineated.



PROGRAMME OF MEASURES

The Programme of Measures (PoM) is the core of the RBMP for the Akhuryan River Basin District, as it actually describes how the environmental objectives can be met. Different water bodies need different approaches to achieve “good” water status, and addressing them is only possible through stakeholder collaboration.

The PoM examines the actions needed to properly deal with water issues. Tackling pollution, for example, often requires new legislation or better law enforcement to be in place. The proposed measures operate at a variety of different geographic scales: some of them apply across the country, while others are more localised.

Various economic aspects of the proposals were explored in order to strike a good balance between financial costs and the prioritisation of measures. A cost-effectiveness analysis was conducted in order to estimate budget costs and to assess the usefulness of prospective actions.

The table on the next page showcases important identified water issues and provides a short description of the proposed measures.



CURRENT WATER PRESSURES AND PROPOSED MEASURES

PRESSURE

Untreated wastewater from cities, the food industry, mining and other industrial sites causes organic pollution and chemical pollution.

PROPOSED MEASURES

Two new wastewater treatment plants for the urban areas around Gyumri and Armavir will be built, and steps to introduce best available technologies in industry are being proposed.



PRESSURE

An artificially straightened section of the Akhuryan River has disrupted natural flow rates and ecosystems.

PROPOSED MEASURES

A three-step project will focus on research, design and implementation of the construction works needed to restore the river to its original meandering path.



PRESSURE

Groundwater supplies along the Metsamor River have been depleted, and ownerless wells are not sufficiently maintained.

PROPOSED MEASURES

Existing illegal and abandoned wells will be closed, and a review of permits for groundwater use will be carried out.



CURRENT WATER PRESSURES AND PROPOSED MEASURES (CONTINUED)



PRESSURE

Farming and livestock-rearing activities — mainly the prevalent cattle-breeding practices — lead to nutrient pollution.

PROPOSED MEASURES

Current agricultural practices will be reviewed and codes of good agricultural practice, including a system for managing manure, will be adopted.



PRESSURE

Water abstraction is extensive, while fish farming is responsible for uncontrolled water discharges.

PROPOSED MEASURES

Best available technologies will be introduced, and a fresh inventory of all operational fish farms will be made.



PRESSURE

Minimum ecological flow is not maintained due to violations by several small hydropower plants.

PROPOSED MEASURES

Water use permit conditions will be reviewed, and authorities will facilitate improved conditions for enforcement.

PUBLIC PARTICIPATION

The involvement of stakeholders that are fully informed is essential in developing a well-founded RBMP. Three public meetings were held in Gyumri from 2012 to 2015 with the participation of 80 representatives of stakeholder organisations. In addition, the general public was given the opportunity to provide written feedback and comments until May 31, 2015.

As a result, the contributing partners have played an active role in shaping the document. During the development of the management plan for the Akhuryan River Basin District, a total of 40 comments and responses were collected, most of which have been incorporated in the final version of the draft plan.

IMPLEMENTING THE RBMP

The government authority responsible for implementing the RBMP is the Akhuryan Water Basin Management Authority. This body is a division of the Water Resources Management Agency of the Ministry of Nature Protection of Armenia.

Stakeholders in a river basin include government authorities, basin organisations, NGOs, residential and business water users, the scientific community, journalists, downstream states and the general public.





This publication presents at a glance the Draft River Basin Management Plan for the Akhuryan Basin Management Area, prepared in the framework of the EPIRB project. The full Draft River Basin Management Plan is available at <http://blacksea-riverbasins.net/en/pilot-basins/akhuryan-basin-akhuryan-and-metsamor>

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