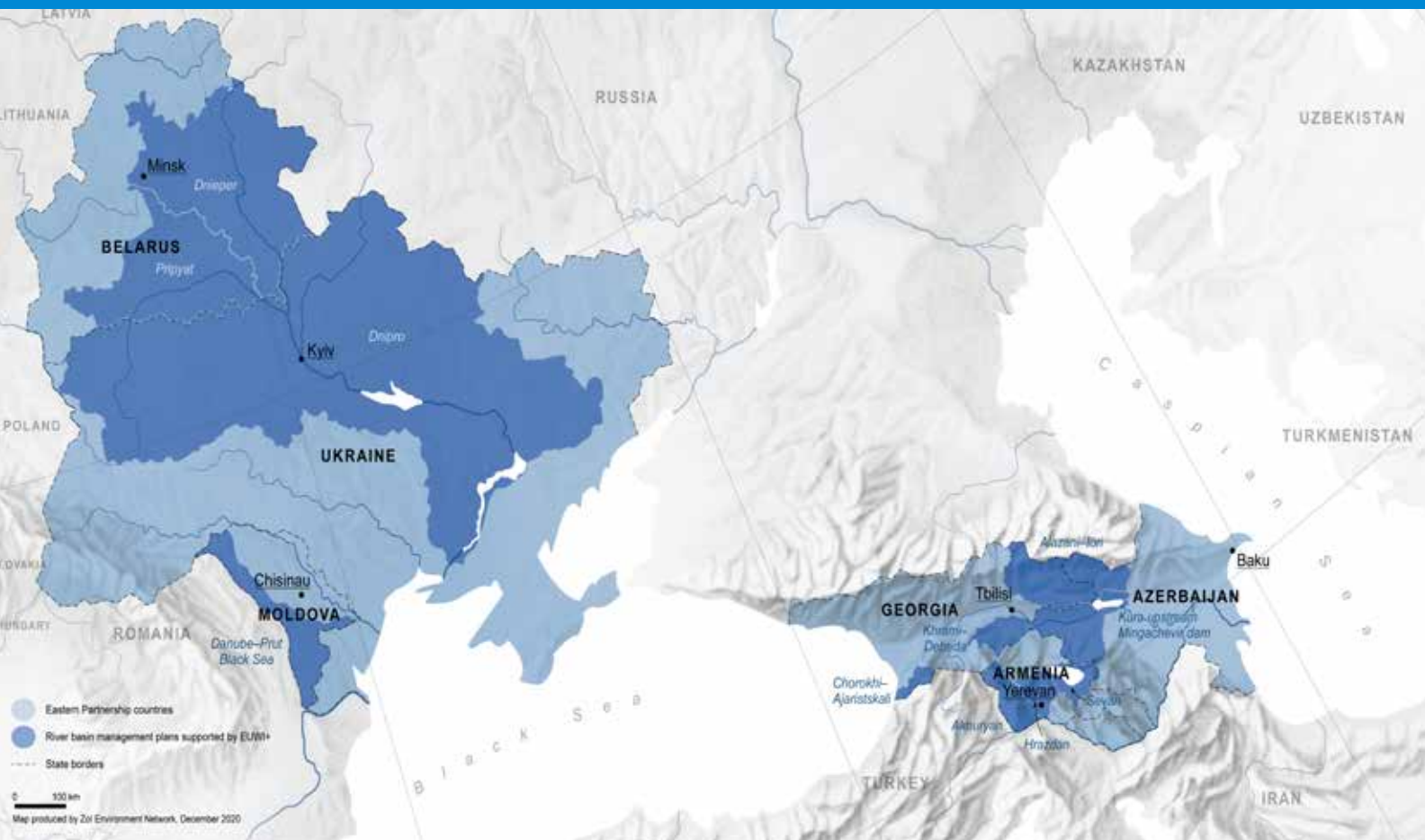


Water Policy Highlights Armenia



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In 2016, a major EU-funded project, the European Union Water Initiative Plus (EUWI+), was started to help strengthen water management in Armenia and the five other EaP countries. The European Commission selected the OECD and UN Economic Commission for Europe (UNECE) along with the EU member states of Austria (Environment Agency) and France (International Office for Water) to jointly implement the project. With EUR 23.5 million from the EU budget and EUR 1 million from Austria and France, the EUWI+ project aimed to strengthen management of national and transboundary water resources and develop tools to improve the long-term quality of all waters. It included EUR 6 million of direct investments in the EaP countries including Armenia to improve river basin policies, management planning and water quality monitoring.

With the project ending in mid-2021, this summary highlights milestones of EUWI+ in Armenia. It recalls the state of water governance that led to the creation of the project. It highlights efforts to strengthen management of water resources at the national level and also in transboundary rivers. It also identifies tools developed to improve the long-term quality of all waters. Finally, it identifies outstanding issues for further action.



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Water management is a key environmental challenge for Armenia

Water Governance

The Eastern Partnership (EaP) builds on the willingness of the EU's six Eastern neighbours – Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova and Ukraine – to align their policies and legislation to the European Union. EaP countries share a legacy of environmental problems and face new pressures, including from climate change, as they pursue economic growth and benefits for citizens. Environmental co-operation is thus a principal focus area of work for the EaP.

While EaP countries update their environmental legislation, they also need to strengthen administrative capacity; enforcement of legislation; and public participation and awareness of environmental challenges. There are important links between poverty and the environment, such as access to clean drinking water and appropriate sanitation.

Addressing transboundary resource management and pollution is another complex issue, which includes ensuring the necessary institutional and legal frameworks are in place. EaP countries need to strengthen procedures for implementing commitments under multilateral environmental agreements. They also need to strengthen their capacity to implement projects financed by international organisations and donors.

Armenia has invested significantly in water supply but sanitation and pollution from industry remain critical issues. Other challenges include financial sustainability of IWRM processes, including river basin management.

Better environmental policies bring significant economic and social benefits. A strong water sector that supports the population, all sectors of the economy and the environment is a key part of this process.

Proper management of water resources plays a key role in the socio-economic development of Armenia. About 80% of the country's crops are irrigated, with agriculture accounting for 15% of gross domestic product. Net income per hectare, in general, is higher on irrigated lands. Hydropower accounts for 40% of total electricity production. Groundwater is the source of 96% of drinking water. Thus, availability of water resources and their management are important determinants of the country's overall macroeconomic performance.

With the engagement of the World Bank in the early 2000s, the government of Armenia initiated a targeted programme to strengthen management of the water sector and also revised its legal and institutional framework. These changes were incorporated in the Water Code (2002) and subsequent National Water Policy (2005) and National Water Programme (2006). These updated documents provide the legislative foundation and framework (and concomitant institutional bodies and processes) for ensuring the sustainable management and development of water resources in the country.

Since these documents were revised, the government has recognised the importance of integrated water resources management (IWRM). With assistance of numerous donors, it has introduced several major institutional and policy reforms over the past decade to bring IWRM to the forefront.

Armenia has made some progress, but key challenges remain. The country has invested significantly in water supply, for example, but sanitation and pollution from industry remain critical issues. Other problems are financial sustainability of IWRM processes, including river basin management, weak institutional (capacity) framework, and insufficient water quantity and quality monitoring programmes. There has been concern over the management of groundwater resources, a major source of public water supply. Indeed, Armenia recently completed a major national study on water supply supported by USAID.



The management of Lake Sevan to the north of Yerevan is a major challenge. Energy and irrigation demands on the lake resulted in a dramatic drop in water level that threatened its unique ecological and economic value. Despite support from donors that helped the lake steadily increase water levels, the issue has not been completely resolved. Armenia was committed to approximation of the EU environmental acquis and to sign an Association Agreement. By 2016, there had been no specific recommendations regarding approximation of the Water Framework Directive (WFD) and other key environmental directives.

The EUWI+ project

In 2016, a major EU-funded project, the European Union Water Initiative Plus (EUWI+) was started to help strengthen water management in Armenia and the five other EaP countries. The European Commission selected the OECD and UNECE along with the EU member states of Austria (Environment Agency) and France (International Office for Water) to jointly implement the project. With EUR 23.5 million from the EU budget and EUR 1 million from Austria and France, the EUWI+ project aimed to strengthen the management of national and transboundary water resources and



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The regional EUWI+ project built on results from earlier EU-funded water governance actions in EaP countries. These included facilitation of the EUWI National Policy Dialogues by the OECD and UNECE in 2006-15, as well as the EU Environmental Protection of International River Basins (EPIRB) project.

EUWI+ has also drawn synergies with other EU-funded projects and activities, including the Shared Environmental Information System (SEIS) East project. The SEIS aims to facilitate access to environmental information and its integration into the knowledge-based economy.



Development of Armenia's national water policy to 2016



Although political support for the water sector is strong, the water management framework has not kept pace with capital investments, needed operational budget and detailed planning in the water supply sector. The Environmental Monitoring and Information Centre (EMIC) laboratory in Yerevan has received technical assistance and equipment from a range of international projects, but its capacity in 2016 remained restricted. The Ministry of Nature Protection recognised the EMIC premises were no longer fit for purpose. It is working to address these issues, as well as to increase the laboratory's capability and coverage.

Monitoring and analysis

Water quantity monitoring programmes have received assistance from several international projects dating to 2000. While key station locations have been refurbished, there has been no concerted investment as in other countries. The EU Environmental Protection of International River Basins (EPIRB) project provided minor assistance to improve hydrological monitoring in the Akhuryan pilot basin. However, the needs of other basins, as identified in river basin management plans (RBMPs), remain unaddressed. There are barriers to effective water resource management.

Water quality monitoring is limited partly by laboratory constraints but more importantly by operational budgets. These constraints are compromising the effectiveness of the permitting and licensing of pollution discharges, as well as their policing. A series of EU projects has provided technical assistance in initial biological and ecological classification. This was as a cost-effective measure to enhance surveillance monitoring. In the last project, which took place in 2016, the EPIRB undertook regular surveys in the Akhuryan basin. However, technical capacity was still limited and needed further support, particularly around ecological monitoring (biology, hydrology).

Groundwater resources are of great importance for public water supply in Armenia, requiring close regulation and monitoring of both quantity and quality. However, the monitoring network is inadequate and needs urgent refurbishment. USAID has supported a large technical assistance project targeting the Ararat Valley. For its part, the EPIRB helped refurbish a monitoring borehole and ten water supply springs in the Akhuryan basin. The borehole project aimed to help police

water abstraction for fish farming, which was threatening water supplies. Further support is required.

River Basin Management

By 2016, Armenia had prepared RBMPs for two river basin districts (Ararat and Southern). The plans respected Armenian guidelines and included water balance calculations. However, they are not fully compliant with the WFD, particularly those supported by non-EU countries in the south. Under the EPIRB, it developed the Akhuryan RBMP, but implementation has been fragmentary. The three RBMPs have been officially adopted. The Basin Council has not been sustainable.

Transboundary water management

In 2009, Armenia participated in the Kura-Aras regional project supported by the United Nations Development Programme and the Global Environment Facility. The project produced a transboundary diagnostic analysis of the basin's problems and issues and a strategic action plan. Armenia and Georgia have co-operated on the Khrami-Debed River since a USAID project in 2000. The countries jointly assessed the shared Kura basin under the EU Kura project I and II; these assessments, including biological monitoring, continued under the EPIRB project. Armenia also has a bilateral agreement with the Islamic Republic of Iran on the Araks River; the parties meet annually to agree on water quotas.

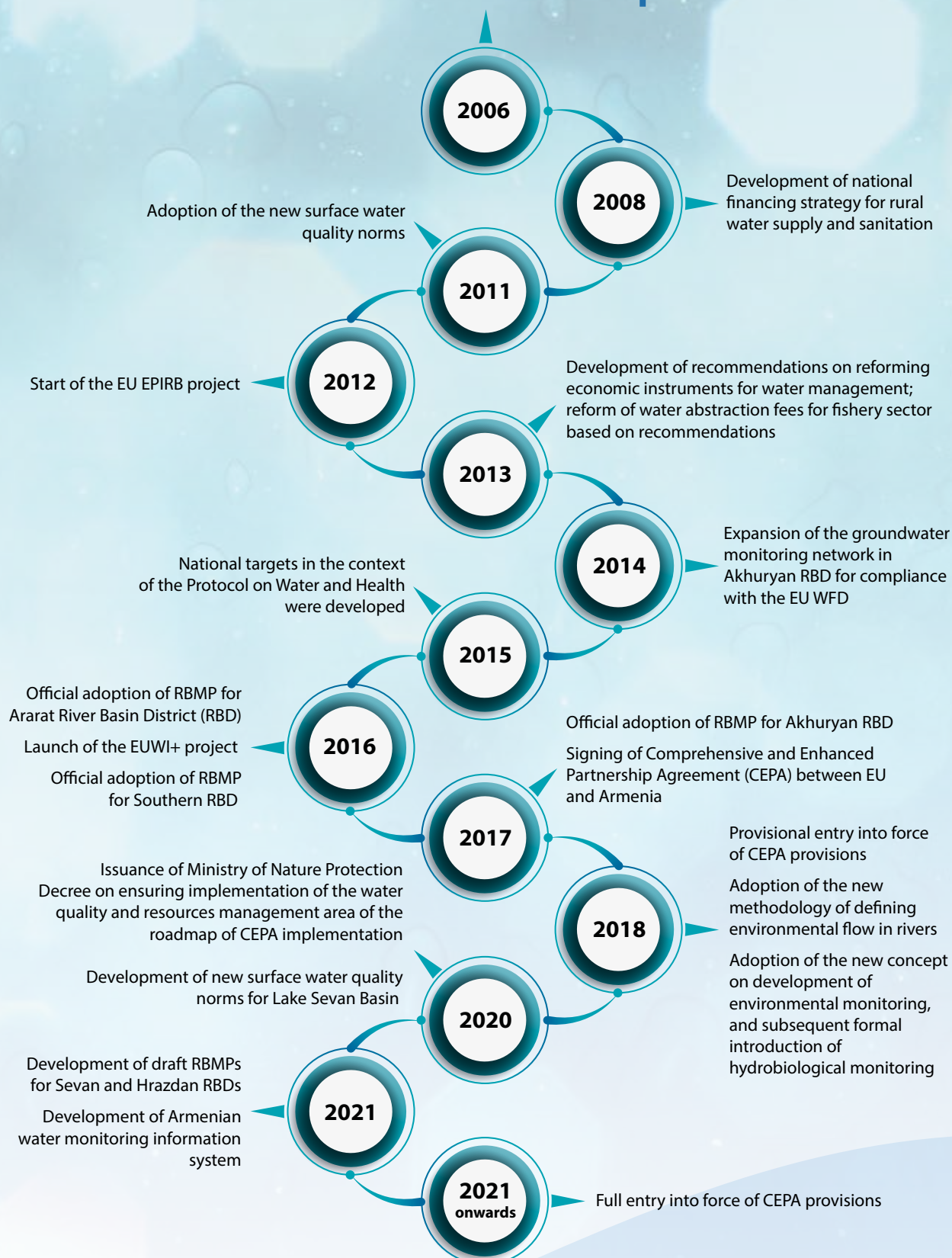
Data management

Armenia has one of the most comprehensive water cadastres in the region, which is managed by a dedicated department in the ministry. The cadastres are a strong tool in licensing, permitting and policing of water resources. As of 2016, further improvements were still required, including the integration of groundwater databases.

Capacity

Armenia has high technical capacity and expertise so they are not barriers to implementation. Many non-governmental organisations and private consultancies have been established in the water sector.

Launch of the EUWI NDP process



EUWI+ project support to water policy reform in Armenia

Alignment with EU legislation and good practice

The EUWI+ project helped the Ministry of Environment prepare its detailed Roadmap for the water sector in implementation of the Comprehensive and Enhanced Partnership Agreement (CEPA) with the European Union. This will be the guide for the next steps beyond the end EUWI+ in July 2021. The Roadmap, officially adopted in July 2020, is a good example of a strategic document for the sector in the region.

In addition, the EUWI+ helped the Ministry of Environment to amend the Water Code of Armenia, the Republic of Armenia Law “On the National Water Program” and Law on National Water Policy. These documents now comply to the EU WFD. The project also promoted equitable access to water supply and sanitation.

Strengthening economic and financial dimensions of water management

At the national level, the project assessed subsidies to the irrigation sector over the last decade. Building on these findings, it proposed options to phase out subsidies, making

more targeted allocations for the sector. It also proposed more efficient financial performance of water user boards, leading them to become independent and self-financed. Government agencies responded well to the proposals, which could serve to drive reforms in the sector.

The EUWI+ project in Armenia has also strengthened its monitoring programmes and infrastructure, an objective led strongly by the country itself. At the beginning of the project, Armenia was not subject to the obligations of an Association Agreement with the European Union or bound by any timetable. It could thus define its own management priorities. Armenia has had a long history of water resources management, having probably developed the first post-Soviet water strategies in the region.

Improved water monitoring and analysis

The EUWI+ project improved surface water and groundwater quantity and quality monitoring. To that end, the project has supported rehabilitation, re-equipping and construction of existing and new monitoring sites in Sevan and Hrazdan RBDs. This includes 6 hydrological posts, 50 irrigation hydro-posts and 25 groundwater monitoring springs, wells and boreholes.



The project selected sites for refurbishment and re-equipment after consultation with several executing organisations and assessments of the hydrological and hydrogeological monitoring systems to determine the most cost-effective locations. EUWI+ supported the development of a national methodology for the assessment of the available groundwater resources in mountainous regions, an important foundation when assessing groundwater status.

The premises of the EMIC central laboratory (renamed the Hydro-meteorology and Monitoring Centre in 2020) were known to be inadequate and were restricting operations. The EUWI+ team recognised this issue early in the project, deciding that new laboratory equipment need modern facilities. The project entered into a series of high-level discussions with the minister to resolve the problem. Rather than refurbishing the laboratory, the ministry proposed moving it to the Institute of Chemical Physics on the outskirts of Yerevan, which had the space and services to accommodate the facility. The project then had to design and build the new facility and transfer the existing laboratory from central Yerevan within a limited budget. The ministry and European Union agreed on a plan to share the cost through in-kind and cash contributions. The ministry and EMIC were responsible for the execution of the works. The completely refurbished laboratory officially opened in January 2020 following delivery of various of state-of-the-art analytical equipment in December 2019. This is a model example of how the project recognised the beneficiary's needs and constraints and has shown flexibility in its execution approach to meet the demands.

River Basin Management

The project worked with the ministry and 20 national consultants to develop two WFD-compliant RBMPs in the Sevan and Hrazdan RBDs. These plans are in approvals following public consultations and Environmental Impact Assessment processes. They provide integrated investment and financial plans for the water sector at the basin and national levels. Around 50% of the amount of the identified measures concern sanitation, and 30% for drinking water supply. From the experiences gained, EUWI+ supported the development of guidance documents related to RBMPs' content and associated public participation. Concerning Akhuryan RBD, EUWI+ supported the revision of the RBMP (protected areas register, calculation of environmental flow for the whole basin, update of selected measures). The revised Akhuryan RBMP has been adopted in 2021.

Improved environmental performance

Lake Sevan was the subject of a major study in the early 2000s due to concerns of falling water levels and increasing demands of the irrigation and energy sectors. A programme to restore the lake to acceptable levels and conserve its unique ecosystems and biodiversity was enacted in 2001. The programme has been successful but pressures still remain. Demand for irrigation water is still high, particularly in drought years. The need to monitor water flows within the lake system and the downstream irrigation systems is critical for management of the lake's resources. With the help of the EUWI+ project, Armenia drafted and adopted new water quality standards for Lake Sevan



and the Lake Sevan RBD. This is a major step towards determining the water quality of the lake and its rivers, which will guide investment decisions for wastewater collection and treatment in this region. This is important, as Lake Sevan is an important tourist attraction and protected area (national park).

Multi-stakeholder dialogue as a driver of policy reform

The National Policy Dialogue (NPD) on water has supervised the national water policy reform process. A multi-stakeholder platform with cross-ministerial support, the NPD recognises the horizontal nature of water and its importance to the citizens and economy of Armenia. It has also brought together donors and other international projects to share experiences and identify synergies to aid implementation and streamline progress.

Data management

The project has helped Armenia to develop a new national water quality and hydromet database including visualisation of all historical data implemented on a local server at Hydro-meteorology and Monitoring Centre (HMMC). It requires the creation of the first interoperability processes available between the platform and HMMC database. As a first step, digitalization of all historical hydrological data have been organised to valorise the datasets. This intervention has helped Armenia develop its surface water cadastre by creating the Armenian Water Information System, which can be considered as a big step in implementing IWRM in the country.



Water policy reform achievements

Improved strategic planning builds confidence, attracting donor support at international, national and local levels

- development of WFD-compliant RBMPs in the Sevan and Hrazdan RBDs, revision of Akhuryan RBMP
- development of a national methodology for the assessment of the available groundwater resources in mountainous regions.

Water sector becomes increasingly aligned with EU legislation and good practice; the public are increasingly involved in water management

- assistance in development and adoption of the Roadmap for implementation of the Comprehensive and Partnership Agreement with the European Union in the water sector.
- In line with the roadmap, support to preparation of amendments to the Water Code and other key legal acts on water resources
 - New water quality standards for Lake Sevan.

International commitments and transboundary water management are well integrated and drive sector progress

- national targets in the context of the UNECE-WHO/Europe Protocol on Water and Health revised
- support to transboundary water co operation with Georgia on the Khrami-Debed River including a first joint survey and monitoring programme
- support to preparation of the national report under SDG 6.5.2 on transboundary cooperation

Improved monitoring and data management inform high-level decision making and resource prioritisation

- relocation of the central laboratory to newly refurbished premises on the outskirts of Yerevan and investment in laboratory equipment
- production of new data from innovative field surveys and staff trainings,
- development of quality assurance for accreditation of the laboratory
- raising and development of type-specific WFD Ecological Classification Systems for benthic invertebrates
- refurbishment of hydrological monitoring stations in the Hazdan Basin and rehabilitation and construction of groundwater monitoring sites in the Sevan and Hrazdan Basin to improve water resource planning
- establishment of a data management platform to ensure data exchange and enhanced knowledge on IWRM.

Stakeholder engagement increased and cross-sector importance of policy coherence recognised

- series of National Policy Dialogues on Water active with strong political support and integrated approach
- guidance document for public participation in RBMP planning process.

Future opportunities for the national water policy reform journey

The four-year regional EUWI+ project completed its activities in Armenia in July 2021, but the water reform journey will continue. While the country has made progress since 2016, the discussions and implementation during the project have exposed a number of outstanding issues.

Post-pandemic recovery and financial sustainability

In addition, the global pandemic caused by COVID-19 has impacted the public budgets of all EaP countries, including Armenia. The need to respond to environmental challenges has never been greater, yet budgets face conflicting pressures as countries prioritise finances for recovery. The COVID-19 pandemic has shone a light on the importance of access to clean drinking water and adequate sanitation and the significance of hygiene in communities.

The National Water Policy and National Water Programme have served Armenia well. The country addressed the water supply sector as early as 2000 with a privatisation programme. However, sanitation and pollution reduction remains a big challenge. An OECD study under the EUWI+ project estimated the needed investment in sanitation could reach EUR 2.6 billion – a massive burden for such a small country.

Progressing River Basin Management Planning

Armenia has prepared its first set of river basin plans except for the Northern RBD, which consists of two small, shared basins. Now it must develop mechanisms to implement these plans through existing river basin organisations, consistency between sectoral policies, project owners' involvement, and funding mechanisms. A challenge will be to harmonise the RBMPs on both sides of the



borders with Azerbaijan and Armenia inside the whole Kura River Basin. Such harmonisation will be studied between the RBMPs and the water sector adaptation plan from the national plan to address climate adaptation needs; the budget estimation concerns mainly highly the rehabilitation of the less efficient infrastructures or construction of new ones (including reservoirs).

Strong monitoring frameworks and reliable data and information support evidence based decision making

Monitoring systems have suffered from long-term decline: as outlined in the CEPA Roadmap, their refurbishment is a priority. Substantial investment and extended operational budgets must go hand in hand with the water cadastre development to improve licensing, permitting and policing – a significant challenge in itself. The application of biological monitoring will be a step towards a comprehensive water status information that brings higher confidence for decision-making about priority measures.

Opportunities for further reform and advancement and the next steps envisioned under an extended EUWI+ project are the following:

- **Review of Water Code and review and amendment of secondary legislation.** In line with the Roadmap for implementation of the CEPA in the water sector, several documents require revision and amendments. These include, among others, the Water Code, Law on National Water Programme, and the Law on Fundamental Provisions of the National Water Policy. This is a large task that EUWI+ could only partially support.
- **Further strengthening of economic and financial dimensions of water policy reform,** including assessment of social implications of the reform for the population of Armenia. The cost effectiveness of improvements in water resource use and enhanced financial return should be assessed. Any support should be part of a wider, government-backed investment programme.
- **Support in re-equipping water resources monitoring systems in the Sevan Basin.** As part of the implementation of RBMPs for Sevan and Hrazdan RBDs, the equipping of flow monitoring stations on tributaries flowing into Lake Sevan must be equipped and groundwater boreholes monitored. The EUWI+ assessed that this equipment would greatly enhance water resource management of the lake.



- **Biological monitoring and ecological classification system development.** Armenia needs to develop capacity for biological monitoring and ecological classification. This will allow it to implement WFD successfully and support planning. The country needs to support field work and methodology in Lake Sevan and its tributaries to confirm reference sites and establish Ecological Quality Ratios. Classification systems need to be expanded to include other biological elements (macrophytes, phytobenthos, phytoplankton and fish). Armenia should support a two-year survey programme to establish reference sites in the Sevan Basin and further undertake joint survey work in the Khrami-Debed Basin with Georgia.

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As the world slowly recovers from the COVID-19 pandemic and responds to a changing climate, this challenging backdrop provides the catalyst and focus for the next phase of the water policy reform journey in Armenia.



- **Training of river basin organisations in IWRM and RBM planning and implementation.** Armenia has not decided on whether to form dedicated basin councils, or their roles and responsibilities. Therefore, the technical personnel in river basin organisations could be trained in IWRM and RBMP development and implementation pathways.
- **National policy dialogues.** These act as a forum and platform to discuss priority water policy issues. This is especially true for countries without IWRM or an overarching water strategy or implementing body (Water Council). The NPD should have a clearly defined and streamlined mandate. The NPD could be guided towards improving key water management issues, including damaging water subsidies, licensing and permitting, and cost recovery for water management, water supply and sanitation and regulation.
- **Laboratory support.** The central laboratories are at the heart of the regulatory monitoring system and need constant technical support with quality management, analytical protocols, equipment training and accreditation; the strong relationship between the EUWI+ team and the laboratories should be maintained.
- **Development and strengthening of information portals and water cadastres.** These critical management and regulatory tools could, where appropriate, be linked to the SEIS II programme.
- **Public awareness and consultation.** This vital aspect is often overlooked or given scant attention. Any EUWI+ extension should have a structured and integrated approach to public awareness. This should include improving understanding and support of daily use of water resources by agriculture, industry and local communes. It should also include regular public information to promote understanding, local ownership and support for better protection, reduced pollution and more efficient and sustainable use of natural resources in Armenia as well as benefits provided for free by ecosystems services.

As the world slowly recovers from the COVID-19 pandemic and responds to a changing climate, this challenging backdrop provides the catalyst and focus for the next phase of the water policy reform journey in Armenia. Future reforms must strive for cross-sectoral policy coherence. In so doing, they must recognise the horizontal nature and value of water as the sector targets improvements for the health of citizens, the environment and the economy; fulfilling international commitments; and making the best use of limited financial resources.





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