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THE MINISTRY OF
TERRITORIAL ADMINISTRATION AND
INFRASTRUCTURE OF THE REPUBLIC OF
ARMENIA



THE MINISTRY OF ECONOMY OF
THE REPUBLIC OF ARMENIA



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Գերմանական
համագործակցություն
DEUTSCHE ZUSAMMENARBEIT

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Management of Natural Resources and Safeguarding of Ecosystem Services for Sustainable Rural Development in the South Caucasus (ECOserve)

Content

ECOserve environmental programme supports the Government of Armenia. It is commissioned by the German Federal Government and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

The overall objective of ECOserve is to improve the preconditions for sustainable pasture management (SPM), with particular attention on the energy security of the rural population. Environmental awareness-raising and education are among the key measures of the programme.

From December 2018 till April 2023 ECOserve was a regional project covering Armenia, Azerbaijan, and Georgia. Since April 2023 it has been operating only in Armenia. Several pivotal factors have contributed to the degradation of pastures and forests within the country, notably including the dual challenges of overuse and underuse of pastures, along with the excessive utilization of fuelwood.

Consequently, holistic strategies aimed at promoting the sustainable and biodiversity-conscious utilization of natural resources remain inadequately developed and implemented. Addressing these multifaceted challenges necessitates concerted efforts encompassing policy interventions, capacity development initiatives, and community engagement initiatives and measures.



Project name	Management of Natural Resources and Safeguarding of Ecosystem Services for Sustainable Rural Development in the South Caucasus (ECOserve)
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)
Co-financing partners	European Union (EU)
Volume	EUR 25,61 Mio., Regional EU co-financing: 7.4 Mio. EUR
Duration	2018 - 2024
Implementing Partners	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, UNDP

Activities

- Information on pasture and grassland/ rural energy is used for decision-making.
- The institutional framework for SPM is improved.
- Pilot activities for SPM, energy efficiency (EE), and alternative energy (AE).
- Environmental education and awareness-raising.

Results

Sustainable Pasture Management

- Nationwide mapping of Armenian pastures and grasslands and hand-over to the Armenian Government.
- Capacity development at the Armenian Ministry of Economy for the future use of GIS mapping models.
- Support of the Program Coordination Platform for Sustainable Management of Natural Fodder Areas: Pastures and Grasslands of RA.
- Support food security through food and fodder production and pasture improvement activities as alternative solutions for decreasing pressure on pastures and ensuring income for the rural population. 542 ha of agricultural lands selected and in the process of improvement in Sisian and Yeghegis communities.
- Feasibility study on the development of public-private partnership (PPP) mechanisms for improvement and efficient use of pastures as a replicable approach for SPM.



© GIZ Sustainable Pasture Management.

Improved Energy Situation in Rural Households

- ECOserve has been working on marketable approaches to increase energy efficiency and/or provide alternatives to reduce the use of fuelwood (and dung) for heating in rural areas.
- The energy efficiency of selected stoves working on solid biomass fuel was assessed, and energy-efficient models were identified.

In 2020-2021 more than 70 beneficiary households in the pilot communities of Lori, Shirak, and Kotayk marzes received locally produced energy-efficient stoves on a cost-sharing basis. The approaches were replicated by the local partner organizations with the dissemination of over 110 efficient stoves in other areas.

- In 2023 the selected single-point stoves and local household boilers working on solid biomass fuel were assessed as per the applicable national and EU standards and improved in terms of energy efficiency and other parameters. The improved models of stoves are being promoted in Shirak, Lori, Tavush, Gegharkunik, and Syunik marzes.
- In 2023 the feasibility study on the cultivation of local varieties of agricultural crops to serve simultaneously for food, fodder, technical, and energy purposes was implemented. It suggested five agricultural crops for piloting with the potential to contribute to food and energy security in rural Armenia.

Environmental Education and Awareness-Raising



© GIZ EcoEpicener.

Strategic collaboration with the Armenian National Agrarian University for strengthened environmental education and research:

- ✓ New BSc programme in Precision Agriculture
- ✓ New MSc programmes in Sustainable Agriculture & Precision Agriculture
- ✓ Improved MSc programmes in Forestry Science & Organic Agriculture
- ✓ Establishment of a new Training Programme in Green Agriculture.
- ✓ ToTs & Development of training material.
- The environmental education center “EcoEpicenter” was established at the Institute

of Botany after A.L. Takhtajyan with WWF Armenia.

- "Financial and environmental literacy aimed at promoting energy efficiency in rural areas of Armenia": trainings were conducted in 167 rural areas of 10 regions of Armenia, and 3656 people participated.
- "Energy Efficient Communities" awareness-raising campaign: training on EE behavior and EE/RE grant proposal development were implemented in Tavush, Gegharkunik, and Syunik. Trainings were completed and the community hackathons were finalized, the solar solutions were installed in 3 locations.

"Restoration of Riparian Zones in Armenia" COVID-19 Response Project in Gegharkunik region.



© GIZ *Planting of willow and poplar cuttings.*

- Short-term employment for 1012 people who have lost (part of) their income due to the Corona pandemic was provided.
- More than 1 million willow and poplar cuttings were planted in the riparian zones of 6 rivers.
- A total of 376 150 kg of solid waste, out of which 1107 kg recyclable plastic and glass, was removed during clean-up measures along 10 rivers flowing into Lake Sevan.

Support of BMZ to Food Security

- In the context of the war in Ukraine, Armenia has been facing new challenges in terms of food security, particularly concerning the importing of products such as wheat, barley, grain, seed varieties, feed combinations, mineral fertilizers, etc. from Russia and Ukraine.
- In 2023 BMZ supported the Government of Armenia to improve food security in line with ECOserve objectives of reducing the pressure on pastures and other natural resources as well as sustainable pasture management.

The measures include:

- Food and fodder production and pasture improvement to reduce the pressure on pastures.
- Promotion of the local use and production of fertilizers of organic origin
- Establishment of a Circular AgroFood Model at ANAU.



© GIZ *Food security measures.*

EU Co-financed Projects

- 2020-2024 EU4Sevan: Environmental Protection of Lake Sevan.
- 2023-2024 EU4Energy Efficiency and Renewable Energy in Armenian Communities.



Content

Lake Sevan is the most significant source of freshwater, irrigation water, aquaculture, and hydropower source in Armenia. Its condition has a direct impact on the region's environmental health and Armenia's economic potential. Since Armenia's independence in 1991, the deterioration of water supply and sanitation infrastructure and related service delivery mechanisms have impacted the quality and management of water, making it a crucial issue on the development agenda. Currently, about 20% of these networks are connected to sewer treatment facilities, all built before independence, in the Soviet era. Most of these facilities are not functional due to aging, faulty, and/or missing infrastructure in wastewater and sewage treatment. Besides the untreated municipal wastewater, diffuse pollution from agriculture, e.g., from mineral and organic fertilizers and manure, is affecting Lake Sevan's water quality. This agricultural pollution from several settlements in the basin located on the coastal zone of Lake Sevan flows directly into the lake. The lack of monitoring data on the quality and quantity of water resources and the status of ecosystems is another challenge in the Sevan basin. While significant progress is being made – also with support from the EU – there are still important gaps to be filled.

Objective

The Project's overall objective is to enhance the environmental protection of Lake Sevan, which is the largest freshwater lake in the Caucasus Region. The main beneficiaries of the project are people living in the Gegharkunik region.

Activities

- Improved water monitoring and management capacities for the Lake Sevan watershed.
- Improved ecosystem-friendly and water-protecting land-use and cultivation practices.
- Improved wastewater management capacities.
- Enhanced awareness and information availability for the protection of Lake Sevan among basin communities, the private sector, and other stakeholders.
- Improved ecosystem governance for Lake Sevan.

Environmental Protection of Lake Sevan

Results

Water Monitoring and Management Capacities for the Lake Sevan Watershed

- The EcoPortal Lake Sevan section is developed by deploying the MoEnv server in EKENG and will become available for the public in May 2024.
- A comprehensive monitoring concept for the Lake Sevan basin has been developed. The concept provides a ground for informed planning of environmental monitoring development in the Lake Sevan basin. The document supported the approval of a state operational monitoring budget of 60 million AMD annually for the period 2024-2026.
- Technical and human capacities of ArmHydromet in water monitoring and environmental data management have been enhanced to ensure uninterrupted monitoring of important environmental indicators.
- Land-use/land-cover and pollution maps have been developed for the entire Lake Sevan basin which are used by the local governments for informed decision-making. These maps will also be available through the EcoPortal.
- A model for understanding the water balance of the Lake Sevan basin, the impact of climate change on water resources, and assessing future monitoring needs has been developed and is used by ArmHydromet.
- Groundwater monitoring capacities for the Lake Sevan basin were enhanced through joint field surveys and sampling campaigns, equipment, and knowledge transfer. This will improve the management of water resources through a better understanding of interactions between surface water and groundwater.

Sustainable Land Use

- Cultivation methods have been enhanced with the cultivation of organically grown, non-traditional crops on 6 hectares with 98 households of 4 enlarged communities (21 settlements) of the Gegharkunik region.
- The innovative agro technology (mixture of organic fertilizers and soil improvers) is applied for potato and cabbage cultivation on a 22.5 ha area with 227 farmers from 4 enlarged

communities (22 settlements) of Gegharkunik region, to regulate soil moisture and nutrition and ensure an ecologically clean and high yield.

- A 3.5 ha agroforest has been established in the Tsovinar settlement of the Martuni enlarged community to rehabilitate degraded lands, mitigating the impact of climate change and providing socio-economic benefits.
- The soil health of degraded arable and pastureland is restored on a 4-ha area of 4 farmers in 4 settlements in the Sevan basin via the application of light tillage and mixed forage grasses using the latest regenerative agriculture technology.
- A 0.5 ha intensive berry plantation is established in the Tsovaguyugh settlement of the enlarged Sevan community, equipped with a drip irrigation system and anti-hail nets for demonstration and educational/training purposes.
- A small-scale agricultural model is applied in the farms of 4 farmers (each 0.25 ha, total 1 ha) in 4 settlements of the Sevan Lake basin, to demonstrate the benefits obtained because of correctly selected crops and natural cultivation.
- A sustainable land use approach of the 20-ha area adjacent to the Noratus settlement of the Gavar enlarged community is applied for community-based protection of the red-book-listed steppe runner lizard.
- Sustainable management of manure (with separation of liquid and solid parts and further processing) is applied with the involvement of 4 livestock breeders of the Gavar enlarged community to promote the production of bio-humus and bio-liquid fertilizers of local origin.



© GIZ *Cabbage Harvest at Zolakar village.*

Wastewater Management

- Treatment Plant to enhance the treatment efficiency was planned. The detailed technical design for the upgrade has been prepared, but due to some technical obstacles, the upgrading process is delayed and can be implemented within another project.
- Through the Lake Sevan Protection Platform, the awareness on the need to treat wastewater

has been raised and the public now actively demands the installation of proper wastewater management systems.

- As an alternative solution to the Gavar wastewater treatment plant upgrading, the process of supporting the development of decentralized wastewater treatment plants is supported. Closely cooperating with the municipalities of the consolidated communities of Gavar, Martuni, and Vardenis, the hotspots of the untreated wastewater discharge into the Lake Sevan basin have been mapped. In the next step, technical designs are developed and will be implemented in several locations. In addition, local municipal staff will be trained in operating the installations.
- An agreement between the Gavar municipality and GIZ Armenia was signed for proper operation and maintenance of the installed plants after the completion of the project.
- A "Concept Paper on launching a national dialogue on wastewater management in Lake Sevan basin" was developed and submitted to the Ministry of Environment and Water Committee for relevant feedback. With this document, an attempt to launch the wastewater management process and to identify the leading organization of the sector is made.

Awareness-Raising



© GIZ *"Friends of Sevan" theatrical performance.*

- The "Friends of Sevan" awareness-raising project, within its 2 phases, involved 55 schools from 54 settlements of the region and around 6000 children and adults through webinars, training for teachers and "Friends of Sevan" ambassadors, thematic seminars at schools, field works, theatrical performances, and many more social activities in the communities.
- "The Call of Sevan" theatrical performance has already been staged 20 times in many settlements of the Gegharkunik region and Yerevan. Its powerful message urging the audience to cherish and safeguard their environment has resonated deeply, making everyone who watched it love the performance.

- "Lake Sevan Protection Platform" water stewardship initiative kicked off in the Gavraget hydrological catchment area involving representatives from Public Sector, Civil Society, and Private Sector to jointly recognize the current environmental problems and shared risks for diverse groups and produce joint solutions to decrease the existing risks and protect Lake Sevan. 5 working groups have been formed and work on topics such as Wastewater treatment, Detergents, Agricultural waste, environmental education in schools and preschools, and youth involvement in environmental activities. The platform expands its activities in the enlarged communities of Martuni and Vardenis.

Lake Sevan Ecosystem Management



©UNDP

- The Sevan National Park management plan has been drafted, including the respective programs, thematic maps, and zoning and delimitation proposals. Strategic Impact Assessment (SIA) of the Management Plan is also under way.

- The scoping of the policy, legal, and institutional framework regulating Lake Sevan ecosystem governance is developed and used for decision-making by partners. Two policy and regulatory documents have been updated based on this.
- The new long-term national vision for Lake Sevan has been developed through a participatory approach and submitted to the Ministry of Environment.
- The draft Strategy to achieve the long-term national vision for Lake Sevan has been developed and is currently under discussion, including the cost-estimated action plan for the next 5 years.
- The potential for applying incentive mechanisms for water reuse in Armenia is assessed to support the Ministry of Environment in regulating the legal relationships related to water.
- One unit of machinery and user training was provided to the Sevan National Park as technical support, to facilitate riparian zone cleaning activities.
- Technical specifications have been developed and agreed on detailed site assessment for the determination of a new bill of quantities for further cleaning works of the Lake's flooded forest and surrounding swamp areas.
- Technical specifications have been developed and agreed on support in the afforestation/reforestation program design in the Lake Sevan basin.
- The draft report on the comprehensive assessment of the impact of water level increase in Lake Sevan and the respective road map has been developed, based on the results of quantitative and qualitative water modeling, and is under discussion.
- Revision of the Law of the RA "On Lake Sevan" is underway, including considerations of the change dynamics over the past 20 years.
- The book "Lake Sevan Yesterday, Today ..." by R. H. Hovhannissian has been digitalized; it will make the results of more than 50 years' research based on which important decisions.



EU4Energy Efficiency and Renewable Energy in Armenian Communities

Content

Armenia is still in transition towards a full and competitive market economy facing numerous challenges with regards to sustainable environment and energy provision. Although Armenia's energy needs are dominated by imported natural gas, energy security and energy efficiency are key to the economic development of Armenia. By 2040, Armenia's target is to bring the share of renewable energy to 60% in energy production. EU supports Armenia and other Eastern Partnership Countries in the transition path towards clean energy and in their efforts to develop a climate-friendly energy sector, strengthen energy security, remove investment barriers for clean energy finance, and increase the share of renewable energy in the energy mix. This is done in compliance with the European Green Deal principles, which serve as a guidance and ambition scale for Armenia's path towards green recovery and sustainable development. This Multi-Donor Action will work in parallel with the regional EU support to Decarbonisation and Climate Adaptation in Armenia, ultimately aiming to put Armenia on track towards climate neutrality by 2050. This Action also builds on the donor mapping and gap analysis carried out in the framework of the High-level Energy Efficiency Initiative at the beginning of 2019, the Comprehensive and Enhanced Partnership Agreement (CEPA) Implementation Roadmap, as well as the priority projects of the Government of Armenia.

Objective

The project's overall objective is to ensure that communities and households have better access to energy efficiency and sustainable energy solutions, thereby contributing to the improved energy security of the rural population and the conservation of natural resources.

Project outputs

- Small-scale energy efficiency (EE) and renewable energy (RE) for low-income rural or urban households and settlements are promoted through cost-sharing, awareness-raising, and capacity-building.
- Investments in EE and RE demonstration pilots with high impact on a large proportion of the local population in predominantly energy-poor communities are supported.

Indicative Targets

- About 600 households supported with small EE solutions.
- About 80 public/community buildings supported with small-scale RE and EE solutions
- About 18 public/community buildings supported with larger scale RE and EE solutions.

Main activities

- The use of locally produced energy-efficient stoves based on solid biomass fuel is promoted in vulnerable, low-income households, and the capacities of local craftsmen are developed.
- Demonstration pilots are implemented in selected households, including a pilot for (partial) thermal insulation and possibly other innovative measures.
- Small-scale RE (PV installation of up to 5 kW, solar water heaters) and/or basic EE measures in small public/community buildings are promoted.
- Larger scale RE (PV installations of about 20-25 kW or larger) and EE measures are supported in public/community buildings with a high impact on a large proportion of the local population.
- The possibilities of agricultural production of alternative biomass and promoting alternative biomass fuel are explored.
- Exchange of best practices and awareness-raising on EE and RE are supported among local communities, between the marzes and country-wide.

Published by Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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offices** Bonn and Eschborn, Germany

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Design/Layout Tatevik Yeghiazaryan

Photo credits GIZ, UNDP

The programme is co-funded by the European Union and the German Federal Ministry for Economic Cooperation and Development (BMZ).

GIZ is responsible for the content of this publication.

As at May 2024, Yerevan