

## L'environnement , un sujet majeur partout dans le monde

Certain Environmental Issues in Armenia

June 2020

Environmental pollution in Armenia has been of concern and issues have been publicly aired for

decades. The fate of Lake Sevan, for example, was a popular topic in the late 1960s due to the drastic

drop of the water level and pollutants flowing into the Lake.

It is widely acknowledged that the environmental movement in Soviet Armenia was a significant force

in bringing about political change during the glasnost and perestroika periods of the late 1980s. Since

becoming independent, many of the environmental organizations lost their significance.

Prior to independence, Armenia was a leader in the former USSR in raising public awareness of

environmental problems. In 1987, an unprecedented demonstration in the Opera Square brought out

about 3,000 people demanding the closure of chemical industries and the Medzamor Nuclear Plant.

The following year, the Spitak earthquake caused residents to further focus on the environment and

construction technology issues.

Despite the role of environmental awareness in creating a collective consciousness in Armenia at that

time, the abrupt collapse of the Soviet Union left Armenia struggling on several fronts. A number of

environmental problems in Armenia became worse during the early years of independence when there

were severe energy shortages, poor quality gasoline, mass deforestation, and inadequate wastewater

treatment.

After the independence, Armenia experienced a huge economic downturn, then underwent major

changes during its transition to a market economy, and consequently faced environmental issues that

required immediate attention. But as a result of the emergence of national security issues at the time

of independence, the environmental issues were not considered as a priority for the public. In addition,

environmental issues took a back seat during the rapid economic development, driven by construction,

a partial restoration of the chemical industry, and expansion in mining operations.

Moment-oriented

thinking, lack of capacity, and corruption have hampered responsible political action that would have

benefited the country and its people in the long run.

Recently, the environmental movement in Armenia has gained momentum, but this movement is still

not considered significant for the majority of the population, and this movement is not strong enough

to have a major impact on policy and development. The movement unites a number of non-

governmental organizations (NGOs), but they have limited capabilities and influence. In recent years,

some of these organizations have successfully combined their efforts to solve specific environmental

problems, leading to the improvement of certain projects that could have harmed the environment.

Armenia has ratified many international conventions on issues such as biodiversity, climate change,

desertification, and the preservation of cultural and natural heritage. In addition, the Constitution of

Armenia clearly addresses the protection of nature, the damage to the environment, and the right to

live a healthy life.

Many environmental issues related to water resources, mining, forests, and protected areas are

closely linked to corruption. Often, natural resources are exploited without proper justification.

Moreover, the decisions are made with benefits of certain well-connected groups in mind and are

made without due attention to the long-term sustainable development goals announced by the government.

Armenia being a country that intends its development to be based on the principles of sustainability, environmental protection should constitute an integral part of the development process. Thus, almost three decades after Armenia's independence, the environmental situation in the country remains a matter of concern.

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The following sections address specific and sensitive environmental issues in Armenia:

#### Water

As a result of a multitude of acute and complex socio-economic problems as well as a lack of monitoring and enforcement, freshwater ecosystems (lakes, rivers, and reservoirs) had been severely impacted. Due to unsustainable use of hydroecosystems for production of energy and economic development, deep morphometric, hydrophysical, and hydrobiological changes occurred.

The most important players in this field are fish farming in the Ararat Valley and small hydroelectric power plants on different rivers.

Fish farms use a huge amount of water without having a recycling system. Due to this, the level of

groundwater in the Ararat Valley has dropped by about 15 meters, and as a result, a large number of rural wells have dried up. In 2017, the Ministry of Nature Protection installed SCADA measuring instrument at a fish farm, which was sending electronic data to the ministry related to the amount of water used. The intend was to control that the amount of water is used is in accordance to the allowed limit. The main goal was to install the SCADA device on the wells of all the fish farms, but that project was not implemented. During that year, a large number of artesian wells that were no longer in use were capped.

The issue of maintaining clean water in Armenia remains a matter of concern.

#### Water

distribution systems are in urgent need of attention. Aging and corroded infrastructure poses a serious threat to human health. Water supplies are regularly contaminated by decaying infrastructure that allows for cross contamination between sewage and freshwater drinking water pipes. Losses from the water distribution network are as high as 60 percent in Yerevan, 70 percent in Gyumri, and 75 percent in Vanadzor.

Yerevan, a city of more than one million people, is still without a fully functional wastewater treatment plant. Partially treated waste discharges directly into the Hrazdan River, the main water supply for dozens of downstream villages.

Much of the water pollution in the Ararat Valley occurs because of pesticide use. These pesticides are flushed into the drainage water during the irrigation process and flow into receiving rivers and shallow ground water or percolate into soils.

#### Lake Sevan

Lake Sevan is the largest water body in the Transcaucasus and is one of the largest high-mountain freshwater lakes in the world. Its wetland ecosystem plays a significant role for migratory birds. Lake

Sevan possesses strategic economic, social, and historical importance along with cultural,

recreational, and spiritual values. Indeed, it is recognized as a national treasure.

Fish farming water usage

Old corroded water pipes of Yerevan

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After World War II seven hydropower stations were built along the Hrazdan River and Lake Sevan's

water was used to generate electricity. However, due to the extensive and unmanaged use of water

resources for this purpose (and to a lesser degree for agricultural production) the water level of the

lake dropped more than 18 meters within 20 years.

Lowering the water level caused

increases in nitrogen content and

algae growth, decreased biomass of

high-grade water plants, and

destabilization of the ecological balance of the lake. The situation was worsened by the sewage from nearby towns' treatment plants and pesticide runoff from the farmlands discharged into the lake.

Following independence, the illegal developments of new vacation homes and hotels along shores of Lake Sevan, the enjoyment of the lake by the general population, and the tree cutting/deforestation that took place around the lake, have been factors against regulating the water levels.

Adverse impacts on the ecosystem include the disappearance of the native lake trout (Ishkhan), as a result of drying out of the breeding habitats, and increased poaching. Changes in the physical-chemical characteristics of the water severely affected not only the fish community but also the waterfowl habitats.

Decades ago, the government undertook steps toward the restoration of the lake's water balance. The

Arpa-Sevan tunnel (a unique engineering and hydrologic accomplishment) was built in 1961 to direct

part of the Arpa River water into Lake Sevan. Tunnel provides approximately 250 million cubic meters

of water a year to Lake Sevan. Over the years, the government has decided to minimize the use of

lake water for electricity generation and use the water mainly for irrigation purposes. But often these

decisions have not been implemented or have been implemented with violations of the decision.

Although shores of Lake Sevan are part of the Sevan National Park where there are restrictions on

economic activity, hundreds of construction permits have been issued illegally. The government's

decision is that the level of the lake should rise by 6 meters (based on the level of 1996), as a result

of which the lake's environmental system will stabilize. Water level of the lake has risen by 3 meters,

but the government is not interested in further raising the water level. Perhaps

one of the reasons is  
the interests of the owners of these illegal constructions.

#### Air

Armenia's standards on air quality are largely in line with the standards of developed countries. Air pollution laws require that every industrial source meet the pollution concentration standard; however, these standards are often not enforced.

During the Soviet era, chemical production in Armenia was a major industry known for its high levels of toxic gas emissions. Almost all of these plants no longer work, so these sources of air pollution no longer exist.

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Air pollution is an environmental problem in many regions of Armenia. In Yerevan, for example, the main landfill site, Nubarashen, burns continuously, producing smoke plumes that contain emissions from plastics, paints, heavy metals, among other toxins that then enter the atmosphere. Although only small amounts of toxic emissions are produced today, Yerevan's location in a geologic depression causes this polluted air to stagnate over the city.

The air in the industrial city of Alaverdi remains polluted. The content of sulfur dioxide in the air of Alaverdi exceeds the allowable level. The Armenian Copper Program (ACP), which is considered the main source of pollution, has moved the main emission stack to the top of the nearby hill, as a means of mitigating emissions. This is an unacceptable step as a solution to the problem of air pollution.

#### Solid Waste

Waste management is at the forefront of environmental concerns, both in Armenian cities and in rural areas. Only one major landfill, Nubarashen, is serving Yerevan and the surrounding communities. This landfill is located about 7 kilometers from Yerevan on approximately 40 hectares of land. The landfill operations began in 1968 and soon it will reach to its capacity. Several housing complexes are located within a few kilometers of the landfill and a cemetery is situated within a kilometer from the facility.

The natural ground under the Nubarashen landfill is solid bedrock covered by a 1.5-meter deep layer of clay. The depth of groundwater in the vicinity is below 50 meters. Therefore, it would be unlikely that any pollutants from the landfill can reach the groundwater table. There are several dozen Soviet-era barrels containing toxic substances in Nubarashen. The age of these barrels is worrying and can cause toxic substances to leak out. These toxins need to be eliminated immediately.

Solid waste management is one of the most problematic services, which is constantly suffering from a lack of funding and is still being implemented with low quality. Illegally dumping garbage is very common, especially when dumping construction waste in unauthorized places or burning garbage, which emits toxic chemicals that cause adverse health consequences. Of particular concern is the neutralization of hazardous medical waste.

Even though recently the garbage collection process in Yerevan has been improved, but in the summer of 2019, the state of garbage collection was terrible when the new mayor wanted to get rid of Sanitek, the garbage collection company, and organize that work through the municipality. In 2019, Yerevan

Municipality announced a tender for the construction of a new landfill. Surprisingly, there was no mention in the terms of that tender about the recycling of garbage, which is extremely necessary.

Chemical industry

More than 70 percent of Armenia's chemical industry was located in the metropolitan Yerevan area and they were major pollution sources. The Nairit chemical plant, occupying about 200 hectares, first

Stack in Alaverdi

Construction waste in Hrazdan gorge

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started production of rubber and other polymers in 1936 and had a capacity of 58,000 tons per year.

Until 1989, when Nairit was operating at its full capacity it was discharging 15 million m<sup>3</sup>

of liquid waste  
effluent per year into the Hrazdan River.

The Chemical Reagent Plant was another major chemical plant which started operating in 1959 and it produced 916 different types of reagents. This plant produced high levels of waste due to the use of outdated and hazardous production techniques used in the operation. Now these huge chemical plants are no longer operating.

#### Environmental Studies

The Ministry of Nature Protection of the Republic of Armenia has a department, which is responsible for reviewing and evaluating environmental impact assessment (EIA) and giving a positive or negative conclusion. This department does not have the capacity to fully evaluate the EIA of complex projects.

As a result, EIAs prepared for different complex projects do not include all the negative impacts of the projects in question or the cumulative impact of the projects. These shortcomings create an

unfavorable condition for the environmental impact management.

EIAs prepared for major projects are often just a formality with minimal information to show that it

complies with applicable law. A good example is the 100-page long EIA that was prepared for Teghut

mine. Similar studies in developed countries typically are several hundred pages in length.

It should be noted that the EIA prepared for the Amulsar gold mine can be considered the most

extensive and comprehensive study that has been done in Armenia so far.

However, the operation of

this mine will have a great negative impact, especially on Lake Sevan, which is neglected in the EIA,

or these negative impacts are presented as allegedly manageable risks.

A well-prepared EIA should be considered as the basis of making decisions toward having an

environmentally sound project. The enforcement of monitoring plans and regulations are essential to

improvement of the EIA process in Armenia. EIAs prepared so far have not been comprehensive and

do not cover all environmental concerns of the project. Public participation and



transparency of the process are also critical to protect environmental health. The improvement of the EIA process necessarily requires competent environmental specialists. In Armenia, the availability of education and training for environmental engineers and scientists falls short of the levels needed to cope with environmental problems that require urgent attention. Studies related to environmental engineering and management are provided at Yerevan State University, American University of Armenia, and the State Engineering University, but these programs are more academic rather than practical, where the greater need is. In recent years, there have been some improvements in quality of environmental education in Armenia; however, much more still needs to be done.

Another serious issue regarding the evaluation of possible environmental impacts and enforcing the implementation of mitigation measures is regulatory structure. There are no clear guidelines about the process of evaluating and enforcing the required mitigation measures. A strong and fully independent government agency is needed to ensure that all the recommended mitigation measures are implemented.

The blurry line between government and large investors is another common reason for not enforcing the applicable regulations.

#### Deforestation

Deforestation continues to be a major environmental issue even though the energy crisis of the 1990s is long over. It is a particularly dire concern for Armenia because only about 7-8 percent of the country

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is covered with forest (down from officially announced 11 percent in the last century), and much of this forest is degraded.

Armenia is known as one of the global biodiversity hotspots. Because of the country's unique location and volcanic origins, it contains a vast array of microclimates and unique habitats for many

endangered plant and animal species found nowhere else on the planet. Given this environmental heritage, Armenia is in a unique position to provide global leadership in the areas of biodiversity conservation and ecotourism development.

The impacts of deforestation include increased erosion and landslides, loss of topsoil and arable farmland, changes in local weather and climate conditions, poor air quality, as well as loss of plant and animal habitats.

Government action to proceed with the development of mining projects in ecologically sensitive areas like Teghut demonstrates lack of recognition of the importance of natural forests as biodiversity resources.

Some positive steps were taken in Armenia during 2017 to 2018 period to prevent the illegal logging in the forests, but those efforts do not continue today and the current steps are not sufficient by any means. It was planned to use high-tech technologies to stop the illegal logging. That program was ready to be implemented, but unfortunately it was not implemented. Instead of preventing deforestation and preserving forests, an unrealistic plan has been developed which calls for planting 10 million trees in a day in Armenia.

In general, the main reason for deforestation in Armenia is the demand for firewood due to the lack of alternative fuels. In order to solve the current problem, it is necessary to reduce the pressure on the forests by installing renewable energy sources in the nearby villages, such as using solar energy. It is also necessary to increase the thermal energy efficiency of houses near forests. Illegal tree logging is a profitable business in Armenia. The prevailing mindset is that corruption in the forest sector is linked to business, which is sponsored by high-level government officials. Government action is insufficient to stop deforestation as a result of illegal logging.

#### Mining

Mining is a lucrative business for Armenia. Unfortunately, environmental restrictions do not apply to

most of the major mining operations, which damage the ecosystem of the surrounding areas.

Corruption often arises at the stage of granting right to use the mine and obtaining permits.

There are more than 500 mines in Armenia, but most of them are non-metallic, stone and sand mines,

which do not pose great dangers or negative environmental consequences.

However, copper,

molybdenum, gold, lead and zinc mines are posing serious problems, and in the case of these mines,

the potential for negative environmental impacts is high. These mines have tailings reservoirs where

toxic substances accumulate, which are by products of the exploitation of mines.

Often these toxins

liquids leak out of the tailing reservoirs or absorbed into the soil, creating serious hazards.

Metal mines are mainly sold to large foreign companies, of which the government of Armenia receives

a small percentage of profit as royalty.

Some of the cut trees in Teghut

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ARF's Approaches to the Environment and Natural Resources

ARF is a unique political force that has clear approaches to environmental protection policy. The

following are points from these policies:

- Reorganize environmental protection activities and utilization of natural resources based on

the reasonable and sustainable development principles,

- Water resources inventory, storage, and distribution policy,

- Development of general and special requirements for protection of soil from pollution, by

implementing restrictions on land use, environmental impacts, and development of remedial

measures,

- Management of air emissions from mobile and stationary sources,

- Inventory of natural resources,

- Sustainable forest management,

- Safe waste storage, recycling, utilization, and secondary use,

- Climate change problem solving systems, including adaptability and mitigation,

- Environmentally safe management of hazardous chemicals and their wastes that are

produced and used in Armenia,

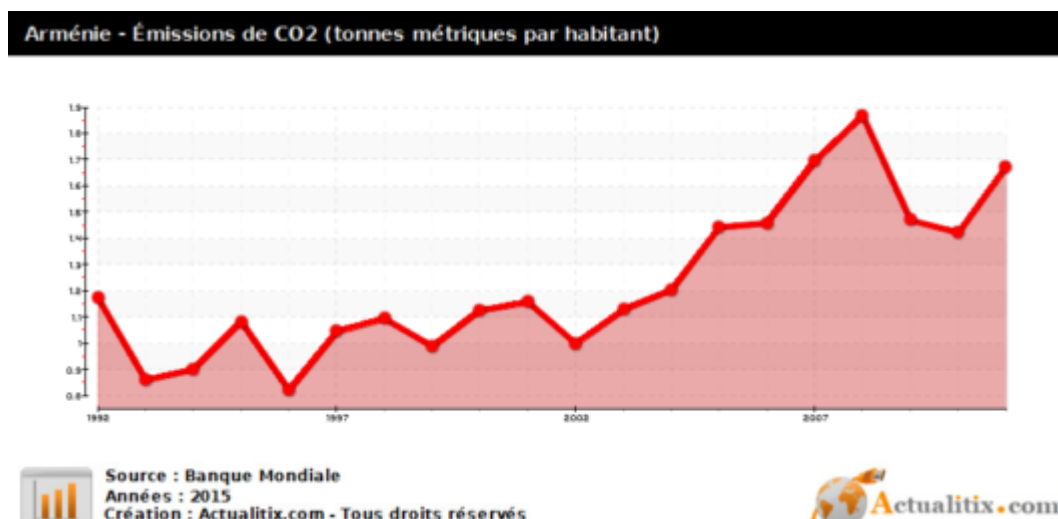
- Conservation and sustainable utilization of the wildlife,
- Conservation and balanced utilization of the flora,
- Improve the state environmental impact evaluation system,
- Ensure a unified policy of environmental science, education, and awareness.

In general, the ARF's proposals on environmental policy stem from the imperative of inclusive development and are built on the principle of implementing an economic model of transition from an unmanageable consumer economic model to sustainable development. As a result, the exploitation of non-renewable natural resources will be sharply reduced and the volumes of generated waste will be limited.

Areg Gharabegian - Chairman of the Environmental Protection and Natural Resources Professional Committee of the Supreme Body of the ARF in Armenia.



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ARF / FRA (Fédération Révolutionnaire Arménienne) est le principal parti de la diaspora arménienne, surtout puissant aux USA, avec ses écoles, ses églises , ses institutions.