ENVIRONMENT ASSESSMENT (SUMMARY)

A. Environmental Issues

1. Armenia faces many intertwined environmental issues.\(^1\) The more significant of them are water and air pollution, deforestation, land degradation, landscape changes, threats to biodiversity, high risk of natural disasters, and consequences of climate change.

2. Water and air pollution. Water and air pollution is a serious environmental issue in Armenia. One of its main causes is poor urban waste management. Water supply and sanitation infrastructure in many secondary towns (urban settlements other than Yerevan, the capital) has become decrepit due to lack of proper maintenance. With few operating wastewater treatment plants in the country, most urban wastewater is discharged into rivers without proper treatment. There is no sanitary landfill in Armenia, and solid waste is usually disposed of in open dumps, some of them along riverbanks. Waste in these dumps often burns, emitting toxic substances into the atmosphere. Agriculture (in particular, improper use of pesticides in crop production), transport, mining, metallurgy, and the chemical industry are other major sources of water and air pollution.

3. Deforestation, land degradation, and landscape changes. The forest cover in Armenia has declined considerably over the past two decades due largely to fuel wood collection, commercial timber harvesting, and opencast mining. Illegal logging for fuel wood collection was widespread during the energy crisis in the early 1990s. It still occurs frequently because of weak protection of forests and relatively high costs of other fuels. The deforestation is causing loss of plant and animal habitats, poor air quality, land degradation, more erosion and landslides, and landscape changes. Land degradation and landscape changes are also caused by unregulated use of pastureland and overgrazing, as well as by soil pollution resulting from pesticide use in agriculture. Other causes of landscape changes are mine tailings, unregulated solid waste disposal, and violations of zoning rules.

4. Threats to biodiversity. Despite its small size, Armenia has rich biodiversity with a great variety of ecological systems. Nearly all vegetation types found in the South Caucasus can be found in Armenia. Lake Sevan, which is located in the central part of Armenia, is the largest lake in the Caucasus and one of the largest high-altitude freshwater lakes in the world.\(^2\) It has a unique fauna.

5. However, this rich biodiversity is under threat. Indeed, Armenia is situated in two biodiversity hotspots (Irano-Anatolian and Caucasus).\(^3\) It is also in the Caucasus–Anatolian–Hyrcanian Temperate Forests, one of the endangered ecoregions on the World Wildlife Fund’s Global 200 list of ecoregions that are priorities for conservation. Unsustainable use of natural resources (including fuel wood collection, commercial timber harvesting, overgrazing, poaching, and mining), invasive species, and climate change pose serious threats to Armenia’s biodiversity.\(^4\) The country has established several natural preserves in an effort to protect its ecosystems, but most of these preserves are not well protected (footnote 2).

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\(^1\) This summary is based on Asian Development Bank (ADB). 2012. \emph{Country Environmental Note: Armenia} (available on request), and other relevant analytical materials.


\(^3\) Conservation International defines a biodiversity hotspot as a region that contains at least 1,500 species of endemic vascular plants and has lost at least 70% of the original habitat.

6. During the second half of the 20th century, Lake Sevan’s water was used excessively for irrigation and electricity generation. Consequently, the level of the lake dropped by 18 meters and its surface area shrank by 15%. This significantly harmed the ecosystem of the lake. Since the turn of the century, the government has undertaken various steps to raise the level of the lake and restore its ecosystem. Most notably, it minimized the use of the lake’s water in electricity generation (footnote 2). As a result, the level of the lake began to rise. Nevertheless, the lake remains much smaller than it was in the middle of the 20th century, and the threat to its unique ecosystem has not been fully eliminated.

7. **Natural and technological hazards.** In part because of its mountainous terrain and location in one of the world’s seismically most active regions, Armenia faces a high risk of natural disasters, such as earthquakes, floods, landslides, and droughts. A global risk analysis of natural disaster hotspots places Armenia among the top 60 countries exposed to multiple natural hazards. More than 80% of the Armenian population is exposed to major disasters, and more than 30% is exposed to frequent disasters. December 2013 marked the 25th anniversary of the Spitak earthquake (6.9 on the Richter scale) that killed 25,000 people (including 6,000 school children), injured 15,000, and left 517,000 people homeless. Although Armenia’s nuclear power plant is considered safe, it poses major environmental risks because it does not have a containment structure, and is situated in a seismically active zone.

8. **Consequences of climate change.** Climate change is expected to have adverse environmental, economic, and social consequences for Armenia. According to one study, climate change will entail an increase of 1.7 degrees Celsius in the average temperature and a decrease of about 10% in the precipitation in Armenia by 2100. Consequently, aridity will increase, desertification will intensify, the pasture area will shrink, and water flows to Lake Sevan will decrease by 15%. As a result, the efficiency of plant cultivation is estimated to decline by 8%–14%, the number of cattle to fall by 30%, and the incidence of cardiovascular and intestinal diseases to rise. Also, climate change is likely to increase the frequency and intensity of climate-related disasters in Armenia.

**B. Government’s Strategy**

9. The Armenia Development Strategy 2025, the government’s long-term development vision, stipulates that measures to stimulate economic growth should be combined with measures to reduce the associated environmental risks as much as possible. The strategy provides for a broad range of measures to strengthen environmental management; reduce water, air, and soil pollution; combat deforestation and land degradation; and protect Armenia’s natural landscape and biodiversity. In particular, e-governance in environmental management will be introduced to reduce corruption in

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8 The Spitak earthquake has an approximate return period of 500 years. More recently, in 2011–2013, significant earthquakes hit eastern Turkey, and northern and southern Iran.


this area. Technical regulations and standards as well as natural resource user charges will be revised to enhance incentives for introduction of energy- and resource-efficient technologies, greater use of recycled input materials, reduction of industrial waste, and production of eco-friendly goods. Incentive mechanisms for promoting environmentally friendly business practices and “green” innovations will be developed and introduced.

10. To reduce water and air pollution and protect the natural landscape and biodiversity, urban and industrial waste management, spatial and landscape planning, and management of preserves (in particular their protection) will be strengthened. In addition, water supply and sanitation systems and irrigation infrastructure will be rehabilitated—with assistance of development partners—to reduce water pollution and ensure efficient use of water resources. Electric public transport will be developed and other measures to curtail motor vehicle emissions will be carried out to reduce air pollution. Illegal logging will be tackled more effectively and forest restoration activities will be undertaken to fight deforestation. Use of renewable energy will be expanded and energy efficiency will be increased (in particular through rehabilitation and upgrade of power generation, transmission, and distribution assets) to combat climate change and enhance the country’s energy security.

11. The new government program 2014, a medium-term action plan, enumerates the measures that the government plans to carry out in various areas. The measures to protect the natural environment include strengthening of state control over the use of natural resources, setting of high standards for air and water quality and waste treatment, reduction of air pollution, reconstruction of existing wastewater treatment plants and building of new ones, conservation of the natural landscape and biodiversity, mitigation of climate change (including through greater use of renewable energy) and adaptation to it. The program stipulates that the government will make greater use of public–private partnerships in introducing environmentally friendly technologies and developing the green economy. In 2014, the government plans to undertake a program to recover fish population in Lake Sevan, and to establish a biosphere park in Syunik marz (region).

C. ADB’s Experience and Strategy

12. Previous program. Since Armenia joined the Asian Development Bank (ADB) in 2005, ADB has approved financing for several projects that deal with environmental issues. In 2007, ADB approved a loan of $36.0 million to finance the Water Supply and Sanitation Sector Project. By early 2012, water supply and sanitation infrastructure had been rehabilitated and upgraded in 21 towns and 97 villages, and the project was considered successful. In 2012, ADB approved additional financing of $40.0 million for the project. The additional financing is intended to contribute to environmental protection in Armenia by helping rehabilitate and extend water supply and sanitation systems in 18 towns and 92 villages, including 8 towns and 63 villages initially not covered by the project (footnote 13). In 2011, ADB approved a multitranche financing facility totaling $400 million to finance the Sustainable Urban Development Investment Program (SUDIP) in Armenia. The SUDIP will help reduce carbon dioxide (CO₂) emissions and air pollution in Armenia by improving transport infrastructure and services in 12 urban settlements, including Yerevan.

13. Future public sector lending. ADB will support the government’s efforts to ensure environmental sustainability of economic growth in Armenia. Environmental sustainability

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considerations will be mainstreamed into ADB operations in Armenia through project design and by enhancing compliance with environmental safeguard requirements. ADB will integrate measures to reduce greenhouse gas emissions in the design of infrastructure projects and expand the use of renewable energy to increase the country’s contribution to combating climate change. ADB’s support will not only be aligned with the government’s priorities, but also closely coordinated with assistance provided by other development partners to avoid duplication and achieve synergies.

14. **Transport, energy, and urban development.** In the transport sector, ADB will continue financing the SUDIP, and support new transport projects within the north–south corridor and connecting secondary towns that will help reduce CO₂ emissions and air pollution. In the energy sector, ADB will finance rehabilitation and upgrade of hydropower generation assets, and the power transmission and distribution networks to increase energy efficiency. ADB will also support the government’s efforts to expand the use of renewable energy to combat climate change and enhance the country’s energy security. Furthermore, ADB will help the government carry out legal, regulatory, and institutional reforms to ensure environmental sustainability of hydropower projects and to facilitate private sector participation in the use of renewable energy. In the area of urban development, ADB will continue financing rehabilitation and extension of water supply and sanitation systems to reduce water pollution. ADB will work with the government to develop national strategies for waste management and implement appropriate solid waste management measures. ADB will stand ready to finance investments in waste management at the government’s request.

15. **Knowledge products and services.** ADB will provide knowledge products and services aimed at strengthening environmental management, promoting eco-friendly technologies, and developing the green economy. ADB’s policy analysis and advisory services will focus on strengthening the capacity of executing and implementing agencies for applying environmental safeguards to investment projects. As a first step, ADB is developing a country safeguard framework that will comply with both ADB’s Safeguard Policy Statement (2009) and national requirements, and assist with effective safeguard design and implementation. To help the country improve environmental governance and meet its obligations under international environmental treaties, ADB will involve Armenia in regional technical assistance projects related to environment protection.

16. As part of technical assistance to the development of a long-term transport sector strategic plan, ADB will promote the A–S–I (avoid/reduce–shift/maintain–improve) approach to the design of transport projects. Support for the development of a strategy and policy for solid waste management will promote best practices such as the "3R" principle (reduce–reuse–recycle); provision of technical assistance for these activities will be further discussed with the government.

17. In addition, ADB will assist Armenia not only in combating climate change but also in adapting to it. ADB will do so by mainstreaming climate change adaptation to its investment projects as much as possible, and by providing technical assistance in increasing the country’s resilience to climate variability and change. ADB will try to mobilize additional financing for projects and activities pertaining to climate change from specialized funds, such as the Clean Technology Fund, Green Climate Fund, and Green Environment Fund.

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15 The framework will be finalized upon adoption of a new law on environmental impact assessment.
16 The A–S–I seeks to (i) reduce the need to travel and the length of trips through integrated land-use planning and better transport demand management; (ii) induce a shift from more energy-consuming transport modes (such as personal cars) to more environmentally friendly modes (such as public transport); and (iii) improve transport infrastructure and vehicle technology.