



Greening a Country

Armenia's Path Forward in an Uncertain Climate



INTRODUCTION

Towering above the skyline of Armenia's capital city of Yerevan are the peaks of Mount Aragats, a biodiversity hotspot and cultural landmark. However, with its vital glaciers and snowcaps melting due to rising temperatures, Mount Aragats is also a looming reminder of our vulnerability to climate disaster.

While the climate change challenges are great, Armenia's goals to counter them are ambitious. As a party to the Paris Agreement, Armenia is using its Nationally Determined Contribution (NDC) as an opportunity to navigate the impacts of a transforming climate through adaptation and mitigation, while finding ways to combine sustainable development and climate action.

This will allow Armenia to continue developing, and at the same time, reduce greenhouse gas (GHG) emissions, which it aims to limit to just over two tons per person by 2050. To accomplish this ambitious goal, Armenia joined the 180+ members of the NDC Partnership in August 2018 to access technical support and exchange knowledge and ideas for climate mitigation and financing.

Since becoming a member, Armenia worked to address climate needs with support from domestic and international agencies within the Partnership. In-country facilitators were deployed to support the coordination and development of a Partnership Plan as a tool to mobilize resources, ease planning, and track NDC implementation progress.

In 2020, Armenia received technical funds from the Climate Action Enhancement Package (CAEP)—an NDC Partnership initiative supporting countries as they prepare their enhanced NDCs. With those funds, Armenia built capacity for key institutions working on climate change issues through trainings and a mentorship program, enhanced the project development criteria to ensure concrete contributions to NDCs, and developed a digital portfolio management system to coordinate domestic and international support.

In response to COVID-19, Armenia remains steadfast in its goal of developing a climate-compatible response to ensure its national climate ambitions are integrated into economic growth strategies. Through the NDC Partnership's special economic advisor initiative, Armenia receives support to incorporate these considerations into its COVID-19 response.

Representatives of the Ministry of Environment stated that the NDC Partnership has supported building local capacities and sharing important knowledge and experiences from other countries that Armenia can learn from. Armenia also uses NDC Partnership support to create a climate action plan that will help the country fulfill its NDC.

Despite difficult local circumstances and the global pandemic during 2020, this Country Brief is an affirmation of Armenia's continued commitment to its climate change goals through a collaborative, country-driven, and whole-of-government approach.

To achieve climate mitigation and growth, Armenia cannot continue with business as usual and requires every sector of the country to



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be involved, including energy and agriculture, forestry, water management, transport, tourism, and conservation.

In April 2019, Armenia joined the European Union (EU)'s regional initiative, EU4Climate, with the goal of developing and implementing the climate policies needed to achieve Armenia's NDC. Through EU4Climate, Armenia will receive more than EUR800,000 between 2019 and 2022 to facilitate work on NDC implementation.

With this EU funding, projects to mainstream climate change into policy and spur low carbon development will be implemented in-country by the United Nations Development Programme (UNDP). Working with the NDC Partnership, UNDP and other partners are well on their way to supporting Armenia in transforming its original Intended Nationally Determined Contribution (INDC) submission to a time-bound strategic action plan.

With the NDC Partnership and UNDP, Armenia is mobilizing funds to support implementation, coordinating the actions of development sectors across the country, and estimating the cost of climate change.

The biggest challenges will be identifying climate threats, assessing how they will impact Armenia's development, and determining how to implement the Paris Agreement. Irina Ghaplanyan, Deputy Minister of the Environment has been tasked with this, and explained that "we realized that we lack capacity, baseline data, and knowledge about how to do it right [...] On the climate team, we have committed people who want to have real actionable targets and real actionable strategies." The NDC Partnership has been able to further support this dedicated team by providing an in-country facilitator to advise the ministry and evaluate actions across government.



SUSTAINABLE DEVELOPMENT IN A CHANGING CLIMATE

For Armenia, this climate-centered strategy is serious business. Armenia must balance the Sustainable Development Goals (SDGs) and its climate challenges: maintaining economic growth while ensuring that this growth is not at the cost of the environment. For the world to address climate change, creating sustainable paths forward for developing nations like Armenia is vital.

Support from the NDC Partnership and its members will be instrumental in paving that path and envisioning a cleaner, greener future in Armenia. This group includes organizations like the Food and Agriculture Organization (FAO), the Global Water Partnership's Country Water Partnership, and the European Bank for Reconstruction and Development (EBRD).

This network of support has put specific emphasis on aligning Armenia's commitments with the Sustainable Development Goals—especially SDG 13 relating to climate change. By providing experts who can evaluate the goals, policies, and results of the country's climate change efforts, the Ministry of Environment can ensure that the goals proposed in the NDC are implemented and making a difference.

PRIMED FOR SUCCESS

Though relatively new to the NDC Partnership, Armenia is uniquely positioned to lead the way as, unlike many other developing countries, Armenia has no internal sources of fossil fuels. One-third of the entire country's energy need is met through imported natural gas, so developing a clean renewable energy supply benefits conservation and energy security goals.

Energy generation offers a chance for significant reductions, particularly as localized renewable energy reduces reliance on foreign sources of power, saving the country money and developing sustainable infrastructure.

As a land of mountains, Armenia has taken full advantage of the steep drops to create extensive hydropower assets, which now supply one-third of the country's electricity. This is one method the country has used to meet the original goal of generating 20 percent of power needs from renewable sources by 2020, and it now aims to generate the majority through renewable means in just five years. Tigran Melkonyan, head of Armenia's Department of External Relations on Energy and Environmental Protection, laid out the goals, saying, "new capacities and new technologies will be aimed at reducing the negative consequences of global warming, and this will occupy a large place at the heart of each program."

Towns once known for their ancient monasteries now host industrial-scale solar farms such as Masrik-1 and Talin-1, built in conjunction with Spanish and Dutch energy consortiums. Smaller rooftop solar panels are popping up across the landscape. A major driver for this success is the recent "Law on Energy," which guarantees the purchase of energy for up to 20 years for solar and wind and 15 years for hydropower. Rooftop solar also feeds back into the primary grid.

PROMOTING ENERGY EFFICIENCY AT THE CITY LEVEL

An hour northwest of the capital Yerevan is the city of Gyumri, the second largest in Armenia. Here, NDC Partnership members like the EBRD are creating cities for Armenia's future by supporting a Green City Action Plan. Armenia's cities are hoping to reduce emissions by switching to LED lighting at night and expanding green spaces, and similar projects are planned for the transportation, construction, and waste disposal sectors. By assessing the different dimensions of energy consumption in cities, Armenia is unlocking significant potential for reducing emissions.

These green city initiatives are not only lowering GHG emissions, they are also improving the cities themselves. To shape tomorrow's Armenian cities, the NDC Partnership is teaming up with the EBRD to bring new investors into the region by reducing the risk of these investments and scaling up the financial resources available.



AGRICULTURE FOR GROWTH

While urban centers may gain from a climate focus, the agricultural sector still faces the biggest threat from climate change. Outside the urban hubs of Yerevan and Gyumri, almost two-thirds of the land in Armenia (62 percent) is dedicated to agriculture, and agriculture and processing generate 25 percent of the country's GDP.

The rich volcanic soil of the central highlands is filled with golden grain, but this pastoral landscape masks significant problems. Ninety percent of Armenian farms are small private enterprises often used for subsistence farming, and they are already feeling the impacts of climate change. Extreme weather events such as storms, draughts, hot dry winds, hail, and spring frost have been more frequent and lasted longer, inflicting great damage on agriculture. From 2010 to 2013, these climate-related events caused a loss of more than USD160 million in the country's agriculture sector.

Grain production is still largely carried out using traditional means, which are no longer effective. Cattle breeding is one of Armenian agriculture's top sectors, but livestock feed is not progressing at pace. Even the seed production industry needs modernization, and currently 25 percent of all seed for agriculture in Armenia is imported to meet local demand. Many farmers lack the basic knowledge necessary to mitigate against the dramatic changes ahead.

According to the Department of Agriculture at the Ministry of Economy there are approximately 320,000 agricultural entities in Armenia, most of which have neither experience nor knowledge in issues of tillage or animal care.

However, the Ministry's team is optimistic about the future and the potential to learn from other countries and specialists about how to develop effective and realistic programs that will let them manage climate change. With support from international organizations like the FAO, Armenia is identifying new opportunities in agroforestry that could increase yield per acre, protect crops from increasing temperatures, and reduce emissions. Similarly, the programs are unlocking new funds to disseminate understanding of climate change throughout the country.

However, the key area of focus and one of the biggest threats to farmers in the region is not the increasing temperatures or outdated methods, but managing water.



WATER, WATER EVERYWHERE BUT...

According to Edgar Pirumyan, the Head of Licensing and Permits Department at the Ministry of Environment, “the driving force of any activity is water.” Unlike drought-stricken countries elsewhere in the world, Armenia has plentiful water resources but has not been able to properly manage and protect them.

The sprawling Lake Sevan in Eastern Armenia covers almost one-sixth of the country and stands as a testament to the challenge and potential of water management. It is a national park and a place of historical and cultural significance, as Sevanavank, a medieval monastery complex, once stood on a small island in the northern section of the lake. After the Soviet government drained the lake of 40 percent of its water, the shoreline dropped 20–30 meters in a matter of decades, so the once island monastery now sits at the edge of a peninsula.

Draining the lake has had serious repercussions that are exacerbated by climate change. Dangerous algae blooms are becoming common, keeping tourists and locals out of the water and denying a respite from the increasing heat. In July 2019, a massive algae bloom covered almost half the shimmering blue lake in a sickly green. However, efforts to restore and increase the water level in the lake must also balance with the need for irrigation.

The Deputy Minister of Agriculture, Garnik Petrosyan, described how “a number of programs are being implemented to introduce modern irrigation systems, which will make it possible to optimally use limited water resources.” One program, supported by the United States Agency for International Development (USAID), reuses water from fish farms to irrigate crops. *The Advanced Science & Partnerships for Integrated Resource Development*, a pilot project taking place in Masis Dzuk in the southwestern corner of the country, pumps water straight from the fish farms to the fields to irrigate approximately 60 hectares (148 acres) of farmland. If the program is fully adopted, it could eventually cover 150,000 hectares, or 578 square miles of farmland.

With careful management and successful policies, Armenia should have plenty of water well into the future—enough to support the farms of the central highlands and ensure Lake Sevan National Park will continue to draw visitors from around the world.



PROTECT THE FOREST, PROTECT THE PEOPLE

Armenia is also home to a number of species that make the country an important biodiversity area. Because of the intensely mountainous terrain, almost half the country is virtually uninhabitable by humans, which means vast tracts of land are isolated and protected. The varied topography creates a wealth of natural wonders.

Though less well-known than the Amazon Rainforest or the Great Barrier Reef, Armenia is a biodiversity hotspot filled with endemic species and permanent populations of animals from across the continent. The wild relatives of long-since domesticated plants and animals can still be found in the mountainous terrain.

Climate change, however, is threatening these plant and animal species, forcing some to move and others to face extinction. Human activities are also inflicting direct damage.

“Armenia saw tremendous loss of biodiversity and land degradation due to bad practices during the Soviet era,” said Irina Ghaplanyan, Deputy Minister of Environment. Deforestation is still a significant issue, but village communities are working to preserve the surrounding forests and their unique biodiversity.

The village of Shikahogh sits high in Armenia’s mountains, nestled against the Shikahogh State Reserve, the second largest forest in the country. Nare Ghazaryan, Mayor of the Shikahogh’s village, explained that “to protect nature and at the same time use the resources of the forest is contradictory.”

The villagers are not oblivious to the climatic dangers they face. Ghazaryan described how “there are showers and intense heat [...] and the forest becomes more flammable. [...] There is global warming and as a result nature is spoiled, water is interrupted, and most of the population suffers because of this.”

Supporting both Armenian biodiversity and these villages means supporting the forests that surround them. FAO is working with village leaders to implement two new programs to protect the forests and help the villagers at the same time. Energy-saving stoves and briquettes are being provided to families to reduce the amount of wood they consume and protect the forest from overharvesting, while new windows have been installed in homes to conserve heat during the cold winters.

Reconstructing the forest cover is a vital part of Armenia’s NDC, as the forests act as carbon sinks and will support in reducing carbon emissions. Through the Armenian Ministry of Environment, these programs can thrive and spread, limiting carbon emissions and deforestation.



THE SECRET TO SUCCESS

The Republic of Armenia, along with its international partners, developed a debt-for-climate innovative financial swap mechanism. This is directed to leverage additional finances into climate action and provides the opportunity to create platforms to efficiently mobilize climate finance between developed and developing member states. This innovative instrument is designed to leverage action to raise climate ambition by allowing developed countries to fulfill commitments under the Paris Agreement as well as redirecting bilateral and public debt of developing countries towards timely and efficient NDC implementation. Armenia believes this mechanism can be successfully scaled.

A FUTURE IN BALANCE

Developing countries can be leaders in the global climate movement and drive significant reductions through their respective NDCs. They can shift thinking and demonstrate new approaches for others to follow.

Previously, Armenia's approach to pollution was based on a compensation scheme under which you could pollute and then pay. Now, however, Armenia is switching to a mitigation and prevention system that provides the tools to help change the behavior of users and polluters and mitigate possible pollution and overuse.

Armenia is already experiencing a climate emergency. By integrating climate planning into every aspect of its development and preparing to mitigate the challenges that lie ahead, the country hopes to navigate its current challenges and lead to a new covenant with the Earth—a way of ensuring that the worst climate impact is avoided and the future thrives.

With the catalytic support of NDC Partnership members and of international organizations, Armenia is creating a future where human actions are in tune with the environment and the threat of global climate change is eliminated.

CREDITS

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