

GOVERNMENT OF THE REPUBLIC OF ARMENIA

DECREE

----- November 2022 N --- - L:

**ON APPROVING THE ACTION PLAN, THE FINANCING STRATEGY AND THE
INVESTMENT PLAN FOR THE IMPLEMENTATION OF NATIONALLY DETERMINED
ACTIONS/CONTRIBUTIONS OF THE REPUBLIC OF ARMENIA FOR 2021-2030 UNDER
THE PARIS AGREEMENT**

Governed by Article 146 of the Constitution of the Republic of Armenia, Parts 2 and 5 of Article 4 of the Paris Agreement and guided by the Appendix to the Resolution N 610-L of the Government of the Republic of Armenia dated April 22, 2021, the Government of the Republic of Armenia decides:

1. To approve:

1) The Action Plan for the implementation of Nationally Determined Actions/Contributions of the Republic of Armenia for 2021-2030 under the Paris Agreement in accordance with Appendix N 1;

2) the Financing Strategy for the implementation of Nationally Determined Actions/Contributions of the Republic of Armenia for 2021-2030 under the Paris Agreement in accordance with Appendix N 2;

3) The Investment Plan for the implementation of Nationally Determined Actions/Contributions of the Republic of Armenia for 2021-2030 under the Paris Agreement in accordance with Appendix N 3;

2. To the Chairman of the Interagency Coordination Council for the implementation of the requirements and provisions of the Framework Convention on Climate Change and the Paris Agreement, the Deputy Prime minister coordinating the environment sector:

To arrange sessions at semi-annual intervals for consideration of reports on the Action plan for the implementation of Nationally Determined Actions/Contributions.

3. To the Minister of Environment:

To arrange the publication of annual progress reports on the Action plan for the implementation of Nationally Determined Actions/Contributions

4. The Decree shall enter into force on the day following its official publication.

REPUBLIC OF ARMENIA
PRIME MINISTER

Appendix N 1
To the RA Government
Decree N --- -L of November ---

Action Plan

FOR THE IMPLEMENTATION OF NATIONALLY
DETERMINED ACTIONS/CONTRIBUTIONS OF THE
REPUBLIC OF ARMENIA FOR 2021-2030 UNDER THE
PARIS AGREEMENT

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1. INTRODUCTION

Armenia's share in the total volume of greenhouse gas (GHG) emissions globally is less than 0.02 percent, however, the Government of the Republic of Armenia has declared its ambitions to reduce emissions, as well as its willingness to have a fair contribution in the total emissions volume.

On April 22, 2021, the Government of the Republic of Armenia approved Armenia's revised Nationally Determined Actions/Contributions (NDC) for the period 2021-2030 under the Paris Agreement, which sets out the target of 40 percent reduction in GHG emissions across all sectors of the economy by 2030 compared to 1990 emission levels.

The rationale for revision of the document "Nationally Determined Contributions (NDCs)" approved by the RA Government protocol decision N41 of September 10, 2015 was predominantly due to the political declarations to set higher ambitions, as well as the intention to comply with the NDC guidelines adopted at the COP24 in Katowice, the need to revise the baseline data, as well as the intention to shift to 10-year period of NDC implementation (as compared to the previously set 35-year period). Moreover, Armenia has maintained the declared mitigation goal for 2050 until the adoption of the long-term low-emission development strategy.

Key provisions of the Paris Agreement include enhanced capacity to adapt to the adverse impacts of climate change and promoting resilience to climate change, as well as ensuring low levels of greenhouse gas emissions without triggering adverse impact on the sustainable development and poverty reduction agendas. In this sense, the Government has stipulated that the NDC is based on the principle of green economy and is compatible with the Sustainable Development Goals, which are reflected in the social and economic development goals of Armenia. At the same time, the NDC was formulated with the assumption that mitigation and adaptation actions will use an ecosystem-based approach, with preference to more balanced and collaborative actions. This will allow to embed mitigation actions in relevant sectors of the economy, contributing to equitable regional cooperation. The goals and perspective plans set by the national and sectoral strategies form the core approach to the definition and implementation of the NDC target.

As the Government has stipulated in its action plan, the policy in this area will be basically aimed at increasing the country's resilience to climate change by promoting the adoption of best practices in adaptation, active engagement in global efforts towards low-carbon development, and fulfillment of international commitments regarding climate change mitigation.

In this context, the Government has also approved National Adaptation Plan for Climate Change and the schedule of measures for 2021-2025, which should contribute to the integration of adaptation opportunities in sectoral and regional development plans, emphasizing at this stage the sectors of water resources, agriculture, energy, health, tourism and settlements. This NDC Implementation Action Plan (Plan) is based on the national adaptation framework, and the Plan to ensure its implementation primarily builds on mitigation actions in the context of achieving NDC target.

However, an important challenge is to transform the NDCs into tangible actions which will translate into low emissions in the long-term perspective and provide opportunities for climate-resilient development.

To achieve tangible progress on the country's efforts aimed at reducing the level of emissions and to streamline efforts made in this direction with the global community efforts, Armenia will establish a national MRV (Monitoring, Reporting and Validation) system in accordance with the Enhanced Transparency Framework under the Paris Agreement to account for actions and support. The key stages of the implementation of the Armenian MRV model system are an important element of the NDC implementation plan.

The Paris Agreement aims to align financial flows with low-emission development pathways. The plan presents identified priority actions and estimated needs for resources. In this context, Armenia will need sustainable financial, capacity building and technical support to implement national actions and, in particular, to achieve GHG reduction targets within the framework of the Paris Agreement, and to ensure regular and adequate level of reporting on its progress.

The Government is pursuing systemic transformations, using the NDC implementation as a mechanism to boost investment in climate change mitigation and ensure sustainable development. This Plan presents the actions aimed at the implementation of the 2021-2030 NDC of the Government of Armenia, the necessary institutional and resource framework, as well as the monitoring, evaluation and regular review mechanisms.

Instruments for the development and embedding the financial mechanisms for the implementation of the GIS are presented in the financing strategy for the NDC implementation (Appendix 2), and the additional investment projects identified to support achievement of the climate ambitions declared by the NDC, are outlined the investment plan for the NDC implementation (Appendix 3).

The informational, analytical and research base of the project was provided by the national communications and reports submitted by Armenia to the UNFCCC, as well as the analytical studies carried out by development partners commissioned by the Government.

2. TERMS AND ANALYTICAL BACKGROUND FOR IMPLEMENTATION OF THE PLAN

2.1 CLIMATE CHANGE AND THE ECONOMIC CONDITIONS

1. Climate change indicators¹ in Armenia, are above global averages. Since 1935, the country's climate has become drier, and increased amount of precipitation has been observed in some regions. Results of the CCSM4 global climate model for the RCP8.5 scenario² show that for the territory of Armenia compared to the average of 5.5 °C for the years 1961-1990, an increase in the annual average temperature is predicted - up to 1.6 °C by 2040, 3.3 °C by 2070 and 4.7 °C - by 2100. Atmospheric precipitation is expected to decrease by 2.7 percent by 2040, 5.4 percent by 2070, and 8.3 percent by 2100 relative to the 1961-1990 average annual precipitation of 592 mm.
2. At the same time, the number of severe and very severe drought days increased, the upper limit of the drought zone expanded, and earlier drought onset dates were observed. According to the analysis, the river flow in Armenia may reduce from around 8 percent to more than 13 percent by 2040, 13-27 percent by 2070, and 20-39 percent by 2100. The consequences of these events in a 100-year period may lead to decreased soil moisture by 10-30 percent, increased soil water deficit by 25-30 percent, reduced productivity of irrigated land by 24 percent, reduced total area and yield of pastures by 4-10 percent, etc.
3. According to the projections, these changes will have a negative impact on Armenia's water resources, energy, agriculture, ecosystems, human health, settlements and infrastructure and other sectors, including tourism, which brings about further challenges of a larger scale expanding from these sectors to the economy as a whole.
4. In particular, the direct impact for the energy sector would appear in reduced river flows and consequently, negatively affect the production of hydropower. Rising temperatures, declining river flows and lake levels will lead to disruptions in proper function of cooling mechanisms at the nuclear power plant and thermal power plants. The vulnerability of the agricultural sector varies by crop types and geographic locations. Extreme weather events, rising temperatures, precipitation and water scarcity can affect both livestock breeding and crop production. About 80 percent of the territory of the Republic of Armenia is exposed to varying levels of desertification, resulting from anthropogenic activities as well as under the influence of various natural factors, such as water and wind erosion of soils, sinkholes, drought, lack of moisture, landslides, natural salinization-alkalization, etc.
5. Another impact of climate change is the significant intensification of natural disasters, with the total occurrences increased by about 40 instances over the period of 1975-2016 as compared to the average of 168 instances over the period of 1961-1990. Hailstorms, hurricanes, torrential rains, strong winds, wildfires, and frost are examples of natural disasters that tend to have more frequent occurrence and cause more devastating impacts in Armenia.
6. Armenia's total greenhouse gas emissions decreased to 7,328.6 million tons in 1995 compared to 25,855 million tons in 1990. As of 2017, the emissions amounted to 10,624 million tons of CO₂ eq, with the following sectoral distribution: 67 percent is attributable to the Energy, 18.5 percent - to the Agriculture, 8.9 percent - to the Industrial Processes and Product Use, and 5.8 percent - to the Waste sectors.

¹ Climate change indicators, estimates, information-analytical quotes on greenhouse gas emissions are taken from 1) the 4th national communication on climate change, 2) the third biennial update report, 2) the 1990-2017 report of the RA National Inventory Report on Greenhouse Gases.

² The no-emissions-reduction scenario envisages global emissions increase over the course of the 21st century.

7. Based on its NDC, Armenia has committed to reduce the greenhouse gas emissions by 40 percent compared to the level of 1990, when total emissions amounted to 25,855 million tons of CO₂ and net emissions - 25,118 million tons of CO₂.

8. By 2026, the Armenian Government has set a target for minimum average annual GDP growth of 7 percent (9 percent in case of favorable external economic conditions). Should the upward trends in greenhouse gas emissions not be curbed, emissions will be commensurate to the target level of cumulative economic growth, which still keeps the GHG target within the ambition range set out in the NDC.

9. In 2017, the GDP energy intensity index decreased 4.7 times compared to 1990 and 1.7 times compared to 2000. This is accounted for by the structural transformations in the economy, particularly, by reduced share of industry and energy-intensive production, increased share of the Services sector, supported by the introduction of energy-efficient technologies, as well as the wider scale use of renewable energy sources.

10. During 1990-2020, the economy of Armenia underwent fundamental transformation. In 1990, the Industry sector accounted for 29.7 percent of the GDP, in 2000 - 25.2 percent, while in 2021 the share of Industry in GDP was 20.1 percent. The share of agriculture has also decreased since 2000 and reached 11.3 percent of GDP in 2021. Instead, the share of Trade and Services has been steadily expanding - from 28.2 percent in 1990 to 52.8 percent in 2021.

2.2 INSTITUTIONAL FRAMEWORK FOR NDC IMPLEMENTATION

11. Armenia stays true to its international commitments in terms of climate change mitigation and adaptation and aims to ensure highly efficient cooperation within these frameworks, which are³:

- 1) UNFCCC and Kyoto Protocol, ratified by Armenia in May 1993 and December 2002, respectively
- 2) The Paris Agreement and the Doha Amendment to the Kyoto Protocol, ratified in February 2017
- 3) The Sendai Action Plan for Disaster Risk Reduction 2015-2030, which Armenia joined in 2015.
- 4) The Comprehensive and Enhanced Partnership Agreement between the European Union and the Republic of Armenia (CA-EU CPA), ratified in April 2018.

12. Armenia welcomes the EU's new and ambitious climate change mitigation and adaptation strategy ("European Green Deal") and intends to actively cooperate with the EU within this framework.

13. The NDC maintains the target set out by the preceding NDC adopted by the Government in 2015, namely - to achieve 2.07 tons of CO₂ eq per capita in net emissions by the year 2050. However, the government plans to adopt a long-term strategy for low-emission development to set revised long-term targets, including by mitigation sectors, to pursue implementation of mitigation measures across all sectors of the economy, while also anticipating adequate international support for financial, technological and capacity building.

14. The key expectations in terms of emission reduction from the NDC mitigation sectors refer to the Energy and Agriculture sectors, as they constitute the largest sources of emissions in Armenia's GHG inventory; at the same time have the highest tangible potential for emission reduction in the medium term. In the context of a long-term strategy for low-emission development, the sectoral coverage of mitigation will be more extensive and comprehensive, particularly in the highlighted sectors, as the

³ The commitments undertaken by the Republic of Armenia within the framework of UNFCCC, Kyoto Protocol and the Paris Agreement derive from the status of a developing country not included in Annex I of UNFCCC.

instruments for GHG emission reductions are more actionable and efficient when applied for the long-term perspective.

15. The commitments undertaken by Armenia under the NDC will be implemented through Nationally Determined Actions, although the support of the international donor community is an explicitly necessary prerequisite to ensure the implementation of these activities.

16. The NDC is coherent with the UN Sustainable Development Goals (SDGs), which are reflected in Armenia's social-economic development plans and which emphasize the country's socio-economic development priorities, outlining the objectives, key challenges and limiting factors for the development, fundamental improvements needed as well as policy instruments required to achieve the overarching goals. In particular, according to individual SDGs, the interrelations with NDC provisions are expressed as follows:

- 1) **SDG 1: End poverty in all its forms everywhere** Poverty reduction a key consideration that was reflected in the context of the socio-economic development goals set out at the core of the revised NDCs.
- 2) **SDG 2: Zero hunger.** Defining Agriculture sector as a priority area in the framework of the NDC sets out a clear aim of contributing to food security and better nutrition, as well as the improving sustainable agricultural practices.
- 3) **SDG 3: Health and well-being.** Human health in the context of climate change adaptation is one of the priority areas of adaptation actions included in the NDC.
- 4) **SDG 4: Quality education.** Armenia expects to have access to international support for technology and capacity development to be able to better integrate environmental education and climate change aspects in the educational curricula.
- 5) **SDG 5: Gender equality.** NDC revision process was conducted by gender-responsive approach, and the same was also reinstated in relation to the NDC implementation.
- 6) **SDG 6: Clean water and sanitation.** Wastewater management is one of the areas included in the mitigation actions, and water resources management is included in the priority areas for adaptation actions.
- 7) **SDG 7: Affordable and clean energy.** Country's energy security and supply of affordable and clean energy is directly linked to key mitigation actions.
- 8) **SDG 8: Decent work and economic growth.** Adaptation policies and measures are critical to enhancing country's capacities necessary to achieve its economic development goals.
- 9) **SDG 9: Industry, innovation and infrastructure.** Industrial processes are one of the areas covered by mitigation actions, and infrastructure is among the areas vulnerable to climate change.
- 10) **SDG 10: Reduced inequality.** NDC is based on the principle of green economy, also including expanded opportunities social and economic inclusiveness.
- 11) **SDG 11: Sustainable cities and communities.** Settlements are one of the areas included in the NDC as vulnerable to climate change.
- 12) **SDG 12: Responsible consumption and production.** Enshrining mechanisms in industrial processes to ensure adaptation is one of the foundations and key approaches to adaptation.
- 13) **SDG 13: Climate action.** The NDC sets a target to reduce emissions by 40 percent from 1990 levels by 2030.

- 14) **SDG 14: Life below water.** Aquatic ecosystems, including biodiversity of Lake Sevan is one of the priority areas vulnerable to climate change.
- 15) **SDG 15: Life on land.** Natural ecosystems, including forest ecosystems, biodiversity and land cover are among the priority areas that are vulnerable to climate change.
- 16) **SDG 16: Peace, justice and strong institutions.** In the course of the NDC revision participatory process will be maintained and an accessible information system will be established, through strengthened cooperation with public institutions and civil society organizations..
- 17) **SDG 17: Partnerships for the goals.** Armenia is seeking to develop a Debt-for-Climate Swaps financial offset mechanism aimed at attracting additional financing for climate change mitigation.

2.3 INSTITUTIONAL FRAMEWORK FOR PROGRAM IMPLEMENTATION

17. Streamlined cooperation between all stakeholders will be ensured for the effective implementation of the NDC. The range of stakeholders will include but not be limited to the following groups:

- 1) **Political leadership and coordination.** Includes the National Assembly, the RA President, the RA Prime Minister, Deputy Prime Ministers, the Interagency Coordinating Council on Climate Change
- 2) **Policy development and implementation.** All ministries
- 3) **Data collection and regulatory framework development.** Ministry of Territorial Administration and Infrastructure, Ministry of Economy, Statistical Committee, Cadastre Committee, Urban Planning Committee, Public Services Regulatory Committee
- 4) **Capacity building.** National Academy of Sciences, scientific and educational institutions, international organizations, civil society structures
- 5) **Beneficiaries/affected parties.** Private sector, communities.

18. The goals and objectives of the Government's authorized body in the field of environmental protection include the development and implementation of policies aimed at addressing climate change issues, including adaptation. However, given that climate change essentially affects almost all sectors of the economy and the active engagement of all state governance agencies is required in order to identify the optimal solutions for climate change mitigation and adaptation, the Government will continue practicing collegial mechanisms of sectoral coordination.

19. Acting under the chairmanship of the RA Deputy Prime Minister the Interagency Coordination Council for the Implementation of the Requirements and Provisions of the Framework Convention on Climate Change and the Paris Agreement is mandated to coordinate the fulfillment of the country's obligations arising from the Convention and Agreement. Through this platform, the Government will ensure streamlined integration of climate change considerations in the country's strategic planning system.

20. Since 2018, Armenia has joined the Partnership for Nationally Determined Contributions which aims to support developing country member states in the process of development and/or implementation of NDCs. Within the framework of the membership, development of the NDC partnership program has been initiated in Armenia, which will serve as a basis for coordinating partner efforts throughout the NDC implementation, ensuring effective use of resources. The Government will continue active and effective cooperation under this format, considering it as an effective platform for capacity building, knowledge transfer and public awareness raising.

21. Although some sectoral strategies include specific provisions on climate change adaptation, the mitigation potential is often overlooked and significant improvements are needed in this direction. In order to ensure the effective implementation of the NDCs, the Government will ensure that the inclusion of a climate change mitigation and adaptation component is mandatory in the development of all sectoral strategies, and that the existing strategic documents are gradually revised to reflect these components more articulately.

22. To achieve this, the Government will initiate, promote and support the development of capacities at the agency level through legal regulation, active knowledge sharing platforms, targeted training and development programs.

23. The Government will also come up with an appropriate legislative initiative for the purpose of the framework regulation of potential legal relations arising in the process of development and implementation of climate policies, monitoring and evaluation of outcomes, implementation of financial mechanisms, strategic planning of climate change mitigation and adaptation.

2.4 THE ISSUES AND CHALLENGES IN TERMS OF NDC REVIEW AND IMPLEMENTATION

24. Periodic revision of the NDCs, as well as proper implementation, require institutional capacity for effective collaboration with research, information, organizational, academic community, and civil society institutions. The Government will continuously address the gaps identified in these directions aiming to articulate climate messages at an improved quality at each subsequent review cycle, to expand the possibilities of their implementation and to communicate the results to the public in the optimal possible way.

25. In particular, the gaps and limitations that will be addressed within the framework of the country's climate agenda requiring the Government's maximized collaboration with the development partners are as follows:

- 1) **The challenge of securing a solid climate policy framework.** Despite the progress achieved in recent years, the country still lacks streamlined institutional arrangements for the development, implementation and impact assessment of climate policies. The government's commitments are best implemented in cooperation with development partners and the context of the practices followed by the latter, which can often imply at least different standpoints in terms of the sequence to address the priorities. Still no climate policy framework document has been defined to set out the hierarchy and interrelationships of climate policy documents, indicate the scope of responsibilities, criteria for their development and implementation, as well as monitoring and evaluation systems, etc. This leads to certain disruptions and often contradictions in the strategic planning process.
- 2) **The challenge of providing information and baseline data.** Policy development should be based on available, accurate, reliable and clear information. The lack of quality baseline data on socio-economic development, sector does not allow to increase the accuracy of GHG emissions measurement, exposing the effectiveness and targeted mitigation actions to risk. Paris agreement established a new transparency framework under which countries are obliged to report on their progress in reducing greenhouse gas emissions and increasing resilience to climate change. Armenia is on the way to establishing national MRV system, and the inherent risks include insufficient level of baseline data.
- 3) **The challenge of building institutional capacity.** Across the processes of developing, implementing, evaluating results and ensuring accountability under climate policies, the solutions identified are largely limited within the conditions present, which inhibits cumulative knowledge acquisition and its subsequent transfer and use for the benefit of future recurrent cycles. To date, collection of information, involvement expert resources, engagement in international platforms, stakeholder participation are not yet streamlined. Effective cooperation with development partners in the specific directions identified mainly fills this gap, however the

capacities built are not capitalized into a robust set of effective institutional, structural, entity and functional level capacities.

- 4) The challenge of incorporating climate considerations into sectoral development documents.** Sectoral development documents typically treat climate considerations and challenges as interconnected realities, without actually adjusting sectoral targets, risks, regulatory mechanisms and solutions from that perspective. The absence of policy tagging results in ineffective or incomplete tagging of costs, which is an obstruction to policy implementation effectiveness assessment. With these practices in place, achievement of climate targets, furthermore implementation of sectoral development goals are at risk. In public perception, climate challenges continue to be seen as an agenda of interest for a narrow scope of stakeholders.

26. Capacity building is fundamental to achieving the NDC objectives. For Armenia, capacity building is key to meeting international commitments and improving governance in general, which becomes imminent imperative for sectors that are increasingly vulnerable to climate change. Moreover, the ability of the public sector to respond and adapt should also reflect this growing demand. To this end, the Government will seek to ensure that capacity building leads to the formation of sustainable institutional mechanisms and enabling environments.

2.5 INTEGRATING GENDER CONSIDERATIONS

27. Women are disproportionately affected by climate change. This is accounted for by their larger involvement in climate-sensitive sectors (agriculture, services and industry) Higher level of vulnerability for women is mainly due to the fact that they have less capacity and resources to cope with climate externalities.

28. Moreover, with less involved in public life and decision-making processes, as well as lack of awareness of their rights increase women's vulnerability to climate change risks. However, women play a key role in coping with extreme climate events. They can maintain balance and ensure resilience at the national and local levels, thus contributing to the creation of economic value.

29. The Paris Agreement and its implementation guidelines call on parties to ensure gender mainstreaming in the revision and implementation of the NDCs, ensuring inclusive and participatory approach. Armenia has taken steps to develop gender responsive policies and strategies, namely:

- Armenia is a Party to the Convention on the Elimination of All Forms of Discrimination Against Women.
- Equal access to rights, obligations, responsibility, opportunity are protected by the RA Law "On Ensuring Equal Rights and Equal Opportunities for Women and Men".
- The "Strategy and program of measures for Gender Policy Implementation for the years 2019-2023" is under implementation, aiming, in particular, to mainstream gender responsiveness in the state fiscal processes.

30. Starting from 2020, the government has initiated the development and implementation of a gender-responsive budgeting toolkit. However, to achieve gender-responsive budgeting practices at a fundamental level, the Government will seek to reflect gender-responsive component in climate policy documents, and to build the required capacities to enable maintenance of gender-disaggregated statistics.

31. In order to ensure the inclusion of gender issues in climate policy documents by allocating specific actions and financial resources for their implementation, the Government will

- promote policy dialogue between policy makers and private sector stakeholders;
- address gaps, needs and barriers to gender-responsive climate policy and financing at the sectoral level;

- facilitate access to, and availability of, climate finance for the most vulnerable groups
- encourage the implementation of programs aimed at the development of the economic, financial and social capacities of the most vulnerable groups, including women;
- provide disaggregated statistics and inclusion of gender indicators in the MRV system.

3. POLICIES TO ACHIEVE THE NDC TARGET

32. According to the NDC, Armenia is committed to reducing the emission of greenhouse gases by 40 percent compared to the level of 1990, when total emissions were 25,855 Gg CO_{2eq.}, and the net emissions were 25,118 Gg of CO_{2eq.}. Compared to 1990, total GHG emissions decreased by about 59% (15,231 Gg) in 2017, mainly due to reduced emissions from the Energy sector, and compared to 2000, emissions increased by about 69%.

Table 1. GHG emissions by sectors, 1990-2017, Gg CO_{2eq.}

Sector:	1990	2000	2010	2017	Share in total emissions in 2017 (%)
Energy	22,719.4	4,255.1	5,809.6	7,087.4	66.7
Industrial processes and products use	631.2	152.9	587.2	950.5	4.7
AFOLU (without Forestry and other land use)	2,085.7	1,374	1,534.9	1,965.4	18.5
Waste	418.8	513.8	564.8	620.7	5.8
Total GHG emissions	25.855	6295.8	8,496.6	10.624	
Forestry and other land use	-736.9	-467.8	-550.1	-470.6	(4.4)
Net GHG emissions	25,118.1	5,828.0	7,946.5	10,153.5	

33. Taking into account the targeted average annual rate of economic growth, as well as trends in GHG emissions per unit of GDP, it is estimated that under the pessimistic scenario GHG emissions may increase significantly in 2030 compared to 1990. Meanwhile, in order to reach the GHG target, Armenia should ensure that the net emissions of greenhouse gases do not exceed the limit of 15,071 CO_{2eq.} by 2030 or do not increase more than 4,917 Gg CO_{2eq.} in volume, which calls for implementing targeted strategy both in terms of reducing emissions and expanding emission removal capacities.

34. As stipulated by the UNFCCC, the areas of climate change mitigation are:

- 1) Energy (including energy production and consumption)
- 2) Industrial processes and product uses (mining and F-gases)
- 3) Agriculture (enteric fermentation, direct and indirect N₂O emissions from managed soils)
- 4) Waste (solid waste management, waste waters)
- 5) Forestry (afforestation, forest conservation) and other land use.

3.1 ENERGY

35. Since 2010, annual fluctuations in the volume of emissions of the "Energy" sector are determined mainly by changes in the volume of electricity exports. At the same time, every year the volume of emissions is affected by the growth rates of the country's energy industries, weather conditions and the output volumes of hydropower plants. In 2017, majority of the Energy sector's emissions were attributable to road transport (25 percent), natural gas fugitive emissions (23 percent), electricity generation (18.3 percent), and the residential sector (18.3 percent).

36. With the strategic plan (until 2040) for the development of the energy sector of the Republic of Armenia, the Government sets out the following priorities 1) maximizing the use of the renewable energy potential, 2) the maximizing the utilization of the energy saving potential, 3) the extension of the design operating life of the 2nd power unit of the ANPP, 4) North - South Transit Corridor construction project, and 5) gradual liberalization of the power market. In the context of achieving the SDG target, the stated objectives are of key importance.

37. The Government's Energy Saving and Renewable Energy Program for 2022-2030 aims to improve the energy efficiency of Armenia's economy and promote energy saving over the next ten years, as well as to expand the use of renewable energy sources as a means of increasing energy security, independence and reliability and reducing the negative impact on the environment.

38. By 2030, the Government will place special emphasis on the expansion of electricity production using state-of-the-art renewable energy sources (solar, wind, geothermal). Based on the assessment of energy system modalities and capacities, it is planned to implement projects for the construction of solar plants with a total capacity of up to 1000 MW, as a result the share of solar energy production in the total will reach at least 15 percent by 2030.

39. In terms of ensuring the set target, the operationalization of energy storage battery systems is important, which will significantly increase the security and reliability of the energy system. It is planned to operationalize energy storage battery systems with 300 MW (1200 MWh) capacity by 2030.

40. The expansion of the use of renewable energy sources will lead to an increase in the share of low-carbon energy in the structure of electricity production to meet domestic demand (75 percent in 2030 compared to 72 percent in 2019). Nevertheless, the share of low-carbon energy in the structure of total electricity generation will have a decreasing trend (51 percent in 2030 compared to 60 percent in 2019), which is accounted for by the fact that exported electricity will be produced primarily by means of using natural gas.

41. The government expects that the implementation of the mentioned programs would contribute to the reduction of greenhouse gas emissions from the energy sector. In particular, it is predicted that in 2030, greenhouse gas emissions in the energy sector will decrease by about 50 percent compared to the level of 1990. Moreover, in order to meet domestic demand, greenhouse gas emissions from electricity production will be reduced at significantly higher rates in 2030 - by more than 60 percent compared to 1990.

42. At the same time, in order to reduce emissions from the Energy sector, which includes fuel combustion and fugitive emissions from fuels, there are still several gaps that will be properly addressed by the Government in addition to the measures stipulated in the above strategic plans in order to ensure the GHG target. In particular, these gaps are:

- lack of measures to encourage energy efficiency in the public sector,
- lack of financial and technical incentives for construction companies to build energy-saving buildings,
- insufficient attractiveness of credit resources for the implementation of energy efficiency measures by the banking sector,
- low effectiveness of public awareness raising mechanisms to shape energy-efficient behavior among consumers;
- low level of use of individual heating and hot water production systems based on renewable energy resources in buildings,
- Low share of electric motor vehicles as well as the inadequate level of the corresponding infrastructure.

3.2 INDUSTRIAL PROCESSES AND PRODUCT USE

43. The main source of emissions in industrial processes are the carbon emissions generated during cement production, the volumes of which are determined by the growth rate of the construction sector in the country. Small amounts of emissions also generate from lime and glass production, as well as from the use of lubricants and solid paraffins. However, the increased emissions in the sector in the last decade is mainly attributable to the steady increase in F-gases (Hydrofluorocarbons or HFCs) emissions,

which in most part is a result of the widespread use of F-gases in refrigeration and air conditioning systems.

44. In 2019, Armenia ratified the Kigali amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer of the Vienna Convention on the Protection of the Ozone Layer, by which Armenia committed to gradually reduce the use of HFAs starting from 2024 and to ensure their reduction by 80-85 percent by 2045. .

45. The government has already adopted a number of Decrees, which enable a more targeted tracking of ozone-depleting substances in Armenia and envisage the steps to be undertaken towards their reduction.

46. In order to fulfill the obligation to reduce emissions of HFAs, a national action plan for reducing the use of HFAs will be developed, which will include legislative, sub-legislative regulations (including in relation to licensing), import restrictions and recording of HFAs, specialists training and awareness raising.

3.3 AGRICULTURE

47. The key portion of greenhouse gas emissions from the agricultural sector is attributed to the livestock breeding, which accounts for almost half of the gross agricultural output.

48. Given the development trends of the agricultural sector, should the current practices continue to be followed by the business entities operating in the sector, a significant increase in the volume of GHG emissions is predicted by 2030. In this sense, the Government will continuously encourage the identification and implementation of mitigation measures based on best practices.

49. Studies have shown that Armenia's agricultural sector has immense potential for curbing GHG emissions, in particular through improved livestock breeding and cattle genetic improvement, revised foddering and management practices, increased rate of nitrogen uptake in the soil, and using only acceptable amounts of nitrogen fertilizers, which can be implemented by 2030.

50. Along with the strategic goals of the sector, such as land reform, irrigation system development, technology innovation and upgrade, human and institutional capacity development, the Government will continue to promote within the framework of state support programs:

- propagation of the Swiss breed of cattle, breeding and artificial insemination process,
- breeding of new, highly productive mixed breeds as a result of cross-breeding of purebred and mixed Swiss breeds and Caucasian grey species,
- introduction of crop rotation, including grain crops in their composition,
- Programs aimed at the production of grain crops in arable lands.

51. Certain agricultural mitigation measures also have positive effects from an adaptation perspective (for example, measures promoting carbon sequestration have positive effects in terms of drought mitigation). At the same time, some adaptation measures may also have a positive impact on climate change mitigation. Therefore, programs and measures aimed at reducing emissions in the agricultural sector will be developed and implemented in conjunction with climate change adaptation programs.

52. The success of climate change mitigation practices in Armenia's agricultural sector largely depends on the conditions enabling the implementation of these measures, such as the availability of information, the level of awareness, coordination and control mechanisms. Therefore, the government will continuously address these issues both within the framework of the existing strategy toolkits and further cooperation with development partners.

3.4 WASTE MANAGEMENT

53. The majority of emissions from the sector, namely - methane emissions, are resulting from the decomposition of solid domestic waste, which accounts for 68.7 percent of the sector's emissions and 4 percent of the country's total emissions in 2017, while emissions from open incineration of waste are negligible - accounting for 3.33 percent of the sector's emissions. Emissions from wastewater treatment accounted for 28 percent of the sector's emissions.

54. Within the framework of the government's current policy, the landfill gas capture system will be introduced based on the Strategy and the plans for the construction of new sanitary landfills in Yerevan and Hrazdan which have been initiated and are currently underway.⁴

55. The Government's policy in the sector will be aimed at coordinating technologies and management systems of waste collection, transportation, storage, processing and utilization processes on a streamlined and sustainable institutional basis. Higher priority is set for effective garbage collection, as well as the implementation of mechanisms aimed at reducing the amount of garbage, its reuse and recycling.

56. In this context, in cooperation with development partners, the construction of a new solid waste landfill in Hrazdan has been launched. The landfill will be built in accordance with EU standards and will be equipped with modern waste management equipment.

57. At the same time, Yerevan Municipality jointly with development partners is cooperating for the construction of a new landfill. This will contribute to the improvement of the solid waste management process in the city of Yerevan, when the disposal of 1000 tons of municipal waste per day in the existing landfill lacks compliance with the basic ecological and sanitary standards.

58. Among the multi-dimensional issues related to effective waste management, the Government will prioritize the inclusion of climate change mitigation considerations in the sector's strategic documents.

3.5 FORESTRY

59. Armenia's forests act as CO₂ absorbers, with the largest absorber being live biomass. The majority of the annual carbon loss is due to the volume of fuelwood stored. Although the Forestry and Other Land Use category has been a net carbon sink, this category also generates emissions. Most emissions derive from the Other Lands subcategory, as well as Grassland and Wetlands subcategories.

60. Studies indicate that the most effective mitigation actions result from the regulation of fuelwood extraction, afforestation and restoration of degraded forest ecosystems. These are also the lowest cost activities per unit of reduction. Furthermore, in addition to increasing carbon sequestration potential, forests can be a source of public good through timber supply and soil and biodiversity conservation.

61. The government plans to increase its forested areas by 2050 from 11.2 percent to 20.1 percent. This means that in the period between 2025-2050, it will be necessary to plant about 265 thousand hectares, or about 10 thousand hectares per year of forested area. As a result of the implementation of the measures aimed at achieving the set target, it is expected that by 2030 the forested areas will make up 12.9 percent.

62. At the same time, within the framework of the Bonn challenges, in 2018 Armenia also committed to restore 50,000 ha of degraded and deforested landscapes by 2030, thus contributing to the process of achieving the global goal of restoring 350 million ha.

63. For this purpose, the Government will adopt the national plan for forest development of Armenia until 2030, which will address the issues related to the expansion of the forested areas of Armenia. At

⁴ In 2016, the Government of the Republic of Armenia approved the "2017-2036 Solid Waste Management System Development Strategy" and in 2017, the "2017-2036 Solid Waste Management System Development Strategy Implementation Plan"

the same time, in cooperation with development partners, it is planned to develop an evidence-based roadmap and action plan for the restoration of the forest landscape.

64. It is envisaged that the above documents should provide sustainable instruments and mechanism for increasing the country's forested areas and achieving the Government's mid-term and long-term ambitions by addressing the following gaps:

- low level of technical and human capacity for forestry management;
- lack of capacity to produce high-quality seedlings.
- lack of reliable data on existing forest areas and their quality, as well as annual growth;
- lack of detailed maps of areas for carrying out large-scale reforestation and afforestation measures.

65. At the same time, the Government will continue to work with development partners in the following directions.

- Development of forestry management plans.
- Development of guidelines for determining the amount of carbon stored in forests.
- Mitigation of fire risks in forest and vegetated areas under changing climate conditions.
- Improvement and strengthening of early warning and monitoring systems.
- Provision of modern equipment and technologies to national and regional stakeholders for extinguishing and suppressing surface fires;
- Improved forest resilience in Armenia.
- Enhanced adaptive capacity and ensuring an increased number of rural green farms.

66. Alongside traditional forestry, additional emphasis is placed on introducing new forested areas planted with species highly resistant to climate change .

4. NATIONAL ADAPTATION FRAMEWORK

67. As stipulated in the NDC, adaptation policy is significant in terms of the country's ability to achieve social and economic development objectives . The NDC sets out the foundations and mechanisms for adaptation, with a key emphasis on the natural ecosystems-based approach to adaptation.

68. The key objective in formulation of the national adaptation strategy is to contribute to reduction and mitigation of climate risks in Armenia by coping with the climate change impacts, utilizing the benefits of emerging opportunities, preventing losses and damages, and building mechanisms that will enable adaptation in natural, human, production and infrastructure systems.

69. Governed by the stated goals and approaches, the Government approved the National Adaptation Action Plan and Schedule of Measures (NAP) in April 2021, thereby establishing the national adaptation strategic framework and adaptation planning efforts for 2021-2025.

70. The plan will serve as a roadmap for the introduction and implementation of NDC in the sectoral policies, regional and local development and relevant financial planning processes, while becoming the main document to guide streamlined and coordinated adaptation planning efforts across different sectors. As such, the program represents the first phase of the national adaptation planning process in Armenia, while supporting the integration of adaptation opportunities in sectoral and international programs. The plan is complementary to the existing planning processes and also integrates strategic investment programs for climate change adaptation at the sectoral, regional and local government levels.

71. Under the Framework NAP, sectoral adaptation plans for the most vulnerable sectors to climate change will be developed and reviewed at five-year cycles. Those primary sectors are: water, agriculture,energy, settlements, healthcare and tourism.

72. At the same time, before the implementation of specific climate change adaptation actions, a climate change vulnerability assessment will first be carried out for different sectors under the current climate projections, as provided by the NAP.

5. MONITORING AND REPORTING ON THE IMPLEMENTATION PROGRESS

73. In the context of counteracting climate change, measurement, reporting and verification of greenhouse gas emissions is an important mechanism that includes all the measures that are undertaken to collect data on a) GHG emissions, b) mitigation and adaptation actions, and c) support received.

74. To track the progress on the actions taken by the country towards reducing emissions, as well as to enable consideration of the country's efforts in the global perspective, the Government has committed to implement an MRV system in line with European standards and principles.

75. Armenia has essentially established the fundamental component of the GHG Inventory (National GHG Inventory System) in accordance with the transparency framework under the UNFCCC. In terms of environmental protection, the inter-agency coordinating council operates within the authorized body of the Government, as a horizontal coordination and verification mechanism. However, to achieve institutionalized level of horizontal and vertical interactions between different institutions and stakeholders in terms of effective communication, collection, storage and exchange of climate-related data, the Government has undertaken and is consistently implementing the required legal, organizational and capacity building processes.

76. In this context, the Government pursues compliance commitments under the RA-EU CEPA, according to which the establishment of the national MRV system is planned to be accomplished by 2026.

77. Armenia has made considerable progress in fulfilling its reporting obligations under the UNFCCC through the biennial and quadrennial GHG National Inventory Review (including the National Inventory Report), the Biennial Update Report and the National Communication, respectively. The process was accompanied by the development of professional capacities, qualitative and technical upgrade, improvement of methodology basis, improved accuracy of data, which sets up solid foundations for the adequate fulfillment of the new commitments deriving from the Paris Agreement.

78. Under the Enhanced Transparency Framework of the Paris Agreement, the reporting requirements are similar for non-Annex I Parties and Annex I Parties, with some flexibility provided for developing countries in the light of their capacities. In this sense, Armenia is committed to provide the following reporting framework starting from December 2024:

- 1) **Biennial transparency reports** that will include GHG emissions and removals, progress on NDC implementation, adaptation actions, support needed and received and information on areas for improvement in the reporting.
- 2) **National Inventory** (including National Inventory Reports) biannually.
- 3) **National communications** at 4-year intervals, as a stand-alone report, or in combination with the biennial transparency report - in the years when the latter is reported.

79. At the same time, the information required to assess greenhouse gas emissions and removals and NDC implementation progress, are subjected to technical expert review on a biennial basis.

80. The government will continue the effective cooperation with development partners in climate change mitigation and adaptation, including towards implementation of systemic reforms towards better monitoring and accountability under the enhanced transparency framework, and strengthened institutional and technical capacities.

6. LIST OF MEASURES

81. The implementation of the NDC target is achieved by means of sectoral development strategies indicated by the NDC and the action plans ensuring their implementation. However, due to its multi-sectoral and cross-cutting nature, the effective implementation of climate change mitigation and adaptation policies requires actions towards improvement of the policy and institutional framework, capacity building and public outreach.

82. In addition to the sectoral strategies, as well as the commitments and interventions established by the previous provisions of the Plan, the Government, with active cooperation with development partners, will ensure the implementation of a number of measures aimed at institutional improvement according to Table 2.

Table 2: Environmental measures for the implementation of NDC

N	Measure	Date	Responsible agency	Source of funding
1.	Development of the draft RA Law On Climate	2023	Ministry of Environment	Other sources not prohibited by law
2.	Development of a long-term low-emission development strategy	2022-2023	Ministry of Environment Ministry of Territorial Administration and Infrastructure Ministry of Economy	Other sources not prohibited by law
3.	Development of a typology of climate costs and introduction of budget tagging system	2022-2023	Ministry of Environment RA Ministry of Finance	Other sources not prohibited by law
4.	Developing a green taxonomy	2022-2023	Ministry of Economy Ministry of Environment	Other sources not prohibited by law
5.	Development of education and research programs on climate change	2022-2023	Ministry of Environment	Other sources not prohibited by law
6.	Support for the implementation of the "Debt for Climate swap" mechanism	2022-2023	Ministry of Environment RA Ministry of Finance	Other sources not prohibited by law
7.	Development of a methane reduction action plan	2022-2023	Ministry of Environment Ministry of Economy	Other sources not prohibited by law
8.	Communication strategy of the Interagency Council on Climate Change	2022-2023	Ministry of Environment	Other sources not prohibited by law
9.	Development of implementation guidelines for climate mitigation and adaptation at the local level	2022-2023	Ministry of Environment Ministry of Territorial Administration and Infrastructure	Other sources not prohibited by law

10.	Carbon pricing opportunity assessment study	2022-2023	RA Ministry of Finance Ministry of Environment	Other sources not prohibited by law
11.	National action plan to reduce the use of HFCs	2023	Ministry of Environment	Other sources not prohibited by law
12.	Development of a progress report on the implementation of the NDC implementation plan	2023	Ministry of Environment	Other sources not prohibited by law

83. Climate change mitigation actions identified that will contribute to the achievement of climate targets by 2030 and are considered priority actions within the framework of the NDC implementation are presented in Table 3.

Table 3: NDC mitigation actions and their impact

Sector	Measure	Cost, billion AMD	Timeline	Expected annual GHG reduction, Gg CO _{2eq.}
Energy / Industrial scale solar power plants	1. Construction of "Masrik-1" solar photovoltaic plant with a peak capacity of 55 MW	23.9	2022-2023	60.5
	2. Construction of 5 solar photovoltaic plants with a total capacity of 120 MW	45.7	2024	105.6
	3. Construction of 2 solar photovoltaic plants with a capacity of 200 MW (Ayg1-, Ayg2)	85.4	2023	176
		75.4	By 2030	176
	4. Construction of solar PV stations with up to 5 MW capacity (total 315 MW).	137.9	By 2029	277.1
Energy/hydropower stations	5. Construction of small hydropower plants, to achieve total installed capacity of 430 MW	40.6	2023	253
Energy/distribution networks	6. Modernization of distribution networks by "Electric Networks of Armenia" company	35.6	By 2029	298
Energy/energy efficiency of buildings	7. "De-risking and Scaling-up Investment in Energy Efficient Retrofits" UNDP - GCF project	9.5	2017-2023	100
	8. Energy efficiency of public buildings in Yerevan	8.1	2018-2022	18.8
	9. Financing of social and energy-efficient renovation of the housing stock	10.8	2014-2020	1.1
	10. Energy efficiency measures and use of energy efficient lighting in administrative buildings	3.3	2013-2020	3.1
Energy/ lighting	11. "Supporting Armenian communities to adopt and implement climate smart solutions" UNDP-GEF	0.052	Ongoing 2019–2020	1.7
	12. Yerevan street lighting	3.5	Ongoing Start date: 2020	27.6
	13. Gyumri city Street lighting	4	Ongoing Start date: 2020	1.2

Transport	14. RA Government State Subvention Program for 2018-2019	2.1	Ongoing Start date: 2018	6.4
	15. Bright border	-	On-going Start date: 2016	3.2
	16. Re-equipment of public electric transport (Yerevan metro).	11.3	Ongoing 2017-2022	2.6
	17. Improvement of road infrastructure	44.8	Ongoing 2017-2021	55.6
	18. Yerevan bus program	13.5	Start date: 2020	56.3
Small and medium enterprises	19. Promoting the transition of vehicles from fuel to electricity	-	Ongoing	3.1
	20. Promotion of renewable energy	2.5	Ongoing Start date: 2007	131.5
	21. Energy efficiency program for SMEs	12	Ongoing Start date: 2016	139.3
	22. Investments in "green" technology (RE and EE) for small and medium enterprises and corporations	9.5	Ongoing Start date: 2019	19.8
	23. Support for EE lending by commercial banks, by establishing lending opportunities for businesses and corporate clients for the purpose of EE enhancement	11.2	Ongoing Start date: 2012	16.9
Demand side of the renewable energy	24. Autonomous power generators (up to 500 kW)	-	Ongoing Start date: 2017	117.8
	25. Reducing "Energy Poverty" in non-gasified rural communities by installing solar water heaters and PV panels	-	2017-2022	17.9
	26. Community energy efficiency program	-	Ongoing Start date: 2017	1.1
	27. "EU for Energy" program . Renewable energy project in Aparan and Artik communities	0.4	Ongoing Start date - 2018	0.72
	28. GEF Small Grants Program, UNDP-GEF	-	On-going	0.75
Industrial Processes and Product Use	29. Production of new type of cement	-	2020-2022	1.6
	30. Technological upgrade of the cement plant	-	2021-2022	9.6
	31. Production of new high-quality cement	-	2020-2023	15.3
Agriculture, forestry and other land use	32. Livestock development program	-	2019-2025	55.5
	33. Application of a new system of pasture management, rotational animal grazing	-	On-going	0.8
Waste	34. Nubarashen Landfill Gas Capture and Power Generation CDM project	-	Ongoing Start date - 2007	135
	35. Kotayk and Gegharkunik regions solid domestic waste management program	2.9	2016-2023	4.6

	36. Yerevan solid waste management program	13.3	2016-2024	140
	37. Vanadzor integrated solid domestic waste management system	-	Scheduled	10.15
Total				

84. Mitigation actions are not limited to those listed above. The list constitutes the indicative scope which is subject to periodic updating and addition.

STRATEGY

FOR FINANCING THE IMPLEMENTATION OF NATIONALLY
DETERMINED ACTIONS/CONTRIBUTIONS OF THE
REPUBLIC OF ARMENIA FOR 2021-2030 UNDER THE PARIS
AGREEMENT

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1. INTRODUCTION

Climate finance is key to addressing this threat and building adaptive capacity. So far, the international community has failed to make progress on its stated goal of mobilizing US\$100 billion annually for climate-related projects by 2020, as agreed in the 2009 Copenhagen Accord.

There is a significant gap in terms of platforms, mechanisms and capacity to mobilize and leverage this scale of climate finance. Additionally, there is a lack of mechanisms for more effective use of climate finance. Scaling up international climate finance requires innovative tools.

The purpose of the Strategy for Financing the NDC Implementation (Strategy) is to guide the effective assessment, collection, expansion and utilization of climate finance to operationalize priority actions identified in the NDC Implementation Plan.

The strategy outlines the actions needed to maximize the potential for effective mobilization of untapped financing by addressing GHG emissions sectors. Although stipulated in the national and sectoral strategies and their implementation plans, however the realization of the target set by the NDC significantly depends on the process of selecting the financial component for the implementation of the planned actions and programs.

Climate finance refers to public, private and alternative national or international sources and is channeled to support climate change mitigation and adaptation measures.

2. THE STATE OF CLIMATE FINANCE

1. Climate finance is implemented from public (state) funds, international climate funds, development partners (international financial institutions and developed countries), private and alternative national or international sources to support climate change mitigation and adaptation measures.
2. In 2017-2019, **public climate expenditures** in Armenia showed a downward trend both in absolute terms and as a share of total budget expenditures, decreasing from 4.0 percent to 2.2 percent.
3. External earmarked loans and grants accounted for roughly half of the sources of financing for public climate spending. In external funding sources, earmarked loans significantly outnumber earmarked grants by a ratio of approximately 10/1. Climate spending financed from these sources has declined year-on-year both in absolute terms and as a share of total climate spending, falling from 57.2 percent (2017) to 45.2 percent (2019). One of the main reasons behind the reduced climate expenditures financed from external sources is also the low performance of the relevant budgetary measures.
4. Adaptation measures account for about 51 percent of climate spending, and mitigation measures for about 35 percent. The rest of the spending is attributable to measures with mixed impacts on climate change. Both mitigation and adaptation costs have shown a steady downward trend year-on-year, although costs for mixed-impact measures have increased, mainly due to increased share of expenditures in the forestry sector.
5. The number of measures related to climate change in the 2019 state budget was 182, which is 12.3 percent of the total number of state budget measures. In 2020, an insignificant increase was recorded in terms of these indicators, amounting to 185 measures and 12.5 percent, respectively.
6. Over the past 20 years, Armenia has received support from **target climate instruments** to address climate change issues in the country, including policy development, capacity building, GHG emissions reduction, enhancing climate change adaptation capacity in vulnerable areas, disaster risk reduction, as well as technology transfer, education and awareness-raising in target areas.
7. A grant of about US\$43 million was provided to Armenia from the funds of the Global Ecological Fund (GEF) for the purpose of implementing 35 national environmental programs, 15 of which (about US\$19 million) were aimed at addressing of climate change issues in the country. Armenia also received grant assistance from the GEF within the framework of financing 14 regional environmental programs (total grant budget of regional programs: US\$179 million), 5 of which were also aimed at solving climate change problems in the region (total grant budget: US\$139 million). Under the Small Grants Program, the GEF additionally provided approximately US\$1.5 million in grants for financing climate change mitigation projects implemented through NGOs/community-based organizations.
8. The Adaptation Fund (AF) has approved an investment of about US\$4 million for Armenia, in support of 4 programs in the areas of urban development, agriculture disaster risk reduction and in social, gender, educational target areas.
9. With the support of the Green Climate Fund (GCF), Armenia is implementing 5 projects with a total funding of US\$116.1 million by the GCF, as well as 4 preparedness activities with an approved budget of US\$4.2 million.
10. The Climate Investment Fund (CIF) has approved an investment program of US\$40 million which includes grant resources of US\$14 million and concessional loans of US\$26 million, within the framework of the Scaling up Renewable Energy Program in Armenia. The US\$40 million financing under the SREP is expected to attract about 4.5 times more investment, predominantly from the private sector (as equity or debt finance) and from the commercial lending windows of multilateral development banks, including the International Finance Corporation (IFC), ADB, EBRD.

11. During the period of 2010-2019 Armenia received climate impact financing ⁵⁶ to address climate issues, in the amount of AMD 280 billion. In 2019, Germany allocated 61 percent of funding (AMD 22.5 billion), and multilateral development organizations - 35 percent (AMD 13.1 billion). In 2010, Germany was also the partner country that provided the largest financing. the financial resources provided accounted for 99 percent of the total. The maximum funding was received in 2010 (AMD 61.5 billion), and by 2019, investments declined by 39 percent. Most of the financing was received in the form of debt instruments.

12. During the same period, Armenia received "core" funding related to climate issues⁷, which amounted to 157 billion AMD. In 2019, Germany provided 82 percent of funding (AMD 11.6 billion), while multilateral development organizations accounted for only 0.1 percent of funding. AMD 50 billion was allocated in 2013. Most of the financing was received in the form of debt instruments.

13. In total, since 1990, 16 public-private partnership (PPP) projects have been implemented, amounting to 1.2 trillion AMD. About AMD 568 billion of the spending was directed to the implementation of projects in the energy sector, and AMD 94 billion were spent on projects in the water and wastewater sectors. Other sectors include railways, telecommunications, airport.

14. About US\$570 million of Armenia's bilateral public debt is attributed to five main creditors. Each of these bilateral official lenders has set out clear rules for grant issuance, debt swaps, and buyback operations. In particular, the countries that have the official bilateral debt with Armenia and have a history of debt swap and buyback operations are more significant in this context. Japan has nearly US\$240 million in outstanding loans. France is the second largest official bilateral creditor, with an outstanding debt of about US\$112 million. Debt to Germany amounts to approximately US\$109 million, to Russian Federation - the fourth largest bilateral official creditor - about US\$100 million, and Armenia's debt to United States is more than US\$17 million.

15. Under the Clean Development Mechanism (CDM) of the Kyoto Protocol, Armenia had 6 projects, forecasting to issue 3.6 million Certified Emission Reductions (CERs) by the end of 2020. By the end of 2020, the actual issuance of CERs had reached 26.4 million out of a possible total of 136 million (1 project instead of 6 projects registered).

⁵ The complete cost of activities aimed at mitigating and adapting to climate change as a primary objective. Impact finance when a climate goal is clearly stated but is not the main driver or motivation for undertaking it.

⁶ OECD, Financing for Climate-Related Development. partner country outlook report, 2017

⁷ The goal of climate change mitigation or adaptation is cited as a key motivation for action development and implementation.

3. FINANCING NEEDS AND CHALLENGES OF NDC IMPLEMENTATION

16. The funding requirement for primary mitigation actions (see Annex 1, Table 3), which includes ongoing and upcoming projects with identified funding and implementers, is more than **AMD 600 billion** (about US\$1.5 billion). As a result of the implementation of the mentioned projects, the annual expected reduction of greenhouse gases is estimated to be around **2400 Gg of CO₂**.

17. About 25 percent of the above actions are aimed at increasing energy efficiency, 15 percent - at expanding renewable energy capacity, 16 percent - at the transportation sector, 12 percent at demand-side renewable sources, 12 percent at agriculture, and 20 percent at SMEs, land use, and waste sectors.

18. However, the 2030 GHG target can only be met under an 'additional measures' scenario, which implies more ambitious development of renewable energy sources and more consistent implementation of energy efficiency measures. Annex 3 presents the indicative (conditional) scope of investment programs, the implementation of which is in addition to the main scenario with measures (Appendix 1, Table 3) will ensure fulfilment of the commitments undertaken by NDC.

19. By 2030, the implementation of the investment programs mentioned above will require **about AMD 540 billion** (about US\$1.3 billion) in financial resources (including all sources of financing), of which about 394 billion AMD (US\$971 million)⁸ for the energy and transport sectors and AMD 145 billion (US\$357 million) for the agriculture and water sectors.⁹

20. According to the OECD's report on investment needs for climate action in Armenia until 2030, the total investment costs for climate change mitigation and adaptation for the period 2020-2030 will amount to approximately US\$5.7 billion.¹⁰ (or AMD 2.7 trillion¹¹), excluding investments in the field of atomic energy. If investments in atomic energy are included, the estimated value of investment will be around US\$8.3 billion (or AMD 4 trillion).

21. According to the same report, most of the estimated investment needs (more than 80%) within the framework of the total gross investment needs for 2020-2030 (excluding investments in the nuclear sector) are intended for climate change mitigation, amounting to about US\$4.9 billion (AMD 2.3 trillion) (86% of the total). The share of adaptation-oriented investments is more than US\$ 170 million (AMD 82 billion) (3%), and multi-focal measures (mitigation and adaptation) are more than US\$656 million (AMD 315 billion) (11%). Forestry, water supply and sanitation, as well as administrative capacities are classified as multi-focal measures, while agricultural activities, as well as disaster risk reduction, are defined as adaptation measures. The energy sector, transport and waste management are classified as areas for mitigation measures.

22. The above estimates of forestry costs are based on the assumption that Armenia will double its existing forested area from 11 percent to 20 percent by 2050, which would require afforestation/reforestation of about 265,000 ha, and afforestation of 50,000 ha to be finalized by 2030.

23. According to the preliminary assessment, AMD 560 million in financial resources is required for the implementation of the measures provided for in the action plan of the National Adaptation Plan, which may be subject to revision depending on the planned implementation schedule.

24. The above financial estimates are preliminary/conventional and will be updated over time as further data becomes available on the exact scope and timing of the technical assistance projects, as well as after the implementation of other activities mentioned in this NDC. Moreover, taking into account the different planning

⁸ Exchange rate: US\$1 = AMD 405.7

⁹ The estimated financing need is based on the OECD report "Assessment of Investment Needs for Climate Action in Armenia Until 2030", Armenia's 2020-2022 Medium-term state expenditure plan, Strategic plan of Armenia's energy sector until 2040, development of Armenia's least-cost development program of Armenia's energy system for 2020-2036, "Towards integrated water resources management in Armenia", World Bank, 2020-2022 Action plan for implementation of RA strategy for 2020-2030 key directions ensuring the economic development of the agricultural sector of Armenia.

¹⁰ Based on 2017 US\$ exchange rate, adjusted for inflation for 2019 (inflation rate approx. 5%).

¹¹ January 2020 values were used, according to which: US\$1 = AMD 479,260, data as at January 12, 2020.

and preparation timelines, certain further variances will be caused by current AMD exchange rate fluctuations and inflation.

25. Climate finance monitoring is important not only in terms of overseeing the funding commitments to counteract climate change within the UNFCCC framework, but also in terms of economic and climate decision-making in the country. Accurate and reliable reporting on climate finance flows and progress monitoring will allow Armenia to make more informed decisions regarding the prioritization and allocation of financial resources to address climate change. On the other hand, clear information on received financial flows will help the country to clearly formulate financial expectations from the international community.

26. In order to implement climate finance monitoring, the Government addresses the following key challenges:

- introduction of the system of identification and typology (climate tagging) of financial resources in the state budget aimed at mitigation and adaptation to climate change,
- establishment of an MRV system (targeted, international, multilateral) for support received for climate change counteraction purposes,
- access to information on the results and impact assessments of private investment projects related to climate change mitigation and adaptation issues,
- increased effectiveness of inter-agency coordination to effectively exchange information, assess financial needs, enhance access to international bilateral and multilateral financial resources,
- formation and development of institutional platforms for the attraction of expert capacities.

4. RESOURCE MOBILIZATION STRATEGY

27. Climate public finance includes budgetary expenditures, taxes, subsidies, benefits and other public financial mechanisms aimed at coping with climate change. Climate public finance can be generated domestically or through grant and credit support by means of international climate funds such as the ICE, GEF, HF, or bilaterally through climate debt and other innovative mechanisms. Private climate finance can originate from local or international sources and is sourced from the private and banking sector, by engaging in public-private partnership mechanisms and green bonds.

28. Taking into account the potential relevance and feasibility for Armenia, in the context of climate ambitions, the Government emphasizes the following financing mechanisms in particular, which include areas which are implemented but not fully realized as well as new areas of implementation.

4.1 COUNTRY'S PUBLIC FINANCES

29. Climate change in Armenia, in terms of cross-sectoral policy, is mainly disaggregated in sectoral development policies, and climate-related expenditures are disaggregated in the expenditures of programs and measures formulated based on sectoral development policy goals. Armenia has well-developed public finance management budgeting systems, which are well adapted to sectoral development policies, where institutional-level responsibilities for project results and financial management are mainly concentrated in specific sectoral agencies. However, new institutional mechanisms will need to be put in place to identify, budget and account for costs related to cross-sectoral policies within the budgeting process. In this context, the Government places emphasis on setting clear financial and budgetary frameworks in the field of climate change and improving the link between climate change policy and the budget.

30. From a practical point of view, one of the key challenges in integrating climate change into public finance management systems is the lack of appropriate mechanisms and methodology in budget processes for identification, classification, coding of climate policy measures, outcomes and related costs. These are the key mechanisms which play a crucial role in terms of disaggregating and tracing those expenditures and outcomes, and providing accountability at different stages of the budget process.

31. The lack of a reporting requirement on budget expenditures for climate change policy within the legislative body has led to poor reporting in this area. Establishing a legislative requirement to report to the RA National Assembly on the costs and outcomes of the climate change policy measures will be an important incentive for the formation of budgeting and accountability mechanisms for these costs. It will also contribute to the formation of the appropriate demand for this data in the RA National Assembly and the required capacity building for the analysis of this information.

32. In terms of establishing a financial framework for climate change mitigation and adaptation, its integration into the public finance management system, and opportunities for development, the Government is committed to the following actions.

- 1) In the documents defining the sectoral policies of socio-economic development, the sectoral development goals, expected final outcomes, key directions of policy interventions, evaluation criteria for outcomes and targets will be presented in combination with climate change mitigation and adaptation goals, targets and results. Integrated approaches will also be applied to budget programs.
- 2) A roadmap for integrating climate change policy with public finance systems will be developed, which should describe the legislative, institutional procedures and requirements which are required for disclosing the connection between climate change policy frameworks and strategies with budgeting processes and ultimately achieving transparency of funds allocation, and efficiency of their use. Development of methodology, formats and mechanisms for identification, classification and tagging of budget measures related to climate change is one of the fundamental steps for building the system.
- 3) The impact on climate change objectives, both in terms of mitigation and adaptation, will be considered as one of the key criteria for evaluating and prioritizing relevant public investment programs.

- 4) Climate change mitigation and adaptation projects will be considered among expenditure priorities, focusing on institutional incentives, capacity building, political and market risk mitigation, while financial needs will be considered primarily in the context of alternative financing instruments.

4.2 PUBLIC-PRIVATE PARTNERSHIP

33. Climate change may increase risks and vulnerabilities in the private sector, however early action, planning and investments can mitigate these risks and translate them into long-term benefits. Financial institutions, banking sector and private investors are the main stakeholders to exercise efforts towards implementing innovative solutions and long-term investments in order to more effectively cope with the climate change impact.

34. However, the private sector in Armenia needs the capacity, technology and financial resources to ensure a climate-smart and resilient transition. In this regard, a favorable regulatory environment, government support for attracting investments, and the activation of large-scale private financial investments through the use of public finance may further encourage private sector businesses to invest in the development and capacity building of carbon-neutral technologies.

35. In the context of climate change mitigation, public and private sector interests can be aligned through effective public-private partnership (PPP) mechanisms. Sectors vulnerable to climate change, namely, energy, agriculture, water, infrastructure, solid waste and tourism sectors are defined by RA legislation as priorities set by the public investment management policy.

36. The government will continue to identify and offer fiscal incentives to the private sector that will target carbon footprint reduction and thereby lessen the financial burden of climate action for the country in the long-term perspective. Thus, the role of the private sector in resource mobilization should lead to a) linkages with public financial sources, b) financing of innovative technologies, c) transition from inefficient methods of resource use to more efficient methods, and d) reduction of GHG emissions.

37. In particular, the incentive system for climate change projects within the framework of the PPP will be available for the projects that will ensure the specified performance indicators, including green projects with a high impact, additional investment projects provided for in this strategy, and projects that contribute to sustainable development or for attracting resources towards sustainable development.

38. With the objective of achieving enhanced public-private partnership practices in the context of climate change mitigation and adaptation, the Government aims to develop PPP communication, coordination and knowledge sharing platforms. Setup of communication platforms to facilitate effective communication will encourage the sector players as well as the community to articulate needs and identify opportunities. In this sense, the Government will promote:

- the expansion of thematic platforms where sector players will have the opportunity to communicate and access information on PPP opportunities,
- the development of technology exchange platforms to encourage businesses to join efforts and invest in environmentally friendly technologies;
- establishment of exchange platforms to promote cooperation of local companies with development partners and climate funds through mentoring and training.

4.3 INTERNATIONAL CLIMATE FINANCE

39. International public finance has traditionally played a significant role in the context of raising climate finance in Armenia. With the financing of international organizations and developed countries, a number of climate-related projects are being implemented in Armenia. Effective use of international public finance from the perspective of the government's commitments is imperative for the implementation strategy of the NDC.

40. Projects funded within the framework of international public climate finance are aimed at energy efficiency (including reduced losses in the energy system), renewable energy, energy efficiency of motor vehicles, prevention of greenhouse gas emissions through waste management in urban areas, water supply and sanitation,

irrigation system management, as well as disaster risk reduction. Financial resources were allocated through concessional and non-concessional loans and grants.

41. To further strengthen cooperation with multilateral and bilateral financial institutions, it is important to monitor and evaluate the strategies and priorities at the national or regional level, as regularly developed and updated by these financial institutions. To achieve more effective collaboration with international organizations and other countries, the following approaches will be used to ensure more effective resource mobilization for climate change adaptation and mitigation.

42. In particular, active engagement in multilateral climate finance initiatives is highlighted as important given the increasing priority of targeted climate change finance in the financial portfolios of these institutions. The importance of bilateral climate finance is emphasized in light of the commitment by developed countries under the Paris Agreement to support developing countries' mitigation and adaptation efforts.

43. Much of climate finance is raised in bilateral modality, mostly through existing development agencies, although a number of countries have also established designated bilateral climate funds. There are mainly two types of multilateral funding sources in Armenia.

- 1) Resources under the UNFCCC, which mainly refers to the involvement of GEF and AF resources for the sole purpose of climate change mitigation and adaptation.
- 2) Preferential Climate Funds, which mainly refers to the CIF and GCF. In this case, financing is provided under favorable terms with lower than market interest rates.

44. The government intends to invest resources to strengthen the capacity to access new climate funds, to produce high-quality financing proposals and to effectively manage and meet the demands set by these funds for providing access to climate finance. To expand access to international climate financing, the effectiveness of cooperation with international climate funds already operating in Armenia will be increased, furthermore, new opportunities will be considered and innovative financial mechanisms will be introduced.

45. Studies show that there is still untapped potential to raise financial resources from the following dedicated climate finance funds:

- **Adaptation for smallholder agriculture programme** Fund resources are available for adaptation and disaster risk reduction in agriculture, natural resource management, sustainable land management and water.
- **ADB's Climate Change Fund** finances projects aimed at climate change adaptation, mitigation, reducing emissions from deforestation and degradation (REDD) and disaster risk reduction in the agriculture, energy, forestry, renewable energy, transport and water sectors.
- **Canada's climate change program** targets adaptation programs in the renewable energy sector.
- **The German International Climate Initiative** supports adaptation, mitigation, Reducing Emissions from Deforestation and Degradation (REDD) and biodiversity projects with broad sector coverage.
- **The Global Fund for Disaster Reduction and Recovery** provides sector-wide resources for adaptation, capacity building and disaster risk reduction.
- **Japan's Fast-Start Finance** supports adaptation, mitigation and disaster risk reduction projects in agriculture, energy efficiency and renewable energy.

46. In order to expand the involvement of international climate finance, the Government emphasizes the following directions:

- 1) **Simplified operational turnarounds with climate funds.** These funds offer great flexibility and their resources can be directed to meet the diverse needs of a country. In order to simplify the work with the climate funds and to maximize operational efficiency, the Government will centralize the management

functions under the mandate of one central body.

- 2) **Needs assessment for future projects.** International funding resources are conditional upon adherence to a wide scope of mandatory rules and requirements, which limits to a certain extent the participation of public and private stakeholders in the process. Funding proposals should be based on a comprehensive needs assessment, including with the support from the same institutions.
- 3) **Integrating new climate measures into the climate finance framework.** Attracting additional funds to the existing climate finance structure will be continuous and ongoing, with the involvement of the private sector, civil society institutions and other stakeholders.

4.4 GREEN BONDS

47. To achieve resilience, mitigation and adaptation to climate change, as well as to fulfil the NDC goals and targets, both the RA Government and the private sector should consider the use of alternative and innovative financing tools. Furthermore, to ensure the effective use of these instruments, it is important to raise awareness among various stakeholders in Armenia regarding the need for climate action.

48. Issuance of green bonds can provide an opportunity for targeted and efficient activities in the medium and long-term perspective. These are debt instruments that are placed among environmentally and climate-aware investors to support sustainable efforts with financial capital. Similarly, in the medium and long-term perspective, by issuing green bonds, Armenia can also attract resources from the diaspora and thus, provide the required funding for a specific set of environmental and climate priorities.

49. Green bonds can have some benefits to both issuers and investors. For issuers, the main rewards can be manifested in the expansion of the investor pool and enhanced reputational benefits. The development of the green bond market may also trigger closer interest of a more diversified investor base, such as the institutional investor community (pension fund managers, insurance companies, investment funds) and individual investors managing large portfolios. In this context, these investors increasingly prefer green and low-carbon investment opportunities.

50. Projects supported under green bond financing programs are designed to meet certain criteria for compliance with climate-resilient development. It is important to distinguish between mitigation and adaptation projects eligible for support through green bonds. Issuance of bonds in Armenia will contribute to the following actions:

- 1) **Climate change mitigation measures** aimed at developing solar energy, developing wind energy, upgrading power plants and transmission lines, expanding transport and infrastructure capacity, waste management, increasing the energy efficiency of residential buildings and reforestation.
- 2) **Climate change adaptation measures** aimed at reforestation and watershed management, implementation of stress-resistant agricultural systems, drought management and risk reduction, implementation of agricultural insurance system, sustainable forest management, promotion of climate-resilient crops, protection of critical habitats, limitation of groundwater extraction, water supply efficiency and optimization of water use, energy management plans and strategies.

51. The government will take practical measures (e.g. targeted information campaigns) to enhance stakeholders' knowledge of the costs of climate change impacts and the benefits of mitigation and adaptation measures. A better understanding of the opportunities will gradually redirect asset owners' preferences towards low-carbon perspectives and diversification of their investments shifting from standard asset investment models, thereby minimizing their vulnerability.

52. Governments, municipalities, commercial banks, private sector actors and non-profit organizations are entitled to issuance of green bonds.

53. Essentially, by issuing bonds, companies may further boost their opportunities to attract idle capital for environmental projects, enhance the public perception of their brand, and improve reputation.

54. On the demand side, the main buyers are institutional investors (pension funds and insurance companies), investment managers focused on sustainable development, Government and corporate investors. Armenia's capital market size is still limited, with a narrow range of instruments and limited liquidity of the secondary securities market. Conventionally, government bonds make up the largest part of the capital market, and corporate bonds make up only a small part. The lack of capital market creates challenges in terms of development of institutional investors.

55. Current reforms aimed at improving the capital market will entail positive developments in this sector. The activities carried out under the capital market development program are aimed at the comprehensive improvement of sectors (government bond market, investment funds with public stake, municipal bonds, initial public placement of companies, issuing by the financial sector, specialized infrastructure of the stock exchange, legal and regulatory framework). However, there are significant issues and risks associated with the establishment and growth of the green bond market in Armenia. These include the quality of reporting or a lack thereof, corporate transparency and trust issues, the risk of greenwashing, and transfer pricing.

56. To mitigate the above risks, the Government will initiate the following actions:

- 1) **Developing a green taxonomy.** Adoption of the Green Taxonomy will help the country set clear priorities and scale up sustainable investments to achieve key environmental and climate policy goals outlined in policy documents as well as international agreements ratified by Armenia. The expected benefits of implementing green taxonomy are:
 - Provide policy makers, economic agents and investors with a clear definition of the types of business activities and investment projects which are environmentally sustainable.
 - Assist the Government to strategically and cost-effectively utilize government support funds to achieve national environmental and climate policy objectives and implement priority investment projects.
 - Ensure better access to green and climate finance from development partners for the country.
- 2) **Develop sustainable accountability incentives and build capacity.** The vast majority of businesses lack the financial resources and knowledge base for sustainable accountability, which can be addressed through capacity building and awareness raising.
- 3) **Attract institutional investors to the green bond market.** The role of institutional investors is limited and in most cases they are left out of the decision-making processes. It is necessary to consider international investors as the key buyers of green bonds.
- 4) **Monitoring and analysis of the Armenian market.** Analyze the market to see how well the green bond market is shaped in terms of demand. In this regard, the public perception of sustainable development in the country, the willingness of investors to buy green bonds, the capacities of various audit entities to carry out reviews, the willingness of the private sector to shift its business model to a more environmentally sustainable model, will be continuously monitored.

57. This experience where a commercial bank in Armenia¹² issues green bonds is a demonstration of the fact that no significant regulatory barriers exist in this regard. However, to facilitate the issuance of green bonds by other financial institutions, there is a need to provide a framework document for green bonds, principles for using the proceeds, so that it can be directed in part or in full to finance projects to promote climate adaptation and/or mitigation, conservation and sustainability, and ensure availability of accredited third-party verifiers in

¹² Ameriabank has made a corporate commitment to build a portfolio of green assets with low carbon emissions. The bank performed its first issuance in 2020 at a cost of US\$50 million. In 2022, Ameriabank announced the public placement of nominal, coupon, non-documentary bonds in the amount of US\$8 million and AMD 3 billion, which was the first placement of green bonds in Armenia through a public offering.

accordance with international best practice. In the future, there may be a need to develop voluntary guidelines for the corporate green bond market.

4.5 THE CARBON MARKET AND ARTICLE 6 OF THE PARIS AGREEMENT

58. Carbon markets aim to reduce GHG emissions by setting limits on emissions and allowing the trading of emission credits which are indicators of reductions. This helps reduce the economic cost of reduced emissions. By putting a price on carbon emissions, internalizing the environmental and social costs of carbon pollution can encourage the participation of investors and consumers to choose lower-carbon pathways (subject to price considerations).

59. In order to contribute to and promote the mitigation results implemented at the national level, Armenia intends to participate in the market and non-market mechanisms defined by Article 6 of the Paris Agreement, in accordance with the relevant provisions adopted by the Parties to the Agreement, especially:

- cooperative approaches that enable other Parties to benefit from internationally transferable mitigation outcomes (ITMO) for NDCs in accordance with Article 6.2;
- programme mechanisms, in accordance with Article 6.4, that provide additional mitigation outcomes to support other countries' achievement of the NDC objectives;
- as well as non-market approaches in accordance with Article 6.8 of the Agreement.

60. Armenia already cooperates with the European Union and its member states on the promotion of measures at the domestic, regional and international levels, including market and non-market mechanisms to combat climate change.

61. Armenia plans to develop activities in accordance with Articles 6.2 and 6.4 to develop and sell ITMO with the aim of acquiring resources for mitigation.

62. At the UN Climate Change Conference of Parties (COP-26) held in November 2021, Armenia joined other countries in its commitment to comply with the Article 6 of the Paris Rules. Countries have reached new agreements on market mechanisms that significantly facilitate the transfer of emissions reductions between countries while also setting incentives for the private sector. Agreement has been reached on the application of three instruments to help countries implement their NDCs. The first two of these instruments involve cooperation that will lead to emission reductions for countries, i.e. transfer from the country that has achieved reductions to the country that needs to achieve these reductions. Instruments have been developed to enable and promote private sector participation. For all three instruments, decisions have been adopted on the rules for their implementation.

63. Both collaborative approaches and the UNFCCC mechanism create incentives for the private sector to implement mitigation measures in a range of sectors and technologies, such as energy efficiency, transport and reforestation. These mitigation actions allow for the development of carbon credits that can be transferred internationally and used in other countries to meet GHG targets or for other compliance purposes. Serving as signals for investment to the private sector, these tools enable countries to scale up mitigation actions, which in turn can help spur adaptation actions.

64. Armenia has the potential and certain opportunities for the development of the carbon market. It also has broad economic development potential, as it can provide cost-effective emissions reductions and facilitate the introduction of innovative carbon technologies. The establishment of this system is fully in line with public policy objectives, as it promotes the reliable collection of emissions data, facilitates information sharing and communication with other international systems, promoting the successful implementation of international climate action. Creating potential revenues for Armenia through the implementation of the carbon market can positively impact energy efficiency, improve the transportation network, and develop forestry.

65. To effectively use the market mechanisms provided for in Article 6, the Government will develop a favorable policy and regulatory environment, as well as cooperate closely with the private sector. These measures range from the development of carbon pricing mechanisms to the establishment of a sustainable MRV system. Some of the challenges and opportunities in this context include the following:

- Energy sector modernization to overcome losses and increase the potential to benefit from the Emissions Trading System (ETS).
- Review of the regulatory framework necessary for the operation of the ETS system.
- Improving baseline data and ensuring consistency (e.g. data related to waste and 'fugitive' emissions from the gas supply system). Establishment of MRV systems.
- Development of a roadmap for bilateral engagement with Article 6 countries.
- Assessing the potential to use the Voluntary Investment Mechanism (VIM) and other private sector incentive strategies.

4.6 GREEN LOANS

66. Most commercial banks and credit organizations in Armenia provide green loans to businesses and individual households to implement projects for installing solar plants (up to 0.5 MW), installing and upgrading wind and hydro plants, procurement of energy-efficient equipment, energy efficiency of all types of buildings, agricultural and other activities.

67. Provision of green loans by these organizations is often supported by the involvement of resources from international banks (for example, EBRD or KfW). This partnership has immense potential to expand the green finance market in Armenia. However, commercial banks are also financed by bank deposits, which are used to finance loans in local currency, yet demand deposits make this mechanism more limited. Areas not financed by green credits include forest management, irrigation system rehabilitation, climate change adaptation measures, pollution and waste management. Their inclusion in the eligibility criteria will make green lending mainstream and target more markets.

68. In order to develop the green credit market, the Government will support the implementation of the following measures:

- 1) Develop principles for green loans.** Develop project eligibility assessment principles acceptable to all parties (Green Credit Principles). Green credit principles can be developed by the RA government, the Central Bank, and financial institutions operating in the green credit market to maintain the integrity of the green credit market and set eligibility criteria for "green" project financing (sustainability goals, accountability, procedures, adherence to green principles, and certifications), which will bring clear environmental security.
- 2) Incorporate designated CC measures into the green lending process.** Include climate change measures as an integral part of project financing evaluations. Target areas may include:
 - renewable energy, including generation, transmission, etc.
 - energy efficiency, including in residential, commercial or public buildings;
 - pollution prevention and management: reduction of air emissions, control of greenhouse gases, waste management, reduction and recycling, waste-to-energy,
 - natural resources and land use: sustainable agriculture, sustainable livestock, smart farm, crop safety, drip irrigation, sustainable forestry (afforestation and reforestation), etc.
 - clean transport: electric, hybrid, public transport, infrastructure development (installation of charging stations),
 - sustainable water and wastewater management: sustainable drinking water management, wastewater management,
 - adaptation to climate change: information campaign systems, early warning systems, etc.

- closed loop economy processes: import, environmental certification, packaging and delivery of ecological products.

To ensure streamlined implementation of the above-mentioned measures in the project financing evaluation process, the appropriateness of adopting the relevant regulation will be discussed with the RA Central Bank.

- 3) **Include climate change indicators in reporting.** Increase the transparency of green credit-financed projects by including qualitative and/or quantitative performance indicators (e.g. increase in renewable electricity production, less energy consumption, reduced GHG emissions, etc.) in reporting requirements and making them public to a larger stakeholder group. Development of reporting templates for borrowers.
- 4) **Support awareness-raising on available green finance.** Equally important to the successful integration of green credits is public perception of sustainable development and climate change. There is a substantial need to increase awareness of the positive impacts of green growth and green finance. There is a need for more comprehensive data of better quality to reflect different funding opportunities.

4.7 DEBT-FOR-CLIMATE SWAPS

69. Debt-for-Climate Swaps are an innovative climate finance exchange mechanism focusing primarily on bilateral and sovereign debt, offering additional financing leverage for climate-related action with potential scalability to other countries. These funds are directed to the proper implementation of the obligations assumed by the country under the NDC framework, while at the same time enabling developed countries to fulfill the obligations assumed by the Paris Agreement.

70. In Armenia, there may also be an opportunity to consider the debt exchange format. This type of instrument involves a voluntary swap by the creditor with its debtor for cash, and assuming new obligation with different repayment terms. Variations of the swap model can be used in cases where the creditor is willing to accept less than the nominal value of the debt, where the debtor's demonstration of institutional capacity increases the creditor's confidence that the funds will be used for the agreed purpose.

71. Debt-for-climate swaps are widely used with the argumentation that it is not about raising "easy" money, but about raising "timely" money. That argument can greatly contribute to changing environmental policy and management approaches in favor of Armenia, as well as demonstrate the results of recent bilateral and multilateral support for sustainable environmental activities.

72. In addition to being innovative financial instruments, which Armenia is willing to develop as part of the commitments undertaken within the framework of its NDC commitments, the "Debt-for-Climate Swaps" financial settlement mechanisms are also important for Armenia from the sustainable public debt management perspective.

73. To launch the mechanism and obtain the expected benefits, the Government has committed to developing the necessary capacities, emphasizing mainly the following key directions:

- full and reliable data capacities by building a national MRV system
- ability to formulate program proposals by ensuring effective dialogue with private sector and development partners
- analytical and negotiation skills by embedding climate considerations in public finance management and building effective inter-agency collaboration.

INVESTMENT PLAN
FOR THE IMPLEMENTATION OF NATIONALLY
DETERMINED ACTIONS/CONTRIBUTIONS OF THE
REPUBLIC OF ARMENIA FOR 2021-2030 UNDER THE PARIS
AGREEMENT

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1. INTRODUCTION

The 2030 GHG target can be achieved under an additional measures scenario, which implies more ambitious development of renewable energy sources and more consistent implementation of energy efficiency measures.

This schedule presents an indicative scope of investment programs the implementation of which is in addition to the main scenario with measures (Appendix 1, Table 3) will ensure fulfilment of the commitments undertaken by NDC.

The scope of investment programs was developed based on the following principles.

- 1) Alignment with the country's long-term strategic vision, expected policy outcomes, climate change mitigation and adaptation priorities.
- 2) The funding proposal is based on climate content necessary for factual decision-making and has been developed based on the extent of available climate data in Armenia.
- 3) Consultations with potential funding partners, as well as public administration bodies, private organizations and industry experts.
- 4) Financial resources for the implementation of the project: expected revenues and investments.
- 5) Additional benefits beyond climate action, including social and economic benefits.
- 6) Gender responsibility, promotion of gender equality and equal participation.

Possible sources of financing for additional projects include bilateral and multilateral international organizations, climate funds, PPPs, the private sector, the state budget, green loans and green bonds, and other sources not prohibited by law.

The investment programs contain information on their background, purpose, financing needs and related options, timeline and structure of actions, responsible stakeholders, constraints and expected results, which will help Armenia achieve its GHG goals and contribute to the country's long-term low-emission and climate-resilient development.

2. INDICATIVE SCOPE OF THE INVESTMENT PLAN

6.2 PROJECT 1: UPGRADING OF 122 HPPS

- 1.** As of 2018, there are 186 HPPs operating in Armenia with a total installed capacity of 360 . 4 MW. 33 out of 186 HPPs are under construction, with a planned capacity of about 63 .2 MW and an annual electricity production of 222 million KWh. At least 122 HPPs, most of which are either run-of-river HPPs or run on the irrigation network, require various degrees of upgrading due to obsolete equipment nearing the end of its useful life.
- 2.** As a result of the implementation of the project, the capacity of HPPs can be improved by 25-35 percent. The share of electricity production from hydropower plants operating in Armenia will increase from around 11% to 20%. One of the expected results is the improvement of environmental efficiency through the improvement of river ecoflora, effective use of river flow, development of developed irrigation channels, and maintenance of water quality.
- 3.** Possible actions by the Government to initiate and implement the project include:
 - deferment of import duty for the import of new equipment,
 - improvement of hydrological data monitoring system,
 - formation of regional platforms with international partners for joint management and optimal use of irrigation channels by the HPP,
 - development of strategic mechanisms to water resources management, indicating the role of SHPP for each region
 - support to SHPP owners to develop attractive feasibility studies, business plans and provide their links with other investors.
- 4.** Possible sources of funding for project implementation are:
 - international climate finance in preparatory stage,
 - private investment through equity investment in the implementation phase,
 - attracting green loans and issuing green bonds.

2.2 PROJECT 2: CONSTRUCTION OF LARGE HPP

- 5.** The period of operation for "Shnogh" HPP is 25 years, and the feasible construction period is 4 years. The viable construction period is 4 years (2023-2026). The positive impacts associated with the project are expected to significantly outweigh the minor negative impacts on the environment. The most significant impact of the project is to provide a stable source of electricity for Armenia and minimize dependence on thermal power plants.
- 6.** The HPP is expected to provide a stable source of electricity for Armenia with a total minimum capacity of 76 MW and an annual electricity generation of 270 GWh. With the construction of a new large HPP, the share of renewable energy in the total energy production will expand.
- 7.** Possible actions by the Government to initiate and implement the project include:

 - application of the build-operate-transfer PPP (BOT PPP) method and negotiations on an attractive preferential agreement,
 - formation of regional platforms with international partners
 - development of strategic mechanisms to water resources management, indicating the role of HPP for each region
 - support in the development of feasibility studies, business plans,
 - capacity building in affected areas;
 - improvement of hydrological data monitoring system.
- 8.** Possible sources of funding for project implementation are:

 - international climate finance in preparatory stage,
 - private investment through equity investment in the implementation phase,
 - attracting green loans and issuing green bonds.

2.3 PROJECT 3: CONSTRUCTION OF A 300 MW WIND POWER PLANT

9. The government prioritizes the construction of a wind power plant with a total installed capacity of 500 MW during the period 2025-2040, with additional incentives for PPP projects. Throughout the project implementation it is planned to install 38 onshore wind turbines with a capacity of 2.6 MW (AMD 67.5 billion) during 2022-2030, and - 77 wind turbines (AMD 135 billion) during 2025-2030. The following locations are proposed for the construction of the wind power plant:

- Karakhach Mountain Pass: 100 MW installed capacity
- Pambak Mountains: 60 MW installed capacity
- Selim Pass: 40 MW installed capacity
- Sisian Pass: 100 MW installed capacity

10. Possible actions by the Government to initiate and implement the project include:

- deferment of import duty for the import of new equipment,
- application of the build-operate-transfer PPP (BOT PPP) method and negotiations on an attractive preferential agreement,
- Establishment of regional forums with international partners
- Guaranteed investment return for electricity generation through green tariffs;
- simplified procedures for acquiring the land use right and adjusting the land designation (changing the land type to "energy, transport, communication, utility infrastructure facilities") and, as required, providing support to investors,
- improvement of meteorological data monitoring system.
- providing environmental advice.
- development of a strategic approach to the management and use of wind resources for each region.

11. Possible sources of funding for project implementation are:

- mixed financial sources with the purpose of monitoring the financial feasibility of the project and implementation of the design works
- international climate finance in preparatory stage,
- attracting private investments,
- attracting green loans and issuing green bonds.

2.4 PROJECT 4: IMPROVED OPERATIONAL ENERGY EFFICIENCY OF INDUSTRIAL BUILDINGS

12. Improved energy efficiency is of strategic importance, as buildings account for about 40 percent of the country's total electricity demand and more than 25 percent of gas demand. The government intends to ensure effective communication with business aiming to highlight the potential benefits of the latter. The basis of the maximized energy efficiency is the company's business model, profitability projections and the overall feasibility of efficiency investments.

13. In particular, the expected areas of intervention include the energy-efficient heating system, energy-saving technologies, smart energy management systems, insulation and windows, standard roof materials, energy saving devices, cooling systems, reduced operating costs, etc.

14. Possible actions by the Government to initiate and implement the project include:

- development of industrial energy intensity and management standard
- Amendments to the construction norms "Thermal protection of buildings"
- Corresponding amendments and additions to the RA Law "On Energy Saving and Renewable Energy" in terms of standards
- Awareness-raising-educational campaign for the target audience in the private sector
- consideration of possible support schemes through various funds and partners, on an as-needed basis

15. Possible sources of funding for project implementation are:

- mixed funding sources to oversee the financial feasibility of the project,
- attracting green loans and issuing green bonds,
- carbon market, providing assurances that policy measures will continue to keep carbon prices sufficiently high.

2.5 PROJECT 5: FRIENDLY ENVIRONMENT FOR ELECTRONIC MOBILITY (CREATION OF A NETWORK OF CHARGING STATIONS FOR ELECTRIC MOTOR VEHICLES)

16. The permission to import electric vehicles without value added tax demonstrates the Government's intention to promote the use of electric vehicles in Armenia. The cost of installing an EV recharging station includes infrastructure and recharger costs. As an option, it is recommended to consider fast recharging stations.

17. The project of installation of electric vehicle recharging stations envisages the installation of 1,050 recharging stations. It is proposed to install 140 recharging stations across the interstate highways and 160 stations across the domestic motorways. About 750 recharging stations will be installed in all regions of Armenia. This number will ensure access to at least 250 recharging stations for every one million population. With this number of stations across the highways two stations will be installed at every 25 km interval along the highways.

18. Possible actions by the Government to initiate and implement the project include:

- carrying out needs assessment and situational analysis,
- ensuring efficient energy distribution,
- mapping of charging stations,
- Continuing the policy of EV zero rate VAT taxing,
- Corresponding amendments and additions to the RA Law "On Energy Saving and Renewable Energy" in terms of standards
- Awareness about EVs through an information campaign,
- Development and presentation of PPP framework to businesses,
- Development of a strategic framework for loan guarantees.

19. Possible sources of funding for project implementation are:

- expansion of current cooperation with KfW, Climate Investment Fund, Climate Change Fund, GEF,
- mixed funding sources to oversee the financial feasibility of the project,
- attraction of green loans.

2.6 PROJECT 6.100 MW ENERGY STORAGE STATION

20. The government aims to achieve a higher level of renewable energy use . However, alongside with solar and wind power production, energy fluctuations may also increase, which will be especially noticeable in the case of shutdowns/closures of NPP and Hrazdan HPP.

21. An energy storage unit can quickly respond to large spikes in demand, adding more reactive capacity to the network and reducing the need to construct more backup stations. The efficiency of the energy storage station is determined by the rapid response to changes in demand, the extent of losses in the storage process, the storage capacity and charging speed. Energy storage can also help to cover electricity demand during peak times.

22. Possible actions by the Government to initiate and implement the project include:

- application of the build-operate-transfer PPP (BOT PPP) method and negotiations on an attractive preferential agreement,
- provision of investment return guarantees to increase the attractiveness of investment projects,
- support in the development of feasibility studies, business plans,
- support for peak energy demand forecasting.

23. Possible sources of funding for project implementation are:

- expand the current cooperation with KfW, EBRD, EBRD, ADB, CIFs (Global Energy Storage Program),
- private investment by reputable international investors in the sector;
- issuance of green bonds.

2.7 PROJECT 7: ANTI-HAIL NETS FOR ORCHARDS IN TAVUSHI REGION

24. Hail is one of the largest risks of agricultural sector in Armenia. The most affected regions are Lori, Tavush, Shirak and Aragatsotn regions due to their topographical conditions and seasonal atmospheric circulation. According to the hydro-aviation vulnerability map, Tavush region is the highest risk zone.

25. The proposed project includes a government subsidy of 40 percent of the total cost of installing anti-hail nets in Tavush region. It is planned to cover 447 hectares of land in 2023-2024 and approximately 890 hectares in 2025-2030.

26. Possible actions by the Government to initiate and implement the project include:

- Revision of the state support program for the implementation of the agricultural insurance pilot program,
- Regional conferences on the benefits of anti-hail nets;
- Capacity building of farms and trainings for anti-hail nets,
- Maintenance, quality and assembly standards for anti-hail nets,
- Provision of a uniform project timeline for data collection on the implementation of the project.

27. Possible sources of funding for project implementation are:

- expanded cooperation with KfW, ADB, FAO and KFC,
- private investment by reputable international investors in the sector;
- issuance of green bonds.

2.8 PROJECT 8: FORMATION OF WINDBREAKS FOR ORCHARDS IN TAVUSH AND ARARAT REGIONS

28. Wind is one of the frequently occurring risks in agricultural sector in Tavush and Ararat regions, and causes damage several times a year. The windiest region of Armenia is Tavush region, followed by Ararat region. In 2020 the total area of orchards in Tavush and Ararat regions comprised 52 thousand hectares. The proposed project involves government investment. Within 2023-2025, all orchards in the Tavush region and within 2026-2030, all orchards in the Ararat region, will be protected by windbreaks. In case of successful implementation of the projects, all orchards in Tavush and Ararat regions will be provided with windbreaks.

29. As a result of the implementation of the project, it is expected to increase the yield level by 6-30 percent, reduce irrigation needs by 3-22 percent, and reduce soil losses from wind erosion by 50-100 percent.

30. Possible actions by the Government to initiate and implement the project include:

- organization of regional conferences on the benefits of windbreaks,
- capacity building of farms and trainings for anti-hail nets,
- provision of a uniform project timeline for data collection on the implementation of the project.

31. Possible sources of funding for project implementation are:

- providing state support
- expanded cooperation with KfW, ADB, FAO, KFC, AF, KFC,
- private investment by reputable international investors in the sector;
- issuance of green bonds.

2.9 PROJECT 9: CONSTRUCTION AND REPAIR OF WATER RESERVOIRS

32. Reservoir development projects are of key importance for Armenia. In this regard, the recently restored and reconstructed Marmarik reservoir, with a total volume of 24 million m³, has a significant importance. Currently, Vedi, Kapsi, Yeghvard and Marmarik reservoirs are set as priority for construction.

33. It is recommended to complete the already started projects (for 2023-2025: a total of AMD 25 billion), build a new reservoir (AMD 115 billion for 14 reservoirs), considering the following list of priority reservoirs: Apna (AMD 4 billion), Karmirgyugh (AMD 15.5 billion), Artik (1.6 billion AMD), Getik (AMD 3.6 billion), Getikvank (AMD 25.3 billion), Lichk (Meghriget) (AMD 3 billion), Oshakan (Kazakh) (AMD 16.4 billion), Argichi (AMD 1.9 billion), Getikvank (AMD 25.3 billion), Geghardalich 2 (AMD 8.6 billion), Hartavan (AMD 4.5 billion), Verin Sasnashen (AMD 3 billion) AMD), Yelpin (1.8 billion AMD), Khachik (AMD 1.4 billion), Asthadzor (1 billion AMD), Byurakan (4 billion AMD), Geghadzor (AMD 3 billion), Selav-Mastara (AMD 15 billion).

34. For some projects feasibility studies have already been conducted and are pending approval. Economic and financial forecasts are also pending revision and alignment with the Government's strategy.

35. Possible actions by the Government to initiate and implement the project include:

- collection of long-term data on river flow and water resources,
- Inclusion of the climate change factor (evaporation, reduction of water flows, etc.) in project planning processes,
- expansion of the construction of reservoirs within the framework of PPP,
- development/updating of construction and maintenance standards.

36. Possible sources of funding for project implementation are:

- financing from the state budget
- expanded cooperation with KfW, ZFG, ADB, WB,
- mixed financial sources to maintain the financial feasibility of the project,
- issuance of green bonds.

3. APPENDIX: LIST OF INVESTMENT PROJECTS

	PROJECT	ESTIMATED FINANCE NEED FOR, AMD MLN	POSSIBLE SOURCES OF FINANCING	RESPONSIBLE AGENCY	IMPLEMEN- TATION TIMELINE
1.	Modernization of 122 small HPPs and development of irrigation system	76	Global Fund for Partnership on Climate Change, KfW, EBRD, Green Bonds, Green Loans, Equity Investments	Private investors, MoE, MTAI, MoEnv	2023-2030
2.	Construction of large HPP	60	"Tashir Group", "Energo Invest Holding", "Renko Armenia", Climate Hydropower Fund, EBRD, EBRD, KfW, green bonds, green loans, equity investments	Government of the Republic of Armenia, MoF, MoE, MoEnv, MTAI, PSRC, Water Committee, Hydrological Services	2023-2027
3.	Construction of a 300 MW wind farm	121	ADB, EBRD, KfW, Akila Capital, Rambor Energy, Gold Wind Company, representatives of Armenia's energy sector, green bonds, green loans, equity investments	RA Government, MoEnv, hydrological services	2022-2030
4.	Operational energy efficiency of industrial buildings	71	RA Budget, EBRD, KfW, GFG, Global Fund for Partnership on Climate Change, ADB Climate Change Fund, CIF, green loans, green bonds	RA Government, MTAI, MoE, MoEnv	2024-2031
5.	An enabling environment for EV recharging stations network to promote e-mobility	9.8	State Budget, EBRD, KfW, Canadian Climate Change Program, KNS, Importers of electric vehicles in Armenia, Plug.am, green loans, green bonds	RA Government, MTAI, MoE, MoEnv	2023-2026
6.	100 MW energy storage infrastructure	56	State Budget, KfW, EBRD, EBRD and ADB, Climate Investment Fund (Global Energy Storage Program), Nextera Energy (USA), RES Company, Renera (Russia) and CATL (China), green loans, green bonds	MTAI, MoE, MoEnv	2024-2027
7.	40% subvention program for anti-hail nets in Tavush region	2.5	State budget, private investments, climate funds, green loans, green bonds	MTAI, MoE, MoEnv	2023-2030
8.	Forested zones as a climate change adaptation means for orchards in Tavush and Ararat regions	2.7	State budget, climate funds, green bonds	MoEnv, MoE	2023-2030
9.	Construction and reconstruction of reservoirs	140 billion	State budget, ADB, AFD, KfW, green loans, green bonds, private investments	MTAI, MoE, MoEnv	2023-2032