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CLIMATE PUBLIC EXPENDITURE AND INSTITUTIONAL REVIEW

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The objective of this review is to apply the “Climate Public Expenditure and Institutional Review” innovative tool to Armenia’s data to review the countries climate change policy, institutional and public finance management frameworks, and to assess the volume and structure of climate expenditures.

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ABBREVIATIONS

ADB	Asian Development Bank
AMD	Armenian Drams
CC	Climate Change
CPEIR	Climate Public Expenditure and Institutional Review
CSO	Civil Society Organization
EBRD	European Bank for Reconstruction and Development
EPIU	Environmental Projects Implementation Unit
EU	European Union
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GFS	Government financial statistics
GIZ	German Association for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH)
GoA	Government of Armenia
HEI	Higher education institutions
HPP	Hydropower plant
IBRD	International Bank for Reconstruction and Development
IMF	International Monetary Fund
MoEn	Ministry of Environment
MoESCS	RA Ministry of Education, Science, Culture and Sports
MoF	RA Ministry of Finance
MTEF	Medium-Term Expenditure Framework
MW	Megawatts
MWh	Megawatt per hour
NA	National Assembly
NAS	National Academy of Sciences
NDC	Nationally determined contributions
NGO	Non-governmental Organization
PB	Program-based budgeting
PFM	Public Financial Management
PV	Photovoltaic
RA	Republic of Armenia
SREP	Scaling up Renewable Energy Program
SDGs	Sustainable development goal
SNCO	State non-commercial organization
SPAN	Specially protected area of nature
UN	United Nations Organization
UNDP	United Nations Development Program
UNFCCC	The United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USA	United States of America
USAID	United States Agency for International Development
WB	The World Bank

EXECUTIVE SUMMARY

This report provides the results of a Climate Policy and Expenditure Review (CPEIR) for the Republic of Armenia. A CPEIR is a diagnostic tool that provides a means of assessing opportunities and constraints for integrating climate change concerns within the national and sub-national budget allocation and expenditure process. It achieves this through an assessment of how the public finance management processes of a country interacts with the climate change plans and policies of a country, as well as on the institutional framework that delivers on these plans and policies, and through analysing public expenditures on climate change.

As reflected in it Nationally Determined Contribution, climate change represents an increasingly important challenge to Armenia. The geographic location of the country – a landlocked mountainous country with vulnerable ecosystems – alongside national security considerations, have led to an increasing focus on how climate change may impact the country. Frequent landslides, floods and other natural disasters negatively affect the country's infrastructure, agriculture and water resources. Consequently, Armenia is increasingly considering how it should adapt to these impacts and make itself more climate resilient. At the same time, and despite its small emissions footprint, Armenia has decided to contribute to global efforts to reduce emissions by limiting greenhouse gas emissions in the range of 633 million tons of carbon dioxide equivalent during the period from 2015 to 2030. The country's objectives in relation to climate change adaptation and mitigation are captured in its Nationally Determined Contribution (NDC), approved by the Protocol Decision N 41 of September 10, 2015, and subsequently shared with the international community. Armenia is currently looking to update this document.

This – and subsequent – CPEIR(s) can be a hugely valuable tool in helping Armenia deliver on its climate change ambitions as expressed in its NDC. The CPEIR consists of three elements, all of which can help NDC implementation:

- Policy Review: This provides a review of the climate change policy framework and its monitoring framework as well as how the policy objectives translate into programs and instruments. A stronger understanding of the strengths and gaps within the current policy landscape can help identify where policy reform is needed.

- Institutional Review: This provides an assessment of the institutional nexus related to CC policy delivery, and the modes of cross-government synchronization, accountability, and decentralization. This helps understand how the implementation of climate change policy can be made more efficient and effective.

- Climate Public Expenditure Review: This provides a quantification of the climate-relevant expenditure in comparison with the total national budget. This can help policymakers understand the extent to which resource flows from the budget are sufficient to deliver on the different ambitions in the NDC. It can also be used in discussions with international partners to identify the spending that the government is already undertaking and the gaps where additional support from international development partners would be most valuable.

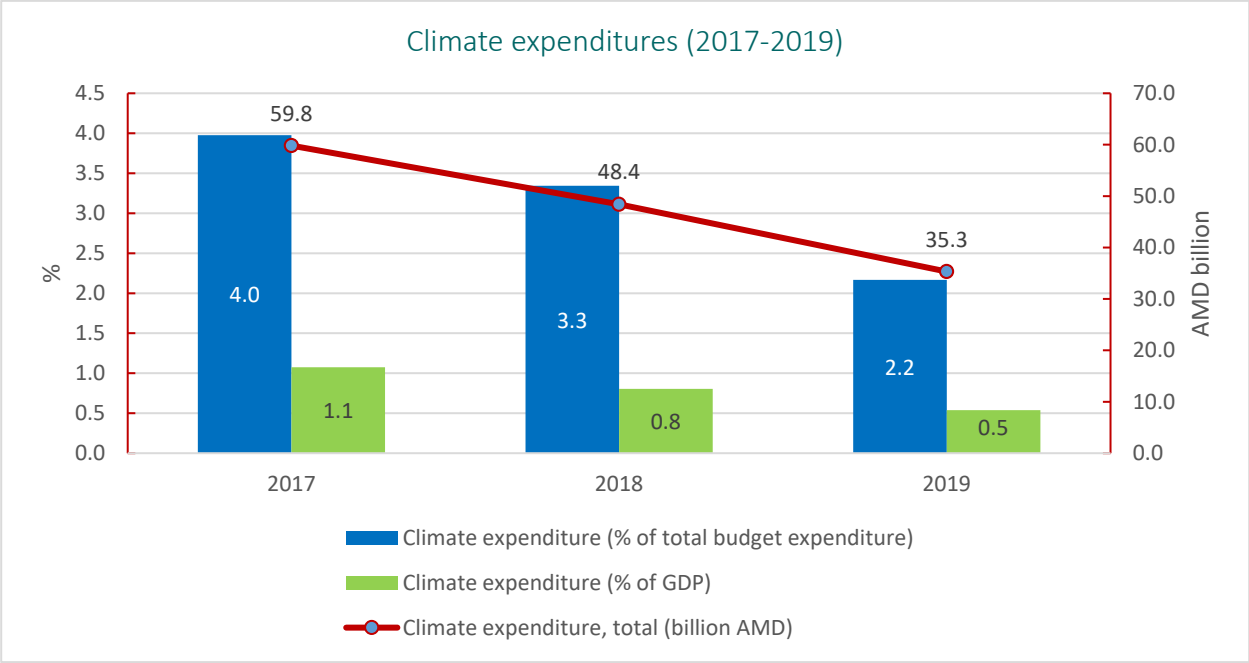
In addition, this report also reviews the current approach to the budget setting within Armenia to identify opportunities to more fully integrate climate considerations into these processes.

The policy review finds that, despite the significant steps that have been taken by various sector ministries to introduce and emphasize climate change mitigation and adaptation in national and sectoral development policies, there is a need to develop a consistent and comprehensive set of policy documents in the sphere of climate change mitigation and adaptation. Current efforts to integrate climate change are somewhat piecemeal and considered as supplementary to other policy goals. This hampers policy coordination and, despite some impressive efforts within specific ministries, can lead to climate change issues being deprioritized. The recently announced plan to develop a National Adaptation and Low Emission Development Strategy provides an opportunity to correct this deficiency. These documents should be developed so as to reflect the full scope of state policy in the sphere of climate change adaptation and mitigation, including anticipated results (objectives, outcomes, main policy directions, outcome measurement indicators and targets). They should also identify the linkages of the implemented measures with climate sensitive sectoral development policies. It is also important that policies also include relevant estimates of costs required for their implementation. The inclusion of these components will enable the integration of climate change policies with MTEF and fiscal frameworks.

The institutional review finds that there is an opportunity to strengthen inter-agency coordination and boost civil society participation in climate change policy-making and implementation. This could be achieved by raising the status of the Interagency Coordination Council for the Implementation of the Requirements and Provisions of the UN Framework Convention on Climate Change and, in particular, requiring the chairmanship of the Council to be at least at the level of the Deputy Prime Minister. Its mandate could also be extended to cover issues related to cross-sectoral/inter-agency coordination and the balance between climate-related and other sectoral policies. At the same time, it is important that the government's current initiatives aimed at increasing participation of civil society in the work of the Council be consistently implemented. Expansion of state-funded educational and research programmes on climate change can help enhance Armenia's technical capacities on climate change issues, ultimately improving its policy response.

The expenditure review finds that, on average, around 3.2% of Armenia's budget was spent on climate activities between 2017 and 2019, although both the absolute and relative amount of climate expenditures has fallen over the three years reviewed (Figure ES1). However, it is important to stress that the decline in climate expenditures has been much more pronounced among externally financed expenditures than those are domestically financed. This largely reflects the decreasing budget performance of these externally financed expenditures, with these projects and programmes increasingly subject to significant revisions to the initially approved budget during implementation. Reflecting the relative priorities of Armenia, expenditure on adaptation-related measures (51%) has been higher than spending on mitigation (35%), with remaining expenditure on activities supporting both objectives. Sectorally, the greatest expenditures have been in the transport and agriculture sectors, with forestry spending increasing substantially over the three years analysed. There has been very little expenditure on renewable energy.

Figure ES1. Climate expenditures 2017-2019



The expenditure review identifies a number of possible opportunities for Armenia to strengthen its approach to budgeting and spending on climate-related activities:

- To develop the internal capacity of climate change related sectoral ministries to explicitly identify the climate change benefits of various expenditure items, so that budget programmes and measures can be designed to better address climate change.

- To incorporate the assessment of expenditures into the forthcoming development of an NDC implementation plan to help inform future priorities to support the delivery of the NDC's objectives, and to set targets to scale up climate-related expenditures so that, at the least, they return to the levels of 2017, and then increase beyond that.

Finally, building on a solid foundation, there are a range of opportunities for Armenia to strengthen the integration of climate change into its PFM systems. Crucial to this is the development of appropriate mechanisms and methodology within the budget processes to allow for the identification of climate policy measures, results, identification, coding, and calculation of their costs. This could be complemented by a requirement that the legislature should ask for the necessary information to allow the scrutiny of budgetary expenditures on climate measures. Programmes could also be required to develop indicators to allow monitoring and to facilitate subsequent evaluation, of their impact on climate change objectives.

INTRODUCTION

The Climate Public Expenditure and Institutional Review (CPEIR) is a diagnostic tool that has been developed to assess opportunities and constraints for integrating climate change concerns within the national and sub-national budget allocation and expenditure process. A CPEIR provides a qualitative and quantitative analysis of a country's public expenditures and how they relate to climate change, its climate change plans and policies, institutional framework, and public finance architecture.

The application of the CPEIR methodology identifies and elaborates a number of areas in which CC responses may be strengthened such as: (i) supporting the mainstreaming of climate finance by raising awareness of strategies and policy issues, (ii) promoting the efficient and effective use of financial resources, and (iii) assessing policy formulation and implementation, thereby practically contributing to greater cooperation between diverse stakeholders.

Armenian Context – Armenia is a mountainous landlocked country, located on the border of the Caucasus and Central Asia on the Armenian Highland. Armenia's climate is influenced by the Caucasus Mountains and ranges from dry subtropical to cold alpine. As a country, Armenia has contributed very little towards anthropogenic greenhouse gas emissions, the main reason for climate change.

But, despite its negligible role, the country already suffers heavily due to adverse climatic conditions, and this is expected to worsen in the future. The territory of Armenia is characterized by high frequency and magnitude of hazardous hydrometeorological phenomena, which trigger the occurrence of emergencies and inflict significant losses on the population and economy. It has a history of drought, significant land degradation, and active desertification processes. Frequent landslides, mudflows, floods, and other natural hazards negatively impact infrastructure, agriculture, and water resources, demonstrating the country's vulnerability to climate variability and change.

The task of tracking climate change finance for a country like Armenia is a complex one as the country is only at the initial stages of introducing a comprehensive CC financial framework. This CPEIR is the first step towards understanding the level of integration of the CC in the national PFM system, identifying issues and gaps, and developing a country-specific and effective model of CC budget tracking and financial framework. This will enable the consolidation of efforts and resources with which to face the future risks and challenges caused by climate change in the country.

Methodology – This CPEIR was conducted using a methodology which has been successfully piloted in several countries. The CPEIR was conducted across the following 3 dimensions:

- Policy Review: A review of the climate change policy framework and its monitoring framework as well as how the policy objectives translate into programs and instruments.
- Institutional Review: An assessment of the institutional nexus related to CC policy delivery, and the modes of cross-government synchronization, accountability, and decentralization.
- Climate Public Expenditure Review: A quantification of the climate-relevant expenditure allowing comparison with the total national budget.

The methodological approach involved the compilation of relevant documentation on climate change policy and the institutional framework and public expenditure on climate change. These were derived from official sources and from various public documents. In addition, individual interviews with key informants were completed to identify key areas for further analysis. The review was carried out at the national level. The review covered all sectors, yet a more specific focus was on climate change-related sectors, such as environmental protection, forest, agriculture, disaster management, solid waste management, water management, and energy sectors.

The specific methodology for the expenditure review assessed budget expenditures against a CPEIR standard typology of climate change mitigation and adaptation expenditures, adjusted to reflect the stated climate priorities of the country as expressed in its Nationally Determined Contribution (NDC). The climate relevance of these expenditures was assessed and weighted using a replicable weighting methodology. Also, an attempt was made to assess the expenditures against development objectives, expressed in national policies and strategies. The expenditure review and analysis covered state budget expenditures for the period from 2017 to 2019, covering both recurrent and capital expenditures within the budget programs/measures financed both from the donor and national sources.

In parallel to the development and application of the CPEIR methodology, a complimentary report provides the results of application of the Climate Change Budget Integration Index (CCBII) to Armenia. The CCBII provides a comprehensive and systematic assessment of the level of integration of climate change finances in the current Public Financial Management System of Armenia. Although the full details of this analysis are provided in a separate report, this CPEIR report draws on the findings from the CCBII where the findings from the two analyses are consistent and aligned.

The remainder of this report is structured as follows:

Chapter 1 provides the climate change policy review. It sets out a global framework in which Armenia's climate policy response is formulated and the key policy documents related to climate change, including both cross-sector policies and those embedded within specific sectors.

Chapter 2 provides the review of climate change institutional framework. It sets out the wide range of state, development partner and civil society bodies with an interest in climate change, and the inter-relationship between them.

Chapter 3 explains the methodology of and provides the results of, the expenditure review of the CPEIR.

Chapter 4 provides an additional detailed analysis of the current budgeting process in Armenia, and the steps that can be taken to better integrate climate change into the Armenian public financial management system.

CHAPTER 1. REVIEW OF CLIMATE CHANGE POLICY FRAMEWORKS

1.1. INTRODUCTION

In 2015, under the Paris Agreement on the UN Framework Convention on Climate Change, the Republic of Armenia adopted the "Nationally determined contributions" document which sets out the key principles of public policy in the field of climate change, outlines the sectors that are most vulnerable to climate change impacts, and most import for emission reductions, and defines long-term mitigation targets for the country. This document was revised and supplemented in 2020, by defining 2021-2030 targets and transparent reporting obligations to reflect the progress of implementation.[1]

Due to the cross-sectoral nature of climate change and adaptation issues, the state policy on climate change is mainly enacted through various programs implemented in different sectors. In this regard, in recent years, measures have been taken in Armenia to introduce climate change mitigation and adaptation as a component within national development policies.

This section presents the policy frameworks for climate change and adaptation and their specific characteristics in the Republic of Armenia.

1.2. POLICY DOCUMENTS AND PROCESSES

The state policy on climate change mitigation and adaptation in Armenia is defined by four main groups of documents.

- international treaties, agreements and conventions,
- legal acts,
- general and sectoral development strategies and programs,
- medium-term expenditure frameworks.

International treaties, agreements and conventions

Armenia ratified the UNFCCC in 1993 and the Kyoto Protocol in 2002. The National Assembly ratified the Paris Agreement and the Doha amendment to the Kyoto Protocol on February 8, 2017.

Armenia's commitments under these multilateral international instruments derive from its status as a developing country not included in Annex I to the UNFCC, which sets out the directions and agenda for Armenia's international cooperation in the field of climate change mitigation, adaptation, and the scope of Armenia's commitments.

According to the requirements of the RA Constitution, RA international treaties are ratified by the RA National Assembly, and in cases defined by law, are approved by the President of the Republic. The RA Ministry of Environment, as a body in charge of the implementation of state policy in the field of climate change in Armenia, including mitigation, adaptation, reporting, as well as international cooperation, and the fulfillment of Armenia's international obligations in those areas, plays a key role

[1] The content of this document is described in more detail in section 1.4 below.

in preparation and facilitation of the country's accession process to international environmental conventions and agreements, on behalf of the RA Government.

Laws and legislative acts

RA laws and by-laws regulate legal relations in various spheres of public life. No stand-alone legislative document exists on climate change and adaptation in Armenia; the legal relations in this area are regulated by numerous legislative acts relevant for different sectors (for example, energy, environment, water, agriculture, urban development, etc.). The rationale behind this is the cross-sectoral nature of climate change policy.

There are currently 12 ministries in Armenia, whose areas of responsibility are defined according to the 2019 RA Law "On the Structure and Activities of the Government". The RA legislation assigns to the respective sectoral ministries the responsibility for the development of sectoral policies, including the policy shaping, drafting of legislative acts, facilitation of relevant interagency or public discussions. In this regard, while the Ministry of Environment of the Republic of Armenia is responsible for state policy in the field of climate change mitigation or adaptation, due to the cross-sectoral nature of climate change policy, in practice, legislation directly related to climate change in Armenia can be drafted and submitted to the Government by other ministries as well, within the context of their sectoral policies. In addition, the RA Deputy Prime Ministers and the deputies and fractions of the National Assembly (NA) may also come up with legislative initiatives.

In this regard, the key mechanisms enabling the representation of climate change policy within the framework of legislative initiatives within the RA Government and for ensuring its balance with sectoral policies are the interagency discussions in relation to draft legal acts, as well as the discussion mechanisms of sector-specific Committees within sectoral ministries. Moreover, the draft legal acts of a normative nature developed by the ministries are posted on the joint website for publishing draft legal acts (www.e-draft.am) for public discussion. The latter is an online platform, which provides the opportunity for the agencies to present the draft legal acts to the public, to organize public discussions online and to ensure active participation of civil society in legislative initiatives.

The laws of the Republic of Armenia are adopted by the National Assembly, within the framework of the adoption process, their drafts also undergo parliamentary discussions. They include both written and verbal inquiries of the NA deputies addressed to the relevant ministers, as well as the discussions held in the NA committees with the participation of the sectoral ministries.

Strategic planning

Strategic documents (general and sectoral development concepts, strategies, programs) define the RA general socio-economic or sector/industry specific long-term or mid-term development visions, objectives, outcomes, targets, strategic approaches, measures for their achievement, etc.

Although Armenia does not have any specific comprehensive strategic document(s) on climate change, the country has adopted a number of strategic documents in recent years that are closely related to climate change and adaptation policies, including (as discussed above) Armenia's Nationally Determined Contributions/Actions under the UN Framework Convention on Climate Change (2015), National Disaster Risk Management Strategy and Action Plan (2017), Strategy to Combat Desertification and National Action Plan (2015), 2020-2030 Strategy on Main Directions to Ensure Economic Development of the RA Agriculture Sector and Action Plan (2019) etc.

The mechanisms of the strategic planning process in the Republic of Armenia and its alignment with the budgeting process are defined by the Protocol Decision N 42-45 of the RA Government of October 5, 2017, which regulates the process of elaboration, presentation and oversight of strategic documents which have influence on state revenues and expenditures. The Decision defines streamlined procedures, hierarchy, and mechanisms for the development and presentation of strategic documents, with the aim of ensuring a clear link between strategic documents and budget programs. The requirements of the above-mentioned decision do not apply to the RA Government Program and the MTEF which instead have their procedure for elaboration, approval and accountability defined by the RA Constitution and RA laws.

Based on their coverage, timeframes, scope of impact on public expenditure, strategic documents in Armenia are classified as comprehensive strategies, mid-level strategies and budget program strategies.

Comprehensive strategic documents are long-term strategies of national (cross-sectoral) significance that cover all or nearly all functional areas. They set out the country's long-term development strategic goals in the form of long-term outcomes (impacts). These strategies are designed by the Office of the Prime Minister of the Republic of Armenia, or by interagency commissions established for that purpose, and are approved or revised by a Decree of the RA Government.

Mid-level strategic documents represent sectoral, mid-term or long-term strategies that cover a specific sector or industry. They define the strategic goals of the respective sectors in the form of intermediate and direct outcomes. These strategies are developed by the relevant state bodies responsible for the sector and approved by a Decree of the RA Government.

Both comprehensive and mid-level strategies have a time span of 5 years or more, and the coordination of the implementation of those strategies, methodological guidelines, summarizing the results of monitoring the progress of their implementation, and general oversight, are carried out by the Strategic Planning Structural Unit of the RA Prime Minister's Office.

The above Decision requires that all strategic documents have clearly defined objectives, measurable performance indicator targets, clear cost estimates related to long-term, medium-term fiscal forecasts and medium-term expenditure framework.

Climate change related strategic issues are predominantly represented in the sectoral development strategies and programs developed by different government agencies.[2]

Medium-Term Expenditure Framework

The Medium-Term Expenditure Framework (MTEF) is the three-year expenditure strategy of the Government of the Republic of Armenia, which defines the three-year fiscal principles, macroeconomic forecasts, fiscal framework and risks, sectoral objectives, targets, expenditure priorities and expenditure limits.

The MTEF is the principal strategic document linking sectoral policies with budget frameworks and serves as a basis for the preparation of the state annual budget for the coming year. The MTEF document is developed by the RA Ministry of Finance (based on submissions from line Ministries), approved by the RA Government, and subsequently submitted to the NA for reference. Details of the

[2] The contents of relevant sectoral development strategies is described in more detail in section 1.5 below

MTEF and budget development processes are provided in the Public Finance Management Framework section of this document.

1.3. POLICY FRAMEWORKS. NATIONAL LEVEL DEVELOPMENT STRATEGIES

The framework strategic documents defining the policy of the RA Government are as follows: the RA 2014-2025 Perspective Strategic Development Program (2014) and Five-year (2019-2023) Program of the RA Government (2019). These framework strategic documents are, in essence, the high-level strategic documents guiding socio-economic development at the national level, and the sectoral development policies and strategic documents are developed on the basis of, or in concordance with, these strategies.

RA 2014-2025 Perspective Strategic Development Program defines the country's long-term socio-economic development priorities, objectives, key reforms and policy directions needed to achieve the priority objectives. However, although not formally repealed, due to the specifics of political, socio-economic development in Armenia in recent years, the document has lost its relevance and is practically no longer considered a high-level policy document. One of the most vivid manifestations of the above is that no reference to the said document has been made in the MTEF and budget documents of the last two years, even in the sections particularly related to the priorities and objectives of the general socio-economic and sectoral policy.

It is envisaged that this document will be replaced by a new, high-level strategic document called the Armenia Transformation Strategy for 2020-2050, which, among other issues, will ensure the alignment of national development goals with the UN Sustainable Development Goals (hereinafter referred to as the SDGs). While the document is currently only in development stage, its preliminary version sets out 16 high-level objectives deriving from the overall vision, some of which are directly related to climate change mitigation and adaptation issues.[3] It is envisaged that the document will be adopted by the end of 2020 and will become a fundamental, long-term strategic program of socio-economic development in Armenia.

Box 1. Climate change-relevant objectives within Armenia's 2020-2050 Transformation Strategy.

"Clean and Green Armenia" - addresses the universally responsible and caring treatment of towards the environment by the people, effective prevention of environmental and climate risks (SDG 7, SDG 13, SDG 15),

"Productive and Responsible Farming" - implies sustainable, innovative, value-added, resource-friendly farming practices that ensures food security and sufficiency (SDG 2, SDG 6, SDG 11, SDG12).

"Renewable and Universally Available Energy" - aims to ensure Armenia's energy security and self-sufficiency, sustainable accessibility and availability of energy for the population and the economy, as well as environmental safety (SDG 7, SDG 13, SDG 15).

RA Government 2019-2023 Program (2019) sets out the basic guidelines, objectives and priorities of the government for the program's five-year timespan. Given the outdated nature of the 2014-2025

[3] Voluntary national review of sustainable development goals. Armenia (project), (https://www.gov.am/u_files/file/VNR-DRAFT-.pdf)

Perspective Strategic Development Program, it is, in fact, the main framework strategic document defining the policy of the Government of the Republic of Armenia after the Velvet Revolution of 2018.

The methodological guidelines for the preparation of MTEF and annual budget applications provided by the RA Ministry of Finance to state bodies for the last two years envisage a mandatory requirement for the objectives and priorities defined under budget programs to be linked with the objectives, targets and priorities set by the RA Government 2019-2023 program (hereinafter referred to as the Government Program).

As set out in Box 2, the government's program clearly emphasizes the development of renewable energy, energy-saving systems, the mitigation and prevention of climate change problems, as well as the implementation of adaptation actions in accordance with commitments undertaken by international agreements as well as the development and implementation of policies aimed at promoting the long-term goal of sustainable development of the green economy.

Box 2. The main strategic goals and the priority directions of the intervention in terms of climate change mitigation and adaptation and related environmental goals defined by the Government Program 2019-2023.

Sector	Objective/Priority
Environment	Minimize harmful effects on the environment: air, climate, water, soil, flora and fauna, eliminate excessive exploitation and illegal use of natural resources, ensure the implementation of preventive measures. Priority directions. • Increase the efficiency of water resources management and implement advanced water-saving methods, avoiding excessive overuse of the resource. • Sustainable forest management, expansion of forested areas, reforestation and afforestation, • Implementation of measures aimed at mitigation and prevention of, as well as adaptation to, issues caused by climate change, in accordance with the obligations assumed by international agreements. • Effective implementation of the environmental impact assessment process. • Introduction of streamlined and advanced systems of environmental monitoring, permit/licensing and coherent management of primary information. • Development and implementation of policies aimed at promoting the long-term objective of the green economy and sustainable development. • Development of ecotourism in forests and in specially protected areas of nature. • Implementation of large-scale measures aimed at ecological awareness-raising, environmental education, culture, upbringing, increasing the role of environmental science.
Energy sector	Ensure the country's energy independence and increasing energy security, striving to achieve sustainable development of the energy sector based on the efficient use of local primary (renewable) energy resources, further development of nuclear energy, diversification of energy supply, and the introduction of energy efficient and new technologies.
Agriculture	Increase the efficiency of agriculture and the level of food security, increase access to irrigation water, introduction of drip and sprinkling irrigation systems, large-scale introduction of more effective anti-hail systems based on new technologies, development

Sector	Objective/Priority
	of agro-tourism in rural communities, introduction of an effective system for the prevention of animal and plant diseases, and introduction of an agriculture insurance system.
Water	Implement the necessary structural reforms in the field of irrigation, aiming to continuously reduce water loss rates, increase revenues collected in the system, and implement a consistent policy of replacing mechanical irrigation systems with gravity irrigation systems.

However, most of the above-mentioned climate change-relevant goals and priority directions are presented in the context of sectoral development goals, and their relevance to climate change mitigation and adaptation issues is not clearly addressed in the Government Program.

The Government Program does not provide a comprehensive description of the policy framework, as it does not define clearly benchmarked outcome expectations, or specific and measurable target indicators, or provide cost estimates related to the implementation of the Program.

Issues related to the implementation of the Government Program are regulated by the Action Plan of the RA Government's Program for 2019-2023 (hereinafter referred to as the Action Plan).[4] The Action Plan defines the list of measures to ensure the implementation of the RA Government's Program for 2019-2023, the expected outcomes, timelines, responsible state bodies and financial estimations.

The Action Plan sets out more than 70 measures in various areas that are related to climate change mitigation and adaptation, and which directly derive from the objectives and priorities set by the Government Program. These include a variety of interventions, from legislative initiatives and capacity building to capital investment and state support measures.

However, as with the Government's program, most of these measures related to climate change are not clearly addressed in the Action Plan. Although expected outcomes are described for these measures, they are in general not presented using relevant measurement indicators and targets, and cost estimates are not available for all measures.

1.4. POLICY FRAMEWORKS. CLIMATE CHANGE POLICY

Armenia is a party to more than 20 international environmental conventions, including the UN Framework Convention on Climate Change (hereinafter referred to as the Convention), based on which the country ratified the Kyoto Protocol, the Doha Amendment to the Kyoto Protocol, and the Paris Agreement. The Convention and these agreements define the directions and the agenda of RA international cooperation in the field of climate change mitigation, adaptation, and outlines the scope of RA commitments, which are the key components for the development of state policy in the field of climate change mitigation and adaptation in Armenia.

Armenia's Nationally Determined Contributions (NDC)

Under the above documents, Armenia's commitments in the field of climate change derive from the status of a developing country not included in Annex I to the Framework Convention on Climate Change. In this regard, the position of the Republic of Armenia under the Convention and the Paris Agreement is formulated in the "Nationally determined contributions" document, which was approved by the Protocol Decision N 41 of September 10, 2015 (hereinafter referred to as the (NDC). This

[4] Decree N 650-L of the RA Government dated May 16, 2019

document was revised and supplemented in 2020, by defining 2021-2030 targets and transparent reporting obligations to reflect the progress of implementation.

From the point of view of climate change policy in Armenia the importance of both climate change mitigation and adaptation are equally emphasized. Nevertheless, given the geographical location of the country (landlocked mountainous country with vulnerable ecosystems) and the national security considerations, the practical considerations of climate change adaptation are becoming more and more important.

In particular, the territory of Armenia is characterized by high frequency and intensity of dangerous hydro-meteorological phenomena, which leads to emergencies, as well as causes considerable damage to the population and the economy. Frequent landslides, floods and other natural disasters negatively affect infrastructure, agriculture and water resources, demonstrating the country's vulnerability to climate changes.

In this regard, the policy of both climate change mitigation and adaptation in Armenia is based on the principles of "ecosystem" approach and "green economy", which should be compatible with the country's social and economic development objectives.

Box 3. Priority areas for climate change mitigation and adaptation actions in Armenia defined by NDC.

Priority Areas (Mitigation)	Priority Areas (Adaptation)
Energy (including development of renewable energy and energy efficiency)	Natural ecosystems (aquatic and terrestrial, including forest ecosystems and their biodiversity, soil),
Transport (including development of electric transport)	Human health
Urban development (including buildings and structures)	Water
Industrial processes (construction materials and chemical production)	Agriculture, including fish farming and forestry
Waste management (solid municipal waste, wastewater, agricultural waste)	Energy
Land use and forestry (afforestation, reforestation, accumulation of organic carbon in the soil)	Settlements, infrastructure, tourism

Although Armenia's share in anthropogenic greenhouse gas emissions is very low, the NDC sets out Armenia's targets for reducing greenhouse gas emissions, taking into account the country's local conditions and capabilities. In this regard, Armenia has stated its readiness to make voluntary commitments to limit greenhouse gas emissions in the range of 633 million tons of carbon dioxide equivalent during the period from 2015 to 2030.

However, this document is not a comprehensive policy document. This is especially noticeable in terms of climate change adaptation, as the document does not define specific goals, policy directions and targets related to adaptation.

Apart from this document, in practice, strategic issues related to climate change resilience, mitigation and adaptation policies are presented in the development strategies (including sectoral strategies). and action plans.

Measures are currently underway to develop a national adaptation strategy, as well as a low-emission development strategy, with the aim of streamlining and complete formulation of public policy in the area of climate change mitigation and adaptation.

Comprehensive and Enhanced Partnership Agreement between Armenia and the EU

One of the key documents defining the directions of Armenia's international-regional cooperation and outlining policy measures in the field of climate change mitigation and adaptation is the Comprehensive and Enhanced Partnership between Armenia and the European Union (2017).

The agreement fosters cooperation on measures at national, regional and international level towards climate change mitigation, adaptation, analysis, development and transfer of innovative low-carbon technologies, as well as channeling climate-related observations to general and sectoral policies, awareness-raising, training and development.

The goals set out in the agreement include actions to ensure the implementation of the Paris Agreement, and hence measures towards climate change mitigation and adaptation.

Among other issues, the Parties agreed to expand and strengthen cooperation in the transport and energy sectors, within the framework of which a roadmap and an action plan for the implementation of the agreement was developed and approved[5]. The roadmap envisages more than 200 measures, most (but not all) of which are related to climate change mitigation and adaptation issues in various sectors. It includes measures aimed at: increased energy efficiency; the development of alternative energy; efficient management of water resources; water saving; assessment and reduction of flood risks; wastewater; solid waste and landfill management; ecosystem protection; observation and reduction of atmospheric air pollution; and phasing out of ozone depleting substances.

In addition to those mentioned above, the roadmap identifies 12 direct measures directly related to climate change, which are mainly (but not only) measures related to mitigation policies. These measures include but are not limited to the following:

- Development of an action plan for the implementation of the obligations deriving from the Paris Agreement,
- Establishment of greenhouse gas sources identification, monitoring, reporting, inspection and implementation systems and elaboration of procedure for holding public discussions;
- Development and consistent strengthening of technology development and transfer process to address climate change;
- Development of a national concept and an action plan on adaptation to climate change aimed at planning for, and implementation of, streamlined actions in line with the requirements and measures for mitigation of negative impact through addressing and prevention of risks for the economy, human health and other sectors which are likely to be impacted by climate change.

[5] RA Prime Minister Decree No. 666-L of June, 1 2019

1.5. POLICY FRAMEWORKS. SECTORAL POLICIES RELATED TO CLIMATE CHANGE

Due to the cross-sectoral nature of climate change and adaptation issues, the state policy on climate change is mainly enacted through various programs implemented in different sectors, and therefore it is closely linked to development policies in those sectors.

The following are the main current strategic documents defining the sectoral development policies in areas acknowledged as priority areas in terms of climate change mitigation and adaptation policy in Armenia, and which set out the objectives and measures related to climate change through which the climate change policy is practically streamlined in the sectoral development policies.

1.5.1. Disaster Risk Management

Due to the country's high vulnerability to climate change and fluctuations and as a result - frequently recurrent natural disasters (floods, droughts, hail, spring frosts, landslides, etc.), the RA Government has taken significant steps in recent years to develop a disaster risk reduction and management policy and capacity building in these areas.

National Disaster Risk Management Strategy and Action Plan (2017)

In 2015 Armenia joined the Sendai Framework for Disaster Risk Reduction 2015-2030, and, within this framework, the RA Government approved the National Disaster Risk Management Strategy and Action Plan (2017)[6]. The Strategy aims to protect people, their health, property, livelihoods, as well as industrial, cultural and environmental values from disasters risks.

The strategy emphasizes the need to strengthen the climate change adaptation and resilience capacities, considering it as one of the priority areas within the policy.

In this regard, the policy sets out, in particular, the following priorities in terms of disaster risk management: the inclusion of disaster risk management functions and climate change priorities in the country's development processes; targeted decentralization of the disaster risk management system towards territorial and local authorities; and strengthening resilience to natural disasters through disaster risk identification, assessment, management, as well as through public awareness and capacity-building to strengthen early reporting mechanisms.

The Strategic Action Plan sets out a number of legislative, regulation, methodological, human and physical capacity development measures to be implemented in the field of disaster risk management in the period 2015-2030.

The authorized institutional body for coordination and monitoring of disaster risk management processes is the Ministry of Emergency Situations of the Republic of Armenia, while a Strategic Management Council, with the status of an advisory body under the Minister of Emergency Situations, has been formed to coordinate the management of the strategy processes. The members of the Council comprise the leaders of state authorities in the spheres related to the disaster risk management strategy, including the Minister of Environment of the Republic of Armenia.

[6] RA Government Decree No:14 of April 6, 2017

1.5.2. Agriculture

Agriculture is one of the key sectors of the Armenian economy and has a strategic importance within the country's gross domestic product structure, as well as in terms of securing macroeconomic stability, improving the country's foreign trade balance, ensuring the country's food security, as well as generating income for agricultural sector entities, which provides for the stability and development of rural areas.

At the same time, agriculture is the sector of the economy which has highest level of dependence on weather conditions. The most frequently occurring and increasingly persistent hydro-meteorological hazards, such as hailstorms, early frosts, spring floods, mudslides, landslides and droughts, have significant negative impact on agriculture each year, resulting not only in decreased production volumes and insolvency of rural entities, but also negatively affecting agricultural employment levels of rural inhabitants, leading to an outflow of population from rural areas to cities, and in some cases emigration. The above-mentioned phenomena, as well as the abnormally high temperatures of recent years, are a clear signal of the climate change impacts on agriculture.

Strategy of the RA agricultural sector for 2020-2030 (2019) outlining the key directions for economic development

The vision outlined in the strategy for the economic development of the agricultural sector in Armenia over the next ten years emphasizes sustainable, innovative, high value-added, resource-friendly, environmentally friendly and clean ecological agriculture as a means to secure and enhance the livelihoods of rural people.

The strategy, in particular, relies on the principles of adaptation to climate change, resilience and environmental sustainability, which implies the implementation of measures towards climate change awareness, adaptation, mitigation, sustainable resource use, as well as agriculture sector development deriving from the most advanced management practices for land and water resource use.

The key objectives of the strategy and measures to achieve them include the improvement, rehabilitation and modernization of irrigation systems; introduction of modern and cost-effective irrigation systems; supporting risk mitigation and climate change adaptation processes, including the introduction of an agricultural insurance system; the development and introduction of effective anti-hail systems as well as research and development of various methods to enhance climate change adaptation and resilience (for example - drought-resistant varieties, modern agricultural practices, localization of smart and sensitive technologies and practices), etc.

The strategy defines the target indicators of the outcomes and the measures provided by the 2020-2022 program of measures presented in the strategy are presented together with cost estimates and non-financial performance indicators. Nevertheless, the target indicators and the non-financial performance indicators of the measures presented under the strategy do not define the outcomes in terms of (adaptation to) climate change.

Agriculture is also a major source of greenhouse gas emissions, and in this regard, it is considered as one of the key directions of climate change mitigation policy. While addressing the objectives of increasing efficiency in agricultural sector especially in livestock breeding and land use can significantly contribute to the policy of reducing greenhouse gases, the strategy does not contain clear mitigation targets for the reduction of greenhouse gas emissions.

1.5.3. Energy

Armenia's national energy security priorities are fully in line with the of low carbon development objective. Strategic level programs for energy sector development are aimed at ensuring Armenia's energy security, by maximizing the deployment of energy efficiency and renewable energy potential within the sector, in view of the lack of local fossil fuels.

RA Law on Energy (2011)

The law is the fundamental document providing legal regulation of the energy sector. It defines the principles of state policy in the field of energy and the mechanisms for their implementation. These principles include promotion of advanced scientific and technological achievements and the introduction of new energy-efficient and energy-saving technologies. Amendments to the law introduced in 2014 created favorable conditions for renewable energy sources, establishing a provision for the mandatory purchase of all electricity generated from such sources for twenty years (except for small hydropower plants). Furthermore, with amendments introduced in 2016 favorable conditions were established for the production of solar power plants with a capacity of up to 150 kW, stipulating that the production of electricity can be carried out without licensing.

RA Law on Energy Saving and Renewable Energy (2004)

The law regulates relations in the field of energy saving and renewable energy. The amendments to the law introduced in 2016 created favorable conditions for the solar power plants' production activities, established the mechanisms of reciprocal flows between the autonomous energy producers and the licensed electricity distribution entities, and set mandatory technical requirements for energy saving and energy efficiency for newly constructed residential apartment buildings, as well as facilities constructed (reconstructed, renovated) at state expense.

Energy sector development strategy in the context of RA economic development (2005)

This is the long-term strategic document for the development of the energy sector in Armenia (2005-2025). The Strategy highlights the use of renewable energy sources and energy efficiency, as well as nuclear energy, as strategically significant in terms of ensuring the country's energy security and energy independence. The strategy defines the actions and program initiatives aimed at ensuring achievements in these directions.

RA Energy Security Concept (2013)

The objective of the RA Energy Security Concept is to define the key directions to achieving the established level of energy security, compensating for the lack of local fossil fuels for industrial use, ensuring economically feasible prices and uninterrupted energy supply of acceptable quality.

One of the objectives set out by the Concept is to ensure environmentally viable energy supply based on the principles of sustainable development and Armenia's international environmental commitments. As stipulated by the Concept, the promotion of renewable energy, energy efficiency, and the development of nuclear energy are key components in terms of ensuring the country's energy security.

To ensure the implementation of the Concept, the RA Government has approved a Program of Measures (2014-2020) for implementation of the provisions of the Concept[7]. This sets out specific actions, particularly aimed at ensuring implementation of energy efficiency and renewable energy

[7] RA Government Decree N836-N of July 31, 2014

development goals (such as construction of solar photovoltaic stations, hydropower plants, development of electric transport, etc.).

Concept for accumulation and management of alternative energy in Armenia (2018)

Accumulator stations (utility-scale storage solutions including batteries) are important components in the context of renewable energy. Under the Concept, based on preliminary estimates, in order to address the objectives defined above, the RA energy system in the next decade requires accumulator stations with a total storage capacity of 300 MW, which will allow fast and efficient connectivity and safe disconnection from the system, to safeguard against unpredictable or unfavorable fluctuations of renewable sources. It is planned to build, put into operation a primary (pilot) power plant with 14 MWh storage capacity and with up to a 3 MW capacity.

RA Hydropower Development Concept (2016)

Hydropower is, at present, the most widely used renewable energy resource in Armenia. The concept stipulates the vision of the RA Government for the development of the hydropower sector, the importance of applying public-private partnership mechanisms, as well as setting specific legislative safeguards aimed at enhancing the investment attractiveness of this sector.

Scaling up Renewable Energy Program (2014)

The program covers the period from 2014 to 2025 and outlines renewable energy technologies and projects that are best positioned to contribute to the country's development goals in areas of energy, economy and environment, as well as outlining the actions towards the implementation of these programs. Within the framework of the SREP program, the RA government targets to increase the production of renewable energy in 2020 (without taking into account the production of large hydropower plants) to comprise 21% of the total energy production in the country, and to further increase it to 26% by 2025.

Investment program for the construction of solar photovoltaic (PV) stations (2016)

The project aims to promote research and development through the construction of industrial-scale solar PV power plants, facilitate the transfer of installation, production and operation capacities contributing to the enhanced economic security, energy independence and reliability of the energy system. In order to promote the development of solar energy, it is planned to build solar PV stations with a total installed capacity of about 110 MW in the upcoming years.

1.5.4. Forest management

Armenia is a sparsely forested mountainous country, which is characterized by a remarkable diversity of forest habitats. The increase in the number, the area covered and the intensity of forest fires as well as the expansion of areas infected with forest pests and diseases, demonstrate the increased vulnerability of forest ecosystems in the face of climate change. In this regard, the protection of forest ecosystems and sustainable management is considered as a guarantee of the country's sustainable development.

Forests also serve as potential depositories for accumulation and storage of organic carbon and in this regard, the RA Government has set target to achieve 20.1% of forest coverage in the country by 2050.[8] According to the RA Government Program (2019), forest preservation, sustainable management and expansion of forest-covered areas, reforestation, afforestation and continuous development of capacities for the achievement of the above, are among the priority directions of environmental management.

Forestry sector reform concept, strategy and set of measures (2017)

The strategy sets out the basic principles and policies for forestry reform. These principles include the restoration of the depleted forestry resources in the country caused by the massive deforestation related to the energy crisis of the 1990s; an increase of areas covered by forests; the maintenance and development of environmental, social and economic functions of forests; and the continuous and efficient use of forestry stock.

The objective of the reforms is to stabilize, clarify, improve and develop the management system in the field of national forest preservation, protection, reproduction and use, to better address the prevention of illegal logging, and to ensure comprehensive management based on the ecosystem approach.

In this regard, the 12 actions outlined in the strategy are primarily aimed at the improvement of forest management systems, including clarification of management powers, development of information systems and building capacities. These steps are aimed at balancing climate and environmental requirements, in particular mitigating the negative impact of climate change and anthropogenic factors on the sustainability of forest ecosystems.

Within the framework of the strategy, starting from 2018, the powers of state management of forests and forest lands in the country, which were previously mandated to RA Ministry of Agriculture, have been assigned to the RA Ministry of Environment. For this purpose, the State Forest Committee has been established under the RA Ministry of Environment, with the objective 'to ensure the sustainable management of state forests, including their preservation, protection, restoration, afforestation and sustainable use'.

National policy for the management of fires in vegetation-covered areas of forest lands, protected areas, agricultural lands and settlements, the strategy for its implementation and the list of measures (2015)

The objective of the strategy is to strengthen national capacities for fire prevention and response by establishing a unified monitoring and information system, introducing rapid response mechanisms, organizing fire prevention measures, developing rapid fire response capacities, and expanding international cooperation in the area of wildfire management.

RA Forest Code (2005)

The Forest Code is the principal legal document regulating the forest sector in Armenia. It sets out regulatory mechanisms for the sustainable management of forests, preservation, protection,

[8] Nationally determined investments/contributions (Protocol Decision N 41 of the RA Government dated September 10, 2015)

restoration of forest areas, afforestation, efficient use of forests, as well as forest stocktaking, monitoring and control.

Among other issues, the Code defines the obligation of forestry sector entities in terms of the restoration of forests, afforestation of deforested areas, detection and prevention of forest fires, fire safety measures, prevention of forest pests and forest disease hazards, ensuring water conservation, anti-erosion, sanitary, health and other useful properties of forests, as well as contributing to the preservation of biodiversity and reproduction.

National Forest Program

Work is currently underway to develop a National Forest Program. The previous National Forest Program was approved in 2005 and included measures, in particular, related to climate change mitigation and adaptation, for the period up to 2015. Under the new program it is envisaged to cover all the issues that will need to be addressed for the country to achieve the 20.1% forest coverage target, as envisaged by the current NDC document.

1.5.5. Waste management

RA 2017-2036 Solid Waste Management System Development Strategy (2016) and Strategy Implementation Measures (2017)

Although the strategy does not clearly specify its interconnection with climate change mitigation and adaptation policies, nevertheless, landfills are a major source of greenhouse gas emissions and, in that sense, the development of modern landfills with consideration of environmental concerns is a significant area of mitigation policy.

The aim of the strategy is to establish an integrated system for solid waste management (waste collection and landfill operation) in the country, in line with EU standards, and to provide technically, financially and environmentally sustainable and cost-effective services to customers.

To achieve this, it is planned to build ten regional landfills across the entire territory of the country in accordance with EU standards, which will also include filtration catchments and filtration chambers. The landfills will be equipped with biogas collection systems, which can later be used to develop systems for heat or electricity generation. As a result of the implementation of the strategy, it is envisaged that at least 95% of the waste generated in the country will be collected, and the customers will handle the sorting of up to 20% of the generated waste. At the same time, along with the introduction of the new system, the existing landfills operating in the RA territory will be either shut down or modernized.

1.6. CONCLUSIONS AND RECOMMENDATIONS

Armenia has not adopted a single comprehensive policy document(s) defining state policy in the field of climate change mitigation and adaptation.

Instead, reflecting the cross-sectoral nature of climate change and adaptation issues, the state policy on climate change manifests itself through various programs and measures implemented in different sectors. In that regard, policy and strategic issues related to climate change mitigation and adaptation are reflected in the development strategies and plans of those sectors (including sectoral strategies). This is also found in the CCBII analysis.

In recent years, significant steps have been taken to introducing and emphasizing climate change mitigation and adaptation in national and sectoral development policies. Nevertheless, climate change issues in these strategies are generally not sufficiently addressed, and they are perceived as an auxiliary rather than a key component of the policy; although formulations in sectoral policies related to climate change tend to increasingly emphasize the risks of climate change and the need to address them. Exceptions are sectors which are directly interrelated to climate change (for example, renewable energy), where the objectives and indicators of sectoral development largely concur with climate change policy objectives and outcomes.

Financial assessments of policy implementation are overall incomplete; at best, they include expenditures on specific measures carried out with external financing.

The Government has recently initiated the elaboration of the National Adaptation and Low Emission Development Strategy aimed at coordinating and integrating public policy on climate change mitigation and adaptation. This provides an important opportunity for the government to develop a consistent and comprehensive set of policy documents in the sphere of climate change mitigation and adaptation. These documents should be developed so as to reflect the full scope of state policy in the sphere of climate change adaptation and mitigation, including anticipated results (objectives, outcomes, main policy directions, outcome measurement indicators and targets). They should also identify the linkages of the implemented measures with climate sensitive sectoral development policies. It is also important that policies also include relevant estimates of costs required for their implementation. The inclusion of these components will enable the integration of climate change policies with MTEF and fiscal frameworks.

Measures will need to be taken to ensure adequate representation of the climate change component in strategic planning for the sectors closely related to climate change. This might include setting a requirement for the sectoral policies to identify and disclose climate change related policy objectives, measures, and outcomes. It will also be necessary to further explore the coordination of these processes and the relevant role of the RA Ministry of Environment.

CHAPTER 2. REVIEW OF INSTITUTIONAL FRAMEWORKS OF CLIMATE CHANGE

2.1. INTRODUCTION

In Armenia, a wide range of stakeholders are involved in the sphere of climate change including the public sector, NGOs, the private sector and donor organizations. Within the public sector, a number of ministries and agencies are engaged across policy development, coordination, project management, implementation and supervision of actions.

There have been two important institutional developments relating to climate change in recent years. One is the establishment of an interagency coordination council, which aims to ensure cross-sectoral coordination of climate change issues. Another is that the RA Ministry of Environment has been assigned the authority to develop and implement state policy in the field of climate change, and a designated Climate Policy department has been established within the Ministry's structure.

This section presents the institutional frameworks in the field of climate change and their characteristic features in the Republic of Armenia.

2.2. NATIONAL INSTITUTIONAL FRAMEWORKS OF CLIMATE CHANGE

2.2.1. National authorities on cross-sectoral streamlining and coordination of climate change issues

Interagency Coordination Council for the Implementation of the Requirements and Provisions of the UN Framework Convention on Climate Change

Institutional responsibility for cross-sectoral coordination in the field of climate change is vested in the Interagency Coordination Council (hereinafter referred to as the Council) for the Implementation of the Requirements and Provisions of the UN Framework Convention on Climate Change (hereinafter referred to as the Convention).

The Council comprises of 14 ministries operating at the time when the Council had been established (2012[9]); representatives of 2 bodies adjunct to the Government (the State Committee of Real Estate Cadastre under the Government of the RA and the General Department of Civil Aviation under the Government of the RA); representatives of Statistical Committee, the Public Services Regulatory Commission and the National Academy of Sciences. The Chairman of the Council is the RA Minister of Environment.

The Council provides a platform where the government, the private sector and international development partners can join their efforts across a wide range of measures aimed at supporting climate change mitigation and adaptation/climate resilience.

The objectives set out by the working regulation of the Council are as follows:

- Coordinating the fulfilment of the obligations undertaken by Armenia deriving from the Convention,
- Regularly reviewing the reports submitted by the Convention's National Coordinating Authority,
- Making recommendations and providing consultations in relation to measures aimed at ensuring compliance with the obligations and provisions of the Convention,
- Assessing the process of fulfillment of the obligations and provisions assumed by the Republic of Armenia under the Convention,
- Making proposals to state and local self-government bodies responsible for fulfilling obligations under the Convention.

To support the Council's activities, a working group has been set up consisting of representatives from various ministries, government agencies, as well as climate change experts and consultants. The Working Group includes representatives of all agencies involved in the Council, which support the fulfillment of accountability obligations of Armenia as a Party the Convention, including the development of national greenhouse gas inventories.

[9] The RA Prime Minister's Decree N 955-A of October 2, 2012

It is noteworthy that the financial issues of climate change are beyond the scope of the Council's mandate, as a result of which there is some gap in terms of inter-agency and cross-sectoral coordination on finances related to climate change.

In 2018 Armenia joined the Nationally Determined Contributions Partnership. In light of this, it has become necessary to revise the functions of the Council to ensure the development of a roadmap for implementation of Nationally Determined Contributions under the Paris Agreement and regular review of this roadmap. As such, the Government of the Republic of Armenia is currently reviewing the functions, structure and powers of the Council. The revision aims, in particular, to enhance the Council's status by defining the powers of the Chairman of the Council at the level of the RA Deputy Prime Minister, as well as to increase the Council's participation level in climate change policy and management processes, including by means of better engagement of independent experts and the public through subject-matter and sectoral platforms and regular dialogue.

2.2.2. State bodies responsible for policy development and implementation in the field of climate change

RA Ministry of Environment

The RA Ministry of Environment (hereinafter referred to as the MoEn) plays a central role in issues related to climate change mitigation and adaptation policy in Armenia. The Ministry is the state body responsible for the development and implementation of policy in the spheres of climate change, protection of atmosphere, water, soils, entrails, fauna and flora, prevention or reduction of negative and harmful natural or human impacts, as well as sustainable management, protection, reproduction and use of specially protected areas of nature, forests, as well as for the development, implementation, monitoring and accountability on budget programs in those spheres.

The Ministry is the state body in charge of policy development and implementation in the areas of environmental and climate change issues, including mitigation, adaptation, as well as facilitating international cooperation in those areas, and for delivering on Armenia's international commitments.

The MoEn is the national body in charge for coordinating the implementation of the Convention in Armenia, including the preparation of Armenia's national communications and biennial update reports. Starting from 2020, the RA Deputy Minister of Environment acts as the National Focal Point of the UN Framework Convention on Climate Change, and the Designated National Authority for the Clean Development Mechanism of the Kyoto Protocol. The Minister of the Environment is the National Coordinator of the Global Environment Facility (GEF), the financial mechanism of the Convention and the Nationally Designated Authority for the financial mechanism of the Paris Agreement, the Green Climate Fund (GCF).

Since 2020, a Department of Climate Policy was formed within the MoEn structure, with an objective of developing and implementing state policy in the field of climate change, guided by the principle of sustainable development. Among other functions, the Department is responsible for development of state policy, programs, strategies, draft legal acts, guidelines on climate change mitigation and adaptation and facilitation of the process of their implementation; ensuring implementation of the provisions and obligations set out in international conventions, treaties and agreements on climate change, and the decisions adopted on their basis; as well as for the development of draft principles and procedures for the greenhouse gas state inventory and the introduction of statistical reports on

climate change; and maintenance of administrative statistical registers based on the data and information collected through them. The organizational structure of the MoEn is presented in Annex 1.

Implementation of environmental projects supported by MoEn is undertaken by the "Environmental Project Implementation Unit" State Institution (hereinafter EPIU). The activities of the EPIU include the implementation of the state budget of the MoEn and territorial administration bodies, the programs and measures implemented at the expense of the state budget in the field of nature protection as well as funds provided to Armenia by foreign countries and international lending organizations. The EPIU acts as the client for the implementation of the above-mentioned projects, and, in the case of existing contracts with international organizations, it also acts as the implementing entity.

The functions of the institution include developing schedules for the implementation of program activities, cost estimates, tendering, bid evaluation and analysis, contracting, oversight, monitoring, reporting and presentation of project implementation results, as well as acquisition of goods, works and services under the projects, and management of payments related to the implementation of the projects.

The EPIU is the only accredited national body in the region (since 2019) with "direct access" for up to USD 10 million in funding for implementation of Green Climate Fund projects. In 2016, it was also accredited as the 25th National Implementing Entity of the Adaptation Fund and, as such, became the first organization in Eastern Europe to be granted "direct access" to the Fund's resources.

While the RA Ministry of Environment is the state body responsible for the development and implementation of the national policy on climate change, the cross-sectoral nature of climate change policy means that, in practice, measures related to climate change are largely decentralized and scattered within various programs implemented by different sectoral agencies. Each of these organizations, including MoEn, perform the coordination of processes which are exclusively within the scope of measures implemented under their respective mandate. There are no institutional coordination mechanisms for budget programs related to climate change.

RA Ministry of Economy

The Ministry of Economy of the Republic of Armenia is the state authority responsible for the development, implementation, coordination of results of state policy in the fields of economic policy, including industry, agriculture, food security, tourism and public investment management, including for the development, implementation and monitoring of budget programs in these areas.

The Ministry, among other functions, is in charge of the development of industry; tourism; public-private partnerships; the efficiency of public investments; and the development of agricultural sector. In this latter role, it is responsible for veterinary medicine; phytosanitary; food safety; monitoring, efficient use, improvement and maintenance of ameliorative state of agricultural lands; as well as the introduction of innovative solutions to develop technical and technological capacities in the agricultural sector.

RA Ministry of Territorial Administration and Infrastructure

The RA Ministry of Territorial Administration and Infrastructure is the state authority in charge of policy development, implementation, coordination, evaluation of outcomes in the field of territorial administration and infrastructure. This includes: territorial administration and local self-government;

energy; subsoil use and protection; transport; regional and community infrastructure development; waste collection and sanitation in inhabited settlements; maintenance of public roads; provision of safe traffic; and water management. It is also responsible for the development, implementation of budget programs in these areas, and their monitoring and reporting.

The Ministry's functions include, in particular, elaboration of measures related to the:

- introduction of efficient systems for municipal waste collection, sanitation, landfill operation and implementation of solid waste recycling systems;
- development of state programs in the field of energy efficiency and renewable energy, and monitoring of their implementation, the development of strategies, programs and measures for sustainable development of the energy sector, ensuring energy security and energy reliability, the development of economic and legal mechanisms to promote primary and efficient use of domestic renewable energy resources, and the preparation and presentation of recommendations on public-private partnership transactions in the energy sector;
- development of construction and rehabilitation programs for general-purpose road networks, and monitoring their implementation;
- development of efficient fuel policy, the reduction of harmful emissions from vehicles, the development of electric transport, and the formation and development of innovative infrastructure in the field of transport, development policy, and organizing railway transport operation;
- the development and implementation of state policy in the field of management and use of state-owned water systems.

RA Ministry of Emergency Situations

The Ministry of Emergency Situations of the Republic of Armenia is responsible for the development of, and coordination over, the implementation of a unified state policy on civil protection, and protection of the population in emergency situations, the development of state regulation policy on evacuation and sheltering of the population, and the coordination of the activities in this area. This includes facilitation of measures to prevent emergency situations and the elimination of their consequences, ensuring compliance with technical safety rules, the implementation of measures aimed at reducing seismic risk, and the replenishment of state material reserves.

The Ministry is the state body responsible for the development, implementation, monitoring and reporting of budget programs in the field of emergency situations.

RA Ministry of Health

The RA Ministry of Health is the state body responsible for the development, implementation, coordination and evaluation of state policy in the field of health, including the development, implementation, monitoring and reporting of budget programs in these areas.

Among other functions, the ministry is responsible for the protection of human health and public health, improving public health, the prevention of diseases, the reduction of disability and mortality

rates, the protection of maternal and child health, occupational health and safety, as well as ensuring the public health and sanitary and epidemiological safety of the population.

RA Ministry of Finance

The RA Ministry of Finance (MoF) is the state authorized body in the field of public finance management. It delivers unified state policy of the government in the areas of finance, credit, revenue, and state property management. The Ministry of Finance organizes the budget process and methodological management, including the facilitation of state medium-term expenditure frameworks (MTEF) and state budget planning, budget preparation, implementation and accountability.

A description of the MoF structure and functions are provided in Annexes 2 and 3 to this document.

2.2.3. Government agencies responsible for regulating and managing assets in specific areas related to climate change

Forest Committee of the RA Ministry of Environment

The Forest Committee of the MoEn is entrusted with the sustainable management, conservation, protection, restoration, reforestation and effective use of forests, including raising state forests' productivity, and the conservation of biodiversity.

The functions of the Committee include: registration of state-managed forests and forest lands; maintenance of the state forest inventory; forest management; afforestation and reforestation measures; and disposal and use of state forestry stock.

Water Committee of the RA Ministry of Territorial Administration and Infrastructure

The Water Committee of the RA Ministry of Territorial Administration is responsible for the development and implementation of state policy in the field of management and use of state-owned water systems, the development and implementation of water system investment policy, as well as for facilitating expert assessment of investment programs.

The Committee, among other functions, ensures the organization of tenders for water user associations, water infrastructure management, and the conclusion of lease agreements.

2.2.4. State institutions carrying out climate change observations, expert assessment and inspection control

"Hydrometeorology and Monitoring Center" SNCO

Hydro-meteorological observations in Armenia are carried out by the "Hydrometeorology and Monitoring Center" SNCO (hereinafter referred to as the HMC) at the subordination of MoEN.[10] In its current structure, the Service has been formed as a result of the merger of the three existing organizations ("Service of the Hydrometeorology and Active Influence on Atmospheric Phenomena" SNCO, "Environmental Monitoring and Information Center" and "Forest Monitoring Center" SNCO).

[10] RA Government Decree N 81 dated January 30, 2020

Among other functions, the HMC carries out meteorological, climatic, hydrological and geophysical observations across the territory of the Republic of Armenia. HMC provides the RA public administration, territorial administration authorities, local self-government bodies, population, and various sectors of the economy with information on hydro-meteorological conditions, their expected changes, and current and future climate conditions. This allows bodies to take preventive and protective measures aimed at protecting the population and the economy from unfavorable hydrometeorological conditions, preventing hazards to human life and property and reducing potential damages, as well as preventing negative anthropogenic impact on the environment.

The Hydrometeorological Service has 4 main structural centers: the Center of Meteorology; the Center of Hydrology; the Center of Applied Scientific Hydrometeorology and Ecology and the Center of Active Influence on Atmospheric Phenomena. These are supported by a number of departments and service centers including: a technical center, telecommunications, logistics services and hydrometeorological information and marketing departments.

"Environmental Impact Assessment Center" SNCO

The objective of the Environmental Impact Assessment Center under the MoEn is to conduct environmental impact assessments, submit draft expert opinions to the Minister of Environment for approval, and, in the case of documents or activities having cross-border impact, to submit expert opinions to the Government of the Republic of Armenia for approval.

The entity examines the fundamental documents related to a wide range of activities including in the following sectors: energy, urban development, transport, communications agriculture, use of entrails, industry, healthcare, environment, recreation, service, forestry, waste management, and water management.

Inspectorate for Nature Protection and Mineral Resources

The Inspectorate for Nature Protection and Mineral Resources under the RA Government is responsible for risk management, compliance with the requirements of the RA legislation in the environmental and entrails regulatory areas, taking preventive measures within the framework of control functions, as well as for the implementation of preventive or reduction measures in relation to negative environmental impacts and the irrational use of natural resources.

The inspection body performs supervisory and (or) other functions defined by law, including applying sanctions in the areas of nature protection and entrails, in the following domains:

- atmospheric air protection,
- use and conservation of water resources,
- land use and protection,
- mineral use and entrails protection
- use and conservation of flora and fauna
- hazardous substances, production and consumption wastes.

2.3. DONOR ORGANIZATIONS

2.3.1. Climate funds

Over the past 20 years, the Republic of Armenia has received assistance from various climate funds aimed at needs assessment, policy development, the reduction of greenhouse gas emissions, adaptation capacity building in sectors vulnerable to climate change, disaster risk reduction, as well as technology transfer, education and awareness raising in target areas. These have all been funded and undertaken with the purpose of addressing climate change issues in Armenia.

The implementation of projects financed by climate funds have been supported by a number of organizations such as the UNDP, UNEP, UNIDO, WB, EBRD, IBRD, as well as the German Agency for International Cooperation (GIZ), USAID, Environmental Projects Implementation Unit (EPIU) and a number of NGOs.

Global Environment Facility (GEF)

Throughout its activities, the GEF has provided more than USD 40 million in grants to Armenia for the implementation of national environmental programs, about half of which were channeled in support of climate change-related issues in the country.[11] Armenia has received grant assistance from GEF to fund more than a dozen regional environmental projects (the total grant budget for regional projects amounts to USD 179 million), which has been substantially directed towards addressing climate change issues in the region. Under the Small Grants Program, the GEF additionally provided approximately USD 1.5 million in grants for financing climate change mitigation projects implemented through NGOs/community-based organizations.

Since 2018, the RA Minister of Environment has been acting as the GEF Operational Focal Point in Armenia.

Climate Investment Funds

Within the framework of the Scaling up Renewable Energy Program (SREP), the Climate Investment Funds have approved an investment of $ 40 million for Armenia in the form grants and soft loans. These funds are expected to attract significant private sector investments (in the form of equity or borrowed funds), as well as leverage additional capital from multilateral development banks, including through the commercial lending facilities of the International Finance Corporation, the ADB and the EBRD. The SREP funding is targeted at the implementation of renewable technology pilot projects on geothermal and photovoltaic stations in Armenia. The funding aims to help reduce investment and implementation risks, develop local markets and expertise, and provide the Government with incentives to implement reforms, in particular, by setting appropriate tariffs.

Green Climate Fund (GCF)

In 2016 the "Agreement on the Privileges and Immunities of the GCF" was signed between GCF and the RA Government. The national authorized body of the GCF in Armenia is the MoEn, represented by the Minister of Environment, which has the authority to approve funding projects in Armenia. Since

[11] Fourth National Communication on Climate Change (2020)

2019, the Deputy Minister of Environment has been elected a member of the Board, the GCF's highest decision-making body. The MoEn EPIU is the only accredited national body in the region with "direct access" for up to USD 10 million in funding for implementation of GCF projects. Armenia is the first country in Eurasia and the tenth in the world to receive a grant from the GCF.

The country has received more than USD 30 million in funding from GCF. These funds are supporting the country to implement projects in the areas of investment risk mitigation of energy efficiency retrofits, the development of a National Adaptation Plan (UNDP), and preparedness support (EPIU). Another two regional programs funded by the GCF and implemented by the EBRD are underway which provide financing for green cities and sustainable energy.

Adaptation Fund

MoEn PIU was accredited in 2016 as the 25th National Implementing Entity (NIE) of the Adaptation Fund and the first country in Eastern Europe. As an NIE, MoEn has "direct access" to the Fund's resources. In 2018 the Adaptation Fund approved an investment of about USD 4 million for Armenia, in support of the program in the areas of urban development, agriculture disaster risk reduction and in social, gender, educational target areas.

2.3.2. Other external sources of climate project financing:

In addition to support from targeted climate funds, the Republic of Armenia has also received significant grants and loan resources from both bilateral and multilateral funding sources, for implementation of climate change mitigation and adaptation programs.

Substantial support has been provided by the Federal Republic of Germany, the World Bank, the ADB, the EBRD and the EU. This funding has been provided as grants, concessional and non-concessional loans, as well as other financial instruments. Within the framework of funding national development programs, significant funding resources for climate projects were allocated to the energy, agriculture and water sectors.

2.4. CIVIL SOCIETY

2.4.1. Non-governmental organizations

A public council operates adjunct to the Minister of Environment, with an objective to facilitate and coordinate public engagement in the development of environmental plans, programs, policies (including those related to climate change). It is an independent consultative body comprising more than 20 civil society organizations (CSOs). About 40 CSOs are represented in the MoEn website as cooperating with the ministry on various environmental aspects (including climate change).

CSOs prepare various climate change studies and reports which are primarily focused on generating information on climate change impacts and raising public awareness on climate change. They usually do not contain any financial assessments or estimates of climate change measures. CSOs are not directly involved in monitoring and reporting processes related to budgetary programs.

Within the framework of the budgeting process, CSOs are invited to engage in the discussions of budget applications/programs of the RA state bodies (including the spheres related to climate change). This requirement is clearly stipulated in the budgeting process timelines and methodological guidelines on budgeting. According to these requirements, before submitting budget applications to the RA MoF, state bodies are obliged to publish and discuss those applications with CSOs operating in the respective

areas of interest. Beyond this general requirement, there is no specific provision in relation to climate change spending.

Currently, under the coordination of the RA Ministry of Environment of the Republic of Armenia, efforts are being taken to increase the involvement of CSOs in terms of sectoral climate change issues. This includes training and capacity building in various aspects of climate change program management and financing.

Some of the NGOs active in the field of climate change are "Armenia Tree Project", "Khazer", "Ecolur", "Tapan" Eco-Club, "Regional Center for Human Capital Development", "Women in Climate and Energy", "Support to Reforms" and "Armenian Women for Health and Healthy Environment". All of these organizations carry out numerous educational and awareness-raising activities in the field of climate change.

The www.econews.am and www.ecolur.org websites provide coverage of environmental issues, in particular climate change aspects, presented in Armenian, Russian and English languages. Since 1996, the Climate Change Information Center has ensured the collection, coordination and exchange of climate change information, as well as providing access to such information for local and international partners, through its bilingual website (http://nature-ic.am).

2.4.2. Scientific research organizations

The key actors in the sphere of policy development relating to science, technology and innovation include the RA Ministry of Education, Science, Culture and Sports (MESCS) and the Science Committee operating under the Ministry's subordination; the Ministry of High-tech Industry; and the National Academy of Sciences (NAS). The latter, with about 35 research institutes and centers, is the main institution carrying out scientific research activities, as well as serving as the coordinating body for fundamental research at the national level.

During the last decade, expenditures on scientific research and experimental studies made up about 1% of the total expenditures of the RA state budget. There are no statistical data available on funding directed exclusively to research on climate change. However, according to expert estimates, about 15-20% of funding has been focused on research activities related to the environment and climate change issues. More than ten research institutes - including the Scientific Center for Zoology and Hydro-ecology of the RA NAS and the Department of Applied Designs of the RA NAS - are engaged in research projects on climate change issues under the thematic project funding mechanism.

The Center for Ecology-Noosphere Research of the RA NAS represents a partnership of 31 organizations from 16 different countries whose main objective is to measure the impact of natural resource-based projects on climate change adaptation, health, welfare, social cohesion and sustainable economic development in the cities involved.

With the support of United Nations Industrial Development Organization (UNIDO), the Center for Climate Technology (ArmCTCN) was established in Armenia in 2018. This is a climate technology platform aimed at promoting climate change adaptation and mitigation technologies, identification of primary technological needs, the development and implementation of technology roadmaps, knowledge transfer, as well as the introduction of local technologies and their international scale-up. It aims to increase the effectiveness of the national climate change mitigation and adaptation processes.

2.4.3. Higher education institutions

In Armenia, the Ministry of Environment plays a key role in terms of ecological training and education and management, including through the implementation of a unified policy of ecological science, education and awareness, and the development of the main directions of ecological science, education and awareness strategy jointly with the MESCS.

Some higher education institutions (HEIs) in Armenia train specialists in biodiversity, environmental economics, and related areas and conduct research on the state of the environment, ecosystems and biodiversity loss, spatial and temporal changes, land use and land coverage, biodiversity assessment, and monitoring and conservation issues. These educational institutions include Yerevan State University, the National Polytechnic University of Armenia, the Agrarian University, Armenian State University of Economics, and the American University of Armenia.

In general, about 180 subjects are taught in Armenian universities which are related to environmental issues. As discussed above, in 2017 with the joint efforts of a number of universities and organizations, the Armenian Climate Technology Academic Network (ArmCTAN) was established, which aims to foster cooperation in the areas of development, transfer and implementation of climate technologies.[12]

2.5. CONCLUSIONS AND RECOMMENDATIONS

The institutional framework for climate change in Armenia includes a wide range of public administration, civil society, educational and research institutions. These are responsible for policy development, implementation, monitoring, control, research/education, public awareness and other activities in the field of climate change.

RA Ministries, such as the RA Ministry of Environment, the RA Ministry of Territorial Administration and Infrastructure, the RA Ministry of Economy, the RA Ministry of Emergency Situations, etc., have specific areas and components within their mission which are closely related to climate change mitigation and adaptation issues. This includes the development and implementation of state policy in areas such as agriculture, renewable energy, transport, water, tourism, etc.. These bodies receive funding and implement current and capital programs, using both budgetary resources and external loan and grant funding.

Each of the above agencies is responsible for the development of state policy, the implementation of programs, and ensuring results within the scope of areas covered by their respective mandates. Although the MoEn is responsible for developing and implementing public policy in the field of climate change in Armenia, it has virtually no mandate to engage in policy-making, or to pursue the implementation of projects or achieving outcomes in other sectors which are covered by this other Ministries.

In this regard, despite the work of the Interagency Coordination Council for the Implementation of the Requirements and Provisions of the UN Framework Convention on Climate Change (which is tasked with cross-sectoral coordination of climate change issues in Armenia), the current status and scope of authorities are not sufficiently coordinated to effectively address all the issues related to climate change. This is also found in the CCBII analysis. Inter-agency coordination issues need to be more strongly regulated on climate change issues. This will require balancing climate change and sectoral

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policies, as well as the monitoring and evaluation of technical, financial and performance aspects of climate change measures, especially those with a focus on climate change adaptation.

To support greater inter-agency coordination, one option would be to raise the status of the Interagency Coordination Council (defining the chairmanship of the Council at least at the level of the Deputy Prime Minister) and to expand its mandate to cover issues related to the balancing between climate-related and other sectoral policies.

It is encouraging that civil society in Armenia is becoming more actively engaged in research, education and public awareness on climate change. Despite the availability of platforms for cooperation between government agencies and civil society on climate changes, the level of cooperation is still not extensive. The participation of these organizations in national programs is very low.

Civil society organizations around the world have a key role to play in responding to climate change challenges. With the support of the government, these organizations can play a significant role in raising awareness and education on climate change in Armenia. It is important that the government's current initiatives aimed at increasing participation of civil society in the work of the Council and better streamlining its engagement be consistently implemented.

There is scope for educational, academic and research organizations to make more meaningful efforts to support the formation of information knowledge on climate change, and its possible impacts. The expansion of the scope of state-funded educational and research programs in the field of climate change, as well as ensuring the access of the mentioned organizations to the various climate funds for the financing of these activities, can facilitate these organizations in playing this role.

CHAPTER 3. CLIMATE CHANGE PUBLIC EXPENDITURE REVIEW

3.1. INTRODUCTION

The goal of the Climate change expenditure review is to identify the main directions of climate change expenditures, to assess the size of climate change related budget expenditures and their trends.

This review covers the expenditures of the RA state budget for the period of 2017-2019. The sources of information for the study were the data contained in the Law on the State Budget of the Republic of Armenia, the execution of quarterly budget allocations, and annual reports on budget execution. In terms of assessing the climate relevance of budget programs and measures to climate change mitigation and adaptation in order to determine weights (as discussed below), the authors relied program documents, including international or interstate loan and grant agreements and contracts, concerning externally financed loan and grant programs and measures.

3.2. DEFINING CLIMATE CHANGE RELATED EXPENDITURES, THE PROCESS AND METHODOLOGY OF EXPENDITURE ASSESSMENT

The methodology of the expenditure assessment required decisions on two issues: the classification of different types of climate expenditures and the weighting of climate expenditures to account for their climate relevance. This section describes the approach taken for each.

3.2.1. Classifying climate expenditures

The approach to classifying climate expenditures drew heavily from the priorities, and associated categories of spend, identified in Armenia's NDC. It was also informed by international experience from approaches such as the Multilateral Development Bank's climate finance tracking framework as well as the emissions categorisation provided by the Inter-governmental Panel on Climate Change.

Activities associated with reducing emissions or increasing removals were classified as follows[13]:

- **Agriculture** covering activities leading to emission reduction or increased removals in crop and livestock production. This includes activities that reduce fertilizer use, reduce methane from livestock or improve the efficiency of energy use on farms.

- **Built environment** covering activities that deliver emission reductions or increased removals from changing the way that the built environment is constructed and used. Included in this category are improvements in the energy efficiency of buildings, lighting, appliances etc. as well changes in urban planning and land use to deliver more compact, lower-emissions development.

- **Energy supply** covering activities that reduce emissions associated with the production of energy. This includes support for renewable power, renewable heating and cooling, lower emissions cooking, and improvements in energy transmission and distribution.

- **Transport** which covers activities that reduce emissions in the provision of mobility services. This covers expenditures on activities such as urban mass transit, inter-urban transport, improve fuel and road vehicle efficiency.

- **Waste** which covers emission reductions in the collection, processing and treatment of waste. This includes improved solid waste management and recycling or improved wastewater treatment.

- **Cross cutting issues,** for example, spending relating to climate change related policy development or reporting on Armenia's emissions

Activities associated with adaptation or increased climate resilience were categorized as follows:

- **Agriculture** which covers activities that reduce the exposure and vulnerability of rural and agricultural communities to climate stresses and/or enhance their adaptative or coping capacity. This includes switching to more efficient irrigation techniques and livelihood support for rural communities.

[13] Initially further categorise around forestry and land use and emissions from industry and industrial processes were identified. However, for the first category, all of the expenditures associated with this activity were found to be also generating adaptation benefits and are therefore covered in the mixed category below, while there were no expenditures associated with the second category.

- **Human health** which covers activities that ensure the health of the population under projected climate change

- **Human** settlements, infrastructure and energy which covers expenditure on activities that reduce the exposure and/or vulnerability of citizens and assets to changing climatic conditions and ensuring the continued delivery of services. This includes flood protection infrastructure, and making buildings and infrastructure more resistant to climate hazards.

- **Natural ecosystems and biodiversity** which covers ecosystem and biodiversity conservation activities that reduce their exposure or vulnerability to climate change.

- **Tourism** which covers activities related to using tourism to support the preservation and restoration of landscapes that support climate resilience

- **Water** which includes activities which support the rational and sustainable use of water. This includes development of additional water storage capacity, upgrading/replacement of pipes, improved drainage networks and enhanced water resource management.

- **Cross-cutting activities** including education, research, planning and policy associated with enhanced climate resilience. This includes improvements in weather monitoring, forecasting and early warning system development.

Finally, it was recognized that some activities simultaneously delivered mitigation and adaptation benefits including activities related to protecting natural ecosystems and biodiversity (especially forests) and some cross-cutting activities.

Annex 6 provides more detail on the classification of different climate change mitigation and adaptation areas while Box 4 below provides more detail on key adaptation terms.

Box 4. Key terms related to adaptation

In relation to climate risks and adaptation, a number of different terms are often used. The CPEIR followed the IPCC in how these terms are used

- Hazard relates to the possible, future occurrence of natural or human-induced physical events. Some of these hazards e.g. floods are related to climate change; others such as earthquakes or pandemics will not.
- Exposure relates to the people, assets and other elements that might be affected by a (climate-related) hazards. For example, exposure is increased by building settlements on a flood plain.
- Vulnerability refers to the extent to which those that are exposed suffer adverse effects when impacted by hazard events. There are some factors which directly increase or decrease vulnerability to specific climate hazards – for example, houses with basements will be particularly vulnerable to floods but not necessarily to windstorms. Other factors, such as poverty, tend to increase vulnerability to all hazards (climate related or otherwise).
- Adaptive and coping capacity refers to the positive features of people's characteristics that may reduce the risk posed by a certain hazard. For example, healthier and more educated people are better able to cope or adapt to climate-related hazards.

3.2.2. Weighting climate expenditures

Different activities contribute to support climate mitigation and adaptation to differing extents. Some activities, and associated expenditures, are only undertaken because of a country's commitment to address climate change. By contrast, other activities are largely undertaken for other reasons but may nonetheless make varying contributions to addressing climate change. In order to be robust, it is important for the expenditure analysis to recognize this difference in its weighting approach. This weighting adjusts the budgeted expenditure by a factor of 0-100%.

The approach used to determine the weights takes account of two separate but related considerations:

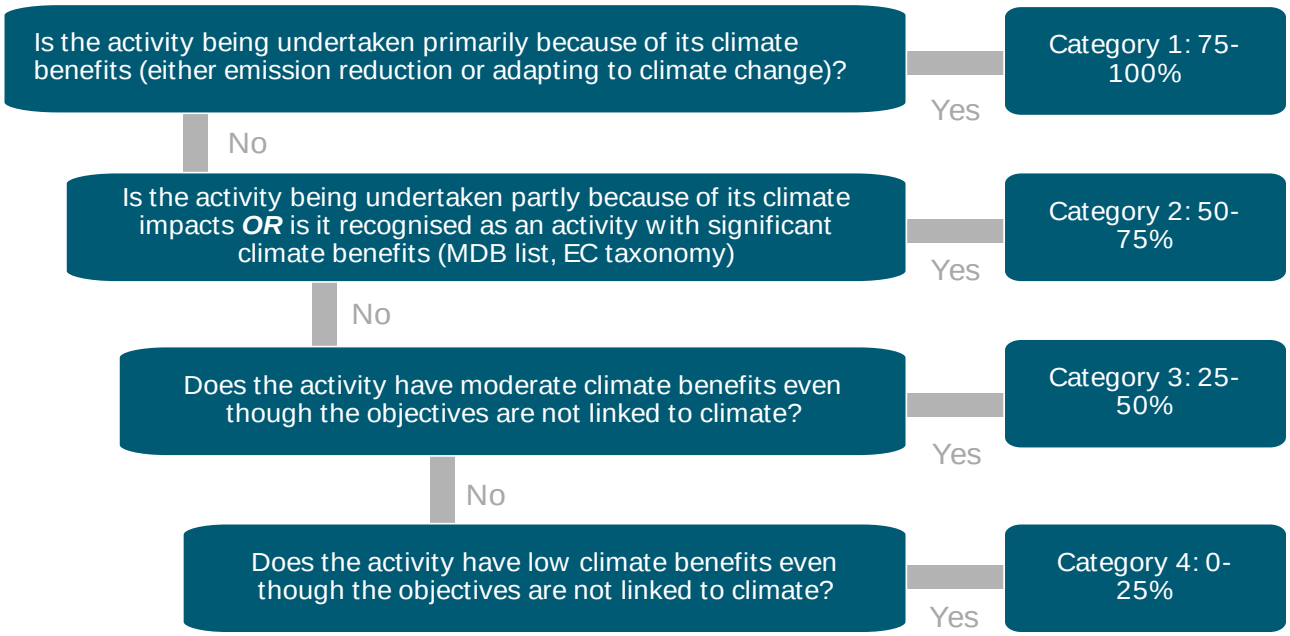
- The purpose/objective of the spend – in other words, whether or not there is a stated intent that the spending will help to reduce emissions or enhance climate resilience
- The impact of the spend – the extent to which the spending is actually expected reduce emissions or increases climate resilience (regardless of whether that was the stated intent for that spending).

The application of these weights proceeded in two steps. First, activities, and associated budgets, were allocated into one of four categories according to both of these two criteria. Second, activities, and associated budgets, in each category, were weighted according to the intensity of the climate benefits that it brings.

Step 1: Allocating activities to categories

Figure 1 below illustrates how both the purpose and the impact of the spending are combined to determine allocation of spend to one of four categories.

Figure 1. Combining purpose and impact in a weighting system



As such, expenditures fall into one of these four categories depending on the characteristics of the activity it supports and the intention of the spending.

- Category 1 (75-100%): This was reserved for activities where there was a direct and explicit statement that the activity is intended to reduce emissions or enhance climate resilience/adaptation to climate change and has been designed to capture these benefits. A useful illustrative benchmark of whether an activity met this threshold was, in relevant cases, whether or not the outcome indicators measure the delivery of climate benefits.

- Category 2 (50-75%): This was used for activities where there is no intention for the activity to enhance climate adaptation or reduce emissions, but there is nonetheless demonstrable (international) evidence that the activity will have a high impact. Mitigation activities that fell into this category were largely drawn the list of mitigation activities developed by the MDBs, with a few exceptions as discussed in category 3 below. For example, energy efficiency activities undertaken for energy security reasons, but which also reduce emissions, would be placed in this category. Adaptation activities expected to reduce exposure to, or hazard intensity of, climate impacts; or reduce climate vulnerability in a way that is targeted to specific climate hazards, would also be in this category[14]. For example, both afforestation activities – which directly reduce the hazard intensity of floods and landslides – or the use of more efficient irrigation systems makes farming communities less vulnerable to water shortages – were placed in this category (assuming no explicit statement was made regarding the intention of the spend to deliver climate benefits).

[14] See Box 4 for a discussion of terms related to adaptation

- Category 3 (25-50%): This was used for activities where there was no intention to deliver climate outcomes but where there are nonetheless expected to be some moderate or medium climate benefits from the expenditure. In relation to mitigation, this included activities that reduce emissions, but where there is a risk that the activities might not be consistent with the overall temperature goals of the Paris Agreement because they are still emissions intensive. For example, expenditures related to gas-fired power generation might be included in this category. In relation to adaptation, this related to activities that enhanced outcomes in climate sensitive sectors (for example, agriculture) or for climate vulnerable households but where the activity did not directly reduce the exposure to, or the intensity of hazards associated with, climate change, nor directly target climate vulnerability, but instead reduced vulnerability to most or all potential future hazards and/or improved the capacity to cope with or adapt to climate impacts. For example, improving water quality or enhancing food security among climate vulnerable communities might fall in this category.

- Category 4 (0-25%): Low climate benefits. This was reserved for adaptation-related spending and can be used for activities that reduce general vulnerability or enhance coping or adaptive capacity but which were not targeted at those people, communities or assets that are particular exposed or vulnerable to climate change. For example, general education and health spending might be included in this category.

The table below sets out the implications of these different categories for different types of budgetary expenditure:

Table 1. Application of the weighting methodology

Classification	Mitigation	Adaptation
Category 1: Direct. 75-100%	One of the stated objectives of the measure is to reduce GHG emissions/increase GHG sequestration and thus contribute to stabilisation of GHG concentrations in the atmosphere. ***Example:*** *renewable energy development intended to help reduce emissions*	One of the stated objectives of the measure is to reduce the vulnerability of human or natural systems to the current and expected impacts of climate change, including climate variability, by maintaining or increasing resilience, through increased ability to adapt to, or absorb, climate change stresses, shocks and variability and/or by helping reduce exposure to them. ***Example:*** *development of long-term climate projections*
Category 2: High. 50-75%	There is no stated intention that the measure will contribute to stabilisation of atmospheric GHG concentrations, but it is well recognized from international sources, that the measure will help contribute to this stabilisation. Moreover, the activity is consistent with the overall temperature goal of the Paris Agreement. ***Examples:*** *measures to enhance energy efficiency, increase the use of electrified*	There is no stated objective to reduce vulnerability to the impacts of climate change but the measure nonetheless can reasonably be expected to achieves this by reducing exposure to climate hazards, or by reducing the intensity of the hazard, or through reductions in vulnerability targeted at specific climate hazards. ***Examples:*** *measure to improve the efficiency of water use that are specifically targeted at*

Classification	Mitigation	Adaptation
	public transport, or protect forest stocks but where there is no explicit statement related to reducing emissions	*reducing vulnerability to droughts, road rehabilitation expenditure that reduce the vulnerability of roads to floods.*
Category 3: Moderate. 25-50%	There is no stated intention that the measure will contribute to stabilisation of GHG concentrations, but it is established from international literature that it can do so. However, there is a concern that the activity in question is not consistent with the overall temperature goal of the Paris Agreement, normally because there is an alternative emission reduction option that would deliver greater emission reductions. ***Examples:*** improving the efficiency of gas fired power generation	There is no stated objective to reduce vulnerability but the measure does so by enhancing the adaptive and/or coping capacity, in a way that is disproportionately targeted at people that are known to be climate vulnerable or in climate-sensitive sector. ***Examples:*** *enhancing the connectivity of rural households or increasing social protection measures for the same group of people.*
Category 4: Low. 0-25%		There is no stated objective to reduce vulnerability but the measure does so by enhancing adaptive and/or coping capacity, but without targeting people that are known to be climate vulnerable. ***Example:*** *spending to support public health or measures that enhance connectivity.*

The categorisation approach can be further illustrated by some specific examples (focusing on the more 'challenging' examples):

- Expenditure on roads might be placed in a number of different categories depending on the intention and impact of the spend. First, expenditure deliberately focused on making roads more resilient to current and expected future climate change – with demonstrable evidence on how these objectives have affected the design of the programme – would be placed in category 1 (75-100%). By contrast, a road rehabilitation programme where there is no such direct, explicit statement and evidence but where it can be reliably inferred that vulnerability to climate hazards would be reduced, for example, spending on slope stabilisation measures to reduce the vulnerability to landslides, would be placed in category 2 (50-75%). By contrast, spending on a new road would be allocated at 75-100% if there was evidence that one of the objectives in designing the road had been to make it resilient to current and future climate change. If not, then the road would be placed in category 3 (25-20%) if it was supporting the connectivity of rural households, who are known to be climate vulnerable, as this would enhance their adaptive and coping capacity to manage climate change. If the new road was not particularly targeted at the climate vulnerable then it would be allocated in category 1 (0-25%).

- In relation to mitigation, spending on waste management further illustrate the approach. Activities that are explicitly intended to reduce waste sector emissions, such as efforts to improve recycling or waste-to-energy projects with specific objectives around climate change mitigation would be placed in category 1 (75-100%). Similar activities, but where there as no

explicit direct intention to deliver emission reduction, and the projects had not been designed with this in mind, would be in category 2 (50-75%). By contrast, waste projects aimed at delivering improved sanitary landfills, but without methane capture and use, would be placed in category 3 (25-50%), - while such measures might be expected to reduce emissions, they continue to be associated with relatively large amounts of greenhouse gas emissions and may not be consistent with the long-term temperature goals of the Paris Agreement.

Finally, a slightly different approach was taken to budget lines associated with institutions responsible for the development of policy and regulation. In these cases, an assessment was made of the proportion of the policy and regulatory focus that was related to climate change mitigation and/or adaptation. For example, the budget of the Ministry of Environment is scored at 50-75% (category 2), recognising that it includes (from 2020) both the budget of the Department of Climate Policy, but also other policy and regulation not linked to climate change mitigation and adaptation. By contrast, the budget for the Ministry of Territorial Administration and Infrastructure is scored at only 0-25%. This categorisation recognised that while it is responsible for policy development on waste and transport (where Armenia is developing policies and regulations that support climate change mitigation and adaptation as discussed in Chapter 1) it is also responsible for policy and regulation on lots of other activities where there are not links, or links have not been made, to climate change mitigation or adaptation.

Step 2: Allocating weights within a category

For the activities/budget lines within a particular category, three potential weights were identified: high for the category (100%, 75%, 50%, 25%), medium for the category (90%, 65%, 40%, 15%) and low for the category (80%, 55%, 30% and 5%). In most cases, the starting point for the allocation was the medium weight for that category, with adjustments made in the following cases:

- An upwards adjustment is made in cases where the budget line and associated activity delivered both mitigation and adaptation co-benefits, or if it delivers mitigation or adaptation benefits through multiple causal mechanisms. For example, reforestation projects were moved to the higher weight in any category because they deliver both mitigation and adaptation benefits; as was spending in the agriculture sector that simultaneously reduces water consumption and increases yields.

- A downwards adjustment was made in cases where the proportion of the spending within that budget line that has justified a particular categorisation is expected to account for less than half of the total spend within the budget line. For example, some health-related expenditures may justify a category 2 (50-75%) score, on account of the spending on preventing the spread of diseases that are linked to climate change. However, within the same budget line, a greater proportion of the spending may be focused on preventing diseases that are not linked to climate change. In these cases, the budget line would receive a weighting of 55% rather than the mid-point score of 65%.

- A downward adjustment was also made in cases where there are trade-offs between mitigation and adaptation objectives. For example, the construction of new roads may boost adaptive capacity but also contribute to additional road traffic and hence emissions. In this case, the lower weighting within the category would be used.

There were two further exceptions to these weighting rules. First, all spending in category 1 (75-100% is scored at 100% when the primary objective of the spending is to deliver climate mitigation or adaptation, and at 90% or 80% if climate mitigation or adaptation is only a secondary or tertiary objective. This ensured that spending entirely motivated by climate change scores 100%, even if it does not deliver both adaptation and mitigation benefits. Second, budget lines associated with institutions developing policy and regulation always score the medium score for that category.

3.3. OVERALL BUDGET EXPENDITURES AND THEIR TRENDS

To understand climate change budget expenditures and their trends, these expenditures need to be considered in the context of overall budget expenditures and their trends.

The period of 2017-2019 was an extraordinary period for the budget, mainly due to the velvet revolution that took place in Armenia in May 2018. This had a significant impact not only on the general political situation in the country, but also influenced the socio-economic policy of the government and, as a result, the budget priorities and expenditure trends.

It is noteworthy that the total level of budget expenditures in 2018 decreased in comparison with 2017, both in nominal and real terms, falling in real terms by around 6.2%. This was driven by a fall in capital expenditures, largely through a reduction of expenditures from programs involving loans and grants from external sources. Over this period the ratio of budget expenditures to GDP decreased from 27.0% to 24.0% (Table 2).

In 2019, however, the growth trend of budget expenditures was restored. This was the result of an improvement of tax administration on the one hand, as well as the positive expectations of the population and economic entities in the post-revolutionary period.

Table 2. Key indicators for 2017-2019: GDP, prices, budget

	2017	2018	2019
Gross Domestic Product (GDP) (AMD billion)	5,564.5	6,017.0	6,569.0
Consumer Price Index (CPI), year-on-year % change	1.0	2.5	1.4
Real GDP (in fixed prices of 2017) (AMD billion)	5,564.5	5,866.6	6,315.1
Real GDP (in fixed prices of 2017), year-on-year % change	9.8	8.1	9.2
State budget expenditure, total (AMD billion)	1,504.8	1,447.1	1,629.4
State budget expenditure, total (in fixed prices of 2017) (AMD billion)	1,504.8	1,410.9	1,566.5
State budget expenditure, year-on-year % change (in fixed prices of 2017)	3.8	-6.2	11.0
State budget expenditure, total (in fixed prices of 2017) (% of GDP)	27.0	24.0	24.8

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), official statistics (www.armstat.am), expert calculations

In the 2017-2019 period, the ratio of current expenditures to expenditures on transactions with non-financial assets (capital expenditures) averaged 87/13, i.e. current expenditures were about 7 times higher than capital expenditures. In 2018 the share of capital expenditures within total expenditures fell significantly as compared to 2017, decreasing from 16.0% to only 10%, as year-on-year capital expenditures fell by about 38.0%. However, in 2019, capital expenditures increased significantly so that the above-mentioned ratio was partially restored such that capital expenditures amounted to

12.0% of total expenditures. Furthermore, throughout the period , current expenditures showed a steady growth trend (Table 3).

Table 3. The economic content of budget expenditures for 2017-2019

	2017	2018	2019
Current expenditure (AMD billion)	1,267.4	1,299.0	1,437.1
Capital expenditure (AMD billion)	237.4	148.1	192.3
State budget expenditure, total (AMD billion)	1,504.8	1,447.1	1,629.4
Current expenditure (% of total expenditure)	84	90	88
Capital expenditure (% of total expenditure)	16	10	12
Current expenditure, year-on-year % change		2	11
Capital expenditure, year-on-year % change		-38	30
State budget expenditure, year-on-year % change		-4	13

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am)

The majority of financing sources for budget expenditures came from internal sources, accounting for more than 95% of total expenditures[15]. The main share of the expenditures using external sources was composed of expenditures using earmarked loans –around 4% of total expenditures (Table 4). However, in 2018, the expenditures from earmarked loans and grants from external sources decreased significantly (almost 3 times) as compared to the previous year – instead of AMD 176.5 billion in 2017, they were only AMD 69.3 billion in 2018. In general, there was a steady reduction of expenditures financed through external grants through the period, mainly due to the low execution rate of relevant budget programs/measures.

Table 4. Sources of financing budget expenditures for 2017-2019

	2017	2018	2019
State budget expenditure, total (AMD billion)	1,504.8	1,447.1	1,629.4
External loans (AMD billion)	163.5	57.8	68.3
External grants (AMD billion)	13.0	11.5	8.0
Internal sources (AMD billion)	1,328.3	1,377.8	1,553.1
External loans (% of total expenditure)	10.9	4.0	4.2
External grants (% of total expenditure)	0.9	0.8	0.5
Internal sources (% of total expenditure)	88.3	95.2	95.3
State budget expenditure, year-on-year % change		-3.8	12.6
External loans, year-on-year % change		-64.7	18.1
External grants, year-on-year % change		-11.5	-29.9
Internal sources, year-on-year % change		3.7	12.7

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am)

[15] Internal sources also include non-targeted loans and grants from external sources.

The financial performance of the state budget (calculated as the ratio of the total budget expenditures actually incurred to the total budget expenditures approved by the National Assembly of the Republic of Armenia)- significantly improved during the period in review. The overall budget performance for the last two years was almost 99%, although this masks significant variation at the level of individual programs/measures. The major deviations were mainly due to the low financial performance of externally financed programs/measures. The standard deviation indicator of the budget expenditures - calculated as the standard deviation of approved and actual expenditures on budget measures - fell from 229.8 in 2017 to 59.7 in 2019(Table 5). The decrease in the standard deviation indicator is suggestive of a positive progress regarding budget planning and discipline.

Table 5. State budget financial performance for 2017-2019

	2017	2018	2019
Budget financial performance (%)	110.6	98.7	98.9
Standard deviation	229.8	202.4	59.7

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

3.4. TOTAL BUDGET EXPENDITURES RELATED TO CLIMATE CHANGE AND THEIR TRENDS

The number and share of climate change related budget measures, as well as their distribution by sectors, partly reflect the diverse forms of state intervention needed to address climate changes, as well as the extent to which climate change is practically valued as a policy direction.

3.4.1. Climate change related measures

In general, in 2019 the number of climate change related measures (regardless of the level of relevance) in the state budget was not large – only 182 measures, which accounted for 12.3% of the total number of state budget measures. Climate change related measures covered a wide range of sectors of the economy. Most of these measures, more than 30%, were implemented in the sectors of agriculture and forestry, while energy and transport measures accounted for about 24% of the climate change measures (Table 6).

During 2017-2019, the total number of climate change related measures increased year by year, which was mainly due to the increase in the number of measures implemented in the sphere of agriculture and irrigation. This trend is partly reflecting the growing trend in the total number of budget measures although the percentage of climate change measures did increase over the period. In 2019 the total number of budget measures sharply increased (by 300, compared to the previous year), largely as a result of the comprehensive content reviews of budget programs/measures following the introduction of program budgeting in 2019.

Table 6. The number of budget measures related to climate change during 2017-2019

Functional Classification Sector	Functional Classification Group	2017	2018	2019
General public services	Legislative and executive bodies, public administration, financial and fiscal relations, foreign affairs	21	12	8
Public order and safety	Rescue service	2	3	10
Economic affairs	General economic, trade and labor relations	3	3	7

Functional Classification Sector	Functional Classification Group	2017	2018	2019
	Agriculture, forestry, fishery and hunting	22	30	57
	Fuel and energy	8	10	14
	Transport	24	22	29
	Economic relations (not belonging to other groups)	1	1	
Environmental protection	Waste removal	8	8	8
	Environmental pollution control	1		
	Biodiversity and nature protection	13	12	12
	Environmental protection (not belonging to other groups)	6	9	14
Housing and community amenities	Water-supply	19	11	15
	Street lighting	4	4	4
Health	Hospital services	1	1	1
	Public healthcare services	4	3	3
Number of budget measures relevant to climate change		137	129	182
Total number of budget measures		1198	1174	1474
Budget measures relevant to climate change (%)		11.4	11.0	12.3

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

3.4.2. Climate expenditures

Despite the significant increase in the number of climate change related measures during 2017-2019, the total expenditures on these measures showed a steady declining trend, both in absolute terms and as a percentage of total budget expenditures. In particular, expenditures on climate change related measures (before weighting by climate relevance) decreased from AMD 124.8 billion in 2017 to AMD 66.5 billion in 2019, equivalent to a reduction from 8.3% of total budget expenditures to 4.1%.

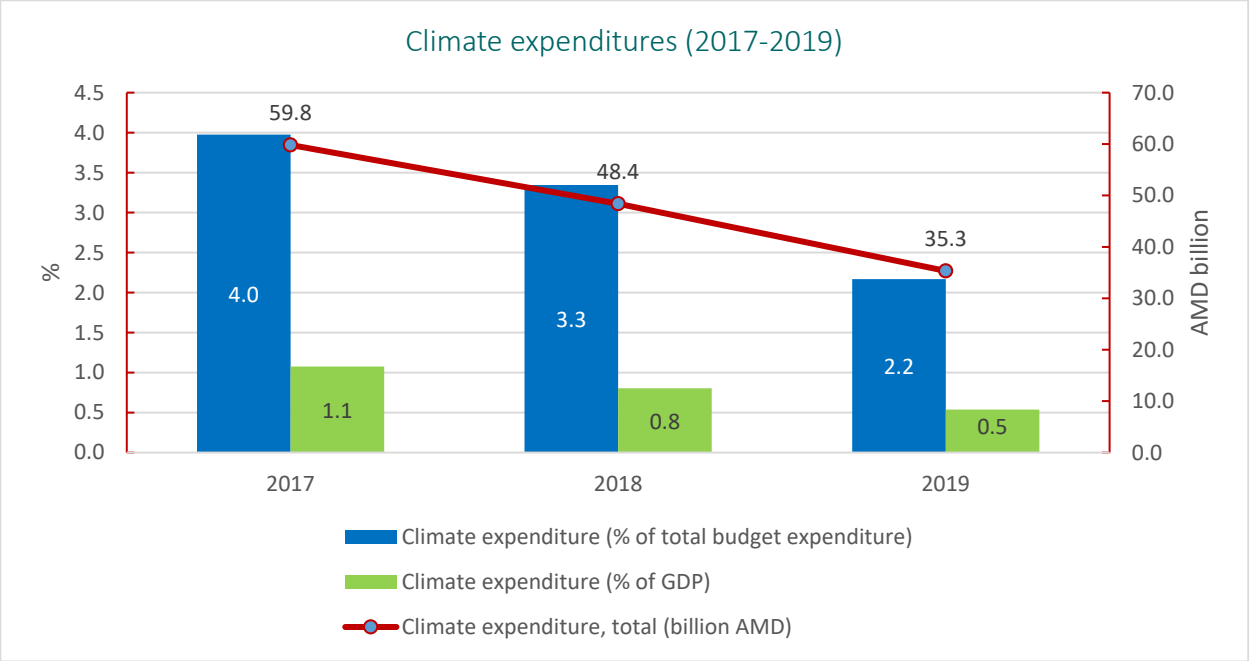
A similar trend can be seen in the *weighted* expenditures on climate change related measures (hereinafter referred to as climate expenditures[16]). These amounted to AMD 35.3 billion in 2019, amounting to 2.2% of the total budget expenditures in 2019, and 0.5% of GDP (Figure 2). This compares with AMD 59.8m, 4.0% of the budget and 1.1% of GDP in 2017. This indicates the fact that climate change mitigation and adaptation policy is a relatively low priority in the budget process compared to other areas. Above and in the following sections of the document, the absolute values of climate expenditures are presented in nominal terms.

The downward trend in climate expenditures was consistent across most sectors (Table 7). The sectors with some of the largest volumes of climate expenditures – agriculture, transport and water supply – all saw these expenditures fall over the period. This is mainly due to the lower financial performance of externally financed measures in those areas, as compared to what had been planned. As described in section 3.4.4., one of the reasons for such low performance is the uncertainty with the financing of

[16] Climate expenditures were calculated as the product of the total budget expenditures on the measures and the weight factor of climate change related expenditures estimated for that measure. In other words, climate expenditures reflect the amount of expenditures on climate change mitigation and adaptation within the total expenditures of the climate change related measure.

budget measures with external funding, which leads to significant revisions to the initially approved budget during budget execution.

Figure 2. Climate expenditures in 2017-2019



Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

The sectoral distribution of climate expenditures is uneven. In particular, in 2019 only two sectors (agriculture (irrigation) and transport) accounted for more than 40% of climate expenditures. Moreover, this trend was mainly maintained for all three years.

Table 7. Climate expenditures by functional classification in 2017-2019 (AMD billion)

Functional Classification Sector	Functional Classification Group	2017	2018	2019	% change (2017 /2019)
General public services	Legislative and executive bodies, public administration, financial and fiscal relations, foreign affairs	0.28	0.09	0.74	165.6
Public order and safety	Rescue service	5.58	5.64	1.37	-75.5
Economic affairs	General economic, trade and labor relations	1.32	1.08	1.42	7.0
	Agriculture, forestry, fishery and hunting	20.15	10.81	7.63	-62.1
	Fuel and energy	6.23	10.27	3.39	-45.6
	Transport	15.55	12.13	12.66	-18.6
	Economic relations (not belonging to other groups)	0.09	0.09	0.00	-100.0
	Waste removal	0.18	0.14	0.12	-34.7

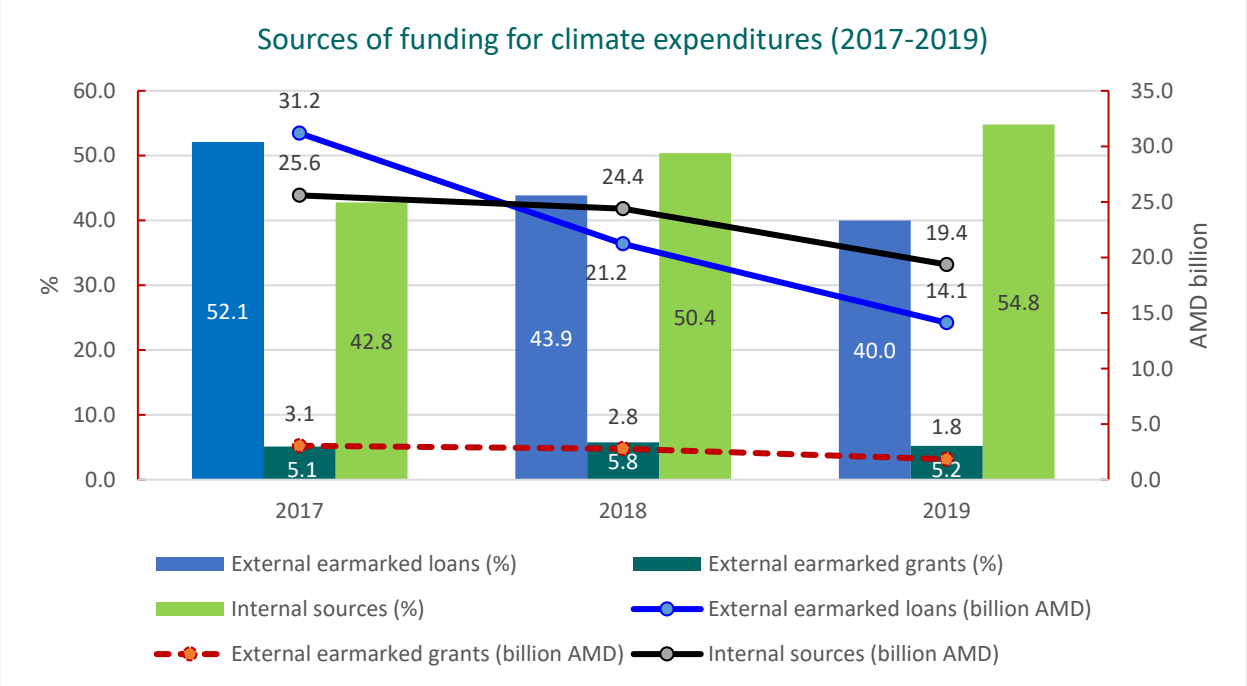
Functional Classification Sector	Functional Classification Group	2017	2018	2019	% change (2017 /2019)
Environmental protection	Environmental pollution control	0.10	0.00	0.00	-100.0
	Biodiversity and nature protection	1.96	1.87	2.36	20.8
	Environmental protection (not belonging to other groups)	1.36	1.80	1.44	5.9
Housing and community amenities	Water-supply	3.52	1.35	0.53	-84.9
	Street lighting	1.52	1.49	1.85	21.1
Health	Hospital services	0.81	0.85	0.84	3.1
	Public healthcare services	1.16	0.79	0.99	-15.0
Total		59.82	48.40	35.33	-40.9

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

3.4.3. Sources of funding for climate expenditures

Approximately half of the sources of climate expenditure financing were external earmarked loans and grants. Of these, the earmarked loans significantly exceed the earmarked grants by a ratio of about 10/1. As noted above, the climate expenditures financed by external sources fell year by year, decreasing from the AMD 33.4 billion in 2017 to AMD 25.9 billion in 2019. This meant that the share of externally financed climate expenditures within the total climate expenditures fell from 57.2% in 2017 to 45.2% in 2019 (Figure 3). As mentioned above, one of the main reasons for the reduction of expenditures on externally financed budgetary measures is the low financial performance of those programs.

Figure 3. Sources of funding for climate expenditures in 2017-2019



Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

Almost all international partner organizations operating in the Republic of Armenia are involved to varying degrees in financing budget measures related to climate change mitigation and adaptation across the economy. In 2019, the four largest partner organizations providing external financing of climate change related measures (World Bank, Asian Development Bank, European Bank for Reconstruction and Development, Government of France) accounted for about 78% of the climate expenditures of externally financed budget measures (Table 8).

Although externally financed budget measures related to climate change are carried out across all sectors in the period of 2017-2019, most of these expenditures were allocated to irrigation, energy and road transportation: spending on these sectors amounted to approximately 87% of externally-financed climate expenditures (AMD 13.7 billion). Other sectors with externally financed budget measures related to climate change are waste collection, street lighting, biodiversity and environmental protection.

Table 8. External funding sources for climate expenditures 2017-2019 (AMD billion)

	2017		2018		2019	
	Loan	Grant	Loan	Grant	Loan	Grant
Abu Dhabi Fund for Development	0.01	-	-	-	-	-
Asian Development Bank	9.59	-	5.16	-	6.10	-
Eastern Europe Energy Efficiency and Environment Partnership	-	-	-	-	-	0.19
German Development Credit Bank (KFW)	0.72	0.62	0.71	0.57	0.29	0.25
Global Environment Facility	-	0.03	-	0.02	-	-
International Fund for Agricultural Development	0.09	-	0.08	0.01	0.04	-
Eurasian Development Bank	0.17	-	0.41	-	1.21	-
European Investment Bank	0.54	0.04	0.25	0.05	0.03	0.06
World Bank	5.64	0.54	5.11	0.31	3.16	0.04
Russian Federation	-	1.62	-	1.24	-	0.84
EBRD	1.09	0.21	0.42	0.59	0.76	0.46
IBRD	0.87	-	4.61	-	0.44	-
OPEC Fund for International Development	1.82	-	0.91	-	0.18	-
Government of France	10.65	-	3.57	-	1.91	-
Total	31.18	3.05	21.22	2.79	14.12	1.84

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

As for the climate expenditures financed from internal sources, although the latter has decreased in absolute terms year by year, decreasing from AMD 25.6 billion in 2017 to AMD 19.4 billion in 2019, the total share of these expenditures in total climate expenditures has increased reaching from 42.8% in 2017 to 54.8% in 2019. (Figure 2). This is explained by the fact that during the mentioned period climate expenditures financed from internal sources decreased in absolute terms less than the expenditures financed from external financing.

Climate expenditures in the areas of pipelines (e.g. metro) and other transport (12.3%) and biodiversity and nature protection (12.2%) accounted for the largest share of climate expenditures financed from internal sources in 2019. Other relatively large climate expenditures financed from internal sources were the expenditures on road transport, rescue services, and street lighting.

Climate expenditures financed from internal sources in different areas showed different trends in 2017-2019. In particular, in some areas (forestry, pipelines (e.g. metro) and other transport,

biodiversity and nature protection) climate expenditures financed from internal sources showed an upward trend which differs from the general downward trend for climate expenditures financed from internal sources.

3.4.4. Financial performance of climate change related measures

Overall, during 2017-2019 the overall financial performance[17] of budget measures related to climate change declined year by year. Moreover, the overall financial performance of climate measures for the last two years was significantly lower than the level of the overall performance of the state budget in those years. For example, in 2019, the performance of climate measures was only around 60% vis-à-vis almost 99% overall performance of state budget (Tables 5 and 9).

One of the reasons for this is the uncertainty with the financing of budget measures with external funding, which leads to significant revisions to the initially approved budget during budget execution. For example, in 2019 alone, about 17% of the total number of climate change budget measures were not implemented at all (zero performance), whereas another 20% of those measures were not included in the initial budget at all (the measures were introduced during the year). The vast majority of these measures were measures funded by external earmarked loans and grants.

Table 9. Financial performance of climate change related budget measures during 2017-2019

	2017	2018	2019
Budget financial performance (%)	131.51	67.45	59.68
Standard deviation	138.01	517.31	66.01

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

3.5. CLIMATE EXPENDITURES BY THE LEVEL OF CLIMATE RELEVANCE

As discussed in section 3.2, in order to assess the volume of climate expenditures, the relevance of each of the budget measures to climate change was defined, as a result of which these measures were classified into four categories according to the levels of their relevance to climate change (Table 10).

Table 10. Classification of budgetary measures by levels of relevance to climate change

The level of relevance to Climate change	Share/weight of climate expenditures (range)
Direct relevance (Category 1)	75% - 100%
High relevance (Category 2)	50% - 75%
Medium relevance (Category 3)	25% - 50%
Low relevance (Category 4)	0% -25%

As noted in the methodology of this review, there is no common standard for classifying climate change related budget expenditures, therefore expert knowledge and subjective qualitative judgments were used to determine the relevance to climate change and its level. In general, a cautious approach was taken while determining the relevance to climate change, so it is advisable to consider the presented weights and indicators as a guide rather than as an accurate assessment.

[17] Calculated as the ratio of total actual expenditures on climate change related measures to the total actual expenditures on those measures in the initial budget approved by the National Assembly of the Republic of Armenia

As already mentioned, in 2019 the total number of budget programs related to climate change was 182, which accounted for 12.3% of the total number of budget measures (Table 6). The majority of these measures (over 65%) were "highly relevant" to climate change (Category 2 (50-75%)), i.e. those which in spite of not directly addressing climate change mitigation or adaptation, nevertheless, among other things, have clear climate outcomes and/or rather great benefits to climate (Table 11). These measures cover almost all areas related to climate change.

In contrast, measures "directly related" to climate change (Category 1 (75-100%)), that is, those directly aimed at climate change mitigation or adaptation accounted for the smallest share of the number of climate change measures, ranging from 3.6% to 6.6%. These measures mainly included separate measures related to renewable energy, irrigation and the environment.

The measures that have "medium" (Category 3 (25-50%)) or "low" (Category 4 (0-25%)) relevance to climate change, altogether accounted for 25%-30% of the total number of climate change measures and covered areas such as agriculture, road transportation, health, as well as measures relating to other sectors, which, despite not having climatic goals and expected outcomes, nevertheless assume moderate or relatively modest climate benefits.

Table 11. The number of budget measures related to climate change in 2017-2019 by the level of relevance

	2017		2018		2019	
	Quantity	%	Quantity	%	Quantity	%
Direct relevance (1)	5	3.6	7	5.4	12	6.6
High relevance (2)	90	65.7	86	66.7	123	67.6
Medium relevance (3)	14	10.2	15	11.6	17	9.3
Low relevance (4)	28	20.4	21	16.3	30	16.5
Total number of relevant measures	137	100.0	129	100.0	182	100.0

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

Similarly, the largest share of climate expenditures was composed of the expenditures on measures having a "high relevance" to climate change – over 85%, whereas the expenditures having a "direct relevance" accounted for the smallest share of climate expenditures 3%-4% (Table 12).

These results reinforce the findings from the policy and institutional review that climate change mitigation and adaptation measures are primarily designed to meet other sectoral objectives in addition to climate outcomes; in other words, the approach to addressing climate change is mainly embedded in the context of general or sectoral development. It also demonstrates that a wide range of existing sectoral programs and measures are able to address climate change.

It is noteworthy that the declining trend of overall climate expenditures during 2017-2019 was reflected in all four categories of relevance to climate change.

Table 12. Climate expenditures in 2017-2019 by relevance level

	Climate expenditure		
	2017	2018	2019
Direct relevance (1) (AMD billion)	2.3	1.4	1.6
High relevance (2) (AMD billion)	52.3	42.8	30.2
Medium relevance (3) (AMD billion)	2.0	2.1	1.7
Low relevance (4) (AMD billion)	3.2	2.1	1.8
Total relevant measures (AMD billion)	59.8	48.4	35.3
Direct relevance (1) (%)	3.8	3.0	4.6
High relevance (2) (%)	87.4	88.4	85.6
Medium relevance (3) (%)	3.4	4.3	4.8
Low relevance (4) (%)	5.3	4.3	5.0
Total relevant measures (%)	100.0	100.0	100.0

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

3.6. CLIMATE EXPENDITURES BY CLIMATE CHANGE RESPONSE

As discussed in section 3.2, climate change response measures were classified into one of the following three groups:

- mitigation measures – aimed at or greatly contributing to the reduction of greenhouse gases;
- adaptation measures – aimed at or greatly contributing to the enhancement to climate change adaptation capacity;
- mixed impact measures – measures that simultaneously have both mitigation and adaptation objectives or, equally contribute both to mitigation and adaptation.

In 2019, climate change adaptation measures accounted for the majority of the total number of climate change related measures, about 53.8%, while mitigation measures accounted for only 22.5%. The rest of the measures, about 23.6%, were mixed impact measures (Table 13).

Table 13. The number of budget measures related to climate change in 2017-2019 by climate change response

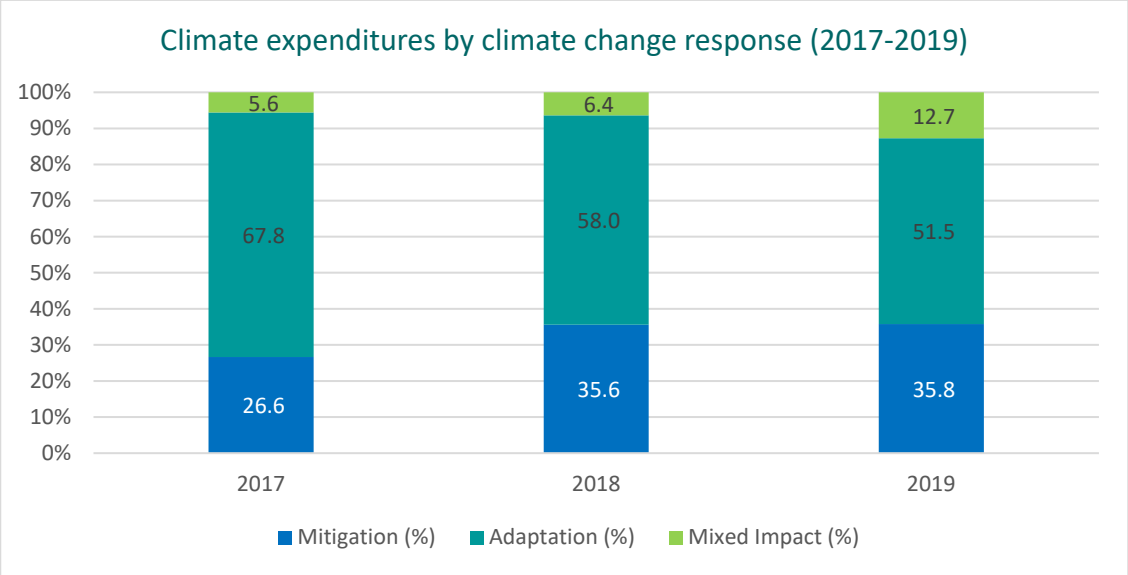
	2017		2018		2019	
	Quantity	%	Quantity	%	Quantity	%
Mitigation	35.0	25.5	32.0	24.8	41.0	22.5
Adaptation	71.0	51.8	67.0	51.9	98.0	53.8
Mixed Impact	31.0	22.6	30.0	23.3	43.0	23.6
Total number of budget measures relevant to climate change	137	100.0	129	100.0	182	100.0

Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

In 2019, financially, the share of mitigation measures within the climate expenditures was about 35% (AMD 12.6 billion), while the share of adaptation measures was about 51% (AMD 18.2 billion).

Over the time period as a whole, climate expenditures exclusively focused on mitigation and adaptation fell in absolute terms. However, during the same period, mixed impact expenditures increased somewhat. This was mainly due to increased expenditures on forest protection (Figure 4).

Figure 4. Climate expenditures by climate change response



Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

Climate expenditures by sectors and by the level of relevance are presented in Annex 4.

3.7. CLIMATE CHANGE MEASURES BY POLICY DIRECTIONS

In order to classify climate expenditures according to the main directions of climate change mitigation and adaptation policy, within the framework of this review, a corresponding classifier (typology) was developed, taking account of Armenia's NDC[18]. Annex 6 presents the comprehensive classification of climate change expenditures used to classify the main directions of climate change mitigation and adaptation policy.

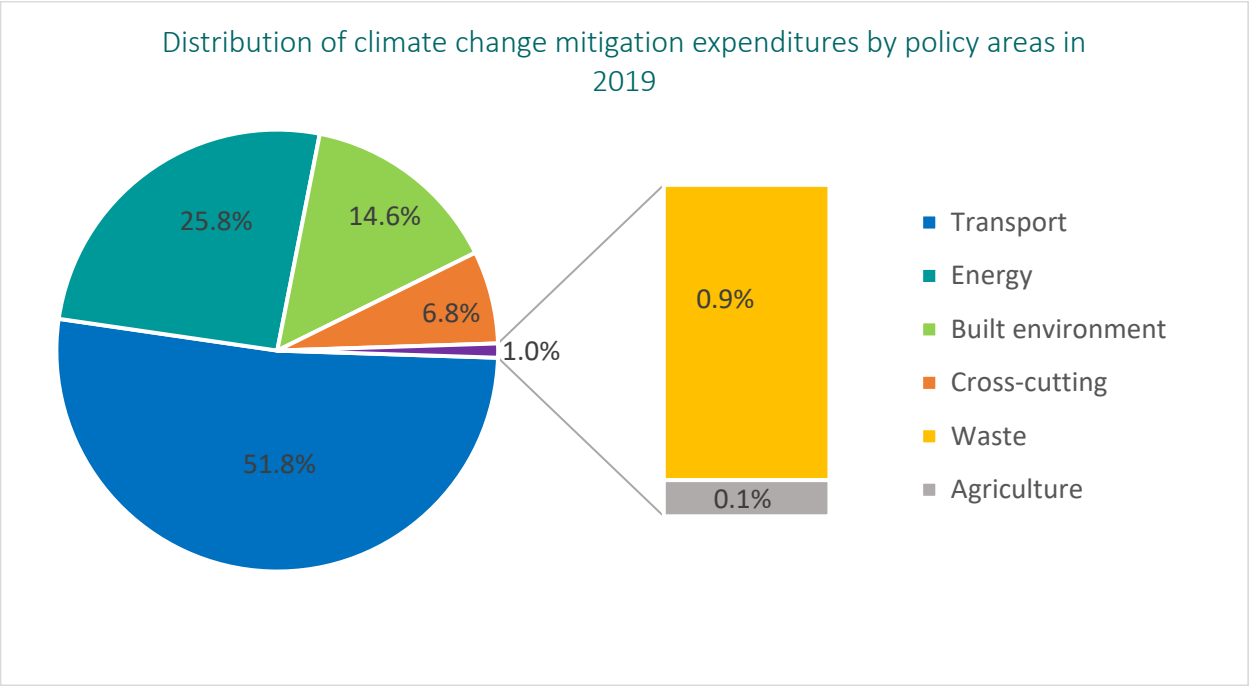
The distribution of climate change mitigation expenditures by key policy areas in 2019 is presented in Figure 5. The figure shows that more than half of the expenditures on climate change mitigation were implemented in the transport sector (51.8%), while the rest of the major expenditures were carried out in the energy sector (25.8%) and built environments (14.6%).

The main direction of expenditures in the sphere of transport was the direction of urban transport infrastructures (electric transportation and metro), which accounted for more than 96% of the expenditures of the transportation sphere in 2019 (AMD 6.3 billion). In terms of expenditure, the other major policy direction was energy transmission and distribution, which accounted for about 66% (AMD 2.1 billion) of climate change mitigation expenditures in the energy sector.

Low-emission energy and renewable energy accounted for 3% (AMD 0.9 billion) and 1% (AMD 0.05 billion) of mitigation expenditures in the energy sector, respectively.

[18] RA Government Protocol decision N 41 of September 10, 2015

Figure 5. Distribution of climate change mitigation expenditures by policy areas in 2019

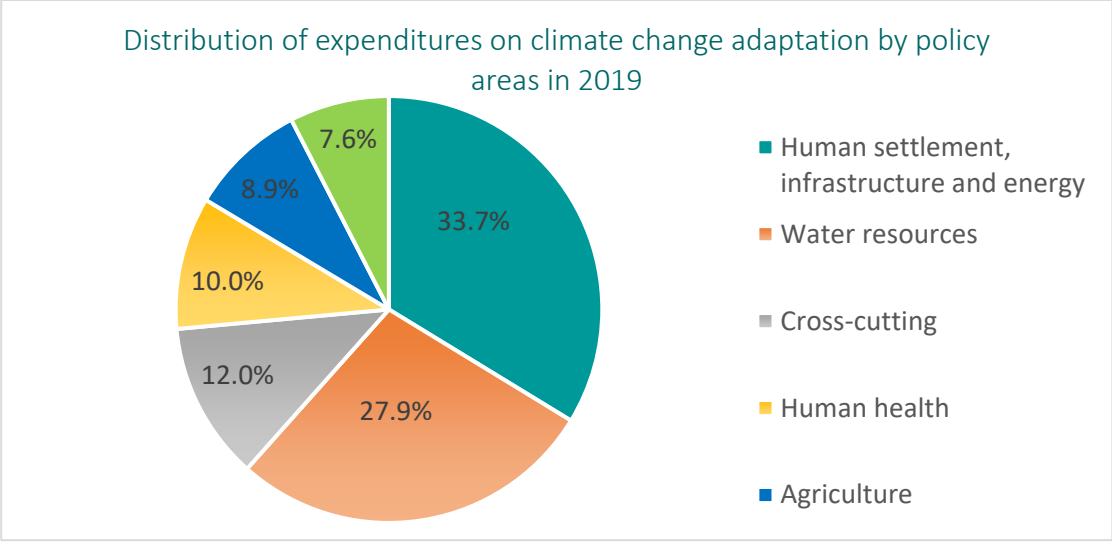


Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

It is noteworthy that the above-mentioned trend of year-on-year reduction of mitigation expenditures was reflected in all areas of mitigation policy.

The distribution of climate change adaptation expenditures by policy area in 2019 is presented in Figure 6. In terms of adaptation policy, in 2019, the majority of expenditures were carried out in two areas: human settlements, infrastructure and energy (33.7%), and water resources (27.9%).

Figure 6. Distribution of expenditures on climate change adaptation by policy areas in 2019



Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

In terms of expenditures, transportation activities that reduced hazards and/or enhanced connectivity (especially of climate vulnerable groups) were the main policy directions in the sector of Human settlements, infrastructure and energy, accounting for 61% (3.7 billion AMD) and 39% (AMD 2.4 billion) of the expenditures of the sphere, respectively.

In the water sector, the main policy direction for expenditures was the irrigation systems, which accounted for about 88% of expenditures in this sphere (AMD 4.4 billion).

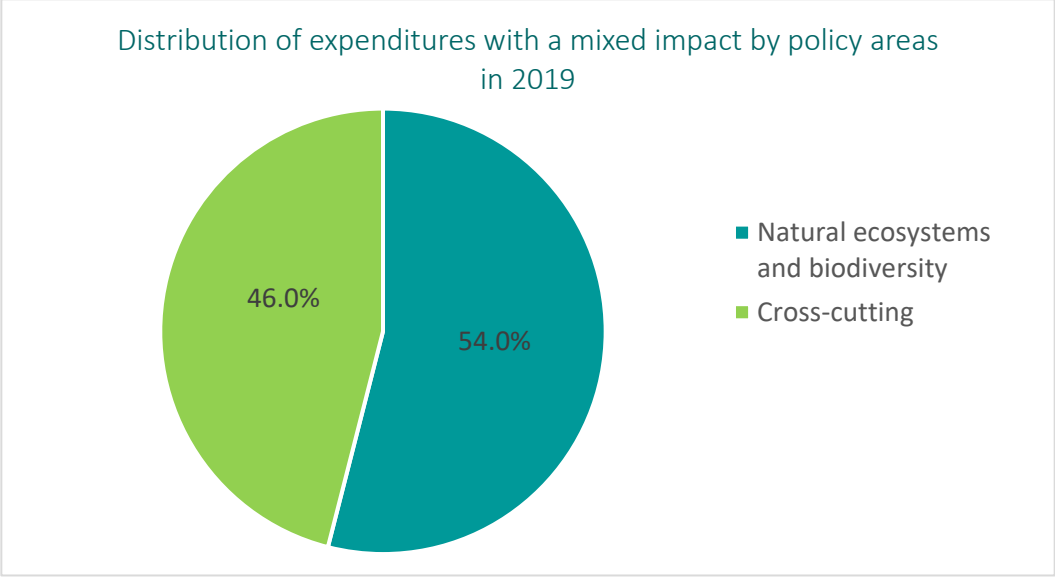
In the sphere of adaptation, another major policy direction, in terms of expenditures, was the maintenance of Specially Protected Natural Areas (SPNA), which accounted for the vast majority of expenditures in the field of natural ecosystems and biodiversity (AMD 1.37 billion).

It is noteworthy that the overall expenditures on adaptation decreased year by year, a trend that was reflected in almost all areas of adaptation policy. Exceptions were the protection of SPNAs, transportation-hazard reduction, and disaster risk management, which saw some increase in expenditures over the period.

The breakdown of climate change adaptation expenditures by key policy areas and directions is detailed in Annex 5.

In terms of mixed impact measures, the largest share of climate expenditures on these measures was accounted for by natural ecosystems and the biodiversity sector (54%). The two main policy directions in this sector were the expenditures on forest protection and the protection of SPNA's, between which the expenditures were distributed.

Figure 7. Distribution of expenditures with a mixed impact by policy areas in 2019



Source: RA Law on the State Budget, Annual Budget Execution Report (www.minfin.am), expert calculations

It should be noted that expenditures on policy and regulation accounted for about 10% of the total climate expenditures, and the largest share of climate expenditures fell to the direction of urban transport - about 18%.

The distribution of climate expenditures according to the impact on climate change and policy directions for 2017-2019 is presented in detail in Annex 5 to this document.

3.8. FINDINGS AND RECOMMENDATIONS

- During the period of 2017-2019 climate expenditures showed a steady downward trend both in absolute terms and as a percentage of total budget expenditures, decreasing from 4.0% of total budget expenditures (2017) to 2.2% (2019). This tendency suggests that in the budget process climate change mitigation and adaptation are given a relatively low priority compared to other sectors.

- The sectoral distribution of climate expenditures is uneven: the agriculture (irrigation) and transport sectors together account for more than 40% of climate expenditures.

- Approximately half of the sources for financing climate expenditures were external earmarked loans and grants. In external sources of financing, earmarked loans significantly outweighed the earmarked grants by a ratio of about 10/1.

- Externally financed climate expenditures decreased year by year, both in absolute terms and as a share of total climate expenditures, decreasing from 57.2% (2017) to 45.2% (2019). Among the main reasons for the decrease of externally financed climate expenditures was the low financial performance of the respective budget measures.

- The overall performance of budget measures related to climate change decreased year by year. In 2019, for example, it was significantly lower than the overall performance of the state budget at about 60% compared with almost 99% for the overall budget 2019.

- One of the reasons for the low financial performance of budget measures related to climate change is the uncertainties with the financing of externally funded measures, which leads to significant revisions to the initially approved budget during budget implementation. In 2019 about 17% of the total number of climate change related budget measures were not implemented at all (zero performance), whereas another 20% of those measures were not included in the initial budget at all (the measures were introduced during the year).

- Adaptation measures accounted for about 51% of climate expenditures, whereas mitigation measures were about 35%. The remainder of expenditures had a benefit on both adaptation and mitigation. Both mitigation and adaptation expenditures showed a tendency of a steady decline from year to year, although measure with a mixed impact on both adaptation and mitigation saw an increase, largely on account of additional spending on forestry.

- More than half of the mitigation expenditures were implemented in the transportation sector (51.8%), and the other major directions of expenditure were the energy sector (25.8%) and the built environment (14.6%).

- The majority of adaptation expenditures were carried out in two areas: human settlements, infrastructure, energy (33.7%) and water resources (27.9%). In the adaptation sector, in terms of expenditures, SPNAs was a major direction as well.

- The largest share of climate expenditures with mixed impact were natural ecosystems and biodiversity (54%).

- Within the scope of climate expenditures, the largest share is accounted for by expenditures on measures having a "high relevance" to climate change – more than 85% of climate expenditures, whereas expenditures having a "direct relevance" accounted for the smallest

share of climate expenditures – 3%-4%. This suggests that climate change mitigation and adaptation measures are designed to meet other sectoral objectives in addition to climate change outcomes; it also suggests that existing sectoral programs and measures are widely used to address climate change.

Essentially, the settlement of climate change mitigation and adaptation issues is considered mainly in the context of general or sectoral development. Given this fact, as well as the fact that numerous agencies are involved in the implementation of budgetary measures related to climate change, there arises the need to introduce – within Medium-Term Expenditure Frameworks and budget processes – mechanisms for determining and coordinating expenditures and priorities that are relevant either to climate change or to cross-sectoral policies in general.

In this regard, there is also a need to develop the internal capacity of climate change related sectoral ministries to explicitly identify climate change benefits of various expenditure items so that budget programmes and measures can be designed to better address climate change.

It will be beneficial to incorporate the assessment of expenditures into the forthcoming development of an NDC implementation plan to help inform future priorities to support the delivery of the NDC's objectives, and also to set targets to scale up climate-related expenditures so that, at the least, they return to the levels of 2017, and then increase beyond that.

CHAPTER 4. REVIEW OF PUBLIC FINANCE MANAGEMENT SYSTEM IN THE AREA OF CLIMATE CHANGE

4.1. INTRODUCTION

The previous sections have revealed that there is an opportunity to strengthen Armenia's climate change response (in terms of policies, institutions and expenditures). One of the most important ways that this can be achieved is by integrating climate change into the PFM process.

This chapter sets out the PFM process in Armenia and what could be done to more strongly integrate climate change within it.

4.2. BUDGET PLANNING AND APPROVAL

The budgeting processes in Armenia start in January with the adoption of the decision of the Prime Minister of the Republic of Armenia on starting the budgeting process for the coming year, and ends in December of the same year with the adoption of the law on the next year's state budget. Each year, the budgeting process in Armenia consists of two phases: the first phase consists of developing the Medium-Term Expenditure Framework (MTEF), and the second phase involves elaboration of the draft budget of the coming year and its approval.

4.2.1. Key budget documents

The MTEF document represents the three-year expenditure strategy of the Government of the Republic of Armenia, and includes the three-year fiscal principles, macroeconomic forecasts, fiscal framework and risks, sectoral objectives, targets, expenditure priorities and expenditure limits. Expenditure limits in the MTEF document are set at the level of budget program measures. In this

regard, MTEF is the principal strategic document linking sectoral policies with budget frameworks and is the basis for the preparation of the state budget for the coming year. The MTEF document is approved by the RA Government by July 10 of each year, and then submitted to the RA National Assembly for reference. Alongside with the MTEF document, the RA Government also submits the preliminary version of the draft annual state budget for the coming year to the RA National Assembly.

The Law on the State Budget defines the revenues, expenditures, deficit and sources of its financing of the state budget for the coming year. According to the Law on the State Budget, budget expenditures are approved at the agency-level and project level classification of budget expenditures. The details of the economic and functional classification of budget expenditures, which correspond to the requirements of the relevant classifications of GFS 2001, are defined by the quarterly proportions of the state budget execution approved by the RA Government Decree on the measures ensuring the execution of the state budget.

Since 2019, there has been a transition to program-based budgeting in Armenia. According to this, budget allocations are presented in in the form of budgetary programs and related measures formulated deriving from sectoral development policy objectives. For this purpose, a separate program classifier has been introduced in the budget classifications, which is independent of all other classifications of budget expenditures. Moreover, for each of the budget programs, their objectives and outcome indicators are defined and, for the programmatic activities, their descriptions and performance indicators are defined in the form of quantitative, qualitative, time-bound, target indicators. This significantly increases the transparency and accountability of budget information, by shifting the emphasis in the budget process from resources towards results and efficiency.

Comprehensive information on expenditure programs/measures implemented at the expense of official grants to the Republic of Armenia from external sources, including their related performance indicators, is presented in the form of separate appendices to the budget documents. The state budget also includes extra-budgetary revenues and expenditures of state bodies, which, as a result of the closure of the extra-budgetary accounts of state bodies in 2020, are fully treated as state budget revenues and expenditures.

The Government submits the draft state budget to the National Assembly for discussion at least ninety days before the beginning of the budget year (which coincides with the calendar year), which is then discussed and approved by the RA National Assembly.

It is noteworthy that the budget documents do not disclose information on climate-related expenditures in any way. All climate-related budget expenditures are diluted within budget programs/measures developed around sectoral development goals and implemented by various government agencies. This applies both to programs implemented from internal sources and to programs implemented from external sources and official grants.

4.2.2. Budget instructions

Methodological guidelines for the preparation of the forthcoming MTEF and budget year applications (methodological guidelines) are developed and provided to state bodies by the RA Ministry of Finance at the initial stage of the budgeting process, more than two months in advance of the deadline for submission of MTEF and annual budget applications. They contain detailed instructions on the preparation of MTEF and budget applications, covering the development of program expenditure estimates, presentation of cost factors, the development of programs and measures, and the

identification of performance indicators. The methodological guidelines require that the objectives pursued by the presented programs and measures be clearly specified, and their connection with the general and sectoral development strategies and priorities identified.

Additionally, there is a requirement that budget applications set out expenditure programs' key objectives and priorities, although the methodological guidelines do not set clear criteria for setting priorities on expenditures. Moreover, at present, there are no common mechanisms and methodology for technical, financial and economic evaluation, prioritization of budget programs,. As a result, different state bodies apply different methods for program evaluation.

As for the presentation of cross-cutting expenditures in budget applications, starting from 2020, the methodological guidelines contain separate requirements and guidelines for budgeting gender sensitive expenditures. Existence of gender sensitive expenditures as cross-sectoral cross-cutting budgeting procedures within the traditional budgeting process can be a significant precedent for the development and introduction of a climate change budgeting system in Armenia. However, the current requirements for budgeting for gender sensitive expenditures mainly refer to the gender sensitive programs and definition of performance indicators deriving from gender policy and, as such, do not require significant involvement of the Ministry of Finance.

The methodological guidelines do not establish specific procedures for cross-sectoral, including climate-related expenditures, nor do they envisage concrete mechanisms and templates for budget expenditure planning, presentation and expenditure tagging processes. That is, the budget process and its related requirements are basically the same *for all programs and measures, regardless of their relevance to climate change issues.*

4.2.3. Budgeting process

The RA Ministry of Finance is in charge of the budgeting process: it develops and submits to all state authorities the methodological guidelines for the development of applications for the forthcoming MTEF and budgeting year (methodological guidelines), develops the macroeconomic and fiscal frameworks and policy, develops the MTEF and State budget drafts and submits them to the RA Government.

The budgeting process in the Republic of Armenia comprises various consecutive processes, including preparation, submission, budget discussions and decision-making in relation to the annual budget applications. The schematic outline of the budgeting process in Armenia is presented in Figure 8.

Within the framework of the budget process, the state bodies compile their budget applications and submit to the RA Ministry of Finance in accordance with the requirements defined by the methodological guidelines and, based on the expenditure limits provided by the previous MTEF for the current period, adjusted by revised fiscal frameworks, as well as in view of current/forecast revisions in sectoral policies and cost factors.

The budgeting methodological guidelines require that the budget applications of state bodies involving capital measures (construction, renovation, etc.) be submitted to the RA Ministry of Finance together with design and estimate documents that are accompanied by a positive expert opinion. These expert opinions usually include environmental impact assessments.

Before submitting budget applications to the Ministry of Finance, state bodies discuss their applications (program proposals) with CSOs in the relevant sectors and post them on their respective websites. For this purpose, the RA Ministry of Finance provides separate methodological guidelines. According to these guidelines, consultations with CSOs may refer to both general and specific thematic areas. In this regard, so far there have been no specific thematic discussions with CSOs on climate-related expenditures around budgetary programs.

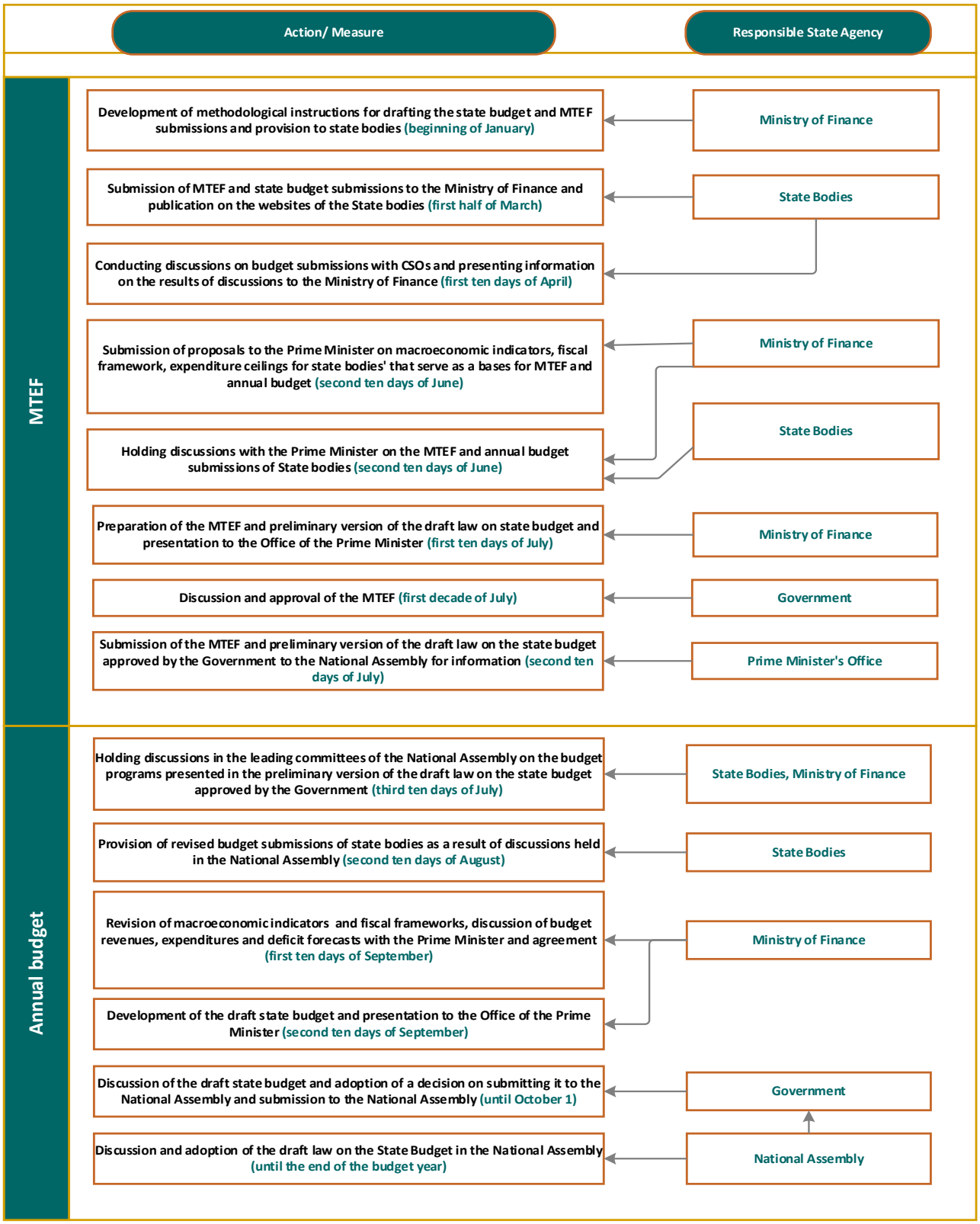
Although the RA Ministry of Environment is the state body responsible for the development of state policy in the field of climate change mitigation and adaptation, within the framework of budgetary processes, it handles only those expenditure budgeting processes which are connected with budget programs implemented within the framework of the ministry's mandate. Due to the cross-sectoral (cross-cutting) nature of climate change, sector-related measures and expenditures are scattered across sectoral development programs implemented by various sectoral agencies and are fully coordinated by the latter. There are no specific coordination mechanisms envisaged in the budget process for budgeting climate change expenditures.

In connection with the introduction of program budgeting, discussions at different levels about budget programs are usually carried out having the information on performance indicators of those programs available, which creates solid preconditions for informed budget decisions. The mentioned budget-related discussions refer to the consultations within the state bodies and between state bodies, CSOs, the RA MoF, as well as the budget discussions held by the Prime Minister and in the National Assembly.

The budget discussions in the RA National Assembly are carried out in two stages. The first discussions on budget programs evolve in July-August. These discussions refer to the content of the budget programs and the underlying performance indicators included in the preliminary version of the draft state budget for the coming year presented together with the MTEF document. The discussions are carried out in the RA NA Standing Committees with the participation of the relevant state bodies and the RA Ministry of Finance. The results of the first stage discussions clarify the content (non-financial) issues of the budget programs to be included in the state budget for the coming year. At present, these discussions are predominantly related to defining performance indicators for the programs/measures and their descriptions, rather than about the benefits and effectiveness of those programs.

The second stage of discussions in the RA National Assembly is carried out in October-December, when the draft law on the RA state budget is discussed. These discussions cover all issues related to budget programs, including financial issues. As has already been mentioned, the budget documents submitted to the National Assembly of the Republic of Armenia do not specify the connection of budget expenditures with climate change. Therefore, budget discussions do not include separate discussions on climate-related expenditures.

Figure 8. Budget process and timetable



4.3. BUDGET IMPLEMENTATION

After the adoption of the Law on the State Budget by the RA National Assembly, the RA Government adopts a Decree outlining the measures to ensure the implementation of the state budget. This defines the quarterly proportions of state budget performance, including the breakdown of budgetary expenses to programmatic, departmental, economic and operational categories, as well as performance indicators for budget program activities.

Quarterly breakdowns of the state budget serve as the basis for the implementation of budget programs/measures by state bodies. To this end, the relevant state bodies approve the cost estimates of the budgetary institutions within the system, conclude procurement or other civil contracts, exercise control over the implementation of those contracts, ensure the delivery and acceptance of results delivered based on the contracts, exercise payment for the work performed, and report on the implementation of programs/measures to the RA MoF.

When implementing budget programs/measures, government agencies are authorised to perform redistributions between budgetary classification items within the budgetary program activities, except for the instances when such redistributions would lead to changes in the balance between the current and capital expenditures. Government agencies are also authorised to make their own redistributions between their program activities, except when those redistributions lead to a change in the approved performance indicators or relate to a change in capital measures. The state bodies provide electronic notifications on the adjusted allocations to the RA MoF Treasury which coordinates the flow of payments for those programs and measures from the treasury accounts of state bodies.

With this flexibility to adjust the allocations within the approved budgets, the government agencies can effectively manage their budget programs and outcomes, and direct budget savings towards the measures and expenditures of higher priority.

All other redistributions made in the approved budget, including between state bodies, or between capital and short-term measures, as well as redistributions resulting in changes in the performance indicators defined by the budget are carried out exclusively on the basis of the RA Government Decrees. This limitation aims to ensure general fiscal discipline, as well as budgetary control over capital investments and outcomes.

The treasury system plays a key role in terms of budget execution and control. It ensures the organization of cash performance of budgets and the implementation of preliminary control over budget payments. In Armenia, budgets are implemented based on the principle of a single cash register, which implies the flows of all budget revenues and expenditures through a common treasury account of the RA MoF. The unified treasury account includes all budgetary, extra-budgetary, deposit and monetization accounts of state bodies, communities, state non-commercial organizations. Since 2020, almost all extra-budgetary treasury accounts of state bodies have been closed, their funds have been included in state budget revenues and expenditures, and since 2019, all financial flows of SNCOs have also been facilitated through treasury accounts.

As part of the initial control over budget payments, liabilities assumed by government agencies are recorded in the treasury system at all stages of undertaking those liabilities, and payments from treasury accounts are made directly to suppliers' bank accounts only upon the availability of supporting expense documents on these payments. Within the framework of the preliminary control, the Treasury verifies the compliance of the payment schedules submitted by the state bodies, the extracts from the

contracts, the payment orders with the expenditure limits set by the quarterly breakdowns and estimates, taking into account the amount of liabilities already assumed under these measures.

Government agencies manage their treasury accounts online through an electronic treasury system, which gives them access to the information on their treasury account balances, program-related commitments, and payments made. Through Treasury control, the Treasury, in turn, exercises daily control over budget revenues, common account balances, commitments by state bodies, payment orders presented, payments made, and outstanding liabilities, which enables them to exercise effective cash flow management.

In the framework of budget execution, procurements of state bodies, except for procurement of one person due to lack of competition, are carried out through the electronic procurement system, which is used for keeping records on procurement plans, facilitating procurement procedures, keeping records on transactions made, procurement accountability, contract delivery acceptance and making payments. It is noteworthy that the RA legislation on procurement does not define specific procedural requirements related to climate change. It should be noted that since 2016, the technical characteristics of procurement of facilities under construction (reconstructed, repaired) at the expense of state funds must comply with the technical requirements for energy saving and energy efficiency.

Since 2011, the RA Government has also been gradually concentrating within the Treasury all the designated accounts of the foreign-funded loan and official grant programs. These are foreign currency sub-accounts of the Common Treasury Account, and are managed by the program implementation offices/departments of sectoral ministries. They act as a link between state bodies and organizations with external funding.

Within the framework of treasury control, payments from the above-mentioned treasury accounts are made on the basis of payment schedules, extracts from the contracts, payment orders and supporting expense documents presented in the prescribed manner. However, in the case of externally funded projects, the procurement, accounting, and external audit processes are generally carried out in accordance with procedures established by donor organizations for international agreements, which can differ from the above-described national procedures.

4.4. ACCOUNTABILITY

The state bodies submit financial reports summarizing their performance results to the RA MoF on a monthly, quarterly and annual basis. These reports include information on budget execution during the reporting period, including program expenditures, payments made, and arrears. As a result of the transition to program budgeting, quarterly reports on the achievement of program/measure performance indicators are also submitted by the state bodies to the RA Ministry of Finance. These contain information on budget programs' objectives, non-financial (quantitative, qualitative) outcomes of activities envisaged under the programs, as well as on planned and actual indicators. These reports are summarized by the RA MoF and within the framework of budget execution reports are submitted to the RA Government and to the RA National Assembly.

While budget documents set non-financial performance indicators for almost all budget programs, however, these programs and measures, as a rule, are currently focused on sectoral development objectives, and their performance indicators mainly reflect sectoral development targets. Among the performance indicators on measures implemented in areas closely related to climate policy objectives,

there are also some indicators which describe climate-change related outcomes, but these instances are quite rare.

Separate reports on climate change-related expenditures are not envisaged within the framework of the budget processes, moreover the expenditures on climate change are not specifically disintegrated from other expenditures of sectoral programs in the budget reports submitted to the RA National Assembly.

The Audit Chamber of the Republic of Armenia, according to its annual program, performs annual audits of all financial expenditures of the state budget, including those carried out at the expense of external loan resources and presents a conclusion on the budget execution report. In this regard, within the framework of the programs envisaged by the state budget, the Audit Chamber also audits all the expenditures allocated from the RA state budget, which are related to climate change.

4.5. CONCLUSIONS AND RECOMMENDATIONS

Armenia is taking the first steps towards improvement of financial/budgetary frameworks in the field of climate change, and providing better connection between climate change policy and the budget.

Climate change in Armenia, in terms of cross-sectoral policy, is mainly scattered in sectoral development policies, and climate-related expenditures are diluted in the expenditures of programs and measures formulated based on sectoral development policy goals.

As also found in the CCBII analysis, Armenia has well-developed PFM 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, the identification of expenditures, budgeting and reporting of cross-sectoral policies, such as climate change, will require the development of new institutional mechanisms within the budgeting process.

From a practical point of view, one of the key challenges in integrating climate change into PFM systems is the lack of appropriate mechanisms and methodology in budget processes for the identification of climate policy measures, results, identification, coding, and calculation (attribution) of costs. These key mechanisms play a crucial role in terms of disaggregating and tracing those expenditures and outcomes and providing accountability at different stages of the budget process.

The lack of legal requirements for reporting on budget expenditures on climate change policy, as well as the absence of specific and well-informed requirements set by the legislature to receive and use that information, help explain this lack of accountability mechanisms for climate-related expenditures.

While the coordination mechanisms with donors and the representation of external loans and official grants in budget documents and in the Treasury system is at a high level, the budget execution processes in this regard do not always follow the requirements set out by national procedures.

In terms of developing financial frameworks for climate change, and building also on the findings from the CCBII, there are opportunities for development and improvement in all areas of PFM.

- Clarification and integration of public policy frameworks in the field of climate change is a precondition for the identification of measures under these policies, and hence the appropriate budgeting of expenses to ensure accountability. The documents defining the state policies in the field of climate change mitigation and adaptation should clearly reflect the objectives of the state policy in those spheres, the expected final outcomes, the main direction of the policy interventions, clear criteria and targets for evaluating the results, as well as the relationship of these measures with climate development policy objectives, targets and interventions.

- A document outlining the financial framework for climate change and a roadmap for integrating climate change policies into PFM systems should be developed to allow for the integration to take place in a coordinated, targeted manner. This document should describe the legislative, institutional procedures and requirements which are required for disclosing the connection between climate change policy frameworks and strategies with the budgeting processes, which will ultimately support the transparent allocation of funds, and their efficient use.

- The institutional framework for climate change-related funding needs to be more specific. In designing it, it is necessary to take into account the cross-sectoral nature of climate change policy, the importance of establishing coordination mechanisms between government agencies involved in related sectors. In that sense, the Interdepartmental Coordinating Council for the Implementation of the Requirements and Provisions of the UN Framework Convention on Climate Change established by the RA Prime Minister's Decree N 955-A of 2012 can serve as an effective platform for identifying climate policy measures and coordinating the accountability processes. It is necessary to assess the role of MoF in terms of identification, coding, estimating and reporting costs associated with climate change and to explore the possibility to expand that role.

- One of the most crucial components for establishing the system is the identification of budget measures related to climate change, their tagging, development of cost calculation (attribution) methodology, templates and mechanisms. In this regard, the classifications used in this study can be a successful basis for developing climate-specific cost identification typologies.

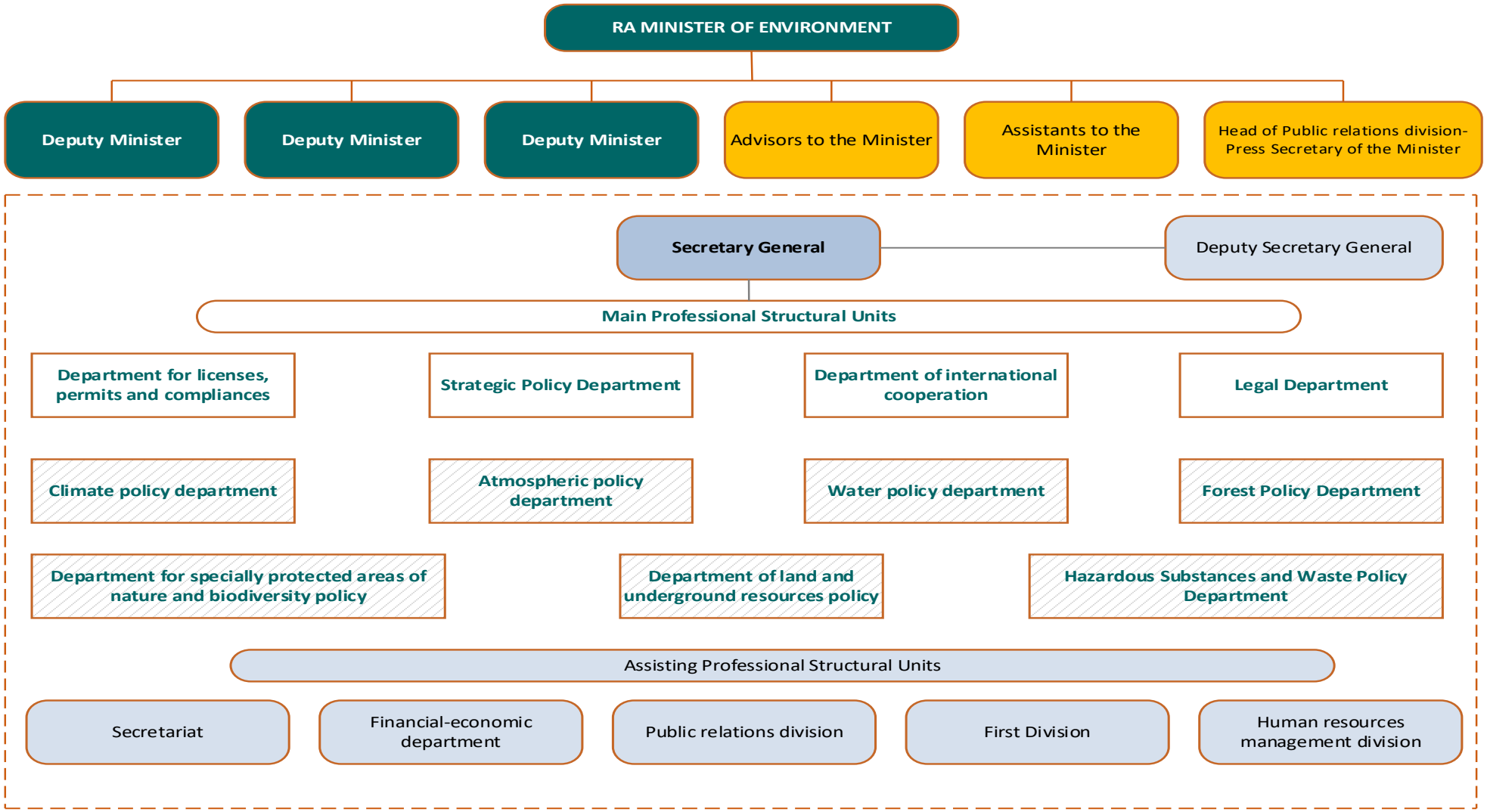
- The impact on climate change objectives, both in terms of mitigation and adaptation, should be considered a priority in project evaluation and the identification of priority directions, especially in the case of public investment projects as well as projects implemented in the sectors which are most closely related to climate change (agriculture, energy, forestry, water resources, etc.).

- The performance indicators of budget programs and measures related to climate change should include indicators that help measure the impact of those programs and measures on climate change policy objectives. This will require the formulation of a clear and consistent framework that sets out the criteria and targets to be used for the evaluation of climate change policy objectives, interventions and outcomes.

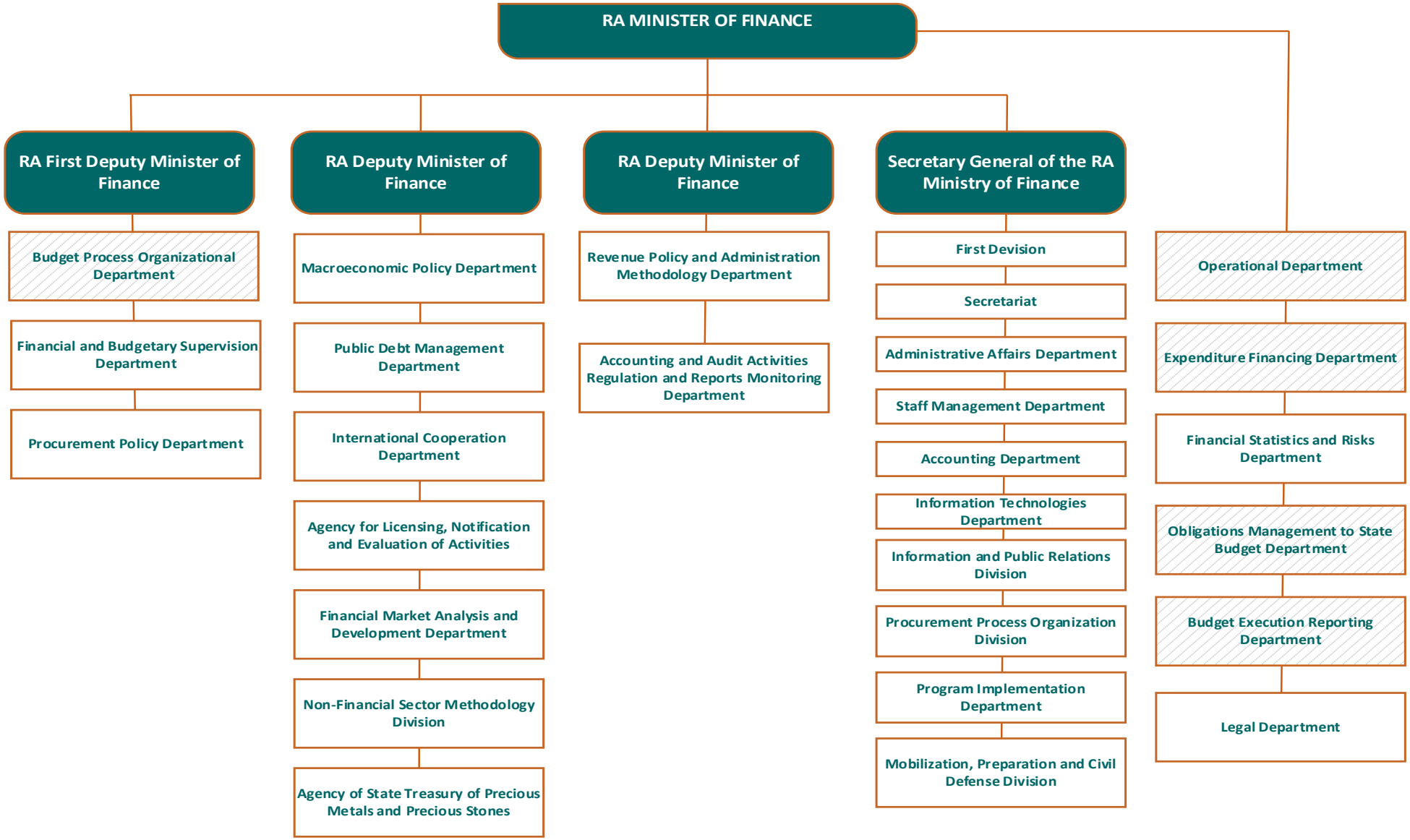
- A legislatively stipulated requirement to report to the RA National Assembly on the expenditures and outcomes from the application of the framework of climate change related measures would significantly contribute to the formulation of budgeting and accountability mechanisms for these expenses. It would also help build demand for such information from the RA National Assembly and improve its capacities to analyze such information.

ANNEXES

Annex 1. Organizational structure of the RA Ministry of Environment



Annex 2. Organizational structure of the RA Ministry of Finance



Annex 3. Institutional framework of Public Finance Management in Armenia

Institution	Role
RA National Assembly	RA National Assembly (NA) is the legislative body: it approves the state budget, carries out oversight over budget implementation, as well as the use of loans and credits received from foreign countries and international organizations. Upon the receipt of the Conclusion of the RA Audit Chamber, the NA discusses and approves the annual budget implementation report.
Audit Chamber	The Audit Chamber is an independent agency which carries out external state audits. It audits the legitimacy and efficiency of the use of budget resources, received credits and loans, as well as state property. The Audit Chamber presents its Annual Communication on its activities to the NA, as well as the Conclusion on the Budget Implementation Report and ad hoc Conclusions in accordance with the legislation.
GoA	The Government of the Republic of Armenia is the highest body of executive power. It develops and implements the domestic and foreign policies of RA, submits to the approval of the NA the draft Annual Budget, ensures the budget's implementation, and presents the Budget Implementation Report to the NA. It manages state-owned property, implements a unified set of financial-economic, credit, and tax policies, and implements a range of other policies in all sectors of the economy, including the environmental protection.
RA Ministry of Finance	The RA Ministry of Finance is the state authorized body in the field of PFM, which provides a unified state policy of the government in the spheres of finance, credit, revenue and state property management. The MoF carries out the organization and methodical guidance of the budgeting process, including: • Development and organization of the implementation of macroeconomic and fiscal policies; • Management of the budgeting process: organization of strategic, medium-term and short-term (annual) planning of revenues (inflows) and expenditures (outflows). This includes the receipt and analysis of inflow projections and budget bids of state budget agencies; the programming of budget inflows and outflows for the next year, drafting the MTEF, Law on the Budget, the Government's Budget Message and quarterly breakdown of budget implementation; • Organization of budget implementation, including the Treasury functioning, and the preparation and submission of budget

Institution	Role
	implementation reports; • Development of legal and methodological regulations in the PFM area (including budget planning, implementation, and reporting) and associated monitoring. • Execution of internal audit regulation, coordination and harmonization powers; • Execution of procurement process regulation and coordination powers; • Development of accounting and auditing standards, development and approval of charts of accounts and financial reporting forms, organization of qualifications of accountants and auditors.
RA Ministry of Economy	The RA Ministry of Economy develops, implements, coordinates and evaluates the RA economic policy. The main function of the ministry in the field of PFM are: • Coordinating the process of determining the priorities of public investment programs, monitoring their progress and evaluating the results. • Development of public-private partnership policy and facilitation of public-private partnership platforms • Development of policy on protection of economic competition, investment attraction and investment and investor protection, and monitoring its implementation • Development of state economic policy • Development of long-term sectoral development programs in line with global challenges
RA state bodies	The state bodies of the Republic of Armenia carry out the development, implementation, coordination, evaluation of the results of the state policy within their respective mandates, including development of budgetary programs, their implementation, monitoring and reporting in the mentioned areas, including:

Institution	Role
	• Elaboration of sectoral development strategies and programs, • Development of expenditure (budget) programs / measures, preparation and submission of budget applications; • Organizing the implementation of expenditure programs, including the procurement and other contracting processes, control over the implementation of contracts, acceptance of works, ensuring the implementation of payments; • Monitoring the implementation of programs, ensuring achievement of outcomes, preparation and submission of reports.

Annex 4. Climate expenditures by the level of relevance and by functional classification sectors (AMD billion)

Level of Relevance	Functional classification sector	Climate expenditures		
		2017	2018	2019
Direct relevance (1)	Agriculture	0.10	0.09	0.04
	General economic and trade relations	1.16	1.07	1.27
	Irrigation	0.59	0.07	0.28
	Other fuel types	0.44	0.20	0.05
High relevance (2)	Waste removal	0.18	0.14	0.12
	Forestry	0.93	0.40	1.20
	Foreign affairs	0.01	0.02	-
	Agriculture	2.66	1.42	0.48
	Railway	0.20	0.23	0.25
	Electricity	3.75	8.32	2.15
	Pipelines and other transport	2.20	2.37	2.38
	Biodiversity and nature protection	1.96	1.87	2.36
	Public healthcare services	0.03	-	-
	Road transport	11.56	8.48	9.61
	Specialized hospital services	0.81	0.85	0.84
	Environmental protection (not belonging to other groups)	1.31	1.72	1.38
	Irrigation	14.23	7.13	4.39
	Water-supply	3.40	1.23	0.38
	Other fuel types	1.77	1.48	0.95
	Street lighting	1.52	1.49	1.85
	Rescue service	5.58	5.64	1.37
	Air pollution control	0.10	-	-
	Legislative and executive bodies, public administration	0.10	-	0.53
Medium relevance (3)	Foreign affairs	0.01	0.01	-

Level of Relevance	Functional classification sector	Climate expenditures		
		2017	2018	2019
	Agriculture	1.56	1.62	1.11
	Electricity	0.27	0.27	0.25
	General transfers executed between different levels of government	-	-	0.12
	Environmental protection (not belonging to other groups)	0.05	0.08	0.06
	Water-supply	0.12	0.12	0.15
	Rescue service	-	-	0.00
	Legislative and executive bodies, public administration	0.03	-	-
Low relevance (4))	Foreign affairs	0.02	0.00	-
	Agriculture	0.07	0.08	0.14
	Tourism	-	0.01	-
	General economic and trade relations	0.16	0.01	0.14
	Public healthcare services	1.14	0.79	0.99
	Road transport	1.60	1.04	0.41
	Economic relations (not belonging to other groups)	0.09	0.09	-
	Legislative and executive bodies, public administration	0.11	0.06	0.10
Total		59.82	48.40	35.33

Annex 5. Climate expenditures by type of climate change response, climate change policy areas and directions (AMD billion)

Type of Response	Policy area	Policy direction	Climate expenditure		
			2017	2018	2019
Mitigation	Agriculture	Livestock	-	-	0.01
	Energy	Energy transmission and distribution	3.75	8.32	2.15
		Renewable power	0.57	0.22	0.05
		Low emissions power	1.64	1.46	0.95
		Lower emissions heating and cooking	-	-	0.12
	Waste	Solid waste management and recycling	0.18	0.14	0.12
	Cross-cutting	Policy and regulation	0.31	0.27	0.86
	Built environment	Public services	1.52	1.49	1.85
		Buildings	-	-	-
	Transport	Inter-urban transport	0.20	0.23	0.25
		Urban transport	7.76	5.11	6.30
Total Mitigation expenditure			15.93	17.24	12.64
Adaptation	Natural ecosystems and biodiversity	Forests	-	-	0.00
		Protection of natural habitats	1.29	1.23	1.37
	Human settlement, infrastructure and energy	Flood protection infrastructure	-	-	0.00
		Transport - enhanced connectivity	5.94	4.92	3.73
		Transport - hazard reduction	1.66	1.86	2.40
	Human health	General health expenditures	1.14	0.79	0.99
		Climate-related health expenditures	0.84	0.85	0.84
	Agriculture	Livestock	1.20	1.52	1.06
		Crop production and protection	0.44	0.13	0.17
		Livelihoods support for rural communities	0.10	0.09	0.04
		Land use and management	0.03	0.03	0.03
		Increased efficiency in water use	2.54	1.36	0.31

Type of Response	Policy area	Policy direction	Climate expenditure		
			2017	2018	2019
	Cross-cutting	Disaster risk management	1.16	1.07	1.27
		Education and awareness	0.03	-	-
		Policy and regulation	5.96	5.79	0.90
	Water resources	Drainage	0.21	0.22	0.23
		Irrigation provision	14.62	6.98	4.44
		Water and sewerage supply	3.40	1.23	0.38
		Water resource management	-	-	0.02
	Tourism	Eco-tourism	-	0.01	-
Total Adaptation expenditure			40.56	28.07	18.19
Mixed impact	Natural ecosystems and biodiversity	Forests	0.93	0.40	1.19
		Protection of natural habitats	0.94	1.15	1.24
	Cross-cutting	Education and awareness	0.11	0.15	0.21
		Research	0.03	0.03	0.02
		Not classified	0.05	0.08	0.06
		Policy and regulation	1.27	1.27	1.77
Total expenditure with Mixed impact			3.34	3.08	4.50
Total climate expenditure			59.8	48.4	35.3

Annex 6. Classification of climate change mitigation and adaptation policy areas and directions (Typology)

MITIGATION

Policy area	Objective	Policy direction	Example activities
Energy	Emission reduction in the production of energy (consumption of energy covered in other sectors)	Renewable power	Wind; solar; bioenergy, hydropower and geothermal if they reduce emissions - both on and off grid and captive use.
		Low emissions power	Thermal power plant that reduces emissions (not clean coal); cogeneration facilities; energy efficiency improvement in existing thermal plant
		Renewable heating and cooking	Solar water heating; geothermal heat; heat generated from bioenergy (if sustainable)
		Lower emissions heating and cooking	Gasification and other energy source substitutions. Increased efficiency in generating useful energy.
		Energy transmission and distribution	New, expanded and improved transmission and distribution systems; retrofitted transmission and distribution systems that reduce losses and/or improve grid stability; electricity storage systems (batteries, pumped storage etc.); smart grids
		CCUS	Research, development and deployment associated with carbon capture, use and storage from energy generation sources
Transport	Emission reduction associated with mobility services	Urban transport	New urban mass transport (light rail, metro, tram etc.); active transport (promotion of walking and cycling); replacement of mass transit vehicle fleet with more efficient alternatives or with alternatives that use lower-carbon fuels; introduction of new mass transit vehicle fleet that exceeds available emission standards
		Inter-urban transport	Improvements or new infrastructure capacity that deliver modal shift from road (or air) to rail, bus or waterways; replacement of rolling stock with more efficient alternatives or with alternatives that use lower-carbon fuels; introduction of new rolling stock that exceeds available emission standards
		Aviation	Replacement of aircraft with more efficient alternatives or with alternatives that use lower-carbon fuels; introduction of new aircraft that exceed available emission standards

Policy area	Objective	Policy direction	Example activities
		Fuels and road vehicles	Replacement of vehicles with more efficient alternatives or with alternatives that use lower-carbon fuels; introduction of new vehicles that exceed available emission standards; introduction of fuel standards that reduce the emissions intensity of fuels
		Transport system management	Integration of transport and urban development that lead to reduction in passenger cars e.g multi-modal transport hubs; demand-management measures such as high-occupancy vehicle lanes, low-emission zones; charging or other infrastructure for low-emission
Built environment	Emission reductions in the way that the built environment is constructed and used	Buildings	Improvements in the energy efficiency of lighting (existing buildings); improvements in the energy efficiency of appliances and equipment (existing buildings); installation of energy management systems (existing buildings); introduction of co-generation plants to add electricity (existing buildings); retrofits of buildings to improve energy efficiency (existing buildings); use of highly efficient building designs and building techniques that exceed legal standards (new buildings); introduction of new appliances and equipment that exceed legal standards (new buildings); energy audits.
		Public services	Improving the energy efficiency of street lighting, water delivery and othe municpal services that demand energy
		Other	Changes in urban planning and land use to promote more compact development
Agriculture	Emission reduction in crop and livestock production	Land use and management	Interventions within the agricultural system that improve existing carbon pools from and within agricultural systems e.g. low-till agriculture, rehabilitation of degraded lands; interventions to reduce fertilizer use; production/manufacture of sustainable biomass and biofuels; improved food storage facilities
		Livestock	Interventions that reduce methane or other GHG emissions e.g.animal health planning, changing animal feeding, manure management, grassland management
		Energy efficiency	Reduction in energy use in irrigation and water pumping; traction and other agricultural processes including replacements and upgrades of agricultural machinery

Policy area	Objective	Policy direction	Example activities
Industry and Industrial processes	Emission reductions in industrial processes and cooling	Energy efficiency	Installation of more efficient equipment; changes in processes in existing facilities; reduction of heat losses in existing facilities; replacement of older facility with new; energy audits.
		CCUS	Research, development and deployment associated with carbon capture, use and storage in industrial applications
		Industrial processes	Industrial process improvements that result in lower non CO2 emissions e.g clinker substitution in cement, alternative clinkers
		Air conditioning and cooling	Switching to cooling agents with lower global warming potential; adoption of natural cooling methods
Waste	Emission reductions in the collection, processing and treatment of waste	Solid waste management and recycling	Waste management projects that capture/combust methane; waste to energy projects; waste-collection, recycling and management activities that reduce GHG emissions
		Wastewater treatment	Wastewater treatment that reduces GHG emissions (replacing decentralized with centralized systems); anaerobic digestion of sewage sludge
		Agricultural waste	Collection and use of agricultural bio-wastes (biogas, bagasse) including composting
Land use and forestry	Emission reductions for changing land use patterns and their management and through enhancing carbon stocks (excluding where linked to agriculture systems)	Forestry	Afforestation; reforestation; sustainable forest management that increases carbon stocks (including through fire management); forest conservation and restoration projects that reduce emissions from deforestation or degradation
		Other	Preservation, management and restoration of other ecosystems that are carbon sinks e.g. grasslands,
Cross-cutting	Education, research, planning and policy delivery to reduce emissions	Education and awareness	Education and training on climate change mitigation
		Policy and regulation	National or sector-specific policies, plans, regulations associated with delivery of emission reductions; MRV of emissions
		Finance	Activities related to carbon finance or which otherwise facilitate finance for emission reduction opportunities
		Research	Research into renewable energy, energy efficiency or low-carbon technologies

ADAPTATION

Policy area	Objective	Policy direction	Example activities
Natural ecosystems and biodiversity	Ecosystems and biodiversity conservation (which may both be intrinsically treated by climate change, but which can also help humans adapt to climate change)	Forests	Afforestation and agroforestry; reforestation; sustainable forest management (aimed at making the forest more climate resilient); forest conservation and restoration projects that reduce deforestation or forest degradation
		Protection of natural habitats	Development and ongoing operation, management and maintenance of protected areas including National Parks
		Protection against desertification	Clearance of bush encroachment; sand dune stabilization and other revegetation activities; activities to restore degraded land
Water resources	Rational and sustainable water use	Water and sewerage supply	Building additional water storage capacity; increasing pumping station capacity; upgrading/replacement of pipes; flood protection/waterproofing treatment plant; new infrastructure to connect different water and wastewater between facilities
		Water quality	Activities to enhance water quality
		Irrigation provision	Construction or rehabilitation of irrigation systems to increase water available for irrigation (NB activities related to more efficient irrigation i.e. demand side changes, covered in agriculture).
		Drainage	Construction or upgrading of drainage networks e.g stormwater tunnels, integrated drainage system for rainwater collection, green corridors
		Water resource management	Leakage reduction activities; roll out of water meters and other water saving technologies; water-recycling; activities to encourage water efficiency
Agriculture	Reducing the exposure and vulnerability of rural and agricultural communities to climate stresses, and enhancing	Crop production and protection	Change in/development of crop types in response to climate stresses; development of controlled agriculture e.g. new greenhouses in response to climate stresses or protection of crops to climate hazards; improved land drainage; soil fertility, conservation and soil water retention measures e.g. intercropping, agroforestry
		Increased efficiency in water use	Switching to more efficient irrigation techniques (e.g. drip irrigation); rainwater harvesting

Policy area	Objective	Policy direction	Example activities
	their adaptive and coping capacity	Livestock	Activities to support farmers to change breeding strategies or participate in breeding programs; development of genetic resource banks for livestock; vaccination programs against climate-related diseases; changing feeding and grazing practices of livestock; activities to improve soil and water management on livestock land; introduction or adjustment to animal management systems e.g. ensuring adequate shade and water or changing housing to reduce impact of heat stress
		Fish-farming	Reducing land-based sources of pollution to fisheries; measures to reduce destructive fishing practices; protection measures for local fisheries
		Livelihoods support for rural communities reliant on agricultural production	Activities aimed at enhancing productivity, food security and livelihoods and social protection of rural citizens (including subsidies for lost production, insurance, rehabilitation of rural infrastructure, diversification of rural activity); shifting location of farming; relocation of rural settlements
Human settlement, infrastructure and energy	Reducing the exposure and vulnerability of citizens and assets to changing climatic conditions and ensuring continued delivery of services	Flood protection infrastructure	Construction and maintenance of flood defenses e.g. embankments, dams, coastal protection
		Transport - hazard reduction	Improving the performance of railways, roads and other transport infrastructure to deal with climate risks e.g. flood protection, bank stabilization, bridge protection; mapping of risks and associate monitoring of assets; development of emergency operation plans
		Transport - enhanced connectivity	Enhancing connectivity and market access, especially for vulnerable groups
		Energy	Strengthening of HEP facilities; refurbishment of HEP to cope with low or variable flow conditions; increased dam storage capacity.
			Enhancing the reliability of power transmission and distribution
			Increased distributed energy generation
		Buildings	Makes buildings more resistant to climate hazards e.g. strengthened foundations to reduce flood risk, installation of air conditioning or natural cooling solutions; development of insurance products against weather-related losses in buildings

Policy area	Objective	Policy direction	Example activities
		Waste	Flood protection for solid waste facilities; activities to reduce infiltration into sewers; green infrastructure to reduce run off; installing flood protection around wastewater treatment plants; hardening sewer collection systems
Human health	Ensuring the health of the population under projected climate change	Climate-related health expenditures	Activities specifically linked to diseases that are expected to worsen because of climate change (water-borne diseases, epidemiological situation control and heat waves)
		General health expenditures	General health expenditures e.g. public health campaigns, immunization programs
Tourism	Supporting tourism that encourages preservation and restoration of landscapes that support climate resilience	Eco-tourism	Promotion of eco-tourism
Cross-cutting	Education, research planning and policy delivery for enhanced climate resilience	Disaster risk management	Improvements in weather monitoring, forecasting and early warning system (including associated ICT); development of emergency plans, other activities by disaster risk management authorities.
		Education and awareness	Enhancing awareness of climate related risks and the appropriate responses
		Policy and regulation	National or sector-specific policies, plans, regulations related to climate adaptation and climate resilience (and associated financial instruments)
		Research	Development of climate models, research on impacts of climate change, research on adaptation solutions

Annex 7. References used

- RA Law on Budgetary System (1997);
- RA Law on Procurements (2016);
- RA Law on Treasury System (2001);
- RA Law on Environmental Impact Assessment and Expertise (2014);
- RA Constitutional Law on Rules of Procedure of The National Assembly (2016);
- RA Law on Audit Chamber (2018);
- GoA Decree N 706-N On approving the budget execution procedure (2018);
- GoA Protocol Decree N 41, On approving the intended nationally determined contributions of the RA under the UNFCCC (2015);
- GoA Protocol Decree N 49, On approving of the activities by the Republic of Armenia for implementation of the obligations emanated from a number of international environmental conventions ratified by RA (2016);
- GoA Decree N 1716-L On approving the 2019-2023 PFM Reform Strategy and Action Plan (2019) (http://www.minfin.am/website/images/website/tej_gic/1716-1k.voroshum.docx);
- GoA Protocol Decree N 42, On approving of methodological instruction on the development, submission and control of strategic documents affecting public revenues and expenditures (2017);
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- RA NA Standing Committee on Territorial Administration, Local Governance, Agriculture and Nature Protection Decree N1 (2019) (http://www.parliament.am/committees.php?do=show&ID=111208&showdoc=2702&cat_id=499&month=all&year=2019&lang=arm);
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- 2017-2020 Annual Budget Laws and Budget Messages of the Government (http://www.minfin.am);
- GoA Decrees On approving the measures to ensure the implementation of the 2017-2019 Annual Budgets, (http://www.minfin.am);
- Prime Minister Decrees On starting the 2017-2021 budget processes (https://www.e-

gov.am/decrees);

- 2017-2019 Annual Budget Implementation Reports (http://www.minfin.am)
- 2017-2020 Medium-Term Expenditure Frameworks documents (http://www.minfin.am);
- 2017-2020 MTEF and Annual Budget Methodological instructions for the preparation of budget bids and submission to MoF (http://www.minfin.am);
- Sector development strategies related to CC are available at websites of respective state bodies and the Legal Information System of Armenia (https://www.arlis.am/);
- Budget bids of state budget agencies (available at state budget agencies' websites);
- Environmental Impact Assessment documents are available on the website of the Ministry of Environment (http://mnp.am/am/pages/66);
- Conclusions of the RA Chamber of Audit on Annual Budgets are available at the Chamber's website (http://armsai.am/hy/budget-conclusions);
- Papers and Reports prepared by the Budget Office are available at (http://www.parliament.am/budget_office.php?sel=reports_and_statements&action=quarterly_reports&lang=arm) ;
- Information on in-kind and financial grants extended to GoA by foreign countries, international organizations and other entities are available at MoF website (http://www.minfin.am);
- RA NA Decrees of Standing Committees, session agendas and protocols are available at the official website of the parliament (http://www.parliament.am/committees.php?lang=arm);
- "Public Investment Management Assessment: Republic of Armenia" IMF (2018) (https://www.imf.org/~/media/Files/Publications/CR/2019/cr1933-armenia-ta.ashx);
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- Chamber of Audit (http://www.armsai.am/);
- Ministry of Finance (http://www.minfin.am/);
- Ministry of Environment (http://www.env.am);
- Ministry of Economy (https://www.mineconomy.am/);
- Ministry of Territorial Administration and Infrastructures (http://www.mtad.am/);
- Legal Information System of Armenia (https://www.arlis.am/).

Annex 8. List of institutions and people met

Ministry of Finance of RA

- Ms. Ruzanna Gabrielyan, Acting Head of Budget Process Organizational Department;
- Mr. Jirayr Titizyan, Head of Operational Department;
- Ms. Gayane Zargaryan, Head of Budget Execution Reporting Department;
- Mr. Araik Yesayan, Head of Obligations Management to State Budget Department;

Ministry of Environment of RA

- Mr. Vardan Gregorian, Legal Adviser to the Minister
- Mr. Hayrapet Hakobyan, Assistant to the Minister