

“Tracing the link between Climate Justice Action and the NDCs in Moldova”

by Andrei Isac and Julian Gröger

Chişinău, April 2023

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Background and acknowledgements

Background

The purpose of this study is to (1) investigate whether international climate commitments are translated into national plans and strategies that result in local climate action (concrete policies and projects). Furthermore, and vice-versa, this study aims at (2) understanding the feedback of locally implemented climate policies and actions into national and international climate commitments. Local climate action can be beneficial to marginalized communities (good solutions such as “renewable energy systems”) or hamper their development (false solutions such as megadams) with the objective to allow monitoring of social justice. Therefore, (3) the study should investigate on the social implications of local climate action, especially in the energy sector, along given RES guiding principles developed by CIDSE.

Structure of the report

The report was structured based on proposed format and approved content.

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Acronyms and abbreviations

CC	Climate Change
CO₂	Carbon dioxide emissions
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
GHGs	greenhouse gases
GGIs	green growth indicators
HDI	Human Development Index
INDC	Intended Nationally Determined Contribution
IUCN	International Union for Conservation of Nature
LEDS	Low Emission Development Strategy
LPA	Local Public Authorities
MADRE	Ministry of Agriculture, Regional Development and Environment
MoE	Ministry of Environment
MDL	Moldovan Leu
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NBS	National Bureau of Statistics
NEA	National Employment Agency
NEF	National Environmental Fund
OECD	Organization for Economic Co-operation and Development
PM_{2.5}	Fine particulate matter
R&D	Research and development
SDG	Sustainable Development Goal
SECAPs	Sustainable Energy and Climate Action Plans
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollar

Executive Summary

The purpose of this study was to investigate whether international climate commitments are translated into national plans and strategies that result in local climate action (concrete policies and projects) in Moldova.

Furthermore, this study aims at understanding the feedback of locally implemented climate policies and actions into national and international climate commitments. Local climate action can be beneficial to marginalized communities with the objective to allow monitoring of social justice. Therefore, the study investigated the social implications of local climate actions.

The study was conducted based on a common methodology which included four major steps in order to achieve the expected results: desk research, stakeholders mapping and interviews, the more in-depth studies and reporting. The outcomes of that work were presented in the thematic chapters and could be highlighted as follows.

The Republic of Moldova is fully committed to the Paris Agreement's objectives on: a) holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the increase to 1.5°C; and b) increasing the ability to adapt to the adverse impacts of climate change. In this respect, the country has undertaken the appropriate measures. The cores to these are nationally determined contributions (NDCs).

Moldova included in its updated NDC (NDC 2, 2020) the adaptation component in line with Articles 2.1 and 7.1 of the Paris Agreement and Katowice Rulebook (COP 24), as an opportunity to communicate the country's strategic vision on climate change adaptation. The adaptation component, as a forward-looking document, incorporates country's adaptation priorities that derive from the in-force policy documents, such as the Climate Change Adaptation Strategy and the Action Plan for its implementation (2014), as well as from the Fourth National Communication to the UNFCCC (2018), and from a number of national level policy documents covering cross-sectoral socioeconomic areas and sector-specific development documents of the national priority sectors: agriculture, water resources, human health, forestry, energy and transport.

The Republic of Moldova is systematically reporting to UNFCCC and presenting the Biannual Reports, National Communications, Inventory Reports and Reports on the National Greenhouse Gas Inventory System in the Republic of Moldova. The Third Biennial Update Report (BUR3) of the Republic of Moldova prepared to be reported to the United Nations Framework Convention on Climate Change (UNFCCC) was compiled in June 2021 with financial assistance provided by the Global Environment Facility (GEF).

The biggest challenge during the years of implementation since the development and submission of the NDC 1, NDC 2 and BUR 3 was the unstable political situation and changes on governmental structures, which placed the environment in the lower priority level. In 2017 the Ministry of Environment was merged with the Ministry of Agriculture and Ministry of Regional Development, thus, the Ministry of Agriculture, Regional Development and Environment was functioning till July 2021, with only around 30 persons staff in the central body and a State secretary for environment. In the indicated period, 7 government changes - which imposed change in ministers and state secretaries, development of the new action plans, which delayed the development and adaptation of national policy documents both at national and sectoral levels.

Recent developments and changes in the Governmental structure (February 2023) are seen as a positive development that could introduce positive changes in the domain. The Program of the new Government, voted by the Parliament on February 16, 2023, "Prosperity, Safe and European Moldova", included among the priorities in the field of environment, integration of Sustainable Development and Climate Change Adaptation principles in all sectors of the national economy, including in economic, public procurement and subventions policies.

The Ministry of Environment was maintained in the new Government and established a new separate ministry - Ministry of Energy (apart from the Ministry of Infrastructure and Regional Development). Achievement of the carbon neutrality 2050 and alignment to the CC objectives of the European Green Deal are among the key priorities of the two ministries. At the same time, both ministries face financial and human capacities constraints and have to rely on project support for the development of policy documents, implementation of actions, monitoring and reporting.

In order to implement the national CC policy documents at the local level, the Sustainable Energy and Climate Action Plans (SECAPs) are considered the solution. This is the tool for the implementation of the NDC targets at the local level, as well. Around 60 municipalities are active in the Covenant of Mayors in Moldova and in the last 10 years around 30 of them developed the SECAPs with the support of the EU4Energy/Covenant of Mayors or integrated energy and climate objectives in local development plans. Implementation of the SECAPs and of pilot projects at local level depend on the external development partners support. Thus, even the selected case studies, which serve as best practice/examples and could be broadly disseminated/replicated in other localities, were implemented with external funding and this is the limitation for further broad follow-up on those specific examples.

Among the major conclusions of the study thus could be mentioned:

- ▶ There was no political horizontal mainstreaming of climate politics, there is no systemic vision in this government, nor in any other before. There is not a clear vision of the line ministries on the NDC objectives, there are no measurements of CO₂ at the sector level and the NDC did not contain clear obligations for sectors.
- ▶ The NDC 2 goals were not too ambitious at the level of 2020. The NDC goals are clear, but in order to achieve them the LEDS 2030 have to be updated and for this purpose the Low Emission Development Program 2030 is under development.
- ▶ The development and implementation of the SECAPs is dependent on external support and project capacities. The projects, implemented in localities, achieve the objectives of social justice, participation and access, but due to their limited number and not covering the entire country - there is not a proper monitoring process, and the indicators from this level are not used for the national reporting.

The main recommendations of the study could resume to the following ones:

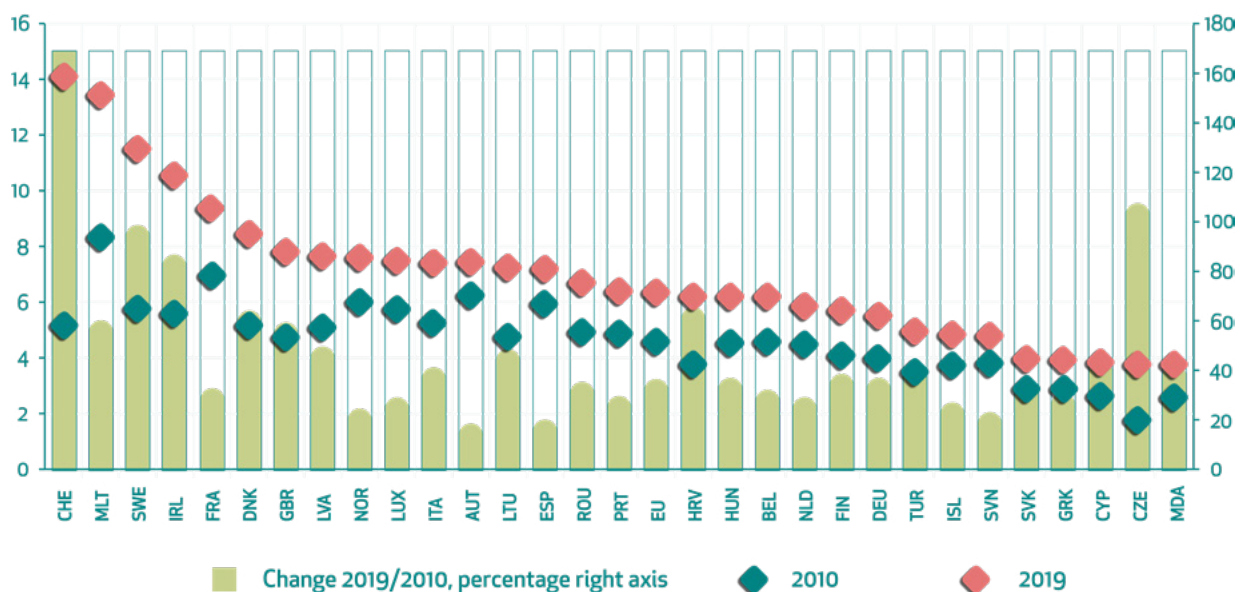
- ▶ Mainstream CC priorities at a higher policy/political level and in all sectoral policies;
- ▶ Update, strengthen the role and facilitate the operation of the National Commission on Climate Change and a inter-ministerial coordination and cooperation mechanism in the domain;
- ▶ Promote the development of the SECAPs in all localities of the country, based on available best practices;
- ▶ Use the capacities of the NGOs for the information, awareness and broad dissemination of the information at local level about CC, adaptation and mitigation;
- ▶ Improve the capacities of line ministries (Ministry of Energy, Ministry of Economic Development and Digitalization, Ministry of Infrastructure and Regional Development, Ministry of Agriculture and Food Industry) for the monitoring and reporting of the CO₂ emissions from their sectors and part of monitoring and evaluation of efficiency of their sectoral actions and contribution to the NDC targets, their monitoring and reporting;
- ▶ Develop the mechanism of using the local data for the national reporting;
- ▶ Strengthen the capacities of the Environmental Agency for information collection, processing and reporting.

Introduction

The **socio-economic context** is improving in Moldova but not fast enough.

- In recent years, the economy of the Republic of Moldova (hereafter “Moldova”) grew at a modest pace. However, this pace was not fast enough to significantly improve the standard of living of most people. The national economy is still affected by systemic problems such as low competition, corruption, and a limited labor force. These problems are accompanied, in turn, by an increasing number of shocks generated by **extreme climate factors** such as floods, drought or frosts. Frequent **political unrest** also affects the capacity of state institutions to respond to crises. In 2020, for example, the state provided only limited social and economic support in response to the COVID-19 pandemic. In 2022 the country was affected and still is in 2023 by the regional crisis – the **Russian attack on Ukraine and the energy crisis**, which affected the economic, environmental and social aspects of life.
- Economic growth **partially decoupled** from use of natural resources, but pressures remain
- Indicators that measured productivity of environmental resources were generally positive. Thus, carbon, energy and water productivity increased. Consequently, economic growth partially decoupled from CO₂ emissions, and use of energy and water. This means the economy grew faster than the use of natural resources. Despite this progress, the level of environmental resource productivity in Moldova is much lower than in European countries. Thus, **the intensity of environmental resource use in Moldova is relatively high**, which implies pressures on both natural capital and the sustainability of economic development.
- The relative stability of CO₂ emissions combined with growth in gross domestic product (GDP) resulted in higher carbon productivity, which grew from 0.36 to 0.47 Euro/kg. At the same time, the ratio between GDP and greenhouse gas (GHG) emissions increased from 0.53 to 0.7 Euro/kg CO₂-equivalent (CO₂-eq). The higher carbon productivity shows that economic growth decoupled from CO₂ emissions. Despite this progress, Moldova remains at the bottom of European countries in terms of carbon productivity.

Figure 1. Carbon productivity, USD PPP (2017=1)/kg



Source: EUROSTAT, World Bank, <http://clima.md/libview.php?l=en&idc=264&id=5024>, Bureau of National Statistics, authors' calculations.

- The supply of primary energy and final consumption of energy increased in Moldova after 2010. Since energy supply grew at a lower rate than GDP, energy productivity increased. Nonetheless, this growth did not allow Moldova to improve its position relative to other European countries. Energy productivity grew much faster in Moldova than in other European countries. For example, between 2010 and 2019, productivity in the European Union grew by 24.4% and was 2.7 percentage points lower than growth in Moldova. Despite this progress, among European countries, **Moldova ranks almost at the bottom in terms of energy productivity.**
- The supply of renewable energy generally increased. As a result, the share of renewable energy in the supply of primary energy and in the final consumption of energy increased. Nonetheless, compared with other European countries, the share of biofuels and waste in the primary supply of renewable energy is extremely high in Moldova. Biofuels and waste account for 98-99% of the primary supply of renewable energy. Meanwhile, firewood represents more than 80% of biofuels and waste. This shows that **renewable energy in Moldova is mostly obtained from cutting trees** and that renewable energy production is at an early stage.
- Production waste has decreased, particularly after 2015. Between 2010 and 2019, the quantity of production waste decreased by 34.3%. During the same period, GVA – an indicator that reflects the production process – increased by 42.1%. In this context, the production process decoupled from the generation of production waste. At the same time, the volume of household waste is increasing. Between 2014 and 2020, the **quantity of waste collected from the population grew by 20.9%**, while household consumption increased by only 5.4%. Thus, the model of consumption continues to generate more and more waste. At the same time, there is **no clear trend in Moldova on waste utilization.**
- **Use of mineral fertilizers is accelerating**, but this was not accompanied by a rapid increase in vegetal production. Instead, it led to a rise in the amount of fertilizer introduced per hectare of soil. Between 2010 and 2020, this indicator increased from 24 kg/ha to 95.8 kg/ha for chemical fertilizers and from 20 kg/ha to 110 kg/ha for organic fertilizers.
- Water productivity increased, but this growth did not allow Moldova to improve its position relative to other European countries. Between 2010 and 2020, **water use was generally stable**, while GDP increased by about 32%. As a result, water productivity increased and economic growth decoupled from water consumption. Despite this progress, the level of productivity in Moldova remains one of the lowest relative to other European countries.

Moldova needs action on several fronts to protect its natural resources

- Moldova has limited water resources compared with most European countries. It depends on water from the Prut and Nistru rivers, which accumulate mainly outside the country. At the same time, the agricultural sector accounts for a large share of the Moldovan economy but is represented by a large number of small farmers with rudimentary businesses. **Increasingly frequent droughts** mean agriculture requires higher volumes of water and irrigation. This water is often delivered through **inefficient systems**, leading to large losses. Thus, besides a high volume of water intake per capita and a relatively high level of water stress, Moldova still experiences significant water losses due to transportation with no sign of improvement.
- Despite the slight increase in afforestation, Moldova has **limited forest resources**. This is coupled with serious environmental issues and extreme weather events, which have become increasingly frequent. At the same time, the limited area covered by forests is accepted as a cause of climate change, which calls for prompt public policy actions.
- Soil resources have not changed significantly in the last decade. Factors such as urbanization, population density or infrastructure expansion have been unable to change the structure of the land fund. Thus, **Moldova remains a territory with predominantly agricultural areas, with soil as the main natural resource**. However, large areas of agricultural land are still parceled out and some are affected by erosion, which reduces performance of the agricultural sector.

- Organic agriculture offers only a modest contribution to the sector given that both land area and the number of operators involved remain small. The **small scale of organic agriculture** has multiple causes related to both consumer demand and producer supply. The state has released several strategic documents to promote organic agriculture but has offered limited financial support.
- **Biological diversity needs more protection** in Moldova. Biodiversity, which underpins the proper functioning of ecosystems, can be measured by the number of endangered plant and animal species. The latest edition of the Red Book in 2015 contains twice as many species of plants and animals needing protection in Moldova as the 2001 edition. Given these conditions, Moldova needs clear policies and measures to restore natural habitats in order to protect rare and vulnerable species.
- Moldova has added protected areas but still has a small number in relation to its territory. Moreover, it is difficult to conserve nature and associated cultural values in these areas when the state can neither ensure laws are respected nor limit harmful human intervention.

Some indicators point to progress in improving quality of life, while others identify challenges

- **Air pollutants** have been rising in Moldova since 2010, a trend that augments risks to the environment and human health. This trend is caused by the rapid increase in emissions of pollutants **from road transport**. A comparative analysis of emissions of pollutants (nitrogen oxides and sulfur oxides) related to population shows **a worrying trend**. Moldova occupies one of the lowest positions among European states in terms of pollutant emissions per capita. However, it has registered a significant increase in recent years. **Only in the transport sector emissions per capita grew by almost 83% between 2014-19**, which is the highest growth in the region.
- The **public water supply network is rapidly expanding**. As a result, people's access to safely managed drinking water services has increased. However, Moldova is ranked near the bottom regarding people's access to safely managed drinking water services in relation to other European countries.
- Moldova had some progress in expanding the public sewerage network. However, public supply networks have grown faster than the length of sewerage networks. This creates **additional pressures on water resources**, as water consumption reduces the amount of quality water returned to the natural water cycle. Even if people have greater access to basic sanitation services, Moldova ranks among the lowest for these services relative to other European countries.

More economic opportunities associated with green growth can be unlocked

- **Moldova ranks the lowest among European countries in terms of investment in environmental protection**. Both the government and businesses spent too little for these purposes compared with most European countries. In recent years, Moldova allocated only 0.5% of GDP for environmental protection, while the EU average is 1.9%. There are multiple causes for the low investment, generally related to financial constraints and the state of the Moldovan economy. Environmental economic instruments (e.g. fees and environmental permits) are not able to improve the situation. Environmental protection is often sacrificed in favor of other political or economic priorities.
- Energy subsidies largely take the form of tax relief on gas and electricity for households. This is due to **total dependence on imported energy** and the low standard of living for a large part of the population. Thus, tariffs for energy resources are debated constantly, with discussions often becoming political, e.g. the most recent and urgent energy crises in autumn/winter 2022/23. Unless the country has significant economic progress, any elimination of subsidies, resulting in increase of tariffs, is immediately attacked by the population, businesses or political opponents.

Chapter 1. Methodology

The methodology of the development of the study included four major steps, which were conducted, in order to achieve the expected results: desk research, stakeholders mapping and interviews, the more in-depth studies and reporting.

1.1 Desk Research

During the initial desk research, we examined the task of the assignment, prepared the work plan with all necessary activities according to the ToR and developed the draft content of the study paper. The work plan was coordinated and a number of online meetings (with external experts) and working meetings in person (between the local consultants) were conducted.

The work plan was focused also on the in-depth studies and reporting, described below.

The Desk Research included the study of documents publicly available related to planning such as: INDC, NDC 2 (updated NDC and annexes), national and regional policies, plans and regulations, ongoing projects and reports, submitted to UNFCCC,

This included also a study of documents publicly available related to reporting: Official communications to the UNFCCC on implementation, official communication on implementation at national and regional level related to the existing policies, plans and regulations.

1.2 Stakeholders

In order to check the current to evaluate the current state of development in the domain and have the opinion from various points of view from institutions, organizations and experts - the **Stakeholder mapping was done based on the criteria of level of involvement in the NDC process and of high impact on the conducted study. Interviews with selected institutions and persons were carried out.**

The list of stakeholders (see annex x) with names, functions, contact details and major links was developed and included more than 40 persons from organizations such as the Ministry of Environment, projects in the domain, implemented by the UN agencies, Green City Lab, NAP 2, High Level Adviser on Environment and Green Transition, key experts and one of the beneficiary mayor from the country involved in climate change and energy efficiency issues. Finally 7 most relevant institutions and 10 experts were met and interviewed, a fact that contributed to the identification of the current stage of work in the domain and national and local levels.

In depth-studies included the identification of the implemented cases of “energy production projects” (three most representative ones) and developed arguments why the chosen cases have potential to be considered as good practice examples in respect to social justice. The following criteria were applied: the interrelated principles of social justice; equity, access, participation and human rights.

1.3 Reporting

The Submission of a draft study to the mandating organization was done in February 2023 (on the agreed date of presentation) and was agreed on the dates of presentation of the final report. Discussion of preliminary findings with the mandating organization took place and cooperating partners before submission of the draft. Discussion of the following: (a) identified cases of “energy production projects” and (b) operationalization of RES guiding principles by CIDSE. The incorporation of all the written comments was carried out in the first part of March and submission of the final version of the report planned for the second part.

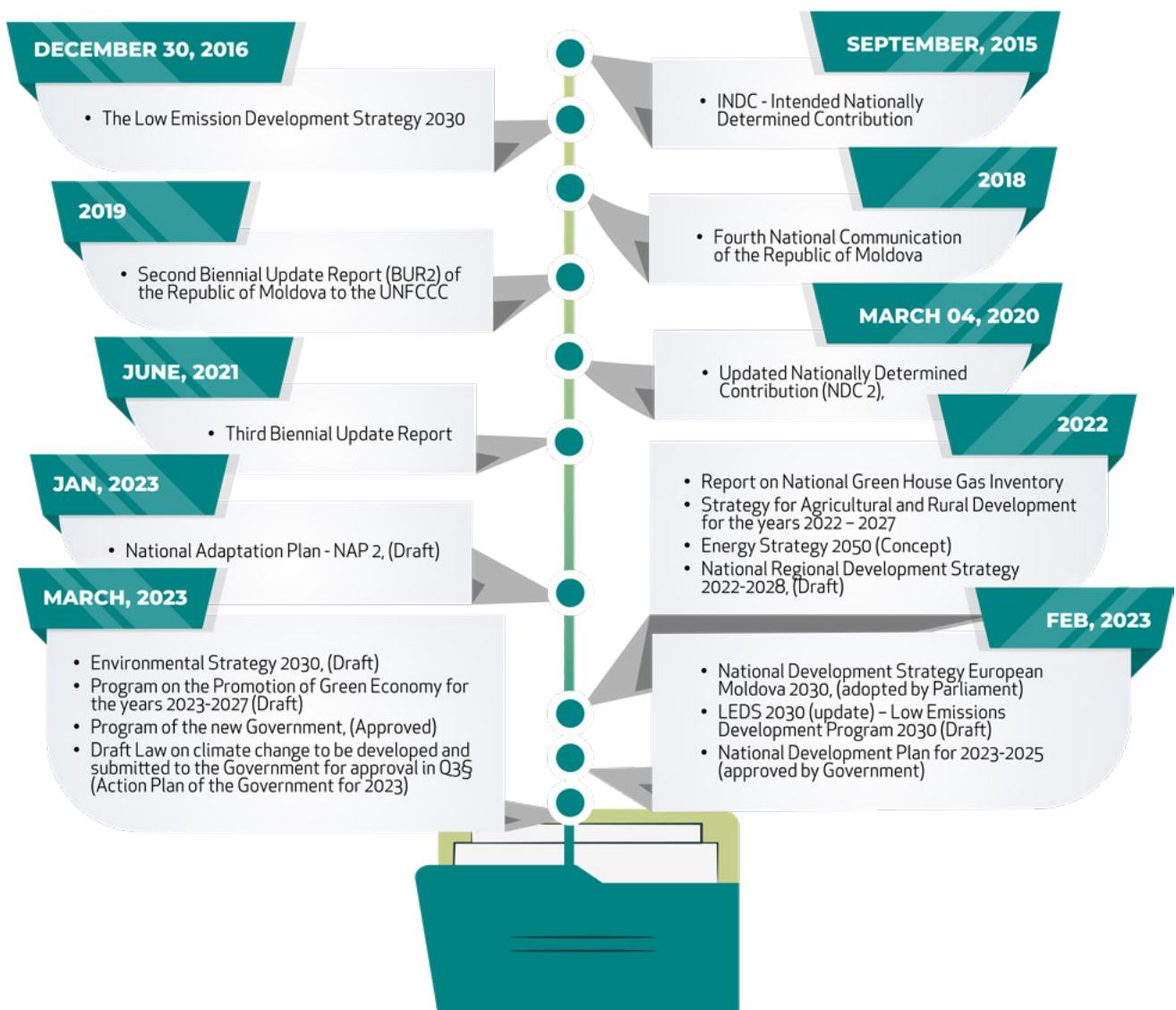
Chapter 2. NDC 2: TRANSPARENCY

2.1 National level

2.1.1 Paris Agreement and key national policy documents

The Paris Agreement, which was signed by Moldova in 2016 and ratified in 2017, was adopted with the objective to lower global emissions in a way that global temperatures do not rise above +2°C by 2050 (whilst aiming for a maximum of 1.5°C). It follows the Kyoto protocol, which was ratified by Moldova in 2003. The Paris Agreement aims to do so by strengthening the global response to climate change in general, including by: committing to a long-term temperature goal; enhancing adaptive capacity and climate resilience; and making finance flows consistent with low-emission development pathways. Differing national circumstances will be taken into account, which is a shift away from the differentiation between developed and developing countries, which also increases obligations of developing countries. Each Party to the Paris Agreement is obliged to determine at the national level the actions they are able and willing to take in order to achieve the objective of the Paris Agreement. These so-called “Nationally Determined Contributions” (NDCs) can contain efforts on mitigation and adaptation, but also by providing the means of implementation (finance and technology transfer, as well as capacity building) to developing countries.

The list of documents in chronological order:



2.1.2 Low Emission Development

The Low Emission Development Strategy 2030, which was elaborated in 2016 and is currently effective, aims at setting the policy of fulfilling the commitments formulated in the NDC1. At the same time, according to the Decision 1/CP.21 UNFCCC, the Parties whose NDC1 had the deadline until 2030 (the case of the Republic of Moldova), update them every 5 years, starting with 2020. Following the Decision 1/CP21, the Republic of Moldova updated its NDC (NDC2) and submitted it to the UNFCCC Secretariat on 21.02.2020, which was officially registered and posted on the Convention's platform on 04.03.2020. The unconditional goal of reducing GHG emissions by 2030 as defined in NDC2, compared to NDC1, **went up from 64% to 70% compared to 1990**, while the conditional goal is of 88% versus 78% set out in the NDC1. Thus, NDC2 of the Republic of Moldova complies with the requirements of art. 4.3 of the Paris Agreement, reflecting a **bigger ambition** and indicating progress compared to the commitments taken in NDC1.

The Republic of Moldova is fully committed to the Paris Agreement's objectives on: a) holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the increase to 1.5°C; and b) increasing the ability to adapt to the adverse impacts of climate change. In this respect, the country has undertaken the appropriate measures. The cores to these are nationally determined contributions (NDCs).

The Republic of Moldova has included in its updated NDC the adaptation component in line with Articles 2.1 and 7.1 of the Paris Agreement and Katowice Rulebook (COP 24), as an opportunity to communicate the country's strategic vision on climate change **adaptation**. The adaptation component, as a forward-looking document, incorporates country's adaptation priorities that derive from the in-force policy documents, such as the Climate Change Adaptation Strategy and the Action Plan for its implementation (2014), as well as from the Fourth National Communication to the UNFCCC (2018), and from a number of national level policy documents covering cross-sectoral socioeconomic areas and sector-specific development documents of the national priority sectors: agriculture, water resources, human health, forestry, energy and transport. The component is built upon the experience gained from the implementation of the first cycle of the National Adaptation Plan (NAP-1) (2014-2017) that is presented in the document, and from the planning perspectives of the NAP-2 that is to be implemented in two tracks: a) National Adaptation Plan, covering Water Resources, Human Health, Forestry, Energy and Transport; b) Agriculture Sectoral Adaptation Plan (Ag.SAP). In support to climate action, the adaptation component incorporates cross-sectoral and sector-specific adaptation actions and measures to be implemented, along with identified adaptation investment priorities based on the review of national and sectorial development policies and plans, and the outcomes of an extensive consultation process, including stakeholders from all sectors and levels of governance, in particular, Central Public Authorities and Local Public Authorities, climate-related institutions and agencies, along with private sector, civil society, academia and women associations and youth NGOs representatives.

The Republic of Moldova's medium- and long-term adaptation goal is to reach a sustainable social and economic development resilient to the impact of climate change by establishing a strong enabling environment for a coherent and effective adaptive action with mitigation benefits, integrating climate risk into investment decision-making and business planning, while remaining socially inclusive and sensitive to gender impacts of climate change.

As such, the whole of the Republic of Moldova's adaptation framework makes a contribution to the country's sustainable development priorities embodied in the "National Development Strategy European Moldova 2030" (2023) and to the overarching adaptation goal of the Paris Agreement to enhance adaptive capacity and resilience, to reduce vulnerability, with a view to contributing to sustainable development, and ensuring an adequate adaptation response in the context of the goal of holding average global warming well below 2 degrees C and pursuing efforts to keep it below 1.5 degrees C.

The purpose of drafting the 2030 Low emissions development program of the Republic of Moldova and its action plan (LEDP) is to achieve the objectives of greenhouse gas emissions reduction as provided for in

NDC2. As soon as more ambitious targets of reducing GHG emissions are set, the current 2030 LEDS can no longer serve as means of comprehensive fulfillment of NDC2. Thus, with a view to achieving the NDC2 objectives, it is necessary to update the effective 2030 LEDS. At the same time, the provisions of point 4 of the GD 386/2020 read that “An effective public policy paper, which does not comply with the provisions of the current decision, remains enforceable until the end of its implementation timeline, but not more than 2 years from the entry into effect of this decision”.

As a result of this clause, the present document reflects the provisions of the 2030 Low emissions development program of the Republic of Moldova, with a view to achieving NDC2 objectives. The general objective of the 2030 Low emissions development program corresponds to that established in NDC2 and aims at reducing GHG emissions unconditionally by 70% and conditionally by 88% compared to 1990. The program identifies the key actions for various sectors of the economy with a view to reducing GHG emissions compared to the level of 1990, the benchmark year, **emphasizing energy efficiency, developing renewable energy sources, application of performing cement and glass producing technologies, conservative agriculture, afforestation and efficient waste management.**

The **specific objectives** of mitigating GHG emissions by 2030 by sectors, unconditionally, in relation to the benchmark year are the following: energy – 81%, transportation – 52%, buildings – 74%, industrial processes – 27%, agriculture – 44%, forestry and land use, change of the designation of land use and forestry – 10%, waste – 14%. These objectives could have been more ambitious provided there would be financial support from international donors, technical assistance and transfer of technologies. Program implementation, which implies the use of performing technologies and best practices in the field, is associated with a wide range of benefits: financial, developmental, impact on new jobs creation and business opportunities, improved quality of life of the population and environment, enhanced energy security and not lastly, better environmental standards and enhanced ecological security. Program implementation will benefit both the citizens, businesses, as well as the country as a whole. The document will ensure enhanced cohesion between the branches of the national economy targeting GHG emissions reduction and the consumption of fossil fuels.

The lack of an updated document, which would set out GHG emissions reduction policies and activities, as these are formulated in the NDC2, GHG emissions reduction objectives by sectors, monitoring indicators, anticipated risks and their mitigation or removal measures will lead to the failure to fulfill the commitments the country assumed to the UNFCCC and the Paris Agreement.

It is important to highlight that the international finance institutions involved in the financing of climate change projects condition, as a rule, their support on the presence of an official document on low emissions development, which would reflect the NDC2. The absence thereof slows down or, in general, precludes the attraction of foreign investments and donations in the sector. The Program, as to its contents, will allow for a better understanding of the planned ways of economic growth and financial and technical support needs, in moving towards reducing greenhouse gas emissions in the long run. The document will contribute to enhanced transparency, to stimulating the exchange of information and lessons learned, to building confidence among countries and to international recognition of climate actions. The lack of a Program disadvantages the country in getting attractive donor funding and does not contribute to growing confidence in being part of concerted actions towards achieving UNFCCC GHG emissions reduction objectives.

At the same time, during the year 2022, the Republic of Moldova started the development of the **National Program on Adaptation to Climate Change** till the year 2030 and the Action Plan for its implementation. The draft Program was made publically available for consultations in January 2023.

According to the NDGAIN vulnerability assessment methodology (BM, 2016), the Republic of Moldova ranks as the **most vulnerable country in Europe** from a climate point of view. It is forecast that the impact of climate change on the social, economic and environmental dimensions of the country will intensify in the medium and long term. This fact will have devastating effects on the key economic sector – agriculture, and especially on the rural population, for whom agriculture is a major source of income and food. Climate

change is projected to **reduce surface water flows** by 16–20% by 2030. Medium-term projections indicate a continued increase in mean **annual temperature between 2010 and 2040 by 2°C**.

The purpose of NPACC 2030 is to ensure the integration of adaptation measures in sectoral policies, in synergy with policy documents in the field of adaptation to climate change, as well as in the field of disaster risk management. In this sense, the focus will be maintained on the six vulnerable sectors - agriculture, water resource management, health, the forestry, energy and transport sectors, in order to achieve the national development agenda incorporated in the NDS "European Moldova 2030", the sustainable development objectives assumed within it, as well as the updated NDC (NDC2) presented by the Republic of Moldova in 2020 under the Paris Agreement.

The National Regional Development Strategy 2022-2028 which consists in synchronizing with the cycle and priorities of the European Union's regional development policy, which for the reference period is to be based on a new cohesion approach "The Path to Excellence" and focuses on five major objectives:

- ▶ Regional advancement of smart specialization ("a smarter Europe, through innovation, digitalisation, economic transformation and supporting small and medium-sized enterprises").
- ▶ The transition to a green economy ("a greener, carbon-free Europe, the implementation of the Paris Agreement and investments in the energy transition, renewable energy and combating climate change").
- ▶ Increasing intra- and interregional mobility ("a connected Europe with strategic transport and digital networks").
- ▶ Increasing social cohesion ("A more social Europe, for achieving the European pillar of social rights and supporting the quality of jobs, education, skills, social inclusion and equal access to the health system")
- ▶ Supporting bottom-up initiatives ("A Europe closer to its citizens through supporting locally-led development strategies and sustainable urban development in the EU").

At the same time, according to the decisions taken, during the 2021-2027 programming period, most investments from the European Regional Development Fund and the Cohesion Fund will focus primarily on the first two objectives. Thus, Member States will invest between 65% and 85% of their allocations, in particular for smart economic growth (including digitalisation) and environmental projects (including adaptation to climate change).

2.1.3 Institutional framework

The Ministry of Environment is the key stakeholder in this exercise. It is responsible for drafting the Program, as well as for promoting it for approval, while after it enters into effect – it will be responsible for monitoring, reporting and verifying the actions provided for in the Program. Given that the Program foresees activities to reduce emissions in sectors such as energy, transportation, buildings, industry, agriculture, forestry and waste, when the draft document would be prepared for approval, it would be consulted as provided for by the law, while the following stakeholders would be mainly involved in the implementation process: Ministry of Economic Development and Digitalisation, Ministry of Finance, Ministry of Education and Research, central and local authorities, civil society and citizens will participate in the implementation of the Program.

The biggest challenge during the years of implementation since the development and submission of the NDC 1 and NDC2 was the unstable political situation and changes on governmental structures, which placed the environment in the lower priority level. In 2017 the Ministry of Environment was merged with the Ministry of Agriculture and Ministry of Regional Development, thus, the Ministry of Agriculture, Regional Development and Environment was functioning till July 2021, with only around 30 persons staff in the central body and a State secretary for environment. In the indicated period, 7 government changes - which imposed change in ministers and state secretaries, development of the new action plans, which delayed the development and adaptation of national policy documents both at national and sectoral levels.

Traditionally the **Ministry of the Environment was in charge** of environmental management and everything related to Climate Change. In 2017, the Ministry of Environment was merged with the Ministries of Agriculture and of Regional Development and became until mid-2021 the Ministry of Agriculture, Regional Development and Environment (MARDE). The merge of the Ministries, with conflicting portfolios, was seen on one side as an opportunity to reconcile the two sectors, but on another side was subject to criticism of putting aside environment concerns vs. agricultural sector priorities, especially in such country as Moldova, given traditional importance of the sector for the national economy. In the MARDE the environmental sector was represented on the level of a state secretary. The Minister, often with the agricultural background, was naturally giving more priority to the agricultural pillar. The staff of the environmental part was reduced to only 29 posts. This resulted in an overall weakened capacity of the environmental pillar of the ministry.

This situation was also criticized by all interviewed stakeholders as the importance and the weight of the environment has gone down within the government (2017-2021). That is why, **since 2017 very little improvements** have taken place in the field of environment as opposed to the period before when reform was more intense despite the lack of capacity.

Within the new governmental structure, adopted by the Parliament of the Republic of Moldova on 25 August **2021, the Ministry of Environment was restored** as a separate institution - the central body to be responsible for the development and promotion of the national policies in the field of environmental protection and rational use of natural resources in the country. The overall number of staff approved for the Ministry is 62 posts which doubled compared to the 29 experts working on the environment within MADRE. The **salary level** within MARDE varies between EUR 230 and EUR 460 depending on the position and seniority compared to an average salary of 300-500 EUR/month for the country.

The new Ministry of Environment (since August 2021) became the key government agency responsible for environmental action, with the **following function for the** elaboration of ex ante analysis, policy documents, draft normative acts in the environmental fields (pollution prevention; air quality; climate change; waste management; chemicals; biodiversity; integrated water management; soil management).

The **Ministry of Environment's budget** for 2022 is MDL 359 million (EUR 17 mln). This is a significant raise of almost 50% compared to EUR 11.9 mln for environmental protection within MARDE.

Currently, the Ministry of Environment is **understaffed** - there are up to 30% of vacant positions, including in the Division on Policies on Air and Climate Change now are working only 4 persons (including the Head of Division), but in the period of August 2021 - February 2023 - only two persons were in this Division, which created a big workload and limited the possibilities of the ministry to efficiently promote policy documents and implementation actions in this domain.

The **Environment Agency**, established in accordance with Government Decision no. 549 of 13.06.2018, was designated as the competent authority responsible for ensuring the operation of the National Monitoring and Reporting System (NMRS) of greenhouse gas emissions and other information relevant to climate change, established by Government Decision no. 1277 of 26.12.2018.

The data and time series for the GHG emissions, provided by the Agency on their website are based on the National Report on the Inventory of the GHG emissions and cover only the 1990 - 2016 period.

2.1.4. Newest institutional developments

In February 2023 the new government was established under the old leadership of the PAS party (since 2021 ruling with an absolute majority). **The Program of the new Government**, voted by the Parliament on February 16, 2023, "Prosperity, Safe and European Moldova", have general provisions related to environment, among which the: Sustainable development of the forest sector, by conservation and extension of the national forest resources, in order to increase the climate resilience on a long term and ensure the country's needs in services provided by forests.

Among the **priorities in the field of environment**, are mentioned:

- ▶ acceleration of implementation of the **European environmental standards**, promotion of innovations and investments according to the provisions of the European Green Deal
- ▶ integration of Sustainable Development and **Climate Change Adaptation principles in all sectors** of the national economy, including in economic, public procurement and subventions policies.

The **Ministry of Environment** was maintained in the new Government and established a new separate ministry - **Ministry of Energy** (apart from the Ministry of Infrastructure and Regional Development). The head of the newly created Ministry has become Victor Parlicov who was interviewed for this research on January 26th, 2023, back then as head of the NGO Green City Lab.

The creation of a separate ministry in the Government represents the appreciation of the importance of the energy sector for the proper functioning of the economy with a medium-term vision to have a secure, sustainable and competitive energy sector with the objective of decarbonising the economy before 2050.

2.1.5 Links with the European Green Deal

The links between the provisions of the European Green Deal and policy documents in Moldova

First information about the European Green Deal was disseminated in the country in December 2019 – January 2020, based on the EC Communication on European Green Deal. The promotion of EU Green Deal priorities followed during the World Environment Day (WED) 2020 (5 June 2020), EU Green Week 2020 (October 2020) and WED 2021 and EU Green Week 2021 (31 May – 04 June 2021) in Moldova (Messages from HE Ambassador of UE in Moldova, EC Commissioner for Environment, Oceans and Fisheries, etc), posts on social media, dissemination of the information within the Inter-ministerial Working Group on the promotion of sustainable development and green economy and NGOs network.

Two events, organized in 2021 were focused on the Green Deal: the 6th National High-level Round Table “From Green Economy to the European Green Deal” (29 January 2021, EU4Environment) with participation of high-level officials from EC, implementing partners, Government of Moldova and Eastern Partnership countries with statements and more than 50 000 people reached within the event and the Environmental NGOs Forum (23-26 March 2021) with a special session of EU Green Deal and green economy (EU4Environment and partners).

Provisions on the integration of the objectives of the European Green Deal were included in the EU-RM Association Agenda for 2021-2027 (2021) and the EU High Level Adviser on Environment and Green Transition started the activities in the Republic of Moldova (since April 2021 - till now).

Ongoing process to integrate provisions of the EU Green Deal in the new draft policy documents (Environmental Strategy 2030, Program on the promotion of Green Economy for 2023-2027, Program on Waste Management for the years 2023-2027, Regulation on eco-labelling, Program on LED 2030 etc) with the support of EU4Environment, UNEP, UNECE, EU4Climate, EU4Energy.

Most actions related to the implementation of the Green Deal provisions are at the draft policy documents stage or draft actions, the implementation of which will require time for their practical implementation from 5 to 10 years, according to the actions, included in the action plans of the national strategies and programs.

2.2 Regional and local level

2.2.1 Sustainable Energy and Climate Action Plans SECAPs

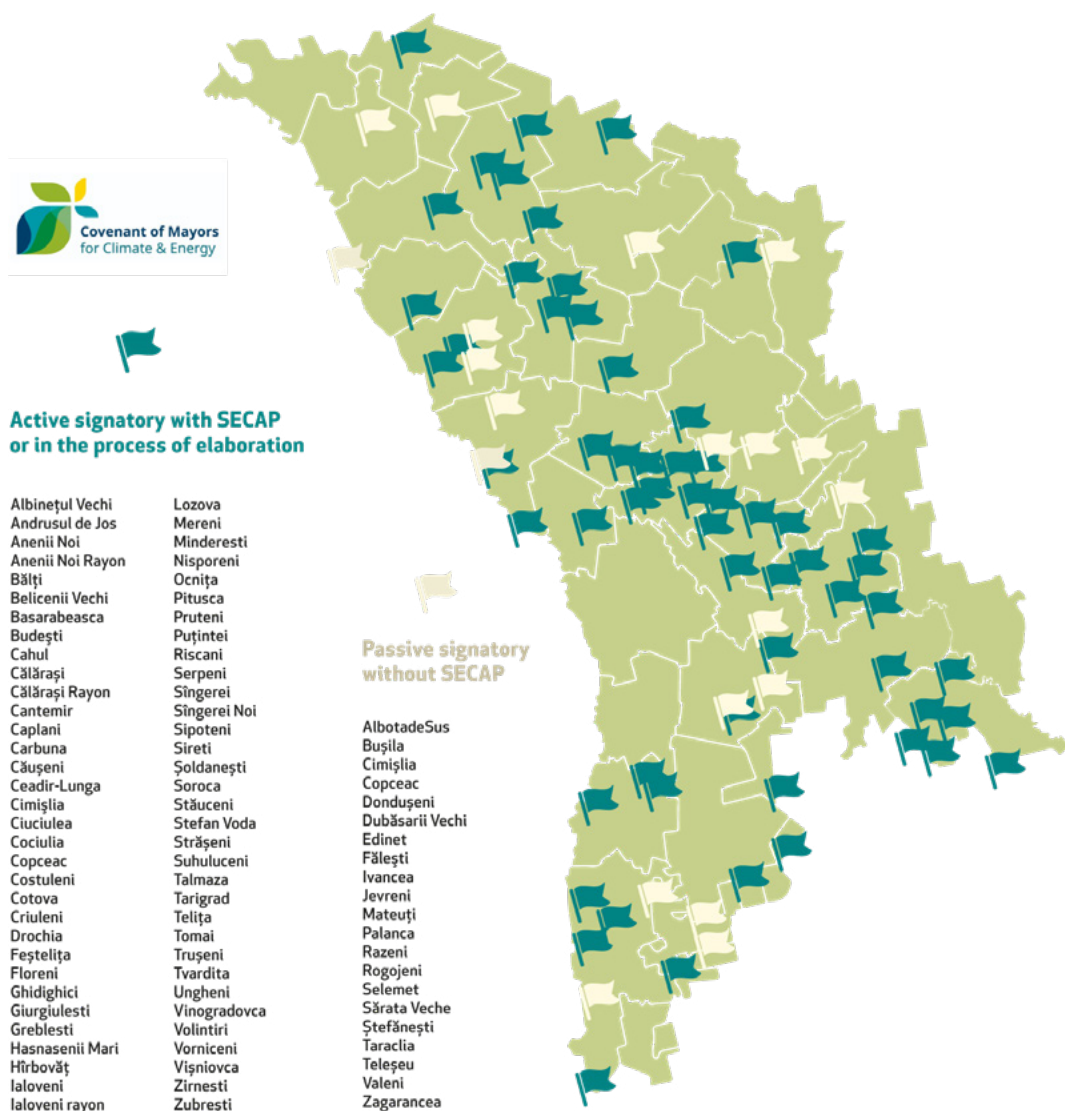
The Sustainable Energy and Climate Action Plans (SECAPs) are considered the solution for the implementation of the NDC targets at the local level. Around 60 municipalities (primaria/mayoralities) are

active in the Covenant of Mayors in Moldova. In the last 10 years around **30 of them developed the SECAPs** with the support of the EU4Energy/Covenant of Mayors or integrated energy and climate objectives in local development plans.

According to the Law on energy each municipal/raion level has to have energy efficiency policies. The motivation to develop such plans is basically to have access to international funding (main reason) and as secondary reason achieving energy/budget savings and emission reduction.

The Covenant of Mayors is not a funding tool. It can provide assistance in the development of an Action Plan. Project proposals development is used as a pipeline tool for future projects investments. Currently the Covenant of Mayors East works with 5 Moldovan localities: Budești, Sireți, Vorniceni, Mereni and Lozova - for the development of SECAPs. The technical assistance for express energy audits is provided: 10 audits are done.

As examples from past success stories, involving localities, which developed action plans, could be indicated the projects in Cantemir, Festelita, Calarasi, Ocnita etc (street lights, heating with biomass (use of vegetable parts after cutting of branches of the trees and in vineyards etc).



For a map with three main components:

List of localities, signatories of the Covenant of Mayors, Moldova: <https://eu-mayors.ec.europa.eu/en/signatories>

List of localities, which developed and Action Plan: https://eu-mayors.ec.europa.eu/en/action_plan_list

Practice sharing (pilot projects): https://eu-mayors.ec.europa.eu/en/key_action_list

2.2.2 Local Plans for Climate Change Adaptation

The driving force for the processes of development of such plans and development and implementation of relevant projects in Moldova - in most cases - are the **mayors** (having several mandates and ensuring team work, project development and continuity). The success is ensured by the political will, strong cooperation with the civil society, and more different civil society organizations involved in the process. The social level - difficult to ensure if the mayors did not have support from the local councils or from the population. The mayor's motivation is to attract project money as most citizens would assess the mayor's achievements in the infrastructural improvements were implemented.

An example of a plan is the **Plan of Adaptation to the Climate Change of the town of Ialoveni for the years 2022-2025**, developed by Business Consulting Institute within the NAP2 UNDP project. As a result, the city of Ialoveni benefited from a plan with an integrated response to adapt to climate change, that best responds to local needs to strengthen climate change resilience.

A large part of the factors that influence the quality of the environment in the city of Ialoveni come from the activity economy carried out on the territory of the locality. An essential aspect that influences the quality and preservation of the environment is the manner and practices of **waste collection and storage**. As in most district centers, the existing landfill is overloaded and the practice of burning waste still persists. **Transport** is in turn another factor that pollutes the environment of Ialoveni and not only from the point of view of air quality, as well as acoustics.

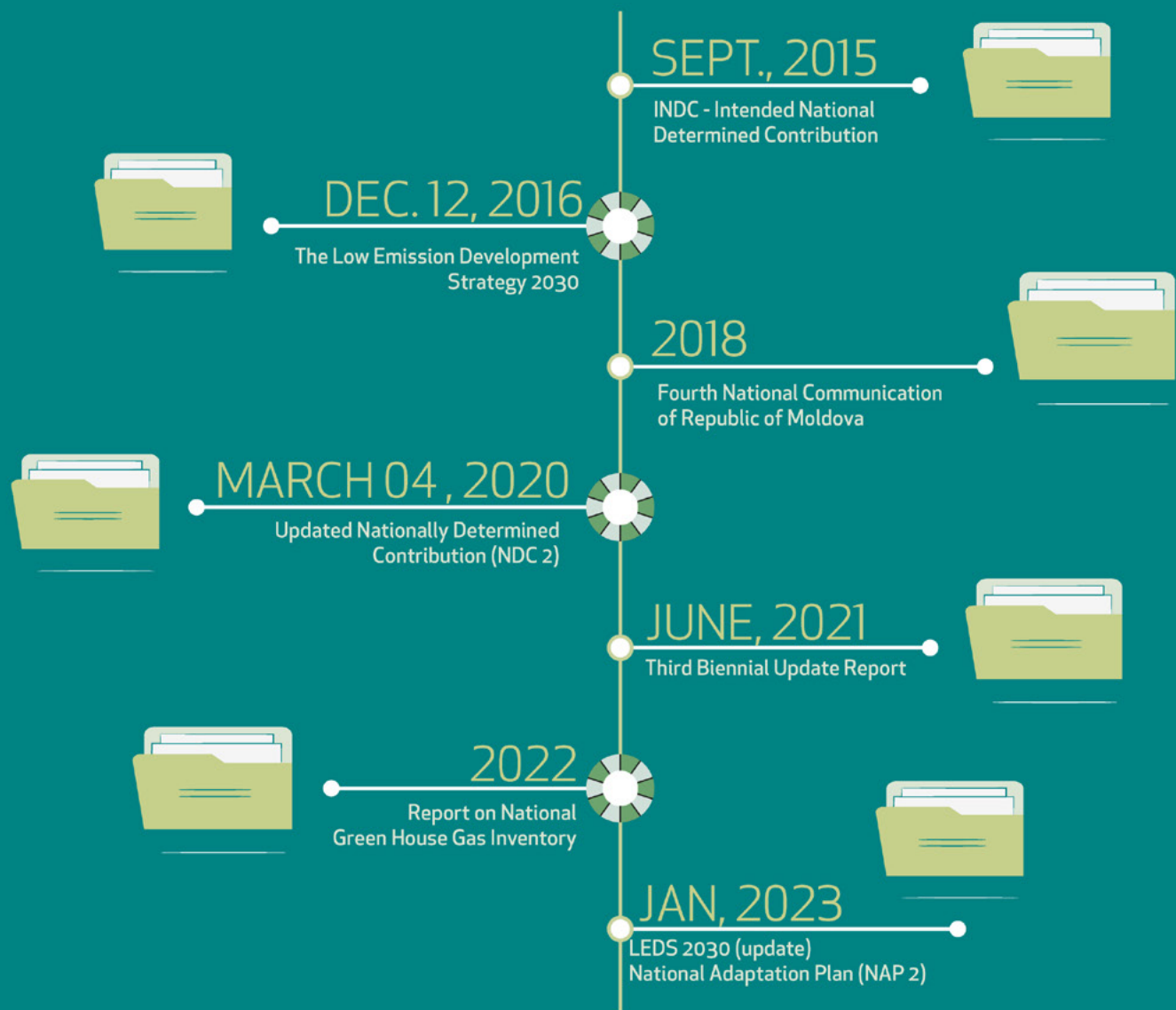
By signing the new European Convention of Mayors for sustainable energy and climate, Ialoveni voluntarily committed to achieving the objective of reducing CO₂ emissions by at least 40% by 2030, thus sharing a common vision for a sustainable future and committing to develop low carbon emissions. Ialoveni is committed to acting in these areas, focusing on improving energy efficiency and on increasing the efficient use of local renewable energy resources in the sectors under their direct influence, as well as the creation of ecological zones in the city sectors, through afforestation and planting of parks.

2.2.3 Monitoring indicators at the local level

The link between the NDC, SECAPs and activities implemented by the LPA, especially related to monitoring of indicators, have to be improved. In this case the real monitoring of the implementation of the laws and governmental regulations at the local level could be strengthened and taken into consideration for reporting. The reason for the appearance of SECAPs is not the NDC. The mayors who were interviewed due to this research stated that no national strategy was a driving force for their processes. The research shows that Moldovan mayors that sign the Covenant of Mayors and start to protect the climate locally, are not part of a vertical implementation of government strategies. The cultural differences between the urban governmental bodies facing their communication about Climate Protection to international partners and rural village mayors are too big and communication doesn't work. The motivation for the mayors is international funds and direct investments for their communities. Climate protection is a conscious by-product. NDC-implementation is a non-conscious by-product.

At the same time, **energy managers** exist only at rayon level (regional level, not necessarily locally linked). If there is no controlling mechanism at the local level - there are no funds. If LPAs save money by saving energy in public buildings, they won't be allowed to use that saved money in their sense as the state will take it back. Hence, there is **no incentive for LPAs to save** the budget money, as it could not be used at local level.

Chapter 3 The REPORTING



3.1 Third Biennial Update Report

The Republic of Moldova is systematically reporting to UNFCCC and presenting the Biannual Reports, National Communications, Inventory Reports and Reports on the National Greenhouse Gas Inventory System in the Republic of Moldova.

The Third Biennial Update Report (BUR3) of the Republic of Moldova prepared to be reported to the United Nations Framework Convention on Climate Change (UNFCCC) was compiled in June 2021 **with financial assistance provided by the Global Environment Facility (GEF)** through the project “Republic of Moldova: Preparation of the Third Biennial Update Report to the United Nations Framework Convention on Climate Change”, initiated on 28 January 2019 and completed on 31 December 2021; managed by the United Nations Environment Program and implemented by the Public Institution “Environmental Projects Implementation Unit” of the Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova (currently, the Ministry of Environment, since July 2021).

As compared to the Second Biennial Update Report (BUR2) of the Republic of Moldova to the UNFCCC (2019), BUR3 presented an updated review of the state of the art in the Republic of Moldova for the main issues regulated by the Convention. These relate to assessment of the trend of greenhouse gas emissions at national and sectoral level, presentation of climate change mitigation measures undertaken at national level, support and capacity needs for reducing greenhouse gas emissions at national and sectoral level on a larger scale. It is important to note that these assessments can also be used to update the mitigation targets set in the Updated National Determined Contribution of the Republic of Moldova (2020), prepared in accordance with Decisions 1/CP.19 and 1/CP.20 of the Paris Agreement (2015) – legal instrument with legal force applicable in relation to all Signatory Parties to the Convention, in accordance with the objective of maintaining global warming at a projected growth below 2°C by 2100 as compared to the pre-industrial period.

The Biennial Updated report of the Republic of Moldova to UNFCCC was submitted in June, 2021, stating that in accordance with Government Decision no. 444 of 01.07.2020 on the establishment of the mechanism for coordinating activities in the field of climate change, the **National Commission on Climate Change** was established. The nominal composition of the National Commission is approved by the Government and the Commission consists of 17 members – 10 representatives of central and local public authorities and 7 representatives of educational and scientific institutions, of nongovernmental organizations and the private sector. The Commission is an inter-institutional body set up for the purpose of coordinating and promoting the measures and actions necessary for uniform application of the UNFCCC and the Paris Agreement provisions on the territory of the Republic of Moldova.

3.2 The Fourth National Communication

The Fourth National Communication of the Republic of Moldova under the United Nations Framework Convention on Climate Change (2018) has been developed with the financial assistance of the Global Environment Facility through the Project “Republic of Moldova: Enabling Activities for the Preparation of the First Biennial Update Report and the Fourth National Communication under the United Nations Framework Convention on Climate Change”, initiated on July 7, 2014 and completed on December 31, 2017; managed by the United Nations Environment Programme and implemented by the Climate Change Office of the Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova.

In comparison to the Third National Communication of the Republic of Moldova under the United Nations Framework Convention on Climate Change, this Report presented an updated overview of the state of work in the Republic of Moldova for the main issues covered by the Convention. They affect the assessment of greenhouse gas emissions pace and dynamics at national and sectoral level, the mitigation measures adopted at national level, the assessment of vulnerability and the needs for adaptation to new climate change conditions for key sectors of the national economy and human health, the capacity support and needs in order to decrease these emissions at a larger scale, respectively the capacity support and needs in order to ensure better resilience and adaptation to new climate conditions determined by the phenomenon of climate change.

3.3 The National Inventory Report

The National Inventory Report (30 June 2022, “Green House Gas Sources and Sinks in the Republic of Moldova, 1990-2020”) has been developed within the “Republic of Moldova: Enabling Activities for the Preparation of the Fifth National Communication to the United Nations Framework Convention on Climate Change” Project, implemented by the Public Institution “Environmental Projects Implementation Unit” (PI “EPIU”) of the Ministry of Environment (MoE) and the United Nations Environment Programme (UNEP), with financial support of the Global Environment Facility (GEF), from August 2019 through October 2022. The National Inventory Report reflects the efforts made by the National Inventory Team throughout 2021-2022.

In addition to the GHG emissions inventory results in the Republic of Moldova, the Report also contains relevant information such as the analysis of recent trends in GHG emissions and sinks, the analysis of key categories, additional sectoral data utilized in emission inventory, data regarding the activities related to inventory quality control and uncertainty management. The UNFCCC stipulates that greenhouse gas emissions shall be monitored through the application of a set of methodologies and guidelines developed by the Intergovernmental Panel on Climate Change (IPCC) and approved by the UNFCCC. These guidelines describe how to assess GHG emissions, as well as the structure of national communications, biennial update reports and national inventory reports. They serve as an effective tool for generating multiple indicators utilized to compare the performances of the Parties of the UNFCCC.

The Convention also obliges its Parties to continuously improve the quality of national inventories. Through the series of initiatives, which are part of the answer that the Republic of Moldova has to offer to the phenomenon of climate change, the assessment of emissions increases its ability to monitor and report GHG emissions, both nationally and internationally.

The “Report on National Inventory System in the Republic of Moldova - 2022” (30 April 2022) was developed within the Project “Republic of Moldova: Enabling Activities for the Preparation of the Fifth National Communication to the United Nations Framework Convention on Climate Change” implemented by the Public Institution “Environmental Projects Implementation Unit” and United Nations Environment Programme, with financial support of the Global Environment Facility, drawing on six templates worked out by the Environmental Protection Agency of the United States of America (US EPA)¹.

The Report provides complete documentation of every major component related to the inventory management process in the Republic of Moldova on anthropogenic emissions of greenhouse gases by sources and removals by sinks, which are not regulated by the Montreal Protocol.

Although the Sustainable Energy and Climate Action Plans (SECAPs) could be considered a the solution for the implementation of the NDC targets at the local level, only around 60 municipalities (primaria/mayoralities) are active in the Covenant of Mayors in Moldova and in the last 10 years only around 30 developed the SECAPs with the support of the EU4Energy/Covenant of Mayors East or integrated energy and climate objectives in local development plans. This number is very low in comparison with European countries and, if funds are not available to implement the provisions of the SECAPs, they remain mainly a theoretical document.

In order to present the best practices in the country, after consultation with main stakeholders three representative case studies were selected as best practice examples of application of energy efficiency and renewables, which serve both economic, environmental and social goals.

Chapter 4. The Actions

4.1 Case-study 1: Feștelița village

Case-study 1:

Plantation of Willow for Biomass Production and Modernization of the Street Lighting System in Feștelița village

The project was implemented in the period of January 2018 - January 2021.

Total cost - 800 000 Euro (500 000 Euro - EU, 300 000 Euro - community contribution).

Feștelița village, Stefan-Voda Rayon of the Republic of Moldova, became a signatory of the Covenant in June 2013 and approved the Sustainable Energy Action Plan in May 2014.

What was done:

- ▶ Installation of solar panels systems for water heating at kindergarten
- ▶ Installation of biomass burning boiler rooms at 4 public institutions: a kindergarten, a gymnasium, a culture house, and a mayoralty
- ▶ Plantation of at least 4 ha with Energy Salix Willow
- ▶ Installation of 200 environmentally friendly streetlight luminaires
- ▶ Establishment of a 300 kW PV solar park

Who benefited:

- 166 children have more comfortable temperature and humidity conditions in the kindergarten
- 278 pupils have more comfortable temperature and humidity conditions in the gymnasium
- 2, 868 inhabitants of the village of Feștelița feel more comfortable and safer in the streets during the night-time
- 740 visitors have more comfortable indoor conditions in the House of Culture
- 98 staff members of the kindergarten, gymnasium, and the City Hall work in more comfortable indoor conditions
- 41 people (project team, construction workers, experts, etc.) involved in project implementation contributed to the local economy
- In autumn 2022 when many other communities had to decrease their services due to high energy prices, people in Feștelița felt on an island of independence and full services.

Results and Impact:

Energy consumption was reduced with: - 37% (mostly due to LED street lightning)

CO₂ emission were reduced by: -48%

Monetary savings: 57,220 EUR annually, 14 % of total budget of Festelita municipality

86 MWh/y, or 8 % energy savings

397 t/y, or 95% reduction of CO₂

1,008 MWh/y, or 89 % production energy from renewable energy source

Background:

The Covenant of Mayors is the world's largest movement for local climate and energy actions, supported by the European Union. In the Eastern Partnership region, over 400 local authorities have voluntarily committed to reduce their CO₂ emissions by at least 20% by 2020 or 30% by 2030. The European Union has been supporting the Initiative in Eastern Partnership countries since 2011 with its technical, methodological and financial assistance of over 30 million Euro. This includes grants and tailor-made technical support for 34 municipalities for demonstration projects since 2015, predominantly in the area of energy efficiency.

"Creation of excellence center through piloting demonstrative new energy efficiency technologies and renewable energy sources in Feștelița community, Stefan-Voda district" - it is a project addressed to the citizens of the Feștelița that, for a long time, modernization of the village, to use technologies in the field of energy ECO, to reduce CO₂ emissions, to gain energy independence and to adapt with positive behaviors towards environmentally friendly. So, in the village 5 typologies of sub-projects will be implemented: intelligent street lighting, solar collectors, biomass boilers, energy tree plant, photovoltaic park. The benefits are all those 3000 inhabitants through social institutions, social, educational and cultural activities organized for this purpose.

Specific Objective

- ▶ To address energy security and contribute to energy savings, energy efficiency and reduction of CO₂ noxious emissions in the atmosphere.

To overcome barriers in the use of solar and biomass energy production technologies by providing examples of best practice as a viable alternative to gas, oil and coal and as a sustainable way of Environment Protection.

- ▶ To reduce the national/local dependence on imported energy sources.
- ▶ To promote new EE measures and RES using technologies and increase the quality of municipal services.
- ▶ To increase the share of RE in the total final energy consumption of the target community.

Obtained Results

- In 4 public institutions to be installed biomass burning boiler rooms.
- Solar panels systems for water heating to be installed in the kindergarten.
- 266 LED environmentally friendly street light luminaries installed on public streets and intelligent management system.
- A 312 kW PV solar park for electricity production to be built.
- A min. 4ha with short rotation energy crops for biomass production to be planted.
- Provisions of local SEAP to be implemented.
- To reduce CO₂ emissions with circa 465 tones/year at local level.
- To raise awareness and skills level of LPAs and population in the field of EE and RES.
- To involve the local population in the above.



The implemented street lighting modernisation project in the village of Feștelița, in south-eastern part of Moldova, is the first Nefco financed project in the country. The installed energy-efficiency measures have resulted in 52% or 50,000 kWh annual electricity reductions.

4.2 Case-study 2: Cantemir city

Case-study 2:

Thermal refurbishment of 2 Kindergartens, a Lyceum and Gymnasium in Cantemir city

The project was implemented in the period of January 2018 - January 2021.

Total cost - 951 712 Euro (674 240 Euro - EU, 277 473 Euro - city contribution).

Cantemir city became a signatory of the Covenant since June 2013 and approved the Sustainable Energy Action Plan in August 2014.

What was done:

- ▶ Thermal refurbishment of the Kindergarten #2 "Curcubeul"
- ▶ Thermal refurbishment of the Kindergarten #1
- ▶ Thermal refurbishment of the Eminescu Gymnasium
- ▶ Thermal refurbishment of the Cantemir Lyceum
- ▶ Construction of boiler house/Installation of biomass boiler to serve Kindergarten #2 and Eminescu Gymnasiu

Who benefited:

- 303 children have more comfortable temperature and humidity conditions in the kindergartens
- 643 pupils have more comfortable indoor conditions in their schools
- 151 staff members of the schools and kindergartens work in more comfortable indoor conditions
- 58 people (project team, construction workers, experts, etc.) involved in project implementation contributed to the local economy

Results and Impact:

Monetary savings: 91.817 EUR annually, 15 % of total budget of Cantemir municipality

1,646 MWh/y, or 60 % energy savings

699 t/y, or 84 % reduction of CO₂

678 MWh/y, production, or 100 % clean energy from renewable energy sources for heating of kindergarten #2 and gymnasium

Renewable green energy ensures the energy security of four educational institutions in the town of Cantemir, with the support of the European Union. The first biomass boiler plant using vegetable waste collected from vineyards and orchards was built to provide heating to two educational institutions. The official ceremony on the presentation of the project's results and innovations applied in the locality took place in the context of the European Sustainable Energy Week 2021.

The gymnasium "Mihai Eminescu" from Cantemir town is the only public institution in the Republic of Moldova that, with the financial support of the European Union, has a biomass heating plant using dry tree and vine branches collected after pruning the orchards and vineyards, produced from the vegetable waste provided by the winemakers from the region. Besides the diversification of energy sources, the heating system contributes to environmental protection by avoiding illegal practices of burning vegetable mass in the open air. Cantemir's innovative example fits within the priorities endorsed at the European level through the EU Sustainable Energy Week (EUSEW), which this year is conducted under the theme "Towards 2030: Reshaping the European Energy System".

The demonstration and innovative components were as well carried out in three other educational institutions of Cantemir – in two kindergartens and a Lyceum. In total, the project has over a thousand beneficiaries, of which 303 children have more comfortable temperature and humidity conditions in kindergartens, 643 students have more comfortable indoor conditions in their schools and 151 members of school and kindergarten personnel in more comfortable interior conditions.

The four educational institutions already recorded energy savings of up to 60%, channeling the money saved towards other needs. Renewable energy sources are used to produce other 678 MWh/year. Thanks to the European Union contribution, the annual monetary savings in Cantemir amounted to 91,817 euros or 15% of the annual budget of the town.

4.3 Case-study 3: Călărași city

Case-study 3:

Modernization of the street lighting system in Călărași city

The project was implemented in the period of January, 2018 – December, 2020.

Total costs - 680 750 Euro (545 600 Euro - EU, 135 150 Euro - community contribution).

Călărași city became a signatory of the Covenant since December 2012 and approved the Sustainable Energy Action Plan in November 2013.

What was done:

- ▶ Replacement of 916 old luminaries with LEDs
- ▶ Replacement of 21 km of cables
- ▶ Installation of automated and online control system, including dimming features
- ▶ Installation of architectural lighting for 2 public buildings/objects

Who benefited:

- 16,100 citizens of Călărași feel more comfortable and safe in the streets during night-time
- 23 people (project team, construction workers, experts, etc.) involved in project implementation contributed to the local economy

Results and Impact:

Monetary savings: 61,086 EUR annually, 3.1 % of the total budget of Călărași municipality

469 MWh/y, or 88 % energy savings

222 t/y, or 88 % reduction of CO₂



Around 17,000 inhabitants of Călărași benefit from a modern street lighting system, which can be controlled remotely. The length of the street lighting network is 25 kilometers, it ensures energy savings and reduced maintenance and operation costs. Călărași town has also become brighter after the architectural lighting of the building of the local Museum of History and Ethnography and 20 pedestrian crossings were illuminated according to European energy standards. All the energy efficiency measures were made possible due to the support of the European Union. The official launch event of street lighting in Călărași town took place on 19 November this year, in the context of the European Climate Diplomacy Week and the European Sustainable Energy Week 2021.

The energy efficiency measures applied in the lighting system of Călărași are part of the “Efficient public lighting in Călărași – Firefly in the heart of forests” project. The project, implemented by the Călărași Town Hall, in partnership with IDIS “Viitorul” is funded by the European Union through the EU Programme “Covenant of Mayors – Demonstration Projects” and is co-financed by the Călărași Town Hall and the Agency for Energy Efficiency.

The technologies for the lighting system modernization in Călărași town, applied with the support of the European Union, are integrated into a single system and are intended to bring added value to the whole project, but also to amplify the benefits and advantages of a public lighting system.

Chapter 5.

Conclusions and recommendations

5.1 Conclusions

Main conclusions are as follows:

1. Horizontal mainstreaming

- ▶ There is no political horizontal mainstreaming of climate politics, there is no systemic vision in this government, nor in any other before. There is not a clear vision of the line ministries on the NDC objectives, there are no measurements of CO₂ at the sector level and the NDC did not contain clear obligations for sectors. The process has just started last year. In February 2023 a new government was formed and one of our interviewed persons, Victor Parlicov, became minister for energy. He showed high awareness about this problem of mainstreaming. There is hope that more ministries will get in line with the NDC targets and in general with climate protection.
- ▶ The NDC 2 goals were not too ambitious at the level of 2020 (EU4Climate support). The NDC goals are clear, but how to achieve them: the idea of the LEDES 2030 - Low Emission Development Program 2030 under development, which also passed the SEA procedures, accordingly. The LEDP 2030 is included in the PAG 2023 - to be approved by the Government in the second quarter, 2023. It contains sectoral policies for: energetics, transport, industry, land use and forests - 7 sectors and NAMAs developed, with realistic targets. The NDC have to be updated every 5 years - in 2024 we need to think about the next round of updates. The goals of the Energy Community Treaty - the decarbonisation roadmap - differ from the ones from the NDC (27%).
- ▶ Until now the Environmental Ministry is basically left alone with the task of mitigation and adaptation. Weak subordinated institutions with poorly paid staff lead to little implementation and little fund absorption capacity. Marginalization of the NFP on Climate Change in the previous decades - the Ministry of Environment was always the last one in terms of budget and importance in the governance. There were not sufficient financial resources for the implementation of the CC policies. Before Maia Sandu (became president in 2020) no high ranking Moldovan politician talked about climate change as it was not a promising winning topic. The topic was left within a weak, marginalized Ministry of Environment.

2. Concretization in adaptation

- ▶ Two projects support the Government to develop new/updated policy documents: NAP 2 - National Adaptation Plan till 2030: 7 sectors, for which measures have to be established. It is not set up yet, how much will reduce each sector. NAP 2 - is at the public consultations stage (level of experts, the Ministry will be consulted, as well); and LEDP 2016-2030 - Low Emission Development Program - have to be updated now - the draft concept was developed and passed by SEA. Will be updated for all 7 sectors, for the conditioned and unconditioned targets. The overall goal - Moldova to be aligned to the EU goal - 2050 carbon neutrality;

- ▶ The adaptation component is based on 6 priority sectors: water, forests, health, transport, energetics and agriculture (covered by FAO). The actions from NAP are based on the directions from NDC: the Sectoral Working Groups for each priority sector decide on the targets. 5 WG coordinated by the NAP project. There are no direct indicators for the CC Adaptation - most of the indicators used - describe the process of adaptation, not the real impact and there are no indicators, which could be calculated. Only in forests 6-10 indicators could be calculated: Category 1: calculated indicators - have a methodology; Category 2: indicators, for which we need to adjust the methodology (but exists data series); Category 3: indicators, for which we did not have data or complicated methodology; in the field of health, for example, and transport, there are no indicators, which fall into the Category 1; CC adaptation measures are included in local development plans - at the moment 8 with the project support;

3. Vertical mainstreaming - how to make climate a national topic?

- ▶ Local level: national policy documents are developed at the national level, as UNFCCC comes to the Ministry of Environment, but the MIRD worked with the Energy Community (until a newly created Ministry of Energy was created in February 2023), with goals in energy sector, but their targets are different than the ones in the NDC. The ministries did not have tools for CO₂ measurements or calculation, thus, they could not estimate their impact or report, based on that. To UNFCCC is reporting the Ministry of Environment, based on the statistical data (energy balance etc). The Working Group on inventory is preparing the reports, involving experts in various sectors, including specialists from ministries;
- ▶ There is a **lack in data cohesion**: The Environmental Agency collects data (statistical, from economic agents) and the energy balance (methodologies TR1 and TR2) but on a local level for the mitigation there is no estimation of emissions, only actions are included, thus that the localities will be more resilient towards CC. The emissions at local level are mainly from: production of heat, transport, and residential area. The role of mayors/local councils is to inform the population about the air pollution;
- ▶ There is a **lack of communication between the national and the local level**. This is a big topic not only for Climate Change issues. How can the NDC become a factor for a village if hardly any data are exchanged? The national plans, strategies and maybe soon even a law on climate don't seem to reach the villages. The regional level (in Moldova "rayons") with more capacities than villages and an **energy manager could play a more important role** and a moderator here. In interviews it was explained that Moldovans working for the government in Chisinau use to learn a different language and attitude than it would be helpful for collaborations with the rural levels. The reason is also here the external donor/drivenness of Moldova. People in the Ministries seem to be more related to the international donor sphere than to their rural population.

4. Newest developments in Ukraine and on the energy markets demand new priorities for Moldova

- ▶ The Russian aggression on Ukraine and the energy crisis had two effects on the topic of environment and climate: Climate Change received much less attention as energy security was the priority. Beside that more attention was given to energy efficiency and more independence from Russian gas. Like on a global level the attention from the Climate Crises is taken away and parallelly a **window of opportunities is open in the energy sector**. The goals for Energy efficiency and renewables seem to be realistic - and dramatically needed.
- ▶ In the field of renewables, wastes and forestry - chances to meet targets - exist. However the dramatic rise of gas prices in late 2022 (the price became four times higher than one year before) can also cause illegal cuttings in the hardly existing Moldovan forests. The afforestation campaign starting in 2023 might come too late. Still, it is the right way to go when it comes with investments in energy efficiency. Insulating houses in the countryside should become a priority to prepare for the next winter.

- ▶ The transport sector looks much more complicated when it comes to mitigations. The number of private cars is increasing and the emissions from transport, too. With slowly increasing wealth in the middle class this tendency seems to be unstoppable. Public transport is only slowly developing, even though there are already electric buses in and around Chisinau.

5. Cultural aspects: 30 years of donor orientated Chisinau lost touch with rural Moldova

- ▶ Moldova over the past 30 years has faced a structural problem that causes multiple negative effects: in short, weak state institutions with **poorly paid staff become dependent on external aid**. This causes an orientation of these state institutions towards these international donors and not to their population. In our case most of the strategy papers, even the NDC were a product of an externally paid expert group (here UNDP). One major concern to the next NDC seems to be that the Ministry has to find external funding and an external partner to work out the next NDC in 2024.
- ▶ People within the ministry are still paid poor salaries (400-500 €). The good jobs are outside the ministries for international expert groups and NGOs. This changes the focus and the language used in ministries - and might also negatively affect the attitude towards the LPAs where the implementation has to happen. Not only once was stated in the interviews that there is a **lack of contacts and a lack of "common language"** or eye-level. We see the structural problem as the major cause. Higher salaries, capacity building within ministries should be a step to become more independent from foreign money.
- ▶ The regional level and LPA representation groups like Congress of Local Authorities from Moldova should take over a more significant role in the communication between the national and the local level. Projects like the Covenant of Mayors are possibilities for LPAs to get their voices heard.

5.2 Recommendations

5.2.1 Recommendations to political levels

The recommendations were structured according to the intervention domain or implementation level.

Structural

- ▶ Mainstream CC priorities at a higher policy/political level and in all sectoral policies;
- ▶ Update, strengthen the role and facilitate the operation of the National Commission on Climate Change and a inter-ministerial coordination and cooperation mechanism in the domain;
- ▶ Strengthen the human and financial capacities of the Ministry of Environment for the coordination of the implementation of the NDC2 and LEDP 2030;
- ▶ Pilot projects/success stories and SECAPs to be promoted widely in the entire country;
- ▶ Promote the development of the SECAPs in all localities of the country, based on available best practices;
- ▶ Establish a national funding mechanism

Transparency

- ▶ LPA to be broadly involved in the development of the policy documents in the field of CC at the national level;
- ▶ Use the capacities of the NGOs for the information, awareness and broad dissemination of the information at local level about CC, adaptation and mitigation;
- ▶ Dedicated CC official web and FB pages to be maintained and regularly updated by the Ministry of Environment or its designated subdivision;

Reporting

- ▶ Improve the capacities of line ministries (Ministry of Energy, Ministry of Economic Development and Digitalization, Ministry of Infrastructure and Regional Development, Ministry of Agriculture and Food Industry) for the monitoring and reporting of the CO₂ emissions from their sectors and part of monitoring and evaluation of efficiency of their sectoral actions and contribution to the NDC targets, their monitoring and reporting;
- ▶ Develop the mechanism of using the local data for the national reporting;
- ▶ Attract funds for the next Biennial Reporting and organize the process;
- ▶ Develop and secure funding for the transparent and participatory CC nationwide reporting
- ▶ Strengthen the capacities of the Environmental Agency and change the process of reporting from project based (outsourced/externalized) - to the institutional based, using the human and technical capacities of the agency

5.2.2. Recommendations to the national and local level

National Level

- ▶ the National Commission on CC did not work, have to be updated and facilitated;
- ▶ need of a meeting at the level of the Minister of infrastructure and regional development to identify the position of the ministry on the issue
- ▶ NDC monitoring has to be improved over the sectors: CO₂-assessment in all ministries

LPA:

- ▶ Climate Change Adaptation and Mitigation priorities are to be: energy efficiency of public buildings; roads with good rain water drainage infrastructure
- ▶ There has to be designed an incentive way so that saved money by energy efficiency can be used and invested next year
- ▶ good practices have to be promoted, SECAPs should be mandatory together with incentives
- ▶ still a lot depends on the mayor in office. Capacity building, energy management in villages should be on the priority list for each community, supporting by the regional level

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List of interviews taken for this research:

1. **Victor Parlicov**, Director, Green City Lab, Jan 26, 2023, 14:00-15:40
2. **Stela Drucioc**, Head of air and climate change Division, Andrei Cucos, senior specialist, Ministry of Environment, Jan 30, 2023, 10.45-11:45
3. **Ecaterina Melnicenco**, Viorica Staver, NAP2 Project, UNDP, Jan 30, 2023 14.00-15:20
4. **Marius Taranu**, Climate Change expert, Moldova Energy Security Activity, USAID Coordinator, TETRA TECH, Jan 31, 2023, 9:00-10:30 **Irina Plis**, AEER, coordinator for Covenant of Mayors East, Jan 31, 2023 10.00-11:30
5. **Nicolae Tudoreanu**, mayor of Feștelița, Jan 31, 12.00-13:15
6. **Juntina Grigaraviciene**, EU High Level Adviser on Environment and Green Transition, Jan 30, 8.30 - 10.30.

