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Summary of the international experience with national adaptation strategies development to be used in the Ukraine NAS process

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The report summarizes the international experience in the national adaptation planning process, which might be considered within development of the National Adaptation Strategy of Ukraine by 2030.

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Summary of the international experience with national adaptation strategies development

Many countries across the globe have already significant achievements in the realm of creation of legislative and regulatory framework for climate change adaption actions and measures. Adoption of climate change adaptation strategy is one of the most important steps not only to start the adaptation process, but to make it complex, nation- and even region-wide. In Ukraine, the process of climate change adaption strategy development has only begun, therefore, the international experience and particularly that of immediate neighboring countries is of great interest, especially given the fact that neighboring countries in the region usually face similar threats and challenges of weather and climatic conditions. The experience of Germany, Poland, Moldova, Romania and Belarus could be of use in Ukraine, and some of these countries (Germany, Romania and Poland) are the members of the European Union that already has a comprehensive adaptation policy.

In the EU countries, the endeavors in the realm of climate change adaptation are closely tied to the regulation in the realm of the energy sector, as the energy sector has significant potential in mitigation, in particular of GHG reduction, implementation of energy efficiency measures, and use of renewable energy. In 2013, the **EU Strategy on Adaptation to Climate Change**[1] was adopted. It establishes three objectives as follows:

- promoting actions by all Member States, even though 15 Member States had their Adaptation Strategies by 2013. Besides, Euro Commission encourages cities to adopt their strategies in frame of the Covenant of Mayors initiative;
- promoting decision making, in particular by enhancing the existing knowledge base at the platform Climate-ADAPT;
- promoting adaptation in the most vulnerable sectors by means of enforcing the infrastructure and employment of insurance mechanism.

The priorities indicated are expected to be reached by means of 8 actions, such as the creation of dedicated LIFE funding program[2], aimed particularly at adaptation measures; conducting EU-wide vulnerability assessments, as well as integrating adaptation to the Common Agricultural Policy (CAP), the Common Fisheries Policy, and the Cohesion Policy. The Strategy consists of the following related documents:

- Communication: "An EU Strategy on Adaptation to Climate Change", COM (2013) 216;

[1] The EU Strategy on adaptation to climate change (2013) https://ec.europa.eu/clima/sites/clima/files/docs/eu_strategy_en.pdf
[2] http://ec.europa.eu/environment/life/

- Impact Assessment (vol. I and II), Commission Staff Working Documents, SWD (2013) 132 and SWD (2013) 133;
- Green Paper on the prevention and insurance of disasters, COM (2013) 213;
- Climate change adaptation, marine and coastal issues, Commission Staff Working Document, SWD (2013) 133;
- Guidelines on developing adaptation strategies, Commission Staff Working Document, SWD (2013) 134;
- Technical guidance on integrating climate change adaptation in programmes and investments of Cohesion Policy, Commission Staff Working Document, SWD (2013) 135;
- Adapting to climate change impacts on human, animal and plant health, Commission Staff Working Document, SWD (2013) 136;
- Adapting infrastructure to climate change, Commission Staff Working Document, SWD (2013) 137;
- Climate change, environmental degradation and migration, Commission Staff Working Document, SWD (2013) 138;
- Principles and recommendations for integrating climate change adaptation considerations under the 2014-2020 rural development programmes, Commission Staff Working Document, SWD (2013) 139;
- Guidelines for Project Managers: Making vulnerable investments climate resilient, non-paper, together available at[3].

The Strategy indicates the past and expected future displays of climate change for various European regions from Arctic to the Mediterranean region and Central and Eastern Europe. It says that the minimum cost of not adapting could reach EUR 250 billion by 2050. Therefore, *20% of the EU budget (EUR 960 billion) is agreed to be spent on adaptation and mitigation,* should it be projects or measures in industry, or agriculture, or forestry or any other sector the Member State finds vulnerable.

The Strategy was evaluated (based on achievements) in 2018[4]. The evaluation found that there are still vulnerable areas and regions, and more actions and measures need to be undertaken to enhance the overall resilience. In 1980-2016, the overall losses caused by climate change, reached EUR 436 billion, amongst which Germany suffered the most (Fig.1)

[3] EU Adaptation Strategy https://ec.europa.eu/clima/policies/adaptation/what_en

[4] Report from the Commission to the European Parliament and the Council on the implementation of the EU Strategy on adaptation to climate change. COM/2018/738 final https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:738:FIN

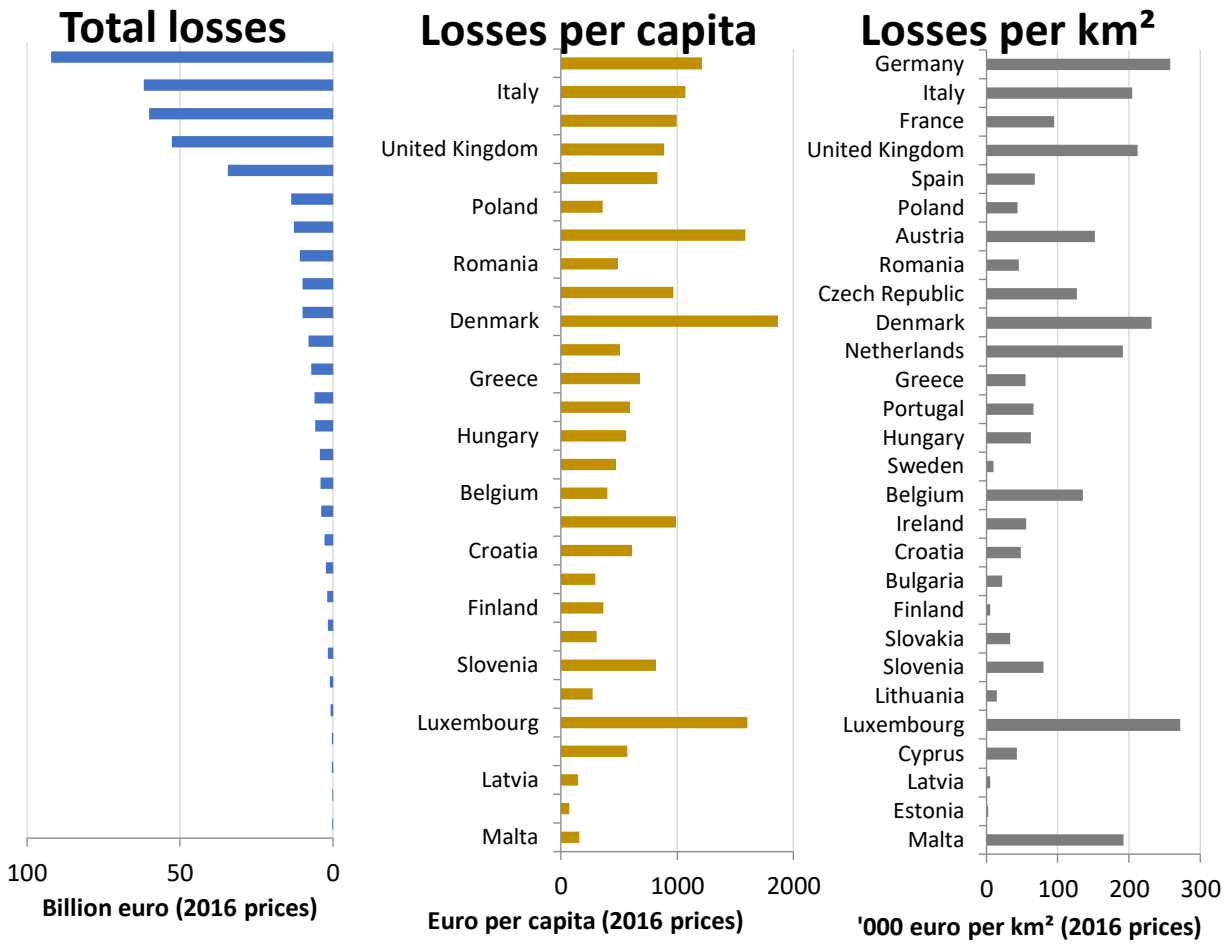

Fig.1 Economic losses in Europe caused by climate change in 1980-2016, billion EUR_{2016}

Source: Report from the Commission to the European Parliament and the Council on the implementation of the EU Strategy on adaptation to climate change. COM/2018/738 final https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:738:FIN

Critical infrastructure will remain fragile if business-as-usual persist (i.e. no measures are undertaken), especially in realm of energy, transport and industry. Each region would have their own losses caused by adverse weather effects, such as increased mortality to high temperature in the Mediterranean region, or decay of Alpine tundra ecosystems etc.

The evaluation has also indicated that during 2013-2018, already 25 countries have adopted their adaptation strategies (compared to 15 in 2013). LIFE and Covenant of Mayors projects worked well: in 2014-2018, LIFE has funded 60 adaptation-related projects with EUR 184 million, and 40% of cities have developed their adaptation plans. Also, the European Structural and Investment Funds have played their role in the adaptation financing. The knowledge base was keeping to enhance, and the knowledge on adaption was widely used for decision making. However, as the Strategy was focusing on the adaption process within the EU, it did not address

the interrelation of climatic and adaptation process in the neighboring countries. The Strategy was found highly relevant over all.

German Strategy for Adaptation to Climate Change (DAS[5]) was adopted by the German federal cabinet on 17th December 2008. Later, Interministerial Working Group 'Adaptation Strategy' (IWG Adaptation Strategy) chaired by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety was established in 2009. The kick-off conference for the dialogue and participation process for Action Plan was held in 2009. **Action Plan (APA I**[6]) was adopted by the Federal Cabinet on Aug 31, 2011. So, it took nearly 2 years between the adoption of the Strategy and adoption of the respective Action Plan. Presentation of Adaptation Action Plan by IWG Adaptation Strategy took place in 2011, and, finally, the **Progress Report** for Strategy of Adaptation was approved in 2015, as well as the second **Action Plan (APA II)**[7].

APA I contained 150 measures that needed to be undertaken for Climate change adaptation. In 2015, APA II revealed that 43 measures were completed, and another 88 measures were in the process of being implemented. Some additional legislation was adopted (such as Law on Construction), mandate was provided, scientific and research base was enhanced, and local stakeholders got involved intensively. Main results of APA I also include development and creation of monitoring system of climate change displays, as well as developed single methodology to assess the vulnerability (of regions).

The APA II focused on current and future measures for Germany to adapt to climate change. In contains seven pillars: Water, Infrastructure, Land, Health, Economy, Spatial Planning and Urban Protection, and Interdisciplinary Activity. Cluster "Water" mostly refers to water management, especially floods and heavy rainfalls; management of coastal zones; fisheries. Cluster "Spatial Planning" focuses on civil protection measures (potable water supply, risks etc). Cluster "Infrastructure" focuses on construction, energy infrastructure and transport infrastructure. Cluster "Land" contains measures for agriculture, forestry, biodiversity, soils, wetlands. Cluster "Health" focuses on health vulnerabilities, risks, and awareness raising. Cluster "Economy" focuses on measures in industry and trade, financial sector and tourism[8].

[5] DAS. Die Deutsche Anpassungsstrategie an den Klimawandel

[6] Aktionsplan Anpassung der Deutschen Anpassungsstrategie an den Klimawandel (2011) https://www.bmu.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/aktionsplan_anpassung_klimawandel_bf.pdf

[7] Fortschrittsbericht zur Deutschen Anpassungsstrategie an den Klimawandel. Stand: 16.11.2015 https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimawandel_das_fortschrittsbericht_bf.pdf

[8] Adaptation Action Plan https://www.umweltbundesamt.de/themen/klima-energie/klimafolgen-anpassung/anpassung-auf-bundesebene/aktionsplan-anpassung#handlungsfeldubergreifende-aktivitaten

In November 2020, a Progress Report 2020 that included the Third Action Plan were published.

To ensure credibility of the planned and suggested measures, in 2015, a National Meteorological Service DWD[9] (Deutscher Wetterdienst) was organized. Also, a thinktank or a Competence Center "KomPass"[10] in the field of adaptation was organized. It aims to promote adaptation not only in Germany, but also in Europe. Similarly to APA, the Strategy is being monitored every 4 years. Such a monitoring was conducted in 2015[11] and 2019[12].

In **Romania**, National Strategy on Climate Change and growth based on low-carbon economy for the period 2016 - 2020 and the National Action Plan to implement the national strategy on climate change and economic growth based on low-carbon economy for the period 2016 – 2020 (GD 739/2016) have been adopted as early as in 2013. To date, there is even a dedicated Ministry, devoted to the issues of climate change, in particular Ministry of Environment and Climate Change of Romania. The Strategy contains information on both mitigation and adaptation. It also depicts measures in each sector aimed at decreased emissions, as well as those aimed at adaptation.

In **Poland,** Polish National Strategy for Adaptation to Climate Change (NAS 2020) with the perspective by 2030[13] was adopted in 2013. It defined the most vulnerable sectors (such as water management, biodiversity and legally protected areas, forestry, energy and others), climate change scenarios, goals and actions. The analysis of sectoral vulnerability and resilience, cost estimation as well as long-term climate change scenarios were commenced within KLIMADA project (2012-2013). An important element of Polish NAS is the assessment of losses and costs for removing of damages caused by extreme weather events occurred in 2001-2011. The overall loss is estimated at the level of PLN_{2010} 56 billion (USD 18.7 billion). The Strategy indicates that losses significantly outstrip the expenses in all years but 2011. It also contains the Action lines to reach the defined objectives. The Strategy has a special focus on urban areas spatial policies. As logical continuation of Strategy, an extensive *Urban Adaptation Plans in 44 cities*[14] was developed

[9] DWD https://www.dwd.de/EN/aboutus/aboutus_node.html
[10] https://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation/competence-center-kompass
[11] Monitoringbericht 2015 zur Deutschen Anpassungsstrategie an den Klimawandel Bericht der Interministeriellen Arbeitsgruppe Anpassungsstrategie der Bundesregierung https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/monitoringbericht_2015_zur_deutschen_anpassungsstrategie_an_den_klimawandel.pdf
[12] Monitoringbericht 2019 zur Deutschen Anpassungsstrategie an den Klimawandel Bericht der Interministeriellen Arbeitsgruppe Anpassungsstrategie der Bundesregierung https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/das_monitoringbericht_2019_barrierefrei.pdf
[13] https://klimada.mos.gov.pl/wp-content/uploads/2014/12/ENG_SPA2020_final.pdf
[14] CLIMATE CHANGE ADAPTATION PLANS IN 44 POLISH CITIES https://ietu.pl/wp-content/uploads/2019/05/MPA_broszura_podsumowujaca_NET-ENG-20-12.pdf

(in frame of project "Let's Feel the Climate" (2017-2019), financed by the Cohesion Fund of the EU, as well as by state budget). It focused on cities where population mostly exceeds 100 thousand inhabitants, being a home to 30% of country's population. Respectively, these cities prepared their own adaptation measures. The main attention was payed to the issues of water management and drought resistance in cities. The project integrated the available methodology on adaptation, readily available in frame of Covenant of Mayors initiative. Additionally, to address specifically the problem of droughts, at subnational level the "Development of drought impacts prevention plans for the river basins" project was conducted in 2016-2020, resulting in flood risk management plans for Odra, Vistula and Pregola river basins. As of late 2020, KLIMADA-2[15] project is being conducted in order to enhance the existing knowledge base.

In Republic of **Moldova**, Climate Change Adaptation Strategy by 2020 and the Action Plan for its implementation were adopted in 2014[16]. In fact, the Action Plan implementation begun in 2015. The Strategy indicates that the Ministry of Environment monitors the implementation of the Strategy and annually reports the results of monitoring to the Government. The Ministry also cooperates with international donors and annually reports the amount of financing needed for adaptation activities to the international donors, as Republic of Moldova is non-Annex 1 party of the UNFCCC and thus eligible to receive such aid. The Strategy stipulates that central public authorities develop sectoral policy documents, while regional authorities implement the measures and provisions of the Strategy. Agriculture, water resources, health, forest, energy, transport and road infrastructure are defined the most vulnerable sectors towards climate change, thus requiring the majority of actions in realm of adaptation. The Strategy sets up the specific objectives, such as 1) creation by *2018* of the institutional framework that would assure the efficient implementation of adaptation measures at all levels; 2) creation by *2020* a mechanism to monitor the climate change impacts and the related social and economic vulnerability; 3) assuring the development of climate resilience by reducing at least by 50% the climate change risks and facilitation of adaptation in six priority sectors by *2020*. Moldova also planned to create a Regional coordination body with neighboring countries, such as Ukraine and Romania. Despite as of November, 2020, such a Body was not created, there is an ongoing collaboration between Moldova and Ukraine in realm of water sector, in particular with GEF/UNDP/OSCE/UNECE project "Enabling transboundary cooperation and integrated water resources management in the Dniester River Basin" (2017-2021)[17].

[15] Adaptation https://klimada2.ios.gov.pl/en/adaptation/
[16] https://www.legis.md/cautare/getResults?doc_id=49220&lang=ru
[17] "Enabling transboundary cooperation and integrated water resources management in the Dniester River Basin" https://dniester-commission.com/en/gef-project/

In 2013-2017, Moldova held a project on the first iteration of NAP: "Supporting Moldova's National Climate Change Adaptation Planning Process (phase 1)" aimed at the creation of a system and capacities in place for medium and long term adaptation planning and budgeting. To reach the goal, the National Adaptation Plan process was put in place ensuring fulfillment of the existing development planning strategies and to implementation of adaptation measures. As the result of the project, the Republic of Moldova managed to draft the Government Decision on Establishment of the Cross-sectoral Multi-stakeholder Climate Change Coordination Mechanism, including Monitoring and Verification Framework on Climate Actions and budgets. Adaptation measures of the most vulnerable sectors defined were incorporated into the Action Plan of Moldova Gender Equality Strategy 2020, as well as in the development strategies of 6 regions. Data management of State Hydro-meteorological Service (SHS) was improved, and several pieces of training to enhance the capacities were conducted. This allowed SHS to become a participant of EUMetNet network Programs[18].

In 2020, National Committee for Climate Change was established under the climate change coordination mechanism[19]. The National Commission is an inter-institutional body established to coordinate and promote the measures and actions necessary for the unitary application on the territory of the Republic of Moldova of the provisions of the UNFCCC and the Paris Agreement. The National Commission provides the institutional coordination framework for monitoring, reporting and verification, adaptation planning, as well as for facilitating the integration of climate change issues into national and sectoral programs and plans. By the respective Government Decision, the Regulation on the cross-sectoral mechanism for coordinating the process of adaptation to climate change was approved.

As of late 2020, Moldova approached the development and implementation of the second National Adaptation Plan, which indicates that the adaptation is a continuous process. To ensure that, another project was launched: "Advancing Moldova's National Climate Change Adaptation Planning (phase 2) (2020-2024). The project aims to address the barriers to prioritization of national investments in Adaptation and to enhance both human and financial capacity for the implementation of the priority actions identified during the first National Adaption Plan and those that would be elaborated within the second National Adaption Plan[20].

[18] Supporting Moldova's National Climate Change Adaptation Planning Process (phase 1) https://www.md.undp.org/content/moldova/en/home/projects/climate-change-adaptation-planning-process-in-moldova.html

[19] Governmental Decision #444/2020 https://www.legis.md/cautare/getResults?doc_id=122314&lang=ru

[20] Advancing Moldova's National Climate Change Adaptation Planning (phase 2) https://www.md.undp.org/content/moldova/en/home/projects/climate-change-adaptation-2.html

In Republic of **Belarus**, there are numerous strategic documents[21] that embed activities related to climate change adaptation. These documents are the following:

- National strategy of sustainable socio-economic development of Republic of Belarus until 2030 (presumes lowering emissions by means of increased use of RES and nuclear energy);
- Strategy of Environmental Protection of Republic of Belarus until 2025;
- Strategy of Development of Scientific, Scientific-Technical and Innovative Activity in Realm of Environmental Protection and Rational Use of Natural Resources in 2017-2020 and until 2025 (envisages scientific research in realm of climate change, impact of climate change on water resources and development of respective adaptation measures);
- Water strategy of Republic of Belarus until 2020, as well as draft Strategy of water resources management in conditions of climate change until 2030;
- National Strategy for Development of Specially Protected Natural Areas until 2030;
- State Program "Environmental Protection and Sustainable Use of Natural Resources in 2016-2020" and the Draft on new respective program until 2025 is being developed;
- National Action Plan on Prevention of Land (including Soils) Degradation in 2016-2020;
- National Action Plan for Preservation and Sustainable Use of Biological Diversity in 2016-2020.

There are sectoral adaptation plans in place, such as National action plan on increased absorption by sink of greenhouse gases until 2030; *National Action Plan on Adaptation of Forestry of Belarus to Climate Change until 2030*, as well as *Agriculture Climate Change Adaptation Strategy* (2019). The latter was adopted in frame of Implementation Plan of Paris Agreement and Instruction of the President as of 2019. The Strategy focuses on study of agriculture in Belarus and its dependence on climate, impact of climate change on agriculture, sub-sectoral adaptation measures, as well as how measures could be implemented. Interesting to note that agriculture and fishery, together with human health, transport and infrastructure, water resources claim to have average potential for adaptation. Housing, industry and energy sector have high potential for adaptation, whereas forests, ecosystems and wetlands and ichthyofauna have low potential for adaptation. The Strategy recognizes the need of cooperation between key Ministries: of Natural Resources and Environmental Protection, Agriculture, Finances, Economy, Forestry, Emergency Management, Energy. The Agriculture Climate Change Adaptation Strategy until 2050, as well as the National Action Plan for Adaptation of Agriculture of Belarus to Climate Change until 2030 are being developed. Further measures in realm adoption of necessary legislation and further

[21] The names of documents provided below is not an official translation, being presented here merely for information purposes.

measures include vulnerability studies, defining the mechanism of adaptation, cros-sectoral measures coordination, and monitoring and assessment of adaptation.

In 2021, Belarus started the process of development of its second Nationally Determined Contribution (NDC) and defining the target of GHG emissions reduction by 2030, as the first NDC was submitted in 2016.

Analysis of several international adaptation processes brings us to the most important conclusions for Ukraine: adaptation is a continuous process. The adopted framework documents such as Strategy, Action Plan and the respective achievements require continuous monitoring based on their achievability. Some measure may lose their timeliness, or cannot be implemented yet. Some countries have assessed the amount of financing needed for adaptation immediately in the Strategy (eg. Moldova), some countries have estimates of losses and expenses caused by adverse weather effects (which is important for cost-benefit analysis, eg. Poland), but the majority of countries consider the Strategy as an umbrella document without such assessments. Given the fact that neighboring counties were analyzed and that the climate change has no borders, the most vulnerable sectors are common, being the case for Ukraine as well, and including sectors such as agriculture, water management, health, and others.