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BUILDING A CLIMATE-RESILIENT UKRAINE: THE ROLE OF ADAPTATION IN STRATEGIC PLANNING OF THE NDC

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1. Introduction

Climate change is not a future issue - it is already a reality, manifesting through heat waves, floods, droughts, infrastructure damage, and threats to food security. Most importantly, it is progressing faster than anticipated. Scientific consensus, including statements from the World Meteorological Organisation[1] and other research institutions, confirms that we have either surpassed the 1.5°C warming threshold or are dangerously close to it based on current trends.

Since 1992, the international community has worked under the United Nations Framework Convention on Climate Change (UNFCCC), with annual Conferences of the Parties (COPs) held since 1995. The Kyoto Protocol (1997) was the first legally binding agreement to reduce greenhouse gas (GHG) emissions for developed countries. However, the real turning point came with the Paris Agreement (2015), which required all nations to submit Nationally Determined Contributions (NDCs) outlining their emission reduction targets (Figure 1).

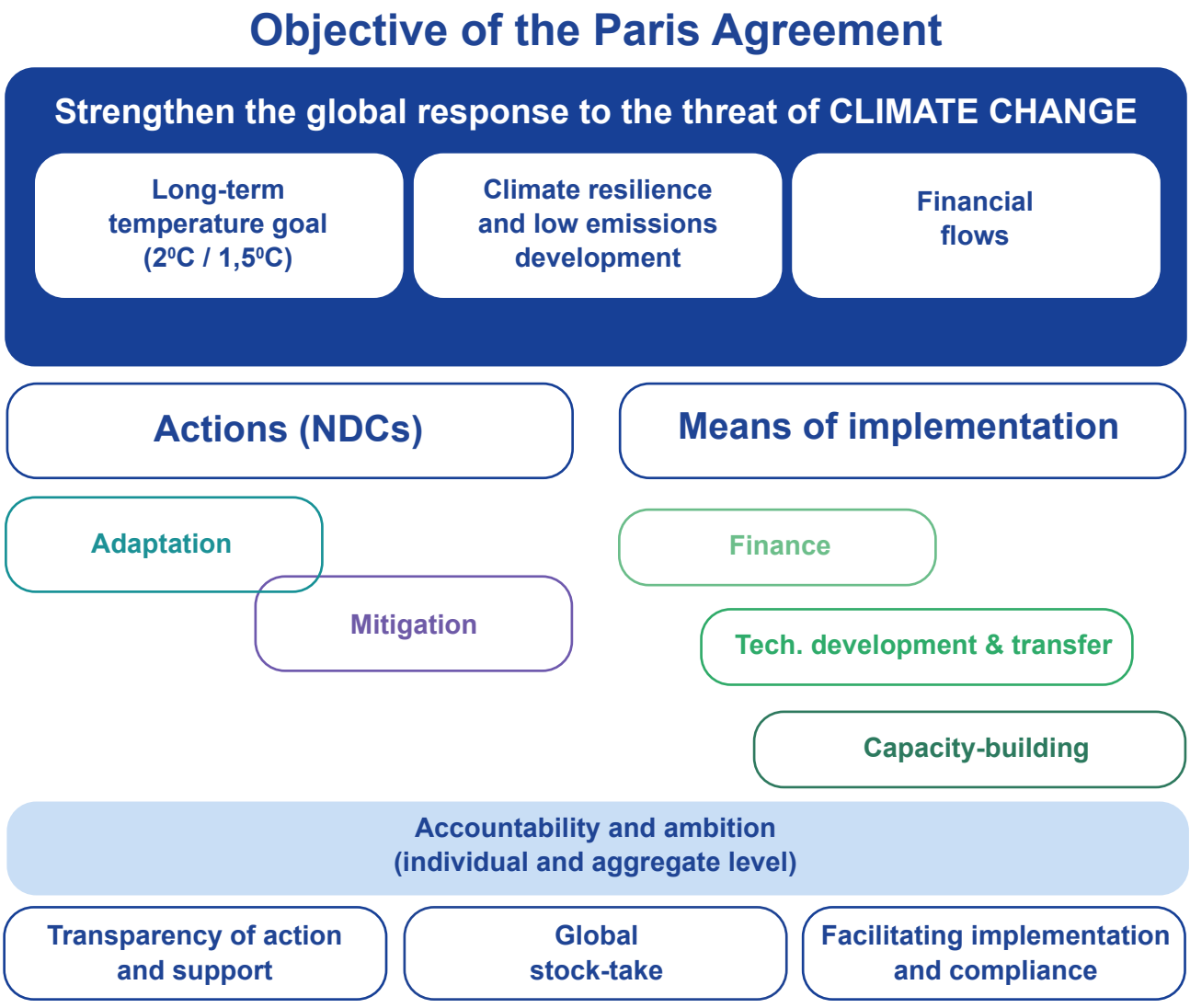


Figure 1. Structure of the Paris Agreement [2]

1. State of the Global Climate 2024 (WMO-No. 1368), Available at: https://library.wmo.int/idurl/4/69455
2. Adapted from Choi, J. (2020). Paris Agreement and the enhanced transparency framework. UNFCCC. Available at: https://www.iges.or.jp/sites/default/files/inline-files/2_S1_choi.pdf

During the first decade following the Paris Agreement, global attention primarily focused on emission reduction commitments, leading to a significant imbalance in climate finance. More than 90% of financial flows were directed toward decarbonization[3], while economic losses from extreme weather events continued to rise due to the increasing frequency and severity of natural disasters. At the same time, studies indicate that every dollar invested in adaptation can yield returns ranging from $2 to $43 by reducing losses from extreme weather[4]. This has prompted governments and financial institutions to reassess their approaches to climate finance, reinforcing adaptation as a key topic in climate policy discussions.

Adaptation is gaining prominence not only because of the growing number of extreme weather events, but also due to the economic risks it helps mitigate. As a result, climate strategies are evolving, **positioning adaptation as equally critical as decarbonization**.

Integrating adaptation is particularly vital for Ukraine, which aims to submit its 2035 NDC to the UNFCCC Secretariat by the end of 2025[5]. The country faces the compounded challenges of war, climate change, and post-war recovery. Ensuring that adaptation is embedded within international commitments, rather than confined to separate strategic documents, will allow for a more systematic approach to rebuilding. This will help mobilise international support and resources while strengthening Ukraine's long-term resilience in the face of global challenges.

2. Architecture of International Climate Governance: What Countries Submit to the UNFCCC Secretariat

The global climate governance framework is currently structured around the UNFCCC, with each participating country (Party) responsible for submitting various official documents to the Secretariat. These include:

- Nationally Determined Contribution (NDC) is the primary policy document outlining a country's emission reduction targets and, optionally, adaptation goals. Submission occurs every five years (first cycle: 2015–2020; next: 2025, etc.). Mandatory for all countries.
- Adaptation Communication (AdCom) provides details on adaptation strategies, vulnerabilities, objectives, and resource needs. Voluntary submission, which can be:
  - included within the NDC;
  - part of the Biennial Transparency Report (BTR);
  - integrated into the National Communication (NC).
- Biennial Transparency Report (BTR) - starting in 2024, all countries must submit this report every two years, detailing their progress in fulfilling commitments, including adaptation efforts.
- National Communication (NC) - submitted every 4 years (for non-Annex I countries, if feasible), covering emissions data, adaptation initiatives, climate vulnerability assessments, financial needs for emission reduction, the development of engineering and nature-based solutions, institutional capacity building, and international cooperation.

3. https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2024/
4. J.P. Morgan (2025). Building resilience through climate adaptation. Available at: https://www.jpmorgan.com/content/dam/jpm/cib/documents/Building_resilience_through_climate_adaptation.pdf
5. In the NDC registry on the UNFCCC website, countries use the acronym «NDC 3.0» to refer to their nationally determined contributions by 2035.

- National GHG Inventory[6] (GHG Inventory) - submitted annually by Annex I countries; others report every two years or according to capacity.
- National Adaptation Plans (NAPs) are medium- and long-term adaptation strategies. Voluntary submission with no fixed deadline. Initially developed for least developed countries (LDCs) under decision 1/CP.16[7], though other developing nations are encouraged to adopt similar approaches. Developed countries and economies in transition typically do not submit NAPs.
- Long-term Low-Carbon Development Strategy (LE-LEDS) - voluntary, submitted as a one-time document or updated approximately every decade.

All of these documents are stored in the UNFCCC's public registries, with national coordinators responsible for submissions. In Ukraine, this role is held by the Ministry of Environmental Protection and Natural Resources (MEPR).

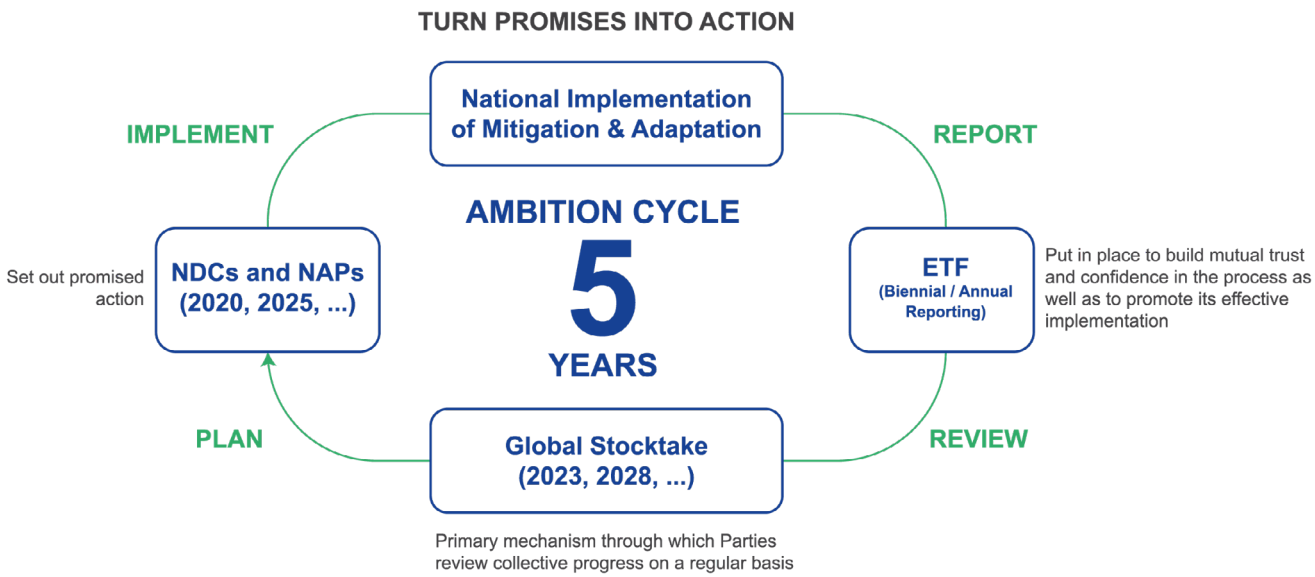
Submissions serve not only a technical purpose, but also highlight gaps between national ambitions and the actual measures required to meet the Paris Agreement's objectives. The first global stocktake in 2023 revealed that even with full implementation of current NDCs, global warming is projected to reach 2.5 - 2.9°C by the end of the century. This confirms that existing commitments are insufficient to limit warming to 1.5°C, necessitating significantly more ambitious NDCs - both in mitigation and adaptation[8].

The Paris Agreement's long-term success depends on effectively structuring its implementation mechanisms. A five-year cycle of goal enhancement has been established (see Figure 2), involving planning, implementation, reporting, and review. This framework not only fosters ambition but also strengthens transparency and trust in the global process.

Reporting under this cycle falls under the Enhanced Transparency Framework, which guides countries on documenting GHG emissions, NDC progress, and the implementation of national adaptation measures. It also covers financial support, whether provided or received

BTRs are essential for ensuring consistency in the Global Stocktake (GST) process. Their role is to enhance mutual trust, improve transparency, and ultimately drive the effective implementation of climate solutions

6. The greenhouse gases accounted for under the UNFCCC include: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur dioxide (SF_6) and trifluoromethane (NF_3). Their impact on the climate is assessed through the global warming potential (GWP) in CO_2 equivalent.
7. https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf
8. UNFCCC. (2023). Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat (FCCC/PA/CMA/2023/3). Available at: https://unfccc.int/sites/default/files/resource/cma2023_12.pdf



NDCs - Nationally Determined Contributions
NAPs - National Adaptation Plans
ETF - Enhanced Transparency Framework

Figure 2: Paris Agreement 5-year ambition cycle[9]

2.1. Adaptation in NDCs under the Paris Agreement

For the first time, Article 7 of the Paris Agreement recognised climate change adaptation as an equally important objective of global climate policy alongside GHG emissions reduction. The primary goal is to enhance adaptive capacity, reduce vulnerability, and strengthen the resilience of both society and ecosystems against climate risks. This article laid the foundation for the Global Goal on Adaptation (GGA), which was later advanced through practical decisions made at the Conferences of the Parties (COPs) - most notably in the Glasgow-Sharm el-Sheikh Work Programme[10], launched at COP26. These provisions establish a conceptual framework for integrating adaptation policies into the implementation mechanisms of the Paris Agreement.

Under Articles 7.10 - 7.12 of the Paris Agreement, countries have the option to submit Adaptation Communications to report their progress in achieving adaptation objectives. Decision 9/CMA.1, adopted as part of the Katowice Climate Package[11], further clarifies the scope of these communications, allowing them to cover a broad range of information related to adaptation efforts. This includes national circumstances, legal frameworks, and institutional arrangements that govern climate adaptation, as well as assessments of climate impacts, risks, and vulnerabilities. Countries may also outline their adaptation priorities, strategies, and plans, alongside details of the measures they have implemented, particularly recognising the efforts of developing nations. Additionally, these communications can highlight financial, technical, and technological support needs, as well as barriers and challenges that hinder adaptation progress. Beyond these core elements, countries may choose to report on monitoring mechanisms, examples of best practices, gender-sensitive approaches, and the integration of local and indigenous knowledge in adaptation strategies. Furthermore, the relationship between adaptation efforts and other international agreements may be addressed, reinforcing the interconnected nature of climate action across multiple policy frameworks.

9. Space-based Earth observation in support of the UNFCCC Paris Agreement - Scientific Figure on ResearchGate. Available at: https://www.researchgate.net/figure/The-UNFCCC-Paris-Agreements-ambition-cycle-which-aims-at-strengthening-the-commitment_fig3_364176931
10. https://unfccc.int/sites/default/files/resource/GGA_AUV.pdf
11. https://unfccc.int/sites/default/files/resource/cma2018_3_add1_advance.pdf

3. The Role of Adaptation in NDC 2.0: A Path to 2030

According to the UNFCCC Synthesis Report, by the end of 2023, **81% of submitted NDCs** included an adaptation component[12]. Among the most frequently presented topics:

- assessments of climate risks and vulnerabilities;
- identification of key adaptation sectors such as agriculture, water resources, public health, and infrastructure);
- priority adaptation actions and programmes;
- connection between adaptation strategies and the Sustainable Development Goals (SDGs), as well as their alignment with decarbonization policies.

Countries have adopted varying approaches to integrating adaptation into their NDCs. About 37% of submitted NDCs include quantitative indicators to track progress, such as the extent of irrigated land, the number of communities equipped with early warning systems, or the proportion of sectors implementing adaptation measures. Approximately 15% of countries set specific adaptation targets, which may be either qualitative or time-bound. Additionally, 9% of NDCs explicitly reference adaptation communications, using them as a foundation for defining goals, conducting assessments, and determining support needs.

While adaptation is increasingly incorporated into NDCs, the level of detail and format remain highly inconsistent, and the full potential of adaptation communications as a structural component has yet to be fully realised.

The GST, a key instrument of climate governance within the Paris Agreement's goal achievement cycle, serves not only to assess progress but also to provide strategic direction for the next round of NDCs. Its purpose is to assist countries in updating their NDCs in alignment with both national chal-lenges and global objectives. The findings from the first GST, presented at COP28, clearly highlighted the need for far more vigorous adaptation measures, both incremental[13] and transformative[14].

Despite progress in planning and implementing adaptation measures since 2015, the review[15] identified significant gaps, particularly in adaptation financing and the development of monitoring and evaluation systems. It underscored the need to establish national registers of climate impacts[16], enhance climate services[17], and expand early warning systems - especially considering that one-third of the global population still lacks access to such systems[18]. The GST further emphasised the importance of international cooperation and

12. https://unfccc.int/sites/default/files/resource/cma2023_12.pdf
13. Gradual, small changes that help reduce risks but do not fundamentally change the system. For example, installing more efficient irrigation systems or improving flood defence infrastructure. Such measures preserve the basic structure of existing processes but make them more resilient to climate change.
14. Profound, systemic changes that fundamentally alter the way a society or economy functions in response to climate challenges. For example, shifting from conventional agriculture to agroecological systems, relocating communities from high-risk areas, or completely changing water management policies.
15. https://unfccc.int/sites/default/files/resource/cma2023_16a01E.pdf
16. The English equivalent in the text of the decision is national inventories of climate impacts. For example, Germany has CLIMREG - Climate Impact Register, which is used to analyse expected climate impacts in various sectors. This register helps to assess the impact of climate change on such areas as water resources, forestry, agriculture, healthcare and urban infrastructure, among others. It also takes into account extreme weather events such as droughts, heat waves, frosts and storms. https://www.umweltbundesamt.de/en/topics/climate-energy/climate-change-adaptation/adaptation-tools/project-catalog/climreg-klimawirkungsregister-fuer-deutschland
17. The term "climate services" refers to the systematic provision of scientifically based climate information that is tailored to the needs of specific users - governments, farmers, cities, businesses, etc. These may include:
    - forecasts of weather conditions and climate trends;
    - climate change scenarios;
    - risk indicators;
    - analytics of regional vulnerability;
    - recommendations for adaptation solutions.

    The purpose of climate services is to help make decisions that reduce vulnerability to climate change and increase resilience. Together with the early warning system, these are elements that must be accessible and functional for effective adaptation, particularly for vulnerable communities.
18. World Meteorological Organisation. (2024). WMO and the Early Warnings for All Initiative. Available at: https://wmo.int/activities/

knowledge exchange in addressing transboundary climate risks, advocating for transformative solutions grounded in the best science and equity.

Awareness of the complexity of adaptation as a policy - one that must address local contexts, challenges, and systemic constraints - has led to the emergence of several global initiatives providing guidance and informational support to countries. One such initiative is the UAE Framework for Global Climate Resilience, approved at COP28. An important complementary development was the UAE-Belém Two-Year Work Programme, adopted at the same conference, which focuses on developing indicators to measure progress toward the GGA. This program builds on the Glasgow-Sharm el-Sheikh Work Programme on GGA, a two-year initiative aimed at refining adaptation objectives. It outlines 11 targets - seven thematic and four procedural[19] - which can serve as a foundation for national adaptation planning.

In 2024, the COP29 decision expanded on the UAE framework, initiated the development of indicators for COP30, and approved two new implementation mechanisms: the Baku Adaptation Road Map and the Baku High-Level Dialogue on Adaptation[20]. Throughout 2025, consultations will continue to determine how countries will implement these initiatives, moving from political agreements toward structured action. This process involves developing indicators, defining reporting formats, setting timelines, and establishing implementation principles. Additionally, these consultations will facilitate knowledge sharing, the formation of a shared vision of climate risks and responses, and the development of adaptation policies grounded in scientific research and practical experience.

early-warnings-all/wmo-and-early-warnings-all-initiative

19. The 11 goals of the UAE Framework for Global Climate Resilience include 7 thematic goals (water resources; food and agricultural systems; health; ecosystems and biodiversity; infrastructure and human settlements; poverty eradication and livelihoods; cultural heritage) and 4 process goals (impact, vulnerability and risk assessment; planning; implementation; monitoring, evaluation and learning).
20. https://unfccc.int/sites/default/files/resource/cma2024_L20_adv.pdf

4. How Countries Are Incorporating Adaptation into NDC 3.0

A clear international consensus is emerging on the need to incorporate adaptation in the next round of NDCs, as countries set their 2035 climate goals. Several nations, including Singapore, New Zealand, the United Kingdom, and the Marshall Islands, have already integrated adaptation measures into their 2035 NDCs.

Adaptation is increasingly recognised as a core element of climate policy, rather than a secondary consideration. Governments are shifting their focus beyond GHG emission reductions to include systemic adaptation strategies. These efforts encompass climate risk assessments, the establishment of adaptation targets, the development of monitoring mechanisms, and the mobilisation of funding for implementation.

NDC 3.0 reflects significant progress in the cross-sectoral integration of adaptation measures, spanning agriculture, health, water management, and urban planning. Countries most vulnerable to climate change prioritise community resilience, local adaptation planning, and financing mechanisms, while developed nations integrate adaptation into strategic risk management, employing analytical models to forecast climate change impacts across sectors.

4.1. The UK's Approach to Climate Adaptation in NDC 3.0

The United Kingdom's NDC 3.0[21] positions adaptation as a systematic and integral component of national climate policy. The document notes that the country's first Adaptation Communication was submitted in 2020, with a full update underway to continue tracking progress in climate risk preparedness. The UK Climate Change Act (2008) remains the foundation of climate governance, mandating five-yearly risk assessments and the development of a National Adaptation Programme (NAP). Currently, NAP3 covers the period 2023 - 2028, with NAP4 planned for 2028.

Following COP28, the UK government adopted the UAE Framework for Global Climate Resilience, which has shaped updates to its NDC. In alignment with this framework, the document emphasises that adaptation spans a wide range of socio-economic sectors, ensuring a holistic approach. Specific areas of integration include nature and biodiversity, the marine environment, food security, health and air pollution, education, and workforce development. The NDC underscores the need for resilient ecosystems, secure access to food and water, robust healthcare systems, and a skilled workforce capable of adapting to evolving climate conditions.

The UK's legislative framework, cross-sectoral planning, and financial commitments confirm that adaptation holds equal priority to decarbonization. In addition to domestic initiatives, the UK has made international commitments, including its pledge to allocate £11.6 billion (2021 - 2026) under the International Climate Finance Facility, with £1.5 billion earmarked for adaptation in 2025. An independent Climate Change Committee monitors progress, while regular reports on the National Adaptation Programme and adaptation communications ensure global transparency. Collectively, these elements demonstrate that the UK's adaptation policy is structurally embedded in its climate strategy, backed by legislation, stable funding, and institutional oversight, rather than being a secondary concern to emissions reduction.

4.2. The Marshall Islands' NDC 3.0 Approach to Climate Adaptation in NDC 3.0

The Marshall Islands' NDC 3.0[22] integrates adaptation as a core element of its national climate strategy, recognising the country's unique vulnerabilities to climate change. The introduction outlines efforts to develop and implement a National Adaptation Plan, published in 2023, aimed at reducing exposure to climate hazards, particularly in critical sectors

21. https://unfccc.int/sites/default/files/2025-01/UK%27s%202035%20NDC%20ICTU.pdf
22. https://unfccc.int/sites/default/files/2025-02/Republic%20of%20the%20Marshall%20Islands%20NDC%203.0.pdf

such as agriculture, fisheries, water supply, and infrastructure. The overarching goal is to ensure the long-term security and prosperity of communities despite the challenges posed by climate change.

Additionally, the introduction highlights that adaptation policies are rooted in local and indigenous knowledge, emphasising the preservation of cultural heritage and traditions, an essential aspect of the adaptation process. The NDC 3.0 also prioritises gender equality and human rights, embedding these principles into planning and decision-making to ensure inclusive participation, particularly for women and youth.

The document incorporates biodiversity and nature conservation as key components of adaptation measures. Initiatives include restoring coastal ecosystems and coral reefs, as well as constructing natural barriers such as seawalls and vegetation. These measures align with principles of self-determination and the right to remain in one's homeland, while integrating nature-based solutions to enhance climate resilience.

4.3. New Zealand's Approach to Climate Adaptation in NDC 3.0

In New Zealand's NDC 3.0 adaptation is recognised as a crucial component of the national climate strategy. It addresses the country's specific climate risks, particularly those related to agriculture and its unique emissions profile, where a significant share comes from biogenic methane and nitrogen oxides in the agricultural sector.

The adaptation policy is primarily outlined in the introduction of the document, which highlights New Zealand's active efforts to implement adaptation measures tailored to national circumstances. These measures are integrated across key sectors, including agriculture, forestry, water management, and infrastructure. The country's adaptation priorities focus on reducing vulnerability to sea level rise, droughts, and shifting ecosystems, while also preserving cultural heritage and local traditions.

Additionally, New Zealand is advancing nature-based solutions, such as reforestation, improved water management, and sustainable agricultural practices supported by innovative technologies aimed at reducing methane and nitrogen oxide emissions. The introduction also underscores the emphasis on social justice within adaptation policies, ensuring the rights of indigenous peoples are respected and their contributions to climate action are recognised.

4.4. Singapore's Approach to Climate Adaptation in NDC 3.0

In Singapore's NDC 3.0[23] adaptation is a key component of the country's climate strategy. Given its limited land area, high population density, and physical constraints on deploying low-carbon energy, Singapore is actively integrating long-term adaptation planning into national policies. These measures aim to enhance climate, resource, and economic resilience, requiring significant investment from both the government and citizens while also supporting global climate initiatives.

Adaptation efforts focus on addressing sea level rise and ensuring the sustainability of infrastructure, particularly in coastal areas. A dedicated section in the document highlights Singapore's proactive steps to strengthen climate resilience and secure prosperity in a low-carbon, resource-limited future. Adaptation planning is embedded in national strategies, incorporating nature-based solutions to safeguard infrastructure and ecosystems from climate risks.

The document also underscores the importance of international cooperation in achieving adaptation goals and references the previous Adaptation Communication submitted as part of Singapore's 5th National Communication.

23. https://unfccc.int/sites/default/files/2025-02/Singapore%20Second%20Nationally%20Determined%20Contribution.pdf

5. Climate Change Adaptation Policy in Ukraine

The Law of Ukraine No. 3991-IX of 8 October 2024 "On the Basic Principles of the State Climate Policy" establishes adaptation to climate change as a fundamental component of the national climate policy. It sets a long-term goal of enhancing resilience and reducing risks, alongside a medium-term objective of strengthening adaptive capacity and minimising the vulnerability of socio-economic and natural systems.

Adaptation planning includes the development of a Climate Change Adaptation Strategy for a 10-year period, subject to review every five years. This strategy outlines priorities, implementation mechanisms, funding sources, and specific measures to safeguard the economy, public health, ecosystems, and infrastructure, as well as a monitoring and reporting framework. Additionally, the law mandates the preparation of sectoral adaptation programme documents, developed by executive authorities to address sector-specific needs and updated every five years. Regional and local climate change adaptation strategies are also required, ensuring effective vertical coordination.

At the regional and local levels, adaptation is integrated into territorial development strategies, spatial planning, and environmental protection programmes. These documents must be grounded in scientific evidence and aligned with local community interests. Adaptation objectives are further incorporated into comprehensive recovery programmes for regions and communities affected by war or emergency situations.

The law promotes the use of economic incentives, innovative technologies, nature-based solutions, early warning systems, and awareness-raising initiatives. Policy implementation is monitored at the national level, with climate change forecasting based on updated scientific assessments. Ukraine remains committed to fulfilling its international climate obligations, including reporting under the Paris Agreement.

Ukraine's strategic planning for climate change adaptation is guided by two key documents: the Strategy for Environmental Security and Adaptation to Climate Change until 2030 (CMU Order No. 1363-r of 20 October 2021) and the Strategy for the Formation and Implementation of State Policy in the Field of Climate Change until 2035 (CMU Order No. 483-r of 30 May 2024). These strategies define approaches to risk assessment, prioritisation, and financing of adaptation measures.

Based on the Methodological Recommendations for Assessing the Risks and Vulnerability of Socio-Economic Sectors and Natural Components to Climate Change, approved by the MEPR (Order No. 386 of 3 June 2023), vulnerability assessments have already been conducted for biodiversity[24] and coastal areas[25]. Prior to Russia's full-scale invasion, initial assessments for agriculture, forestry, and water management were carried out between 2019 and 2021.[26]

According to the 2024-2026 operational plan for implementing the Strategy for the Formation and Implementation of State Policy on Climate Change until 2035, new risk and vulnerability assessments are planned for the population, agriculture, forests and forestry, the energy sector, water resources, tourism, and other key areas. Additionally, the development of sectoral program documents and the integration of adaptation measures into regional and community development strategies are scheduled for 2026.

Between 2020 and 2024, the APENA-3 project[27] analysed climate projections through the end of the century in three pilot regions - Ivano-Frankivsk, Lviv, and Mykolaiv. It assessed vulnerabilities and risks across various economic sectors and developed a set of recommendations for necessary adaptation measures, forming the foundation for regional strategies in these areas. Furthermore, in 2024, the MEPR approved methodological recommendations for incorporating climate considerations into state planning documents, strategic environmental assessments, and environmental impact assessments.

24. https://mepr.gov.ua/wp-content/uploads/2025/02/Zdijsnennya-otsinky-ryzykiv-ta-vrazlyvosti-bioriznomanittya-do-zminy-klimatu.pdf
25. https://mepr.gov.ua/wp-content/uploads/2025/02/Zdijsnennya-otsinky-ryzykiv-ta-vrazlyvosti-pryberezhnyh-terytorij-do-zminy-klimatu.pdf
26. https://unfccc.int/sites/default/files/2025-05/Ukraine%201st%20Adaptation%20Communication.pdf
27. International technical assistance project «Strengthening the capacity of regional and local authorities to implement and enforce EU legislation in the areas of environmental protection, climate change and infrastructure projects»

In 2024, Ukraine submitted its first Adaptation Communication to the UNFCCC. The document outlines the current institutional framework, key priorities, and challenges. These challenges include limited resources, insufficient climate data, weak integration of adaptation into sectoral policies, and constrained local capacity.

The priorities remain the approval of the new Climate Change Adaptation Strategy, in accordance with Law No. 3991-IX, alongside updates to risk and vulnerability assessments for socio- economic sectors and natural components, institutional strengthening, the establishment of a performance monitoring system, and increased climate awareness. According to the Strategy for Environmental Security and Climate Change Adaptation until 2030, the sectors most vulnerable to climate change include public health, biodiversity, water resources, energy, forestry, agriculture and fisheries, transport and infrastructure, coastal areas, territorial communities, and tourism. A set of adaptation measures has been identified for these sectors, including ecosystem restoration, water resource management, infrastructure modernisation, and the development of energy and transport systems resilient to climate threats, ecotourism, etc.

At the same time, these sectors contribute significantly to GHG emissions and require decarbonization measures. Combining adaptation and decarbonization efforts creates synergies, optimising resource use, especially in the context of post-war recovery.

Adaptation and emission reduction should be approached in an integrated manner. Incorporating both into the next round of Ukraine's NDCs will enhance efficiency, reduce costs, and improve attractiveness for funding.

6. Enhancing Adaptation in Ukraine's NDC & its Integration into State Policy

Below are recommendations for strengthening the adaptation component of Ukraine's 2035 NDC and its integration into state policy, tailored to Ukraine's specific context. These recommendations are based on the report "Advancing Adaptation in NDCs"[28], developed by the NDC Partnership, an international initiative uniting over 130 countries and numerous global institutions to drive ambitious climate action.

1. Enhance horizontal and vertical coordination among government agencies. It is essential to ensure the mandatory integration of risk assessment results and vulnerability analyses of socio-economic sectors and natural components into state strategic planning documents.

According to Article 6 of Law No. 3991-IX, the Cabinet of Ministers of Ukraine (CMU) has the authority to establish an interagency advisory body on climate change. It is recommended that in 2025–2026, such a coordination mechanism be implemented to ensure that risk and vulnerability assessment results serve as a mandatory foundation for: (1) sectoral adaptation programme documents; (2) regional and local adaptation strategies; (3) comprehensive recovery programmes; and (4) the updated Climate Change Adaptation Strategy, to be approved by the CMU in late 2026. This approach will streamline efforts, eliminate redundancies, and promote cohesive, effective planning across all levels of governance.

2. Define national adaptation targets with measurable progress indicators. Formulate these targets in alignment with the Global Adaptation Goal, based on the 11 pillars of the UAE Framework for Global Climate Resilience. Strategically consolidate these focus areas in the upcoming NDC, while outlining specific implementation pathways with measurable indicators in the next iteration of the Climate Change Adaptation Strategy.

Indicators such as the percentage of irrigated land within arable areas, the extent of land under soil protection practices, the proportion of communities equipped with early warning systems, the percentage of roads and bridges built to climate-resilient standards, and the area of restored coastal protection strips and forest plantations will support effective target setting, implementation, and monitoring at both national and international levels.

3. Expand the role of nature-based solutions. The **restoration of natural ecosystems** - including forests, wetlands, and coastal zones - as well as integrating natural elements into urban environments, offers an effective and cost-efficient approach to reducing vulnerability to climate change. Therefore, it is essential for strengthening climate resilience to include NBS in sectoral adaptation programme documents.

4. Establish a system for monitoring and evaluating adaptation policy. According to Section V of Law No. 3991-IX, monitoring and evaluation of state climate policy implementation on adaptation is recognised as a key component of Ukraine's climate governance architecture. However, the law does not specify which indicators should be used to assess the effectiveness of sectoral adaptation programme documents. Given that adaptation varies across socio-economic sectors and natural components, it is advisable to develop customised indicators based on international best practices.

Germany's cluster approach to defining indicators for climate change impacts and adaptation provides a valuable reference[29]. Additionally, the UAE Framework for Global Climate Resilience offers guidance on harmonising adaptation assessment methodologies, particularly through the development of coordinated monitoring, evaluation, and learning (MEL) systems. The MEL approach enables the

28. NDC Partnership. (2025). Advancing Adaptation in the NDCs 3.0: Twelve recommendations for adaptation in the NDCs. Available at: https://ndcpartnership.org/sites/default/files/2025-04/advancing-adaptation-ndcs-30-twelve-recommendations-adaptation-ndcs.pdf
29. https://www.umweltbundesamt.de/en/monitoring-on-das/cluster

assessment of adaptation effectiveness, identification of policy implementation gaps, refinement of actions, and ensures transparency and comparability of results.

5. Integrate gender and human rights into adaptation. Strengthen the integration of gender, human rights, and the needs of vulnerable groups - including veterans, internally displaced persons (IDPs), and people with disabilities - into the planning and implementation of adaptation measures. These groups may be particularly vulnerable to the negative effects of climate change, making their inclusion essential in adaptation strategies.

Given Ukraine's establishment of a dedicated Central Executive Body (CEB) for veteran matters, the Ministry of Veterans Affairs, and various veterans' hubs in cities, pilot projects can be launched to develop and implement adaptation initiatives in collaboration with veterans. These projects could potentially receive support from International technical assistance (ITA) programs, or relevant Central Executive Authorities could propose the inclusion of such components in future ITA projects.

6. Create a favourable environment for financing adaptation measures. Section IV of the Law of Ukraine "On the Basic Principles of State Climate Policy" formally defines a broad range of fiscal, market, organisational, and economic instruments to achieve climate goals. However, in practice, only a few mechanisms are currently in place. These include an environmental tax, specifically on CO_2 emissions, as well as the Energy Efficiency Fund, which supports energy-efficient solutions in the residential sector, including its Energodim programme that assists condominiums in financing building modernisation. Another instrument is the Decarbonization Fund of Ukraine JSC, which provides soft loans, though it is limited to decarbonization measures. The Decarbonization and Energy Efficiency Transformation Fund within the state budget, replenished through the CO_2 tax on stationary installations and government borrowing, serves as the primary financial source for energy-efficient and low-carbon projects. However, dedicated funding for climate change adaptation measures remains absent, leaving a critical gap in Ukraine's climate strategy.

As the MEPR prepares a reform of the environmental tax system and a draft law on the National Environmental Fund, it is crucial to ensure that adaptation financing is explicitly included in the Fund's objectives. Additionally, the reform should incorporate co-financing mechanisms with the EU LIFE programme[30], which already features a Climate Change Mitigation and Adaptation subprogramme, enabling Ukrainian applicants to participate in pan-European consortia testing innovative climate solutions.

Given that the demand for climate action financing far exceeds the capacity of the state budget, there is an ongoing need to develop incentives to attract private capital. Establishing mechanisms to engage private-sector investment will be essential for securing long-term, sustainable funding for adaptation initiatives, making this recommendation highly relevant in Ukraine's climate strategy moving forward.

7. Consider transboundary climate risks. Ukraine should incorporate transboundary climate risks into its 2035 NDC, particularly in the context of cooperation with neighboring EU countries. Shared climate threats - such as floods, forest fires, droughts, and extreme weather events - can result in significant economic, environmental, and social consequences. Addressing these risks will strengthen regional adaptation, enhance the effectiveness of international cooperation, and facilitate access to cross-border EU funding through relevant programs, including the EU Interreg NEXT programmes[31].

As a member of the Programme Committee for these initiatives, Ukraine has the opportunity to advocate for its interests and align priorities for cross-border programs (PL-UA, RO-UA, and HU-SK-RO-UA) in the next iteration of the program (2028–2034). The CMU Secretariat[32] oversees this process on Ukraine's behalf, and MEPR communicates its priorities accordingly to ensure integration of climate considerations into international cooperation.

30. https://cinea.ec.europa.eu/programmes/life_en
31. https://ec.europa.eu/regional_policy/policy/cooperation/european-territorial/next_en
32. https://www.interregeurope.eu/ukraine

7. Conclusions

The preparation of a new round of nationally determined contributions presents an opportunity not only to update emission reduction targets, but also to strengthen the adaptation component as an integral part of climate policy. The inclusion of adaptation in NDCs holds strategic, political, and practical significance for Ukraine, particularly in the context of war, reconstruction, and escalating climate risks.

Firstly, it serves as a **political signal** - to international partners, investors, and citizens - demonstrating Ukraine's commitment to building a resilient state capable not only of reducing emissions but also of protecting its people and infrastructure from the inevitable consequences of climate change.

Secondly, adaptation is **key to integrating climate resilience into the post-war recovery process**. The restoration and development of transport and urban infrastructure, incorporating renewable energy and NBS, as well as ensuring food and energy security, are areas already significantly impacted by climate change. NDCs that prioritize adaptation can provide a holistic vision of how Ukraine will navigate climate, economic, and security challenges.

Thirdly, adaptation enhances **transparency and consistency**. Defining adaptation goals, priorities, and needs within NDC facilitates coordination among ministries, regions, donors, and partners. Elevating adaptation to an official international commitment increases its priority within state strategic planning.

Fourthly, adaptation strengthens **funding opportunities**. It provides a foundation for securing financial support from sources such as the Italian Climate Fund[33], regional initiatives like the Eastern Europe Energy Efficiency and Environment Partnership (E5P[34]), bilateral partnerships such as the Finland-Ukraine Investment Facility[35], and EU programs including the Ukraine Investment Framework[36], EU LIFE Programme[37], and EU Interreg NEXT programmes[38].

The presence of an adaptation component in **Ukraine's NDCs** is a key criterion for many donors when making funding decisions. Given Ukraine's European integration trajectory, it is important to consider that the EU's Multiannual Financial Framework (MFF) for 2021–2027 mandates that at least 25% of the European budget be allocated to climate expenditures. This means adaptation measures are already embedded in major EU funding programs. While Ukraine currently has access to a limited selection of these programs[39] - including LIFE Programme, EU Interreg NEXT programmes, and Horizon Europe[40] - this list is expected to expand in the future. To maximise available funding mechanisms and prepare for greater opportunities under future EU programs, Ukraine must begin strategic planning now.

33. https://www.mase.gov.it/italian-climate-fund
34. https://e5p.eu/
35. https://um.fi/finland-ukraine-investment-facility
36. https://enlargement.ec.europa.eu/european-neighbourhood-policy/countries-region/ukraine/ukraine-investment-framework_en
37. https://cinea.ec.europa.eu/programmes/life_en
38. https://ec.europa.eu/regional_policy/policy/cooperation/european-territorial/next_en
39. https://climate-adapt.eea.europa.eu/en/eu-adaptation-policy/funding
40. https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en