



UNESCO Chair on Urban Resilience

Chair

Urban Content of NDCs

LOCAL CLIMATE ACTION EXPLORED THROUGH IN-DEPTH COUNTRY ANALYSES

2024 REPORT



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Acronyms and abbreviations

AFOLU	agriculture, forestry, and other land use
BAU	business as usual
CHAMP	Coalition for High Ambition Multilevel Partnerships
CO₂	carbon dioxide
CO₂e	carbon dioxide equivalent
COP	Conference of the Parties
DRM	disaster risk management
DRR	disaster risk reduction
GDP	Gross Domestic Product
GHG	greenhouse gas
GST	global stocktake
IPCC	Intergovernmental Panel on Climate Change
LT-LEDS	Long-term Low Emission Development Strategy
LULUCF	Land use, land-use change and forestry
MRV	monitoring, reporting and verification
NAMA	nationally appropriate mitigation action
NAP	National Adaptation Plan
Nbs	Nature-based solutions
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
SDU.Resilience	UNESCO Chair on Urban Resilience at the University of Southern Denmark
UNDP	United Nations Development Programme
UN-Habitat	United Nations Human Settlements Programme
UNFCCC	United Nations Framework Convention on Climate Change

Foreword

In an era marked by the intensifying climate crisis, decisive collective action has never been more crucial. As we approach the 2025 deadline for updated Nationally Determined Contributions (NDC) we have a once in every five years opportunity to strategically design them to increase ambition and to maximize their impact. This report serves as a vital tool for policymakers and practitioners, offering the insights and data needed to raise urban climate ambition and design and execute more effective climate strategies. By providing thorough analyses of 194 NDCs and showcasing urban climate solutions, this report aims to inform decision-making that will drive substantial progress in our collective fight against climate change.



This report reflects to our shared commitment on creating a better urban future – one where cities thrive amidst the challenges of a changing climate.

There is an opportunity for countries to advance their climate plans by integrating a stronger urban focus into their Nationally Determined Contributions to the Paris Agreement. Putting cities at the core of their plans to combat climate change can help countries raise the overall ambition of climate action and effectively implement climate adaptation and mitigation policies.

This year presents several major opportunities for reaffirming multilevel climate governance and action. Events like the twelfth session of the World Urban Forum and COP29 in November will help chart the course towards a more sustainable urban future for all.

Michal Mlynár

United Nations Assistant Secretary-General and Acting Executive Director of UN-Habitat



Addressing the climate crisis demands bold commitments from all countries under the Paris Agreement, with NDCs serving as a framework critical for prioritizing actions across sectors, mobilizing climate finance and aligning policies across climate objectives. Cities should be central parts of this NDC framework.

Yet, countries do not navigate this challenge alone. UNDP's Climate Promise supported 85 percent of all developing countries during the second NDC revision cycle to scale up ambition and accelerate climate solutions that are inclusive, sustainable and help achieve the Paris Agreement 1.5°C target.

The next round of NDC revisions offers an opportunity to deliver integrated sustainable urbanization and climate solutions. This report sheds light on the synergies, gaps and trends connecting cities to NDCs to inform this process.

Haoliang Xu

UN Under-Secretary-General and Associate Administrator, United Nations Development Programme (UNDP)



Climate change is one of the major challenges that humanity is facing, and research is key to responding to it.

The SDU is committed to climate research, through flagship initiatives as the SDU Climate Cluster. The UNESCO Chair on Urban Resilience, partnering with UN-Habitat and UNDP, sees the analysis of urban content in NDCs as crucial for creating value for society through collaboration.

But research alone isn't enough. It needs to inform decision-making at national and local levels, supporting science-based climate policies and actions. This report is a call to action, for a collective effort by nations and communities to create a more resilient and sustainable future for all.

Jens Ringsmose

Rector, University of Southern Denmark (SDU)

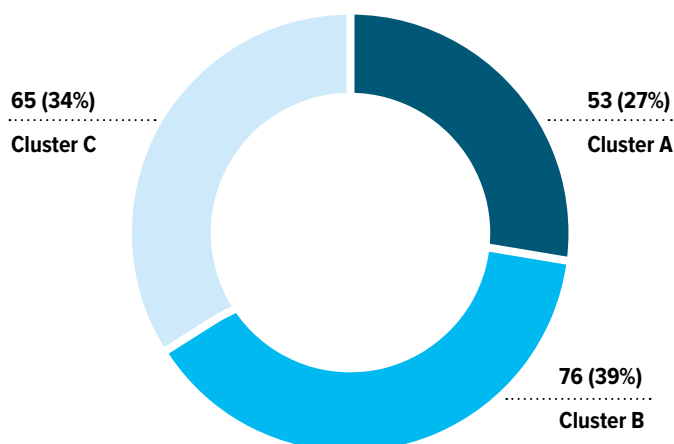
Executive summary

This report analyses the urban content found within Nationally Determined Contributions (NDCs) in support of the Paris Agreement as submitted by 194 countries/entities to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) before 27 June 2023.

Jointly prepared by the United Nations Human Settlement Programme (UN-Habitat), the UNESCO Chair on Urban Resilience at the University of Southern Denmark (SDU.Resilience) and the United Nations Development Programme (UNDP), the report expands upon research conducted by the same core team in 2022 and published in the UN-Habitat report [Urban Climate Action – The Urban Content in the NDCs: Global Review 2022](#).

This report is intended to serve as guidance for policymakers and practitioners working on climate change and, more specifically, on NDC development, revision and implementation at national and urban levels. Structured in three parts – a global analysis, country-by-country analysis and in-depth Country Profiles for 16 select countries – the report offers a better understanding of the urban content in NDCs, including climate policies, climate action challenges and opportunities for urban areas and implementation gaps. The report also includes analysis of the 27 NDCs newly submitted or updated since the previous 2022 report.

By providing this unique set of data, the report can be used as an important climate policy analysis tool and support countries to place cities at the centre of their climate ambitions and their NDCs to ultimately achieve the Paris Agreement through the successful operationalization of urban climate action.



Key findings that emerged from this analysis relate to data on urban issues included or omitted in NDCs. Overall, 66 percent of the 194 NDCs were determined to contain either a moderate or strong level of urban content (53 NDCs or 27 percent fall into Cluster A for strong urban content and 76 NDCs, or 39 percent fall into Cluster B for moderate urban content). Compared to the original analysis conducted in 2016/2017, the latest numbers represent a significant increase — from 14 percent to 27 percent — in the number of NDCs with strong urban content. Despite this progress there is still a need to include urban content in the 34 percent of NDCs that are currently lacking it (Cluster C), and to strength further the urban content in NDCs already including it, in order to raise the ambition of national climate policies and to operationalize climate action.

The data collected was analyzed focusing specifically on climate change mitigation and adaptation challenges and responses by sector, climate hazards and means of NDC implementation. About half of the NDCs (44 percent; 86 NDCs) were found to mention both urban adaptation and mitigation. The most mentioned sectors related to urban mitigation were energy, transport and mobility, and waste, while the most mentioned sectors related to urban adaptation were infrastructure and water. Cross-cutting issues, which are topics identified as important in NDCs and that impact and cut across multiple aspects of climate change policymaking, were analyzed as well. At the urban level, the most often mentioned cross-cutting issues were nature-based solutions (NbS), participation and gender.

Less than half of NDCs with urban content (40 percent) mentioned climate hazards at the urban level with flooding as the most mentioned urban climate hazard. This is considerably lower than the 89 percent of NDCs identifying climate hazards at the national level. Similarly, a large number of NDCs highlighted the need for technology, capacity-building and finance to facilitate NDC implementation (160, 155 and 141 NDCs, respectively) at the national level, while an extremely limited number of NDCs included specific requests for finance, capacity-building and technology at the urban level (26, 9 and 7 NDCs, respectively).

In addition to the NDC analysis, qualitative Country Profiles were developed in 16 countries worldwide to provide a more elaborate perspective on approaches taken to tackle the climate crisis in urban areas. Recurring themes in the findings of these Country Profiles included countries prioritizing urban policies, strategies and actions across policies, such as NDCs, National Adaptation Plans (NAPs) and Long-Term Low-Emission Development Strategies (LT-LEDS). Holistic, systems-wide climate solutions

in urban areas were noted to be useful for tackling complex climate change issues. The mitigation of climate risk, access to city-level climate financing, raising local capacities and embedding resilience-building within spatial structuring and sectoral development were also highlighted as priority core components of climate strategies. It was also highlighted that climate impacts may be greater if urban growth is unplanned and unmanaged.

NDCs are the cornerstone of the Paris Agreement and act as a core national policy instrument to indicate a country's national commitments toward the global effort to mitigate the effect of and adapt to climate change. Cities have a critical role to play in the operationalization of the Paris Agreement, which is reflected in the growing number of NDCs highlighting urban content.

Recommendations are made in the final chapter of this report with the goal of not only strengthening the urban content of NDCs but also, through collaborative and coordinated NDC processes, encouraging countries to improve stakeholder involvement that will boost urban content in all related policies and plans, and consequently lead to expanded climate action.



Recommendations

- 1 Strengthen national climate ambitions by improving the urban climate focus in NDCs.
- 2 Strengthen multi-level governance through vertical integration of national climate policies with subnational strategies and plans for better urban climate action.
- 3 Strengthen multi-level governance through horizontal integration by ensuring coherence of urban climate action across national policies.
- 4 Develop a national framework for efficient and effective urban climate action and avoid siloed approaches in favour of integrated and cross-sectoral strategies.
- 5 Facilitate the participatory development of NDCs, including involving subnational stakeholders.
- 6 Jointly identify subnational, urban and local needs for finance, technology and capacity-building. Likewise, identify the corresponding means of implementation and include these in NDCs.
- 7 Monitor, report and verify urban climate action.
- 8 Strengthen the analysis of urban climate challenges, including urban climate risks and greenhouse gas (GHG) emissions, to more clearly articulate actions and define baselines for urban climate mitigation and adaptation.
- 9 Build the capacities of national and urban stakeholders for stronger inclusion of urban content in NDCs and to support urban climate action and its implementation.
- 10 Communicate the urban dimensions of NDCs to at subnational, national and global levels.
- 11 Finance urban climate action.
- 12 Progressively strengthen the urban dimensions of future NDCs.



SECTION 1

Introduction

Report background and structure

This report analyses the urban content found within Nationally Determined Contributions (NDCs) of 194 countries under the Paris Agreement as submitted before 27 June 2023 to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is an international treaty among countries to combat "dangerous human interference with the climate system." To compliment this broader analysis, NDCs from 16 countries are explored and analyzed in more detail.

Prepared by the United Nations Human Settlement Programme (UN-Habitat), the UNESCO Chair on Urban Resilience at the University of Southern Denmark (SDU.Resilience) and the United Nations Development Programme (UNDP), the report expands on research conducted by the same core team in 2022 and published in the UN-Habitat report [Urban Climate Action – The Urban Content in the NDCs: Global Review 2022](#), which analysed all NDCs submitted up to 19 June 2022. This report includes 27 NDCs newly submitted or updated since 19 June 2022. The Country Profile research was led by UNDP and UN-Habitat colleagues with in-country expertise.



The purpose of this study is to provide analysis and, potentially, guidance to policymakers and practitioners working on climate change and, more specifically, on NDC development and implementation at national and local level. This report aims to:

- i. Facilitate a better understanding of the urban content of NDCs, as well as climate policies and implementation gaps related to urban climate action;
- ii. Highlight climate action challenges and opportunities in urban areas emerging from the analysis of NDC content;
- iii. Support countries to place cities at the centre of their climate ambition and NDCs to ultimately achieve the Paris Agreement through the successful operationalization of urban climate action; and
- iv. Provide a unique set of climate data for policymakers and practitioners and an important climate policy analysis tool.

This report is structured in three main parts:

- **Global Analysis.** The first section provides an up-to-date general overview and analysis of the urban content of the 194 NDCs submitted to the UNFCCC registry up to June 19, 2023. This analysis focuses on urban mitigation challenges and responses associated with climate change by sector, means of implementation and climate hazards.
- **Country Briefs.** Next, 194 Country Briefs provide a visual snapshot of the urban content of each country's NDC, with an overview of mitigation and adaptation challenges and responses by sectors at the national and urban levels.
- **Country Profiles.** Lastly, 16 qualitative Country Profiles present each country's climate-related national policies, plans and strategies, a description of climate mitigation and adaptation challenges, mitigation and adaptation responses and a short list of policy recommendations. These country case studies can serve as good practices for knowledge sharing purposes.

This analysis builds upon earlier efforts by the same core team to classify NDC urban content between 2016 and 2023.

What are Nationally Determined Contributions?

NDCs are at the core of the Paris Agreement¹ adopted in 2015. The Parties to the Paris Agreement pledged to prepare, communicate and maintain successive NDCs with increasing ambition, updating their submission every five years (Article 4.9). The next round of NDC submissions are expected in 2025. NDCs are intended to include a clear greenhouse gas (GHG) emission reduction target, identify climate mitigation actions to achieve the target (Article 4.2) and describe climate adaptation actions (Article 7.10-11), by communicating needs, plans and actions related to adaptation to climate change.

NDCs are voluntary and non-binding. As such, NDCs are not national implementation plans, but rather key policy instruments that describe the Party's assessment of the country's climate condition, its mitigation and adaptation goals and its commitments to reach them.

1 Paris Agreement to the United Nations Framework Convention on Climate Change, 12 December 2015, T.I.A.S. No. 16-1104.

The Paris Agreement preamble recognizes the importance of the engagement of all levels of government and various actors in addressing climate change, including local governments. Furthermore, the Paris Agreement affirms that support shall be provided to developing country Parties in implementing their NDCs (Article 4.5), where the Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances (Article 2). In relation to climate adaptation, the Paris Agreement recognizes the importance of support for international cooperation (Article 7.6). In particular, it notes that United Nations specialized organizations and agencies are encouraged to support the efforts of Parties to implement the actions referred to in the adaptation provisions of the Paris Agreement (Article 7.8).

Cities' centrality to climate action

Cities currently host 56 percent of the global population; this figure is forecasted to rise to 68 percent by 2050.² Cities are also the centre of economic growth, contributing to 80 percent of global GDP.³ They serve as cultural and social hubs and host valuable assets and infrastructure. Urban areas are also pivotal for the operationalization of the Paris Agreement as they are responsible for 70 percent of global primary energy consumption and 60 percent of global GHG emissions.⁴

At the same time, cities are particularly exposed to the effects of climate change, in the form of extreme weather events, including floods, droughts, heat and cold waves, airborne diseases, sea level rise and saline water intrusion.⁵ These events not only can damage or compromise fundamental urban and peri-urban infrastructure, ecosystems and natural environments, but also have profound effects on human health, livelihoods and lives.⁶ Furthermore, climate change disproportionately affects vulnerable communities, such as people living in urban slums, the poor, women, the elderly and migrants.

This squarely places cities at the forefront of climate action. For cities and their inhabitants to survive and thrive, they must play a central role in GHG emission reduction, climate change mitigation, and adaptation to the changing climate and increasing frequency and magnitude of extreme climate events.⁷

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- 2 Ritchie, H., and Roser, M. (2019). *Urbanization*.; The World Bank (2023). *Urban Development*.
 - 3 UN-Habitat (2020). *Enhancing Nationally Determined Contributions (NDCs) through Urban Climate Action*.
 - 4 Gouldson, A., et al. (2016). Cities and climate change mitigation: Economic opportunities and governance challenges in Asia. *Cities* 54, 11–19.
 - 5 De Sherbinin, A., Schiller, A., and Pulsipher, A. (2007). The vulnerability of global cities to climate hazards. *Environ Urban* 19, 39–64.; Balica, S.F., Wright, N.G., and van der Meulen, F.A. (2012). Flood vulnerability index for coastal cities and its use in assessing climate change impacts. *Natural Hazards* 64, 73–105.; Bulkeley, H. (2013). *Cities and Climate Change*. Routledge. doi:10.4324/9780203077207.
 - 6 Jahn, M. (2015). Economics of extreme weather events: Terminology and regional impact models. *Weather Clim Extrem* 10, 29–39.; Heidrich, O., Dawson, R.J., Reckien, D., and Walsh, C.L. (2013). Assessment of the climate preparedness of 30 urban areas in the UK. *Clim Change* 120, 771–784.; Melvin, A.M. et al. (2017). Climate change damages to Alaska public infrastructure and the economics of proactive adaptation. *Proceedings of the National Academy of Sciences* 114.; Stewart, M.G., Wang, X., and Nguyen, M.N. (2011). Climate change impact and risks of concrete infrastructure deterioration. *Eng Struct* 33, 1326–1337.
 - 7 Dodman, D., Hayward, B., and Pelling, M. (2023). Cities, Settlements and Key Infrastructure. *Climate Change 2022–Impacts, Adaptation and Vulnerability* 907–1040. Cambridge University Press. doi:10.1017/9781009325844.008.; Castán Broto, V., and Westman, L.K. (2020). Ten years after Copenhagen: Reimagining climate change governance in urban areas. *WIREs Climate Change* 11.; Watts, M. (2017). Cities spearhead climate action. *Nat Clim Chang* 7, 537–538.; Mi, Z., et al. (2019). Cities: The core of climate change mitigation. *J Clean Prod* 207, 582–589.



To achieve this, robust climate governance on multiple levels is necessary for enhancing the implementation of national climate policies and for empowering local climate action.⁸ Moreover, cities will need appropriate support in the form of finance, capacity-building, institutional strengthening, inclusive stakeholder engagement and technology transfer to help achieve development and climate targets. For instance, according to the Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report (AR6),⁹ US\$ 384 billion has been spent on climate action in urban areas, estimated to be equivalent to only 10 percent of what would be necessary to build low-carbon and climate-resilient cities.¹⁰

There is ample space for a stronger inclusion and prioritization of cities and urban areas in national climate policies and local implementation of climate action. A stronger inclusion of cities (and subnational governments in general) in NDCs would strengthen a country's multilevel climate governance, enhance coherence across different levels of climate policymaking and provide further entry points for climate action ownership and accountability.

Calls to strengthen urban climate action has been recognized through the following successes.

- Over 1,650 cities across 85 countries and territories joined the **Making Cities Resilient 2030 initiative**, with many actively integrating climate change in their planning.
- The **2023 Global Stocktake Report** clearly identified cities and subnational governments among the catalysts of climate action and highlighted their role in supporting implementation of climate commitments and their fundamental contribution in local climate adaptation.
- The **IPCC AR6** emphasized the critical role of cities in responding to climate emergencies; the IPCC is currently initializing the preparation of the first Special Report on Cities and Climate Change.
- At the 11th World Urban Forum in Katowice, Poland, the **World Cities Report 2022 Envisaging the Future of Cities**, was released and provided a noteworthy roadmap of sustainable, climate resilient urban areas.
- The UNFCCC Conference of the Parties (COP) 27 Presidency hosted the first-ever **Ministerial Meeting on Urbanization and Climate Change**, focusing on housing, urban development and multilevel action in relation to climate change.
- The **COP27 Sharm el-Sheik Implementation Plan** recognized the need for multilevel and cooperative action to address climate change, beyond the national level of engagement, reinforcing the importance of subnational government engagement and participation.
- COP28 saw the very first **Local Climate Action Summit**, co-hosted by the COP28 Presidency and Bloomberg Philanthropies, and the second **Ministerial Meeting on Urbanization and Climate Change**, co-hosted by the COP28 Presidency, UN-Habitat and the UN Climate Change High-Level Champions.

8 UN-Habitat (2022). *World Cities Report 2022: Envisaging the Future of Cities*.

9 Calvin, K., et al. (2023). IPCC, 2023: *Climate Change 2023: Synthesis Report*. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. Geneva, Switzerland. doi:10.59327/IPCC/AR6-9789291691647.

10 Negreiros, P., et al. (2021). *The State of Cities Climate Finance*.



Outcome Statement on Urbanization and Climate Change from COP28

The **Outcome Statement** on Urbanization and Climate Change from the COP28 Local Climate Action Summit and Ministerial Meeting on Urbanization and Climate highlights key issues concerning housing, urban development and climate change. Excerpts are below.

1. **Encouraging** all national governments to advance the necessary mechanisms for multilevel climate action to achieve the targets of the Paris Agreement, across all levels of governments as well as across Ministries with complementary portfolios, including but not limited to Environment, Climate Change, Housing, and Urban Development;
2. **Welcoming** specific references to multilevel action and urbanization by a majority of Parties in their submissions to the Global Stocktake (GST) and recognizing the launch of the Coalition for High Ambition Multilevel Partnerships (CHAMP) for Climate Action as a mechanism to enhance cooperation between national and subnational governments in the planning, financing, implementation, and monitoring of climate strategies, with a view to enabling subnational governments to contribute to further enhancing NDCs, where applicable, ahead of COP30 in 2025;
3. Encouraged by the various initiatives under the Marrakech Partnership for Global Climate Action, **welcoming** efforts to streamline, consolidate, and coordinate support, as appropriate, for the implementation of cross-sectoral and multilevel climate action, at global, regional, national, and subnational levels, including through the COP27 Presidency's Sustainable Urban Resilience for the Next Generation (SURGe) initiative;
4. **Taking note** of the 11,000+ cities and 200+ regions that have reported climate action data to the UNFCCC Global Climate Action Portal and further encourage strengthening this repository as a means of recording subnational climate ambition and action within the context of the UNFCCC and the Paris Agreement as the primary intergovernmental fora for the global response to climate change;
5. **Welcoming** the agreement on the operationalization of the Loss and Damage Fund which supports direct access for subnational entities and looking towards similar provisions in further COP outcomes.
6. **Encouraging** national governments to accelerate deployment of climate finance to support local climate action and strengthen local financial and technical capacities.
7. **Encouraging** all local governments and urban stakeholders to commit to climate adaptation and mitigations measures that support a just transition, including for the most vulnerable and impacted communities; and to align assessments of local-level progress ("local stocktakes") with future iterations of the Global Stocktake.

8. **Recognizing** the opportunities for local climate action to advance sustainable urban development in line with the 2030 Agenda.
9. **Encouraging** the annual convening of the Ministerial Meeting on Urbanization and Climate Change in conjunction with future UNFCCC COPs. And encouraging linking future iterations of the Ministerial Meeting on Urbanization and Climate Change with the Local Climate Action Summit, the World Urban Forum and the UN-Habitat Assembly.
10. **Encouraging** all parties to consider these outcomes in their deliberations on the negotiated decisions at COP28.

Following so many encouraging recent developments that put cities and urban areas at the centre of the climate agenda, this report hopes to constitute a critical knowledge product that can aid the United Nations system, national and subnational governments and policymakers at all levels to leverage urban areas in the global fight to combat climate change.





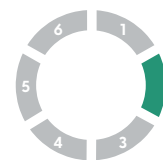
SECTION 2

Approach and methodology

This report's analysis is based on the latest NDCs submitted to the UNFCCC Secretariat as of 27 June 2023. NDCs were extracted from the NDC Registry managed by UNFCCC and submitted by the Parties of the Paris Agreement.¹¹

A total of 194 NDCs were analysed, including 27 NDCs that had been updated and were newly submitted after the initial 2022 analysis of urban content in NDCs submitted individually by 27 European Union countries were included in the analysis, although the NDC is the same for all European Union countries. To avoid double counting, the NDC submitted by the European Union as an entity has been excluded. The NDCs submitted in English, French and Spanish were analysed in their original languages. An English translation has been used for the NDCs submitted in other United Nations official languages. Only the latest version of all updated NDCs were analysed; NDCs submitted after 27 June 2023 were not included in this analysis.

¹¹ Paris Agreement (2015), Article 4 – United Nations Framework Convention on Climate Change, Paris, France, Dec. 12, 2015



To analyse NDC urban content, the methodology was structured as per the following:

- i. **Indicators and database architecture.** A set of about 100 indicators was developed for the analyses of the urban content of the NDCs in **2016-2017** and **2021**. For the current report, this earlier set was complemented by an additional 100 indicators from external sources to expand upon the NDC analysis. A database for the collection of data from NDCs and external sources was developed using MS Office Access.
- ii. **Data collection.** Semi-quantitative data was collected from the 194 NDCs by analysing the individual documents and from external datasets. The MS Office Access database was populated with data from NDCs and external sources.
- iii. **Data analysis at the global level (Global Analysis).** The data collected was analysed focusing specifically on mitigation and adaptation challenges and responses by sector, climate hazards and means of implementation.¹²
- iv. **Data analysis at the country level (Country Briefs).** Country Briefs were developed for each of the 194 countries, showing graphic snapshots of climate adaptation and mitigation challenges and responses by sector and climate hazards, comparing national and urban levels. Country Briefs are provided in **Annex 2**.
- v. **Data collection and analysis of selected countries (Country Profiles).** Qualitative data was collected and analysed from key national climate- and urban-related policies, including NDCs from 16 countries. The Country Profiles were prepared jointly by UNDP and UN-Habitat colleagues with in-country expertise.

The report includes results of the Global Analysis, Country Briefs and Country Profiles. The work was voluntarily supported by a group of experts from lead international organizations and academia. Three expert group meetings were convened and a final peer review was organized for a critical, systematic and independent review of this report.

2.1 Indicators and database architecture

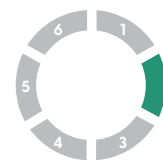
Table 1 lists the indicators that informed the analysis of NDC urban content. The table notes whether the data sources are internal (data obtained from the NDC) or external (data secured from non-NDC sources).

Table 1. Indicators per category and source

Indicator category (# of indicators)	Indicator (year of data, when applicable)	Internal (NDC)/external (non-NDC) data source
Geographic (5)	Country ISO code, country name, region name, subregion name, capital name.	External
National context indicators (9)	Total population (2020), total population (2011), population density, GDP country (US\$), GDP per capita (US\$), GINI index, Human Development Index, income categorization, type of party (Annex I or Non-Annex I).	External
Urban context indicators (6)	Urban population (2021), percentage urban population (2021), urbanization rate (percentage), urbanization rate (ranked), percentage of people living in urban areas in 2050, urban land area.	External

¹² The means of implementation reflects needs and gaps in implementation of mitigation and adaptation climate solutions, including for technology, finance and capacity-building.

Indicator category (# of indicators)	Indicator (year of data, when applicable)	Internal (NDC)/external (non-NDC) data source
Emissions indicators (17)	CO ₂ e total per country, CO ₂ e by sector (agriculture, bunker fuels, building, electricity/heat, fugitive emissions, industrial processes, land-use change and forestry, manufacturing/constructions, other fuel combustion, total excluding Land Use, Land-Use Change and Forestry (LULUCF), total including LULUCF, transportation, waste), CO ₂ e per capita, CO ₂ e per GDP.	External
Key hazards (10)	Droughts, earthquakes, epidemics, extreme temperatures, floods, insect infestations, landslides, storms, volcanic activities, wildfires.	External
NDC national indicators – General (14)	Last submission date, title, language, mitigation contribution type, GHG target type, GHG target year, GHG target – sector covered, target quantity, base year, NDC conditional/unconditional, share of global GHG emissions, finance request, technology request, capacity-building.	Internal
NDC national indicators – Challenges (30)	Mitigation challenges by sector: energy, transport and mobility, LULUCF, built environment, waste, water, industry, gender, others. Adaptation challenges by sector: agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure, coastal areas, gender, others. Climate hazards: floods, droughts, sea level rise, storm events, temperature rise, heat/cold wave, vector-borne diseases (air and water), land degradation, saltwater intrusion, water acidification, wildfire, others.	Internal
NDC national indicators – Responses (18)	Mitigation responses by sector: energy, transport and mobility, LULUCF, built environment, waste, water, industry, gender, others. Adaptation responses by sector: agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure, coastal areas, gender, others.	Internal
NDC urban indicators – General (5)	<u>2021 NDC urban content report</u> (White paper 2021), <u>2022 NDC urban content report</u> , finance requests, technology transfer requests, capacity-building needs.	Internal
NDC urban indicators – Challenges (30)	Urban mitigation challenges by sector: energy, transport and mobility, LULUCF, built environment, waste, water, industry, gender, others. Urban adaptation challenges by sector: agriculture and food, ecosystems and biodiversity, water, human health, industry, infrastructure, coastal areas, gender, others. Urban climate hazards: floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases (air and water), land degradation, saltwater intrusion, water acidification, wildfires, others.	Internal
NDC urban indicators – Responses (18)	Urban mitigation responses by sector: energy, transport and mobility, LULUCF, built environment, waste, water, industry, gender, others. Urban adaptation responses by sector: agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure, coastal areas, gender, others.	Internal
Other national climate-related policies, strategies and plans (20)	Other national climate-related policies, strategies and plans: National Adaptation Plans (NAP), NDC-SDG linkages (SDGs 1-17), Long-term Low-Emission Development Strategies (LT-LEDS), long-term goals and outcomes for climate adaptation.	External
Cross-cutting <i>national level</i> indicators (16)	Ecosystem services, NbS (green and blue infrastructure), gender, public spaces, circular economy, social inclusion, Indigenous Peoples, youth, innovation, loss and damages, multilevel governance, participation, data availability and usability (adaptation), data availability and usability (mitigation), informal settlements, others.	Internal and external



Indicator category (# of indicators)	Indicator (year of data, when applicable)	Internal (NDC)/external (non-NDC) data source
Cross-cutting <i>urban level</i> indicators (16)	Ecosystem services, NbS (green and blue infrastructure), gender, public spaces, circular economy, social inclusion, Indigenous Peoples, youth, innovation, loss and damages, multilevel governance, participation, data availability and usability (adaptation), data availability and usability (mitigation), informal settlements, others.	Internal and external

External indicators, while used in analysis, are not discussed in this report, and refer to secondary data extracted from existing sources, such as the **World Bank Group database** or the **Climate Watch database**. Internal indicators refer to the presence or absence of the relative information in the NDC document at national or urban level. Hence, these indicators are binary (yes/no). For instance, “sea level rise” under the category “NDC national indicators - Challenges” refers to a clear mention of sea level rise as an issue the country is facing.

Example:

“Egypt is highly vulnerable to the risks of climate change impacts, where the Nile Delta is considered one of the three extreme vulnerable hotspots [;] mega-deltas [will be] directly affected by 2050 according to the IPCC. Estimates indicate that sea level rise (SLR) may reach about 1.0 m by year 2100 which would sink several coastal areas in the Nile Delta, the Northern Coast, and Sinai ... Additional pressures are affecting the coastal zones, particularly the Nile Delta, due to impact of the sea level rise and the recurrence of severe storms and other extreme weather events that have increased significantly in Egypt over the last ten years inducing casualties and economic losses. This would negatively impact ecosystems in coastal cities in the Mediterranean Sea, Red Sea, and Upper Egypt...”
(pp. 5-6, Egypt’s Second Updated Nationally Determined Contribution, 26 June 2023).

In the example above, sea level rise is clearly mentioned as an issue that the country might face in the future due to climate change. In this case, sea level rise was marked as mentioned in Egypt’s NDC.

2.2 Data collection

A protocol for data collection was prepared to guarantee consistency during NDC data collection when performed by different persons reading the submitted NDCs. Clear definitions and descriptions of each indicator were included in the protocol, together with examples.

The Organisation for Economic Co-operation and Development (OECD) definition of city¹³ and urban areas was adopted within this report. Challenges, responses and climate hazards were classified as “urban” if: 1) the NDC explicitly labelled them as urban; or 2) they were referred to as “cities,” “metropolitan areas,” “urban areas,” “urban settlements” or a specifically named city. Challenges, responses and climate hazards referred to “villages,” “municipalities” and general “settlements” (not “urban settlements”), were not considered urban as they might refer to the administration of the area (such as a municipality) and not the area that is a city.

13 Dijkstra, L., Poelman, H., and Veneri, P. (2019). *The EU-OECD Definition of a Functional Urban Area*.

In this report, climate mitigation refers to the reduction of GHG emissions through the reduction of the sources of these emissions, such as decreasing the use of fossil fuels. Climate adaptation involves adjusting to a changing climate and its present and future effects. While research highlights that overlaps and synergies between the two concepts exist, these fall out of the scope of this report.

The 194 NDCs were thoroughly reviewed using the NDC indicators listed in 2.1, led by a team of researchers at SDU.Resilience. Final quality control was realized through a series of queries on the completed database to check any issues regarding the coherence of the review process. Moreover, several check points were held with researchers validating the data collection done by others to check for human errors, misinterpretations and biases. The protocol for data collection was updated in case clarifications were needed and specific issues were re-checked in all NDCs already analysed.

2.3 Data collection and analysis at the global level (Global Analysis)

This phase involved the identification and analysis of the explicit urban content included in the NDCs using a global perspective.

The extent of urban content informed the classification of NDCs into one of three Clusters:

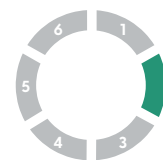
1. **Strong urban content (Cluster A):** NDCs that had one or more sections specifically dedicated to urban areas and/or NDCs in which urban areas are explicitly identified as priority sectors. Excludes NDCs that do not back up prioritization with a clear identification of specific urban challenges and/or responses.

The analysis and clustering were qualitative, thereby NDCs generically mentioning municipal and/or local issues, but without clear differentiation between urban and rural context, and NDCs only generically stating an urban prioritization, but without a clear identification of specific urban challenges and/or responses were included in Cluster B or Cluster C.

2. **Moderate urban content (Cluster B):** NDCs that mention urban within the body of the text but do not fall into the definition of Cluster A.
3. **Low or no urban content (Cluster C):** NDCs that had low or no explicit urban mention within the text.

The analysis and clustering were qualitative, thereby NDCs generically mentioning municipal and/or local issues, but without clear differentiation between urban and rural context, and NDCs only generically stating an urban prioritization, but without a clear identification of specific urban challenges and/or responses were included in Cluster B or Cluster C.

Data analysis also explored alignment and misalignment between challenges and responses, and between climate challenges and responses highlighted at the national and urban levels, using the working definitions below.



	Challenges	Responses
MITIGATION	A high level of GHG emissions by sector (e.g., "transport" or "energy").	Provisions in the form of policies, strategies and actions to reduce GHG emissions by sector.
ADAPTATION	Specific climate threats or impacts by sector (e.g., "human health" or "infrastructure") and by climate hazard (e.g., "floods" or "droughts").	Provisions in the form of policies, strategies and actions to limit the negative effects of climate change by sector and by climate hazard.

The data analysis also focuses on identifying alignments and misalignments of challenges and responses between the national and urban levels to provide recommendations for further strengthening of the urban content of NDCs and the operationalization of urban climate actions.

An example of alignment is finding challenges in the "transport" sector in both the national and urban contexts. If the NDC highlights a challenge in a sector only at the national level and not at the urban level, this constitutes a misalignment. A related response should be provided for each challenge identified and vice versa. The presence of one and the absence of the other highlights a misalignment.

The NDC data analysis goes further to explore underlying gaps in NDC implementation related to financial support, technology transfer and capacity-building, both at the national and urban levels. Moreover, data were analysed in relation to cross-cutting issues (e.g., "NbS," "informal settlements," "circular economy," etc.).

2.4 Data analysis at the country level (Country Briefs)

Country Briefs for each of the 194 NDCs were developed that provide a visual snapshot of the urban content in each country's NDC. These include an overview of key mitigation and adaptation indicators at the country level. Data presented in these quick reference snapshots reflect findings from the data collection phase noted in 2.2.

The Country Briefs can be used to easily visualize gaps between challenges identified and responses and/or between national and urban levels. This could serve to help strengthen the urban content of NDCs, as well as check the alignment of NDCs with other national climate and/or urban policies.

2.5 Data collection and qualitative analysis of selected countries (Country Profiles)

Country Profiles were developed to facilitate country-specific explorations into approaches to scale up urban climate ambitions. This aspect of NDC analysis was conducted to provide a more in-depth perspective of approaches taken to tackle the climate crisis in urban areas in terms of reducing emissions and building adaptive capacity. The Country Profiles illustrate the background to developing urban climate strategies and policies and indicate which tactics have worked and which have encountered potential roadblocks.

The 16 countries featured in this report were selected based on: (i) geographic and sectoral diversity; (ii) a track record of prioritizing and implementing climate adaptation or mitigation actions in urban areas and demonstrated innovation approaches; (iii) on-the-ground presence of UNDP and UN-Habitat, field experience and relationships with key government counterparts; (iv) ability to serve as role models and sources of inspiration; (v) urban climate activity experience in areas that are potentially replicable and inspirational; and (vi) a history of successful collaboration between the United Nations and partner government, and the likelihood the partner government might wish to contribute to the writing of the Country Profile.

Country Profiles were developed for the following countries: Africa – Côte d'Ivoire, Madagascar, Malawi, the United Republic of Tanzania, Zimbabwe; Arab States – Iraq, Lebanon, the State of Palestine; Asia-Pacific – Fiji, the Lao People's Democratic Republic, Nepal, the Philippines; and Latin America and the Caribbean – Colombia, Cuba, El Salvador, Uruguay.

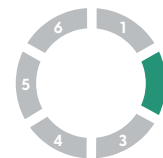
Each Country Profile was co-authored by UNDP and UN-Habitat to facilitate a balanced perspective between the two United Nations agencies. A template was provided to the local teams of authors that included the below information and were consistent with the terminology used in the Global Analysis and Country Briefs.

- A discussion on key climate-related national policies, strategies and plans that are most important to consider regarding urban climate issues.
- Mitigation challenges: Primary GHG emitting sectors (e.g., "energy," "transport and mobility," "LULUCF," "built environment," "waste," "water," "industry") identified in the discussion on key climate-related policies, strategies and plans.
- Mitigation responses: Key mitigation strategies and actions for the urban sector that are planned, ongoing or complete.
- Adaptation challenges: Urban climate risks and key sectors focused on in urban adaptation (e.g., "agriculture and food," "ecosystem and biodiversity," "water," "waste," "human health," "industry," "coastal areas," "informal settlements").
- Adaptation responses: Adaptation actions and strategies for urban areas to address climate risk.
- Means of implementation: Needs and gaps in the implementation of mitigation and adaptation climate solutions, including for "technology," "finance" and "capacity-building."
- Conclusions and recommendations on strengths, weaknesses and gaps between mitigation and adaptation challenges and responses and upcoming priorities, by trends or policies, plans and/or strategies.

The Country Profile methodology was piloted in Fiji in August 2023 with the UNDP/UN-Habitat team working through the template. Further, in certain countries, when appropriate, country teams invited government counterparts to inform the Country Profile development process.

2.6 Methodology improvement and limitations

The classification of NDC urban content by the core team of UN-Habitat and SDU.Resilience (and UNDP starting in 2023) has evolved over the years. The review process in 2023 specifically strengthened the definition and categorization of urban clusters, in particular, providing a more nuanced interpretation



of Cluster A ‘strong urban content.’ The NDCs of city states have been automatically labeled as Cluster A. A city state is understood as an independent country that exists completely within the borders of a single city. Three countries, namely, Monaco, Singapore and Vatican City were counted as a city state in the 2023 review, and therefore classified in Cluster A for strong urban content.

To illustrate how the process has evolved, the differences in the definition of urban clusters from 2016/2017 to 2021, 2022 and 2023/2024 are presented below. As noted in section 2.2, the inclusion of urban content refers to mentions of “cities,” “metropolitan areas,” “urban areas,” “urban settlements” or a specifically named city, and not “villages,” “municipalities” and general “settlements” (not “urban settlements”).

2016/2017 and 2021 Clusters (methodologies were generally consistent)

Cluster **A** (strong urban content): NDCs with urban mentions within text headers/sections/paragraphs.

Cluster **B** (moderate urban content): NDCs with urban mention within the body of text.

Cluster **C** (no evident urban content): NDCs with no urban mention within the text.

2022 Clusters

Cluster **A** (strong urban content): NDCs with specific urban sections and/or NDCs in which urban is identified as a priority sector, excluding NDCs that are not backing the prioritization with a clear identification of specific urban challenges and/or responses.

Cluster **B** (moderate urban content): NDCs with generic urban mentions within the body of text.

Cluster **C** (low or no urban content): NDCs with low or no explicit urban mention within the text.

2023/2024 Clusters

Cluster **A** (strong urban content): NDCs with specific urban sections and/or NDCs in which urban is identified as a priority sector, excluding NDCs that are not backing the prioritization with a clear identification of specific urban challenges and/or responses. NDCs from city states.

Cluster **B** (moderate urban content): NDCs with generic urban mentions within the body of text.

Cluster **C** (low or no urban content): NDCs with low or no explicit urban mention within the text.

In addition to the new addition of developing Country Briefs and Country Profiles to allow for a more extensive and deeper analysis of NDC urban content, the methodology has been modified and advanced since the first review; however, there are still limitations. For example, each of the 194 NDCs were reviewed in detail with the vast majority being written in the native language; however, it is possible urban areas of focus in the NDCs were implied and not explicit, and specific references to locations interpreted as urban areas might not meet national or global definitions of urban areas. Such misinterpretation might be more likely to be present when reviews were conducted of translated NDCs (i.e., translated from Arabic or Russian).



SECTION 3

Past analyses of urban content of in NDCs

As mentioned in Section 2.6, the methodology between 2016/2017 and 2023/2024 has been upgraded. The main results of the three previous analyses conducted in 2016/2017, 2021 and 2022, are presented in the following sections, followed by the results of the 2023 analysis in Section 4.



3.1 Urban content in NDCs: The 2016/2017 analysis

The first analysis of urban content in NDCs was conducted at the end of 2016 and published in 2017 in the report titled "**Sustainable Urbanization in the Paris Agreement – A comparative review of Nationally Determined Contributions for Urban Content**". The results of this analysis were as follows:

- 113 of 164 NDCs (69 percent) had urban content, indicating widespread recognition of the importance of urban challenges and response measures for climate change mitigation and adaptation, as shown by the high number of NDCs with urban content.
- Most of the NDCs with urban content, specifically those with moderate urban content (Cluster B), required further effort to strengthen urban provisions, particularly concerning urban climate actions.

The report acknowledged that the findings represented only keyword searches of the subject matter, thereby requiring a continuity in the analysis of NDCs to monitor trends.

The 2016/2017 report included recommendations for strengthening climate policy coherence in a multi-level governance perspective through horizontal integration of NDCs and other urban and climate policies at the national level, and through vertical integration of national policies and local actions. It also proposed specific recommendations for implementing national strategies at the local level, considered a crucial aspect for successfully implementing the Paris Agreement, and for stating finance, technology and capacity-building needs within NDCs.

3.2 Urban content in NDCs: The 2021 analysis

A second analysis of urban content in NDCs was conducted in 2021 and published in a white paper titled "**Accelerated urban climate action. How do the revised Nationally Determined Contributions stack up?**" For this review, 157 NDCs were analysed, including the latest version of updated NDCs submitted between March 2017 and the end of September 2021, which were publicly available in the UNFCCC online registry. The 2021 white paper included an analysis based on a keyword search for urban-related terms. Moreover, a country-level analysis was piloted for the following countries: Colombia, the Philippines and Rwanda.

Results of the 2021 analysis of urban content in NDCs included the following:

- Over two-thirds of the NDCs analysed had a strong (Cluster A) or moderate (Cluster B) urban content (132 of 157 NDCs);
- NDCs with combined urban mitigation and adaptation content was high (94 of 157 NDCs); and
- NDCs with strong adaptation content (Cluster A) had very high combined urban mitigation and adaptation content (56 of 70 NDCs).

The white paper acknowledged that countries that submitted NDCs with no explicit urban content did not necessarily lack climate-related urban policies and actions, which became evident through the in-depth country analyses. At that time, the white paper also recommended NDCs with urban content, particularly those with moderate urban content (Cluster B), to strengthen and improve the integration of urban climate policies and actions.





3.3 Urban content in NDCs: The 2022 analysis

The third analysis of the urban content of the NDCs was published in a report titled "**Urban Climate Action: The urban content of the NDCs: Global review 2022**". For this analysis, 193 NDCs were analysed, including the latest version of all updated NDCs submitted before 19 June 2022, which were publicly available in the UNFCCC online registry.

The key findings were:

- A total of 47 NDCs submitted contained strong urban content, indicating urban areas were prioritized sectors. These countries comprised 35 percent of the world's urban population, responsible for 44 percent of the total CO₂e emissions produced by countries that submitted an NDC. 76 NDCs contained moderate urban content (comprising 35 percent of the world's urban population, and responsible for 28 percent of total CO₂e emissions produced by the 193 countries that submitted an NDC). 70 countries submitted NDCs with low or no urban content, without mentioning the urban sector (comprising 30 percent of the world's urban population, and responsible for 28 percent of total CO₂e emissions produced by the 193 countries that submitted an NDC).
- "Energy," "transport and mobility" and "waste" were the most mentioned sectors in urban mitigation challenges and responses.
- "Infrastructure" and "water" were the two most mentioned sectors in urban adaptation challenges and responses.
- 48 NDCs, or 39 percent of the NDCs with urban content, identified urban climate hazards. "Flooding" was the most prominently identified urban climate hazard.

The report pointed out that the number of NDCs with urban content increased in a very limited manner among the new submissions compared to the results of the 2016/2017 review, but there was a substantial increase of the number of NDCs with strong urban content. A very positive outcome was that almost two out of three NDCs had an urban provision (i.e., either moderate or strong content).



SECTION 4

Urban content in NDCs: The 2023 Global Analysis

For this 2023 global review, a total of 194 NDCs were analysed, including the latest version of all NDCs submitted no later than 27 June 2023.

Numerous aspects of NDC urban content were analysed as presented in this Section, including the following:

- Ranking of countries on overall urban content;
- Breaking down urban content in terms of a focus on climate change mitigation or adaptation;
- Elaboration of whether urban references focus on identifying challenges or whether they represent how the country plans to address the challenge (referred to in this report as “responses”);
- Climate change hazards highlighted in NDCs in an urban context;
- Comparison of mitigation and adaptation challenges and responses, and climate hazards that are highlighted in NDCs in an overall national context versus in an urban context;
- Requests in NDCs for finance, technology and capacity-building support at the national level as compared to urban level; and
- References to cross-cutting issues, such as gender, loss and damage, public spaces and informal settlements at national and urban levels.

4.1 NDC urban clusters

The first analysis was the classification of NDCs into one of three clusters, Clusters A, B and C, based on the strength of their urban content (**Annex 1** provides a list of countries by their cluster designation).

Results are as follows:

- 53 NDCs (27 percent of total NDCs) have strong urban content (Cluster A), identifying the urban sector as a priority;
- 76 NDCs (39 percent of total NDCs) have moderate urban content (Cluster B), mentioning the urban sector, but not identifying it explicitly as a national priority; and
- 65 NDCs (34 percent of total NDCs) have low or no urban content (Cluster C), not explicitly mentioning the urban sector.

The review shows that 129 NDCs, or 66 percent of NDCs analysed, include urban content (see Map 1 and Figure 1).

Map 1. Urban content in Nationally Determined Contributions

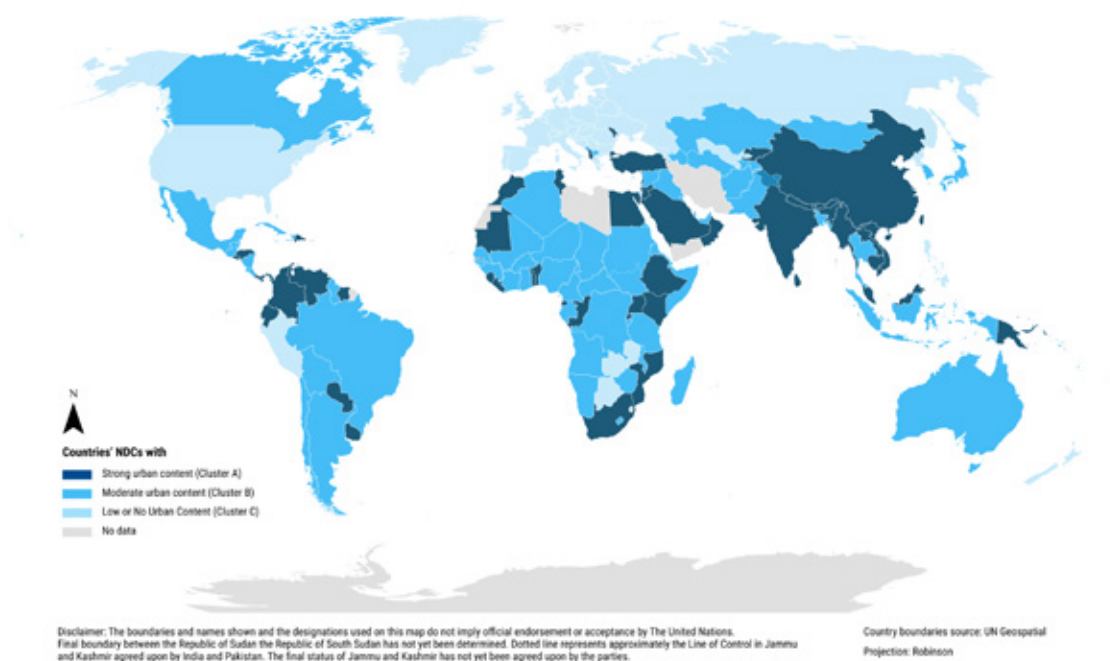
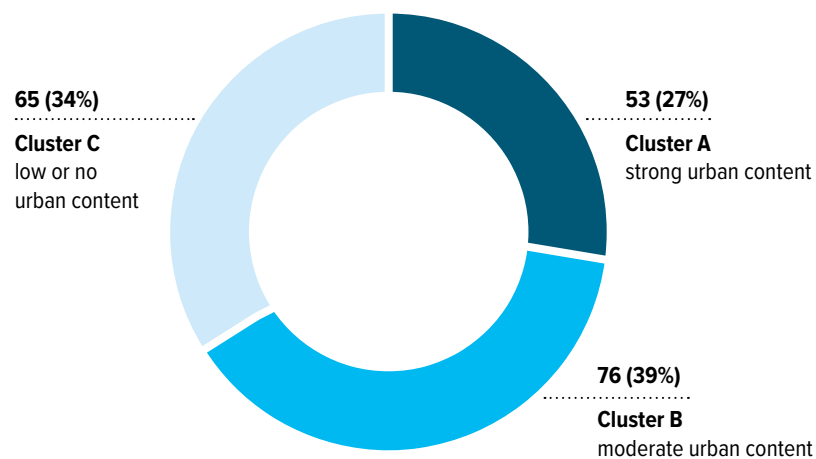


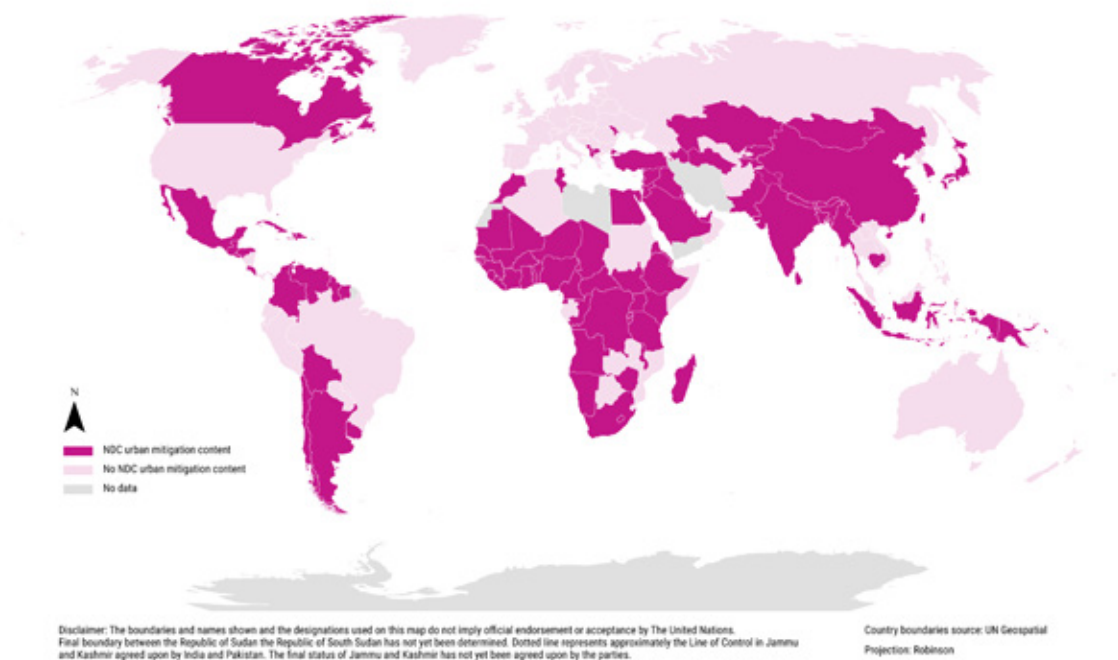
Figure 1. Urban content in Nationally Determined Contributions



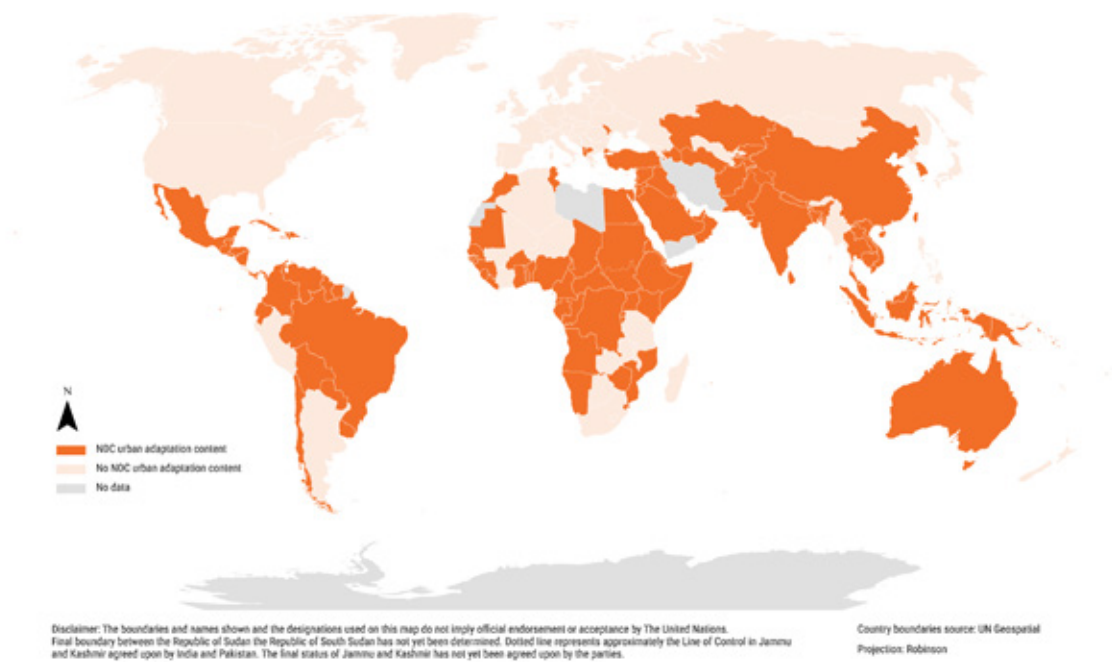
4.2 Urban mitigation and adaptation content

At the urban level, the mitigation and adaptation content of NDCs (Maps 2-4, Figure 2), shows that 86 NDCs (44 percent of the total NDCs analysed) focus on both urban adaptation and mitigation, whereas 22 NDCs (11 percent of the total NDCs analysed) focus only on urban adaptation and 19 NDCs (10 percent of the total NDCs analysed) focus only on urban mitigation. 65 NDCs (34 percent of the total NDCs analysed) have low or no urban content and therefore have neither urban mitigation nor urban adaptation content.

Map 2. NDC urban mitigation content



Map 3. NDC urban adaptation content



Map 4. Urban adaptation and mitigation content for NDCs with moderate or high urban content

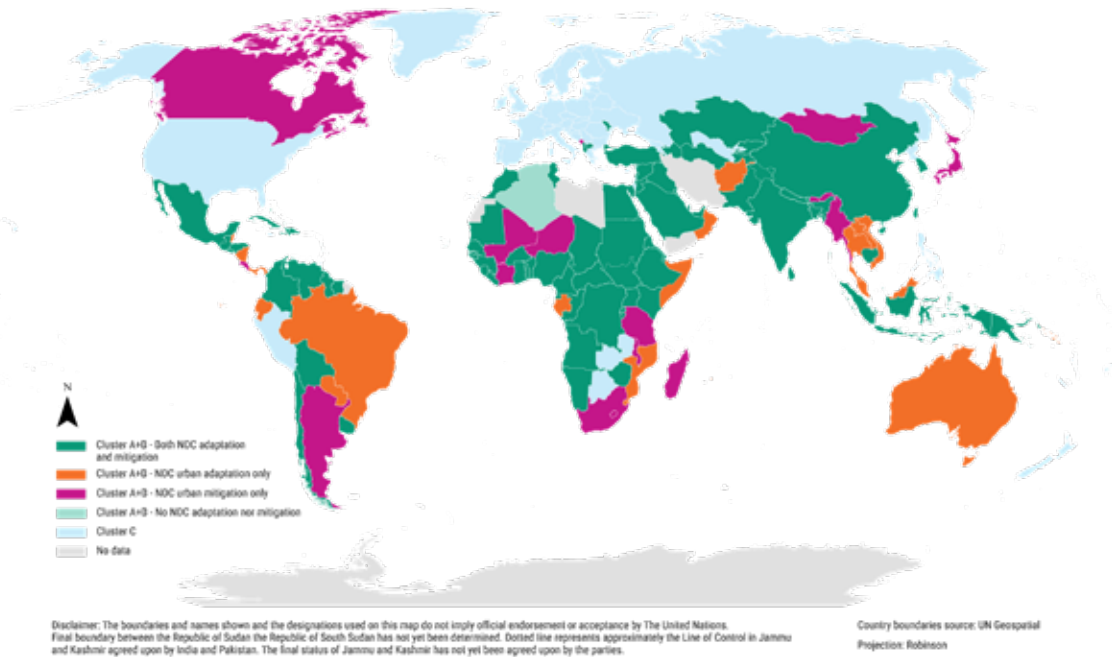
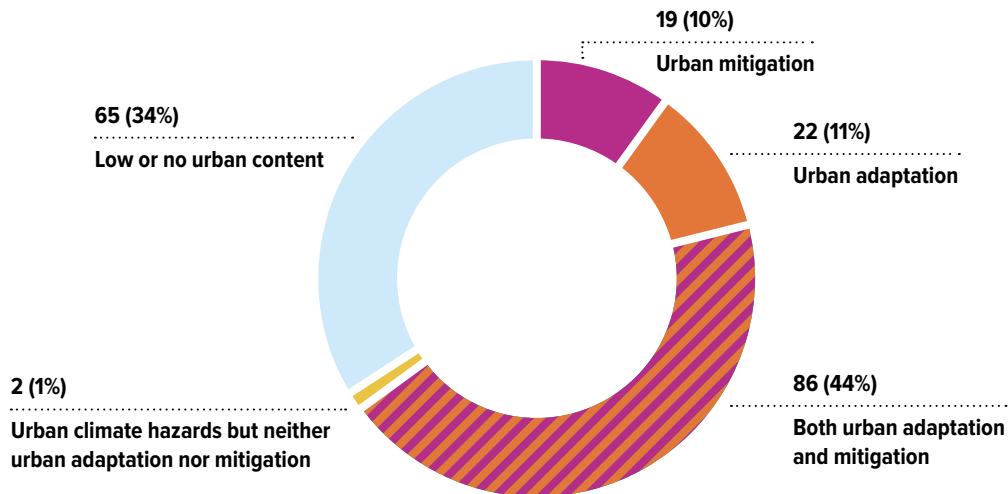


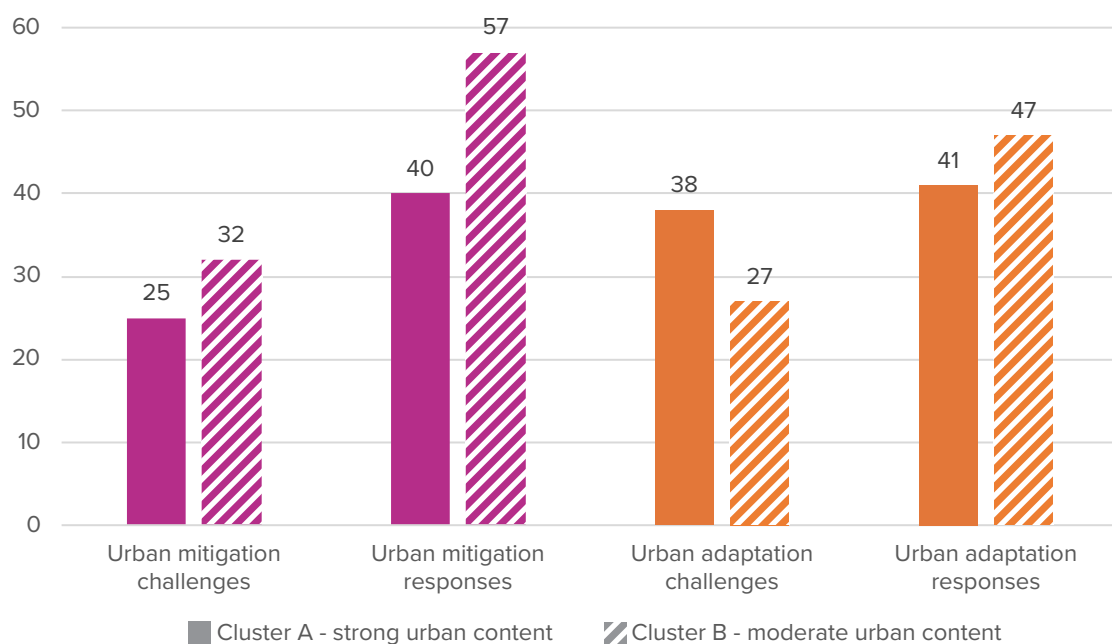
Figure 2. Distribution of the type of urban content in the NDCs



4.3 Urban climate challenges and responses

Mitigation challenges and adaptation challenges were analysed together with mitigation and adaptation responses. The analysis (Figure 3) shows that the NDCs with urban content identify more urban responses than challenges, for both adaptation and mitigation. For example, urban mitigation challenges were identified in 57 NDCs, while urban mitigation responses were identified in 97 NDCs (considering NDCs that fall within Clusters A or B). In some cases, the analysis of mitigation and adaptation challenges is reported in other documents and cited by the NDCs.

Figure 3. Number of NDCs with urban content in mitigation and adaptation challenges and responses in Clusters A and B

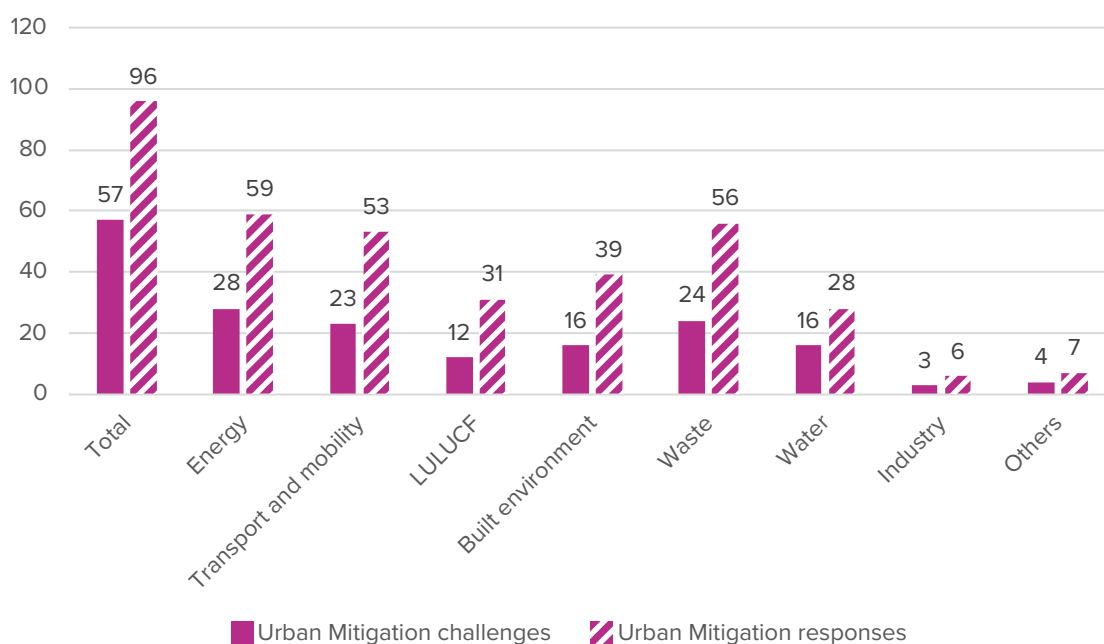


4.4 Urban mitigation challenges and responses

At the urban level, the mitigation challenges and responses (Figure 4) present a large gap: 96 NDCs (75 percent of NDCs with urban content) identified urban mitigation responses and 57 NDCs (45 percent of NDCs with urban content) identified urban mitigation challenges. This means that only about half of NDCs with urban content explicitly identified urban mitigation challenges to match with responses, potentially making it more difficult to track the progress and impact of urban mitigation responses. Moreover, one quarter of NDCs with urban content did not include clearly identified urban mitigation responses.

The sectors "energy," "transport and mobility" and "waste" are the most frequently mentioned in terms of mitigation challenges and responses at the urban level. Only about 25 percent of NDCs mention urban mitigation responses on specific sectors, for example "energy" (i.e., 59 of 194 NDCs), "transport and mobility" and "waste." Other sectors, such as "built environments," which have extremely high emission profiles, are less mentioned in NDCs regarding urban mitigation responses.

Figure 4. Number of NDCs with urban mitigation challenges and responses by sector



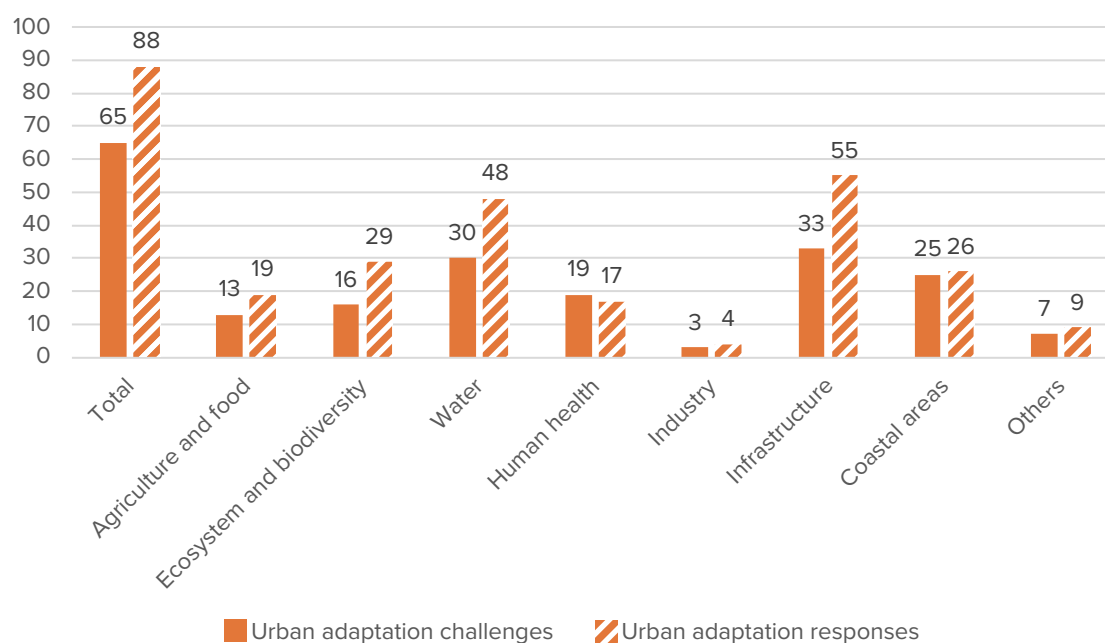
4.5 Urban adaptation challenges and responses

In terms of urban climate adaptation, responses are mentioned more than challenges (Figure 5). 88 NDCs (68 percent of NDCs with urban content) identified urban adaptation responses and 65 NDCs (50 percent of NDCs with urban content) identified urban adaptation challenges.

Only about half of the NDCs with urban content explicitly identify urban adaptation challenges, and approximately one third of NDCs with urban content do not include clearly identified urban adaptation responses.

"Infrastructure" and "water" are the two most mentioned sectors in NDCs for both urban adaptation challenges and responses, although it shall be noted that one in four NDCs submitted mention urban adaptation responses in these sectors. Urban adaptation responses for other sectors, such as "coastal areas," are mentioned to a very limited extent in NDCs, despite these sectors facing increasing climate hazards.

Figure 5. Number of NDCs with urban adaptation challenges and responses by sector

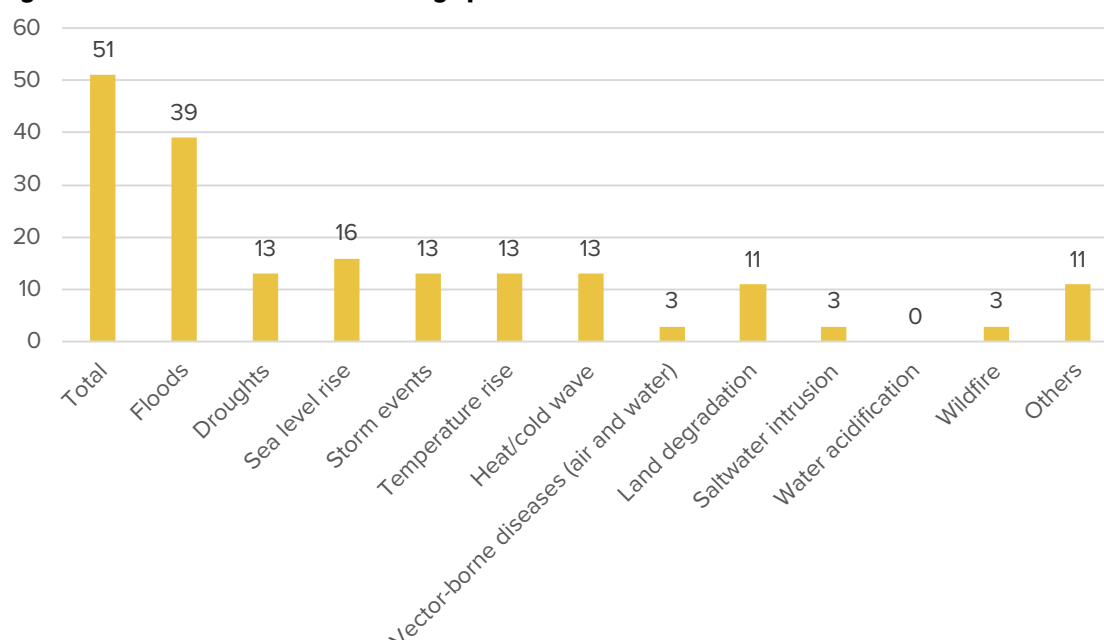


4.6 Urban climate hazards

The analysis of urban climate hazards (Figure 6) indicates that only 51 NDCs (40 percent of NDCs with urban content) identified urban climate hazards. "Flooding" is the most frequently mentioned urban climate hazard, although only in 39 NDCs (30 percent of the NDCs with urban content). "Wildfires," "saltwater intrusion" and "vector-borne diseases" are least mentioned, and "water acidification" was not mentioned as an urban climate hazard.

It is important to note that four of the most frequently mentioned urban climate hazards are water-related ("floods," droughts," "sea level rise" and "storm events"). The multiple water-related climate hazards for urban areas highlights that greater attention is required to implement integrated mitigation of multi-climate risks related to access, resource management, excess and scarcity, as well as a systematic approach to respond to these combined urban climate hazards in an integrated fashion.

Figure 6. Number of NDCs mentioning specific urban climate hazards



4.7 Mitigation challenges (national versus urban)

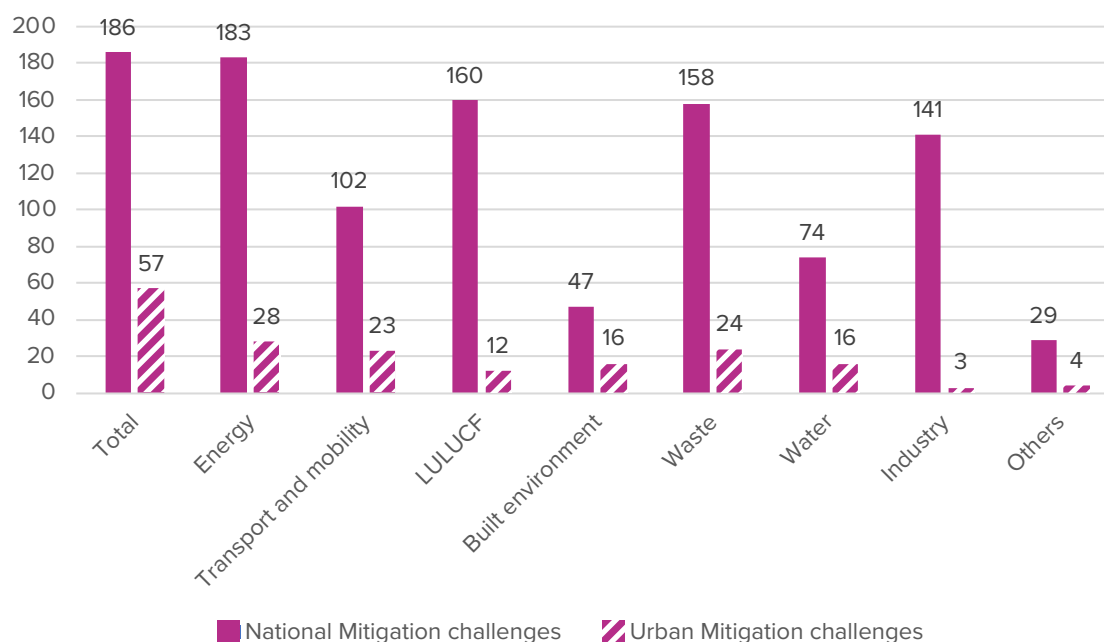
A comparison between national and urban mitigation challenges shows that mitigation challenges are not as frequently mentioned at the urban level as at the national level. Figure 7 shows that 186 NDCs (96 percent of the total NDCs analysed) identified national mitigation challenges, while only 57 NDCs (29 percent of the total NDCs analysed or 44 percent of the NDCs with urban content) identified urban mitigation challenges.

The misalignment in the identification of mitigation challenges between national and urban levels is more evident in specific sectors. For example, mitigation challenges in the "energy" sector at the national level are mentioned by the highest number of NDCs (183), but only 28 NDCs mention "energy" at the urban level. This shows that the gap between references at the national level and urban level is remarkably wide.

A similar gap is evident for other sectors with relatively high numbers of mentions at the national level, these being: "LULUCF," "waste," "industry," "transport and mobility" and "water." For mitigation challenges related to less mentioned sectors, specifically "built environment" and "others," the gap between national and urban content is lower, mainly because the number of NDCs recognizing the importance of this sector at the national level is also lower.

These large gaps indicate that there is ample margin to increase the inclusion of urban mitigation challenges by sector in NDCs, particularly in sectors that are of urban relevance, such as "LULUCF," "energy," "transport and mobility," "built environment," "waste" and "water."

Figure 7. Number of NDCs with mitigation challenges by sector (national versus urban)



4.8 Mitigation responses (national versus urban)

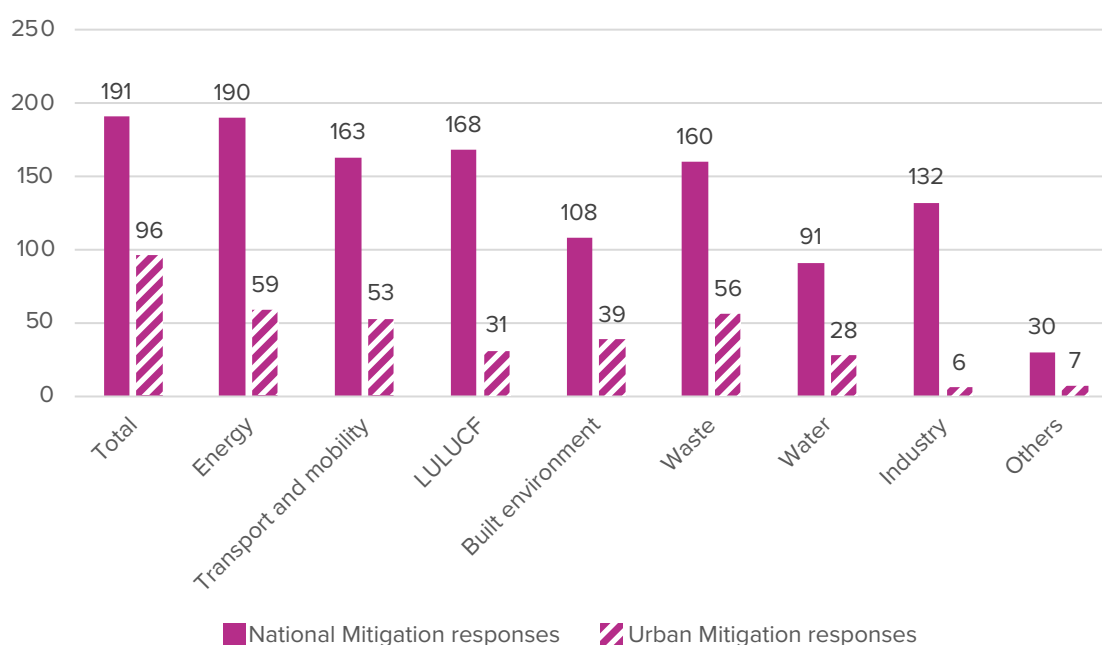
Similar to the prior finding, mitigation responses are more frequently mentioned at the national level than at the urban level. Figure 8 shows that 191 NDCs (98 percent of the total NDCs analysed) identified mitigation responses, but only 96 NDCs (49 percent of the total NDCs analysed, or 74 percent of the NDCs with urban content) identified urban mitigation responses.

At the sectoral level, a misalignment also exists between mitigation responses at national and urban levels, although the mitigation response misalignment is less pronounced than that of mitigation challenges. In general, a limited number of NDCs mention specific mitigation responses by sector at the urban level compared to mitigation responses mentioned by sector at the national level.

Mitigation responses are mentioned most often at both urban and national levels in the "energy," "waste" and "transport and mobility" sectors, despite a still evident gap between national and urban levels. "LULUCF" and "industry" are included in a considerable number of NDCs in terms of national mitigation responses, but a significantly lower number of NDCs mention these in their urban mitigation responses. Where there is a slightly smaller gap between the national and urban levels, in this case "built environment," it is partially due to a considerably lower number of NDCs including this sector in both national and urban mitigation responses.

Based on this data, there is ample margin to increase the inclusion of urban mitigation responses by sector in NDCs, particularly in sectors that are of urban relevance, such as "industry," "built environment," "LULUCF" and "water."

Figure 8. Number of NDCs with mitigation responses by sector (national versus urban)



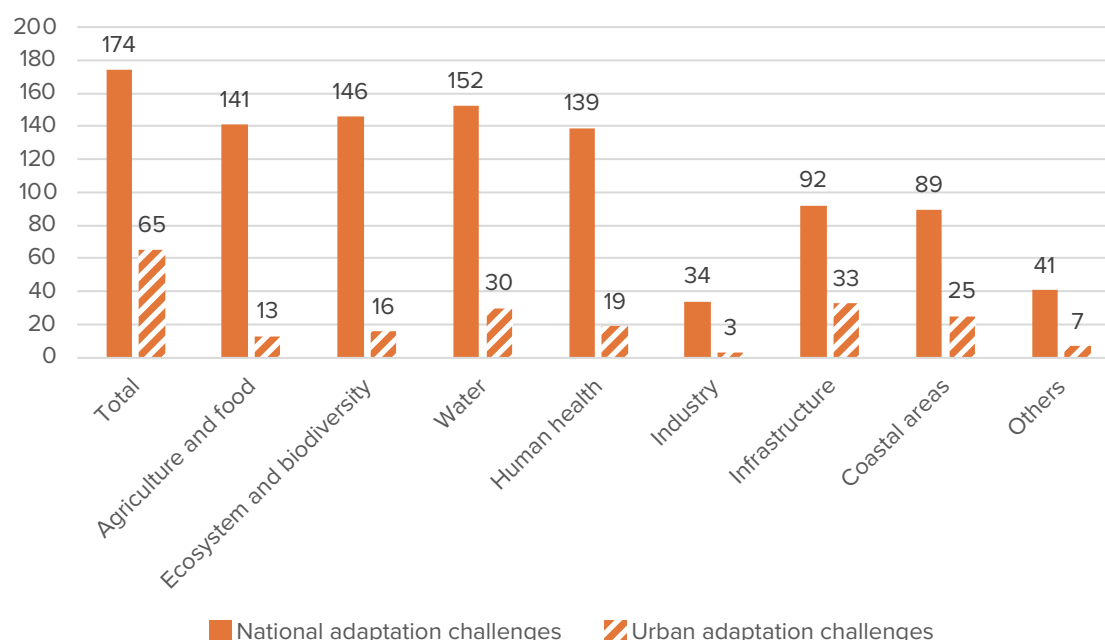
4.9 Adaptation challenges (national versus urban)

Like the two previous findings, the comparison between national and urban adaptation challenges shows that adaptation challenges are not as frequently mentioned at the urban level as at the national level. Figure 9 shows that 174 NDCs (90 percent of the total NDCs reviewed) identified national adaptation challenges, while only 65 NDCs (34 percent of the total NDCs reviewed or 50 percent of NDCs with urban content) identified urban adaptation challenges.

The misalignment between national and urban levels on the identification of adaptation challenges is very evident in terms of specific sectors. The "agriculture and food," "ecosystem and biodiversity," "water" and "human health" sectors are mentioned by the highest number of NDCs at the national level, but an extremely limited number of NDCs mention these sectors at the urban level.

In general, an extremely limited number of NDCs mention specific urban adaptation challenges by sector, also in comparison to the number of NDCs that mention adaptation challenges by sector at national level. The "agriculture and food," "ecosystem and biodiversity," "water" and "human health" sectors are mentioned in the highest number of NDCs at the national level, but by an extremely limited number of NDCs at the urban level. The sectors "water," "infrastructure" and "coastal areas" are mentioned in the highest number of NDCs at the local level, while the latter two sectors, along with "industry," are mentioned in a lower number of NDCs at the national level.

Figure 9. Number of NDCs with adaptation challenges by sector (national versus urban)



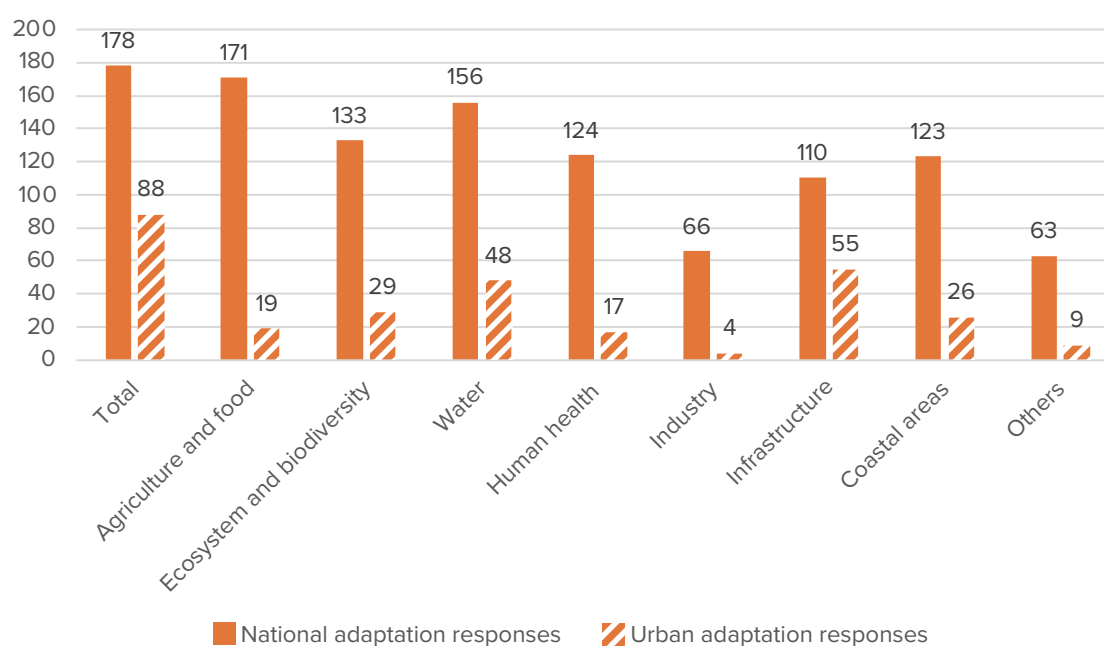
4.10 Adaptation responses (national versus urban)

In keeping with the pattern of findings above, the analysis comparing the national and urban adaptation responses shows that adaptation responses are mentioned more frequently at the national level than at the urban level. Figure 10 shows that 178 NDCs (92 percent of the total NDCs analysed) identified national adaptation responses, while 88 NDCs (45 percent of the total NDCs analysed or 68 percent of NDCs with urban content) identified urban adaptation responses.

The gap between national and urban adaptation responses is proportionally the highest in "industry," followed by "agriculture and food" and "others," although the misalignment is lower in comparison to adaptation challenges.

"Agriculture and food," "water," "ecosystem and biodiversity," "human health" and "coastal areas" were the sectors included in most NDCs as part of national adaptation responses, whereas "infrastructure" and "water" were most often included in NDCs for urban adaptation responses. This indicates a strong need to increase the identification and inclusion of adaptation responses by sectors in NDCs at urban level.

Figure 10. Number of NDCs with adaptation responses by sector (national versus urban)



4.11 Climate hazards (national versus urban)

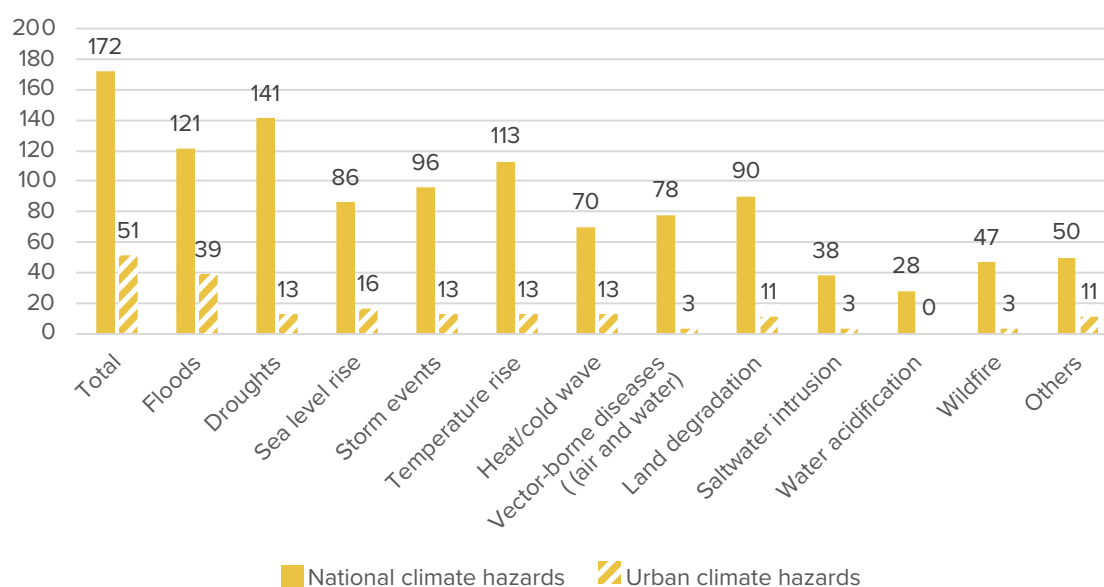
Climate hazards are more frequently mentioned at the national level than at the urban level. Figure 11 shows that 172 NDCs (89 percent of the total NDCs analysed) identified national climate hazards and 51 NDCs (26 percent of the total NDCs analysed, or 40 percent of the NDCs with urban content) identified urban climate hazards.

"Droughts," "floods" and "temperature rise" are the top three climate hazards mentioned in NDCs at the national level, followed by a lower inclusion of other national climate hazards, which are "storm events," "land degradation," "sea level rise," "vector-borne diseases" and "heat/cold waves." "Flooding" is by far the most often included climate hazard in NDCs at urban level. The next most frequently referenced climate hazards in urban areas were on a much more limited basis, notably "sea level rise," "droughts," "storm events," "temperature rise," "heat/cold waves," "land degradation" and "others."

"Wildfires," "saltwater intrusion" and "water acidification" (in order) are the least included hazards in the NDCs at the national level, whereas "vector-borne diseases," "saltwater intrusion" and "wildfires" are least included in the NDCs at the urban level. No NDCs mention "water acidification" as a climate hazard at the urban level.

This analysis indicates a sizable gap in the number of NDCs including references to climate hazards altogether but particularly at the urban level and including those NDCs with urban content (Clusters A and B).

Figure 11. Number of NDCs mentioning climate hazards (national versus urban)

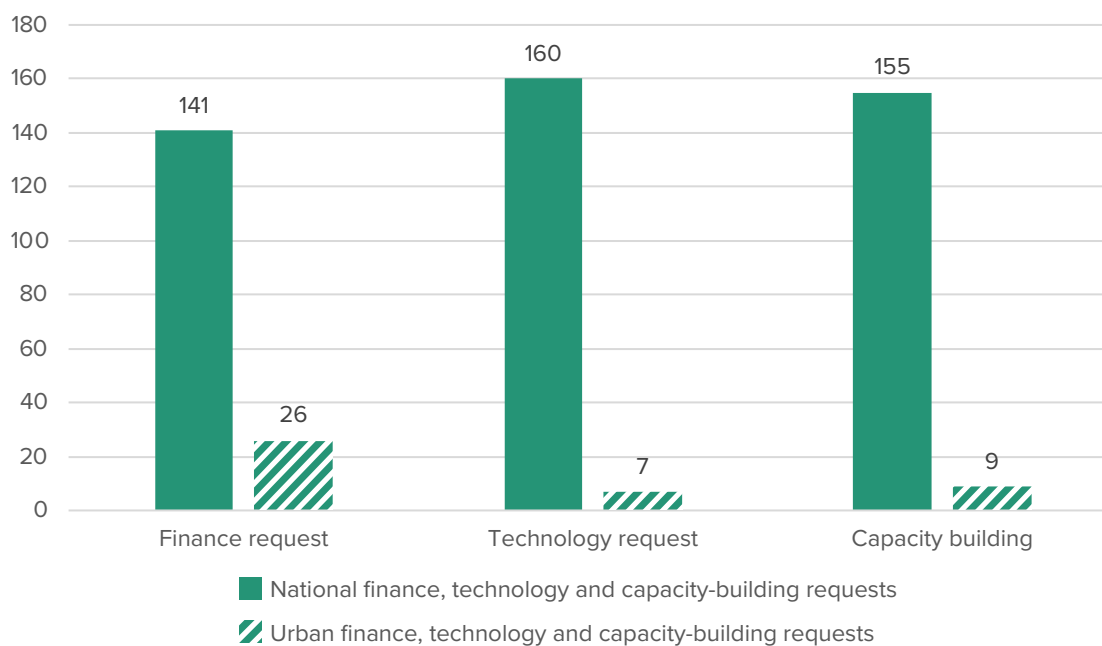


4.12 Finance, technology and capacity-building requests (national versus urban)

The NDC analysis indicated a significant number of countries highlighted the need for "finance," "technology" and "capacity-building." Figure 12 shows that "technology" is prioritized in 160 NDCs, "capacity-building" in 155 NDCs and "finance" in 141 NDCs. In contrast, only an extremely limited number of NDCs include specific requests at the urban level for "finance" (26 NDCs), "capacity-building" (9 NDCs) and "technology" (7 NDCs).

This shows that relatively few countries are using NDCs as a mechanism to request support for "finance," "technology" and "capacity-building" in the urban context. Ample space exists for improving the inclusion in NDCs of specific requests for support in these three areas in the urban context, even in NDCs with urban content (Clusters A and B).

Figure 12. Number of NDCs that include finance, technology and capacity-building requests (national versus urban)



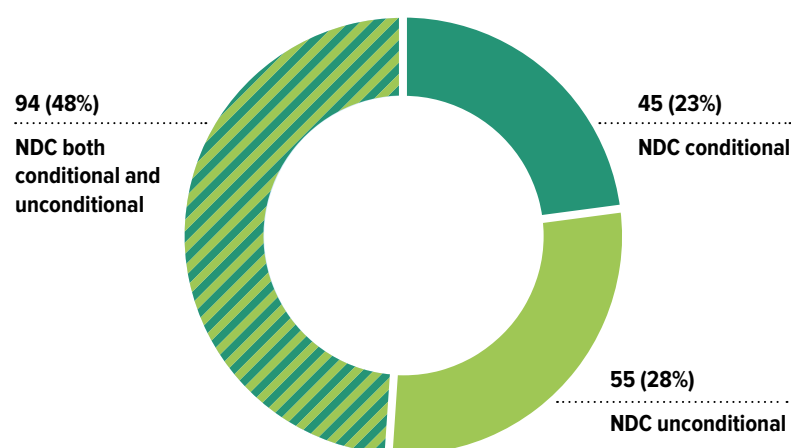
4.13 NDC conditional/unconditional contributions

The means of implementation refers to finance, technology and capacity-building provided by developed countries to developing and least developed countries. Hence, if an NDC stated that international support in the form of finance, technology and/or capacity-building was necessary for implementation of mitigation and/or adaptation projects and measures, the NDC was labelled as “conditional.” If no requests for international support were included in the NDC document, this was labelled as “unconditional.”

Analysis of the conditional and unconditional contributions mentioned within NDCs (Figure 13) shows that 28 percent of NDCs mention only an unconditional contribution, meaning that these countries could implement climate mitigation and adaptation responses, projects and actions based on their own resources and capabilities. Meanwhile, 23 percent of NDCs mention only a conditional contribution, meaning that these countries would undertake the climate mitigation and adaptation responses if international means of support were provided, or other conditions were met. About half of NDCs (48 percent) mention both conditional and unconditional contributions.

It should be noted the importance of clearly identifying requests for "finance," "technology" and "capacity-building," both at the national and urban levels, for countries that are listing their NDC contributions as partly or fully conditional.

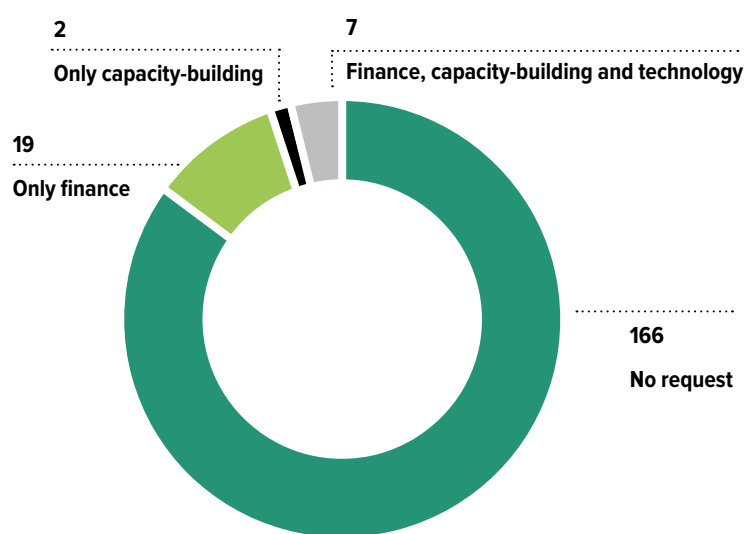
Figure 13. NDC conditional and unconditional contributions (% of NDCs with the given conditionality of their contribution)



Of the total NDCs, 14 percent (28 NDCs) included requests for international support at the urban level. Of these, 19 made requests in "finance," 2 requested assistance with "capacity-building" and 7 requested support in the form of "finance," "technology" and "capacity-building" (all three combined).

A large number of NDCs (86 percent, or 166 NDCs) did not include a request for support in these categories at the urban level. Among the 26 countries that requested "finance" support at the urban level, whether together with "capacity-building" and "technology" or not, 14 belong to Cluster A (54 percent), while 12 belong to Cluster B (46 percent).

Figure 14: Number of NDCs with a request for means of implementation at the urban level and the type of request

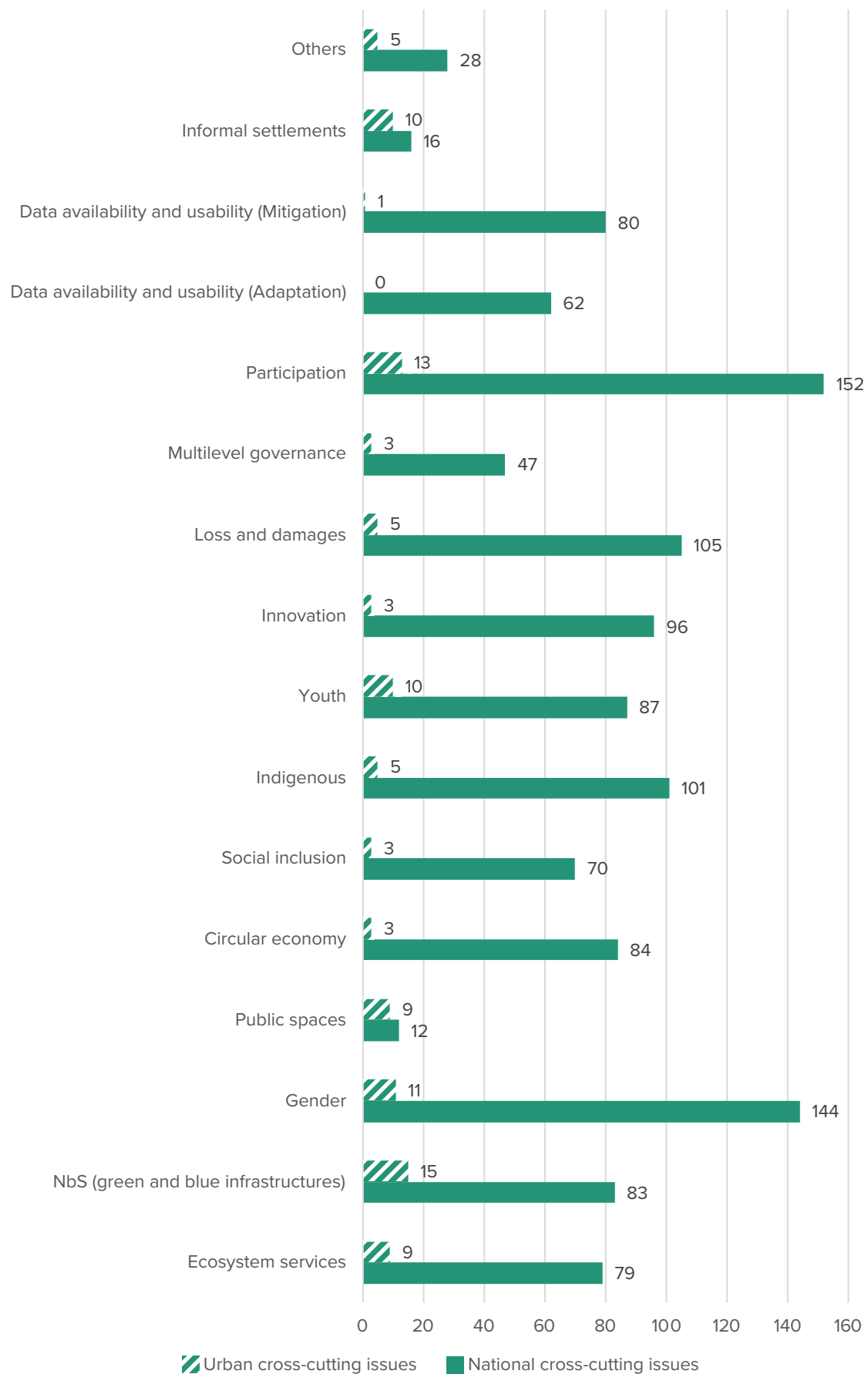


4.14 Cross-cutting issues (national versus urban)

In the context of NDC analysis, cross-cutting issues are topics identified as important in the NDCs and that impact and cut across multiple aspects of climate change policymaking. These issues include "participation" (referring to public engagement), "gender," "public spaces," "multi-level governance," "data availability" and "data usability," among others. Analysis of national and urban cross-cutting issues (Figure 15) shows a major gap between the national and urban cross-cutting issues mentioned in the NDCs.

The most frequently mentioned cross-cutting issues at the national level are "participation," "gender" and "loss and damages." "Informal settlements" and "public spaces" are infrequently mentioned. At the urban level, the most often mentioned cross-cutting issues are "NbS," "participation" and "gender." The least mentioned (in order of most to least mentions) at the urban level are "loss and damages," "Indigenous (knowledge, peoples, etc.)," "others," "innovation," "social inclusion," "multi-level governance," "circular economy," "data availability" and "data usability."

Figure 15. Number of NDCs mentioning cross-cutting issues (national versus urban)



4.15 Urban content in NDCs: Trends based on the 2016/2017 and 2023 analyses

This section compares the trends in urban content included in NDCs based on the 2016/2017 and 2023 analyses. The first notable comparison is that NDCs with urban content (Clusters A and B) increased from 60 percent in 2016/2017 to 66 percent in 2023. Accordingly, NDCs without urban content (Cluster C) decreased 6 percent, from 40 percent in 2016/2017 to 34 percent in 2023.

Most significantly, NDCs with strong urban content (Cluster A) increased 13 percent, from 14 percent in 2016/2017 to 27 percent in 2023.

Table 2. NDCs with urban content: Comparison between 2026/2017 and 2023 results

	2016/2017 analyses	2023 analyses		2016/2017 analyses	2023 analyses
With urban content	60%	66%	Cluster A	14%	26%
			Cluster B	46%	40%
Without urban content	40%	34%	Cluster C	40%	34%





SECTION 5

Country Profiles

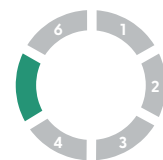
Country Profile qualitative analysis

In-depth Country Profiles were developed for 16 countries. These profiles build upon the country-level analysis methodology piloted in 2021 in Colombia, the Philippines and Rwanda, as well as the methodology piloted in 2023 in Fiji.

The criteria for selection of countries for inclusion in the Country Profiles section of this analysis were multi-faceted, including the following: geographic diversity; diversity in terms of sectors focused upon in urban climate actions prioritized by the country; urban climate track record and level of innovation; on-the-ground experience and presence of UNDP and UN-Habitat colleagues; replicability and potential for inspiration beyond country borders; and a history of collaboration between the United Nations and the national government.

The below Country Profiles were developed and are presented in this section.

- **Africa:** Côte d'Ivoire, Madagascar, Malawi, the United Republic of Tanzania, Zimbabwe
- **Arab States:** Iraq, Lebanon, the State of Palestine
- **Asia-Pacific:** Fiji, the Lao People's Democratic Republic, Nepal, the Philippines
- **Latin America and the Caribbean:** Chile, Colombia, Cuba, El Salvador



Numerous aspects of the urban content found in NDCs were analyzed, and are presented in this chapter, including the following:

- assessment of overall NDC urban content;
- breaking down urban content with a focus on climate change mitigation or adaptation;
- elaboration of whether urban references focus on identifying challenges or whether they represent how the country plans to address the challenges (referred to in this report as ‘responses’);
- climate change hazards highlighted in NDCs in an urban context;
- comparison of mitigation and adaptation challenges and responses and climate hazards that are highlighted in NDCs in an overall national context versus an urban context;
- requests in NDCs for finance, technology and capacity-building support at the national level and at the urban level; and
- references to cross-cutting issues, such as gender, loss and damages, public spaces and informal settlements at national and urban levels.

Several important recurring themes found in the 16 Country Profiles include:

- Urban-specific policies, strategies and actions that are incorporated into NDCs are frequently also incorporated in other climate- and development-relevant policies, such as National Adaptation Plans (NAPs), LT-LEDS and subnational climate action plans.
- Holistic, systems-wide approaches to urban climate solutions support tackling complex issues, such as climate change. For example, the State of Palestine emphasizes expanding green open spaces and green infrastructure in future plans, such as through improving adaptive capacity. Such spaces enhance community resilience and improve quality of life in urban areas.
- Mitigating climate risks should be a key aspect of development planning and budgetary planning. In addition, resources need to be devoted to post-disaster response and reconstruction.
- Local capacity-building of human resources was identified as a primary requirement to enhance adaptive capacity. Madagascar, for example, uses a rotation system for personnel dealing with emergencies to address strains on local capacity.
- Climate change resilience should be a core aspect of spatial structuring and sectoral development. The Philippines National Housing and Urban Development Framework, for instance, considers resilience a foundation in planning and decision-making for spaces and for addressing sectoral and cross-sectoral challenges.
- Roadblocks to accessing city-level climate finance include financial risks around climate investments, complex regulatory requirements, inconsistent standards, lack of credible risk data, lack of creditworthiness and lack of access to international sources of finance. To address this, Malawi, for instance, emphasizes enhancing climate finance tracking and management and access to platforms for climate-related funding opportunities.
- Impacts of climate change significantly affect urban environments, including quality of life and the provision of essential services, such as transport, water, energy, housing, health and social services. Impacts will be greater if urban growth is unplanned and unmanaged.
- Local areas within countries warrant distinct approaches to addressing climate change. Colombia highlights how territorial variations and contexts should be considered when considering needs, impacts and actions.

5.1 Chile

CONTRIBUTING AUTHORS:

Mariella Lona Elorza, Fernando Rementería (UN-Habitat); Esteban Delgado A. (UNDP)

5.1.1 Climate-related national policies, strategies or plans

5.1.1.1 National Determined Contribution (NDC)

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The updating of the NDC was carried out in parallel to the elaboration of the Framework Law on Climate Change for Chile. Main aspects of the NDC include: addition of an unconditional emission reduction target of 95 MtCO₂e by 2030 (excluding the forestry sector); enhancement of its adaptation component by updating its National Adaptation Plan and prioritizing the water sector across urban and rural infrastructure; introduction of NbS and circular economy to address both mitigation and adaptation goals; an implementation roadmap to ensure a just transition; and includes a social pillar aligned with the SDGs.

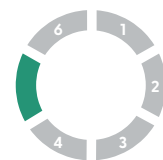
5.1.1.2 Chile's Long-term Climate Strategy 2050 (ECLP)

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Brief description: ECLP is a climate change management instrument established in the Climate Change Framework Law, defining the long-term roadmap that the country will follow in a cross-cutting and integrated manner to achieve carbon neutrality and climate resilience by 2050, with the NDC as an intermediate goal on this path. The ECLP's long-term climate change guidelines, objectives and targets will be achieved through a variety of implementation instruments, which contain concrete actions and measures on climate change mitigation and adaptation, including the resources of implementation. Section 5.6 describes long-term sectoral objectives and targets in the buildings and cities sector.



5.1.1.3 Climate Change Adaptation Plan for Cities 2018-2022

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The aim of the Plan is to provide cities with a reference document that consolidates and presents the different actions that are being promoted from the public sphere to respond to climate change adaptation. The Plan illustrates themes and contents that, when viewed from a national perspective, can motivate and guide the development of specific plans or actions at the regional and local administration levels, addressing the different challenges and specificity of possible responses to climate change in consideration of territorial diversity in Chile.

5.1.1.4 Chile's Energy Transition: National Energy Policy 2022

RESPONSIBLE INSTITUTION Ministry of Energy

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION This Policy defines the country's long-term energy vision. The Policy defines the main strategic axes, guidelines, objectives, associated indicators and the main goals for Chile's energy sector up to 2050. It was developed through a participatory process that brought together actors from the public, private, academic and civil society sectors. It is the first policy in Chile to undergo a Strategic Environmental Assessment (SEA). 'Energy for a better quality of life' is defined as one of the three fundamental purposes of this policy, and within this purpose, objectives, measures and indicators are determined for energy sustainable cities.

5.1.1a Further information about the key climate-related policies, strategies or plans described above

The Chile NDC indicated the Climate Change Adaptation Plan for Cities would be updated by 2023 and 2028. This Plan and the updates will set the actions to be implemented, in accordance with the long-term objectives established in the ECLP. The ECLP considers the NDC as an intermediate goal. The National Energy Policy determines the implementation strategy towards achieving the carbon neutrality commitment, ensuring not to exceed the 2030 sectoral emissions budget defined in ECLP based on the NDC.

5.1.2 Mitigation challenges

With respect to total global GHG emissions, Chile contributes approximately 0.25 percent¹⁴ (2016). For 2018, the country's total GHG emissions (excluding the LULUCF sector) were 112,313 kt CO₂e, increasing by 128 percent since 1990 and by 2 percent since 2016. The main GHG emitted was CO₂ (78 percent).¹⁵

The main sectors that contributed to GHG emissions in 2018 were as follows: (i) the energy

¹⁴ National Determined Contribution Chile. *Contribución Determinada a Nivel Nacional (NDC) – Cambio Climático (mma.gob.cl)*.

¹⁵ Ministry of the Environment of Chile (2020). *Chile National Inventory Report 2020: National Inventory of Greenhouse Gases and gases and other climate pollutants 1990-2018*.

sector (77 percent of total emissions), largely due to the consumption of coal for electricity generation and diesel for land transportation [within this sector, a particular concern is the use of firewood for heating in the central and southern regions of the country, which represents more than 70 percent of the total energy used by households for heating]; (ii) the agriculture sector (11 percent), mainly from cattle and sheep emissions; (iii) the industrial processes and product use (IPPU) sector (6 percent), primarily due to the increased use of hydrofluorocarbons in refrigeration, coupled with the growth in emissions from the cement, lime and glass industries; and (iv) the waste sector (6 percent), owing to an increase in population and their generated wastes and an increase in industrial wastes. The LULUCF sector is the only GHG absorber in the country, remaining as a sink in the available emissions registry since 1990.¹⁶

5.1.3 Mitigation responses

To address the challenges posed by climate change, Chile has developed a comprehensive energy agenda that encompasses legal and political measures to achieve carbon neutrality by 2050 and which are in line with commitments outlined in the Framework Climate Change Law.¹⁷ Among the primary strategies to confront urban climate change challenges and risks, Chile has outlined the plans described below.

- i. By 2050, at least 70 percent of the electricity matrix will be derived from renewable sources, with a focus on solar and wind energy, supplemented by new hydroelectric projects.¹⁸
- ii. By 2035, 100 percent of new sales of light- and medium-sized vehicles will be for zero-emission vehicles. This target also applies to 100 percent of new public transport and mobile machinery sales. Furthermore, by 2050, it is projected that 40 percent of the total private vehicle fleet, along with 100 percent of transportation vehicles (including buses and taxis), will be zero-emission.¹⁹
- iii. A national programme for the replacement of space heaters will be implemented,²⁰ along with the inclusion of heater replacements as an alternative measure for emissions compensation within the 'green tax compensation system'.²¹
- iv. Commit to adopting a circular economy approach in construction and infrastructure, with a goal that by 2050, 80 percent of public tenders will incorporate sustainable management of construction and demolition waste.
- v. Develop a Roadmap for a Circular Chile by 2040, which includes commitments to reduce the generation of municipal solid waste per capita by 25 percent and achieve a national recycling rate of 75 percent by 2040.²²

16 Ibid.

17 Ministry of the Environment of Chile (2022). *Ley Marco de Climático* (N° 21.455).

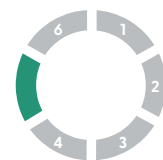
18 Ministry of Energy of Chile (2015). *Hoja de Ruta 2050: Hacia una energía sustentable e inclusiva para Chile*.

19 Government of Chile (2023). *Hoja de Ruta para el Avance de la Electromovilidad en Chile: Acciones concretas al 2026 para masificar el uso de esta tecnología*.

20 Ministry of the Environment. *Programa Recambio de Calefactores*.

21 Government of Chile (2021). *Chile's Long Term Climate Strategy: The path to carbon neutrality and resilience by 2050*.

22 Government of Chile (2021). *Roadmap for a Circular Chile by 2040*.



5.1.4 Adaptation challenges

Chile is recognized as a vulnerable country to climate change as six of nine of the vulnerability conditions established by the UNFCCC coexist in the country.²³ These include low coastal areas, semi-arid areas, areas prone to natural disasters, areas exposed to drought and desertification, high levels of urban air pollution and fragile ecosystem areas.

Further, evidence shows an increase in temperatures in Chile, with greater intensity in the northern zone (1.5°C - 2.0°C above the historical average) and in the mountainous areas of the Andes compared to the coastal zones.²⁴ Precipitation projections show a decrease between 2031 and 2050, resulting in a drier climate compared to the historical average, with the most affected areas being the regions between Atacama and Los Lagos,²⁵ which are the most agriculturally productive and most populated regions in the country.

To develop proposals for adaptation measures in urban planning, between 2010 and 2016, several studies were conducted to strengthen the diagnosis of the impacts of climate change in Chile.²⁶ These studies identified the most relevant climatic risks for the urban sector, including the El Niño phenomenon (ENSO), which represents an important factor in interannual climate variability, with the effect of: stimulating extreme rainfall and its respective impacts on the territory; exacerbating water scarcity, temperature rises, extreme heat waves and storms; bringing a high probability of flooding that would affect certain territories in the region; and worsening forest fires (although forest fires are of anthropogenic origin, strong winds and dry conditions allow them to spread rapidly, triggering catastrophic and extensive events in urban areas).

5.1.5 Adaptation responses

Chile has planned and is implementing a series of adaptation measures to address climate challenges and risks in urban areas. These include: (i) formulation of a National Policy and a Strategic Plan for Disaster Risk Reduction 2020-2030;²⁷ (ii) modernization of its National System for Disaster Prevention and Response through the creation in 2021 (Law 21.364) of the National Service for Disaster Prevention and Response (SENAPRED²⁸); (iii) mandatory development of Municipal Disaster Risk Reduction Plans - including climate change adaptation measures - in all municipalities of the country, by 2023; (iv) the approval in 2021 of a new National Policy on Territorial Planning;²⁹ (v) implementation of a robust agenda on urban electromobility; (vi) implementation of a National Strategy for Sustainable Construction³⁰ with goals to improve regulations and standards to enhance the adaptability of buildings to climate change, emergency events and natural disasters; (vii) formulation of a Climate Change Adaptation Plan for cities (cited previously); (viii) development of a Mitigation and

23 Ministry of the Environment of Chile (2016). *Chile's Third National Communication on Climate Change to the United Nations Framework Convention on Climate Change*.

24 Ministry of the Environment of Chile (2020). *Report on State of the Environment*.

25 Government of Chile (2017). *Plan de adaptación al cambio climático para ciudades 2018-2022*.

26 Ibid.

27 Government of Chile (2020). *Política Nacional para la Reducción del Riesgo de Desastres y Plan Estratégico Nacional 2020-2030*.

28 El Servicio Nacional de Prevención y Respuesta ante Desastres, SENAPRED.

29 Decreto 469 Aprueba Política Nacional De Ordenamiento Territorial.

30 Ministry of Public Works, Ministry of Housing and Urbanism, Ministry of Energy and Ministry of the Environment of Chile (2014). *Estrategia de Construcción Sustentable*.

Adaptation Plan for Infrastructure Services to Climate Change;³¹ (ix) the implementation of a strategy for strengthening wildfire management;³² and (x), the elaboration of a Climate Change Adaptation Plan for Water Resources,³³ currently in development. In addition to these numerous efforts, the country has been working on several initiatives to improve its information systems, monitoring and early warning against emergency events (e.g., ARCLIM³⁴).

5.1.6 Means of implementation

Within the strategies presented, Chile sets challenges and incorporates implementation measures across three general areas: (i) capacity-building and strengthening; (ii) technology development and transfer of technologies; and (iii) development of climate finance mechanisms.

In terms of capacity-building, one of the biggest challenges is to strengthen the technical capabilities of public service professionals. New local capacities are needed for mainstreaming climate change adaptation and mitigation, this includes enhancing citizen participation, while focusing on vulnerable communities in the elaboration and implementation of climate change policies, programmes, plans and actions.

At a technical level, the key challenges lie in the sectoral prioritization for capacity transfer, incorporating adaptation and mitigation criteria in traditional projects developed by regional and communal governments and the establishment of support instruments for development and transfer of technology to the local level, including the adoption of existing adaptation and mitigation technologies worldwide.

Regarding financing mechanisms, the most critical challenges relate to: strengthening the leveraging of resources among the different entities to increase access to public and private resources as well as national and international funds; ensuring that regional funds earmarked for relevant sectors can also support the implementation of projects that contribute to addressing climate change; at the municipal level, incorporating circular economy and climate change criteria in the purchase and contracting of different goods and services and ensuring that the associated expenses support climate change adaptation and mitigation actions.

5.1.7 Conclusions and recommendations

Chile is a country acutely aware of its vulnerability to climate change, with over 90 percent of its population acknowledging the existence and current significance of climate change.³⁵ It has demonstrated strong leadership and commitment to climate action in Latin America over recent years, evidenced by an increase in its climate ambition, the updating of its legislation and the development of multiple climate policies and plans across various sectors.

Regarding mitigation responses, a good articulation can be observed in reference to the current mitigation challenges, since the responses are concentrated in the energy sector,

31 Ministry of Public Works and Ministry of the Environment of Chile (2017). *Plan de Mitigación y Adaptación de los Servicios de Infraestructura al Cambio Climático*.

32 Government of Chile (2017). *Estrategia para el fortalecimiento de la gestión en incendios forestales*.

33 Ministry of the Environment of Chile, "Plan de adaptación para los recursos hídricos", accessed February 12, 2024.

34 Ministry of the Environment. *Atlas de riesgos climáticos*.

35 PNUD (2023). *Chile frente al Cambio Climático: Interés, conocimiento, emociones, expectativas y voluntad de acción*.



identified as the main GHG emitter and, therefore, represents a great opportunity towards GHG emissions reduction.

With respect to adaptation, it can be observed that response actions contemplate the main adaptation challenges (water scarcity, temperature increases, extreme heat waves, floods and forest fires), since specific mechanisms are established in response to them. The establishment and strengthening of policies, systems, strategies and plans for disaster risk reduction are also observed. Within this context, measures related to urban areas are of particular importance for the country. This is because, on one hand, cities are home to a significant concentration of GHG emission sources and on the other, they house the majority of the country's population (over 87.2 percent), a population experiencing low growth rates (1.0 percent) and a marked trend towards aging.³⁶

Chile also faces significant gaps in climate matters. Among these, the need to strengthen multi-level climate governance stands out, as does the involvement of local management levels (such as municipalities, cities and metropolitan areas³⁷) and civil society in the design and implementation of climate measures. Concurrently, the country needs to enhance the political and territorial integration and coherence of its measures (e.g., by updating and/or improving the existing regulation of territorial planning) and also requires diversifying and improving the existing financial mechanisms to address climate challenges. By addressing these challenges, the country could have a robust climate policy, coherent in political, social, sectoral, economic and also territorial terms.

Chile has an opportunity to draft more specific and ambitious adaptation contributions to integrate NbS into the urban planning and development process to benefit from ecosystem co-benefits while enhancing urban biodiversity and the conservation of urban natural assets. This can be done by establishing a goal on the implementation of NbS for climate resilience and mitigation in urban development plans and strategic urban development initiatives.

Moreover, it is recommended to integrate south-to-south collaboration initiatives and milestones, especially intra- and inter-urban integration as cities are innovation hubs for adaptation and mitigation solutions. This recommendation is directly linked with stakeholder engagement between research institutions, universities, the private sector, vulnerable groups representatives and other environmental-related civil organizations understanding that cities, as urban living labs encompass the possibility for active involvement to collaborate, share ideas, test and implement innovative solutions for urban climate action.

36 Instituto Nacional de Estadísticas de Chile, INE (2018). *Síntesis de resultados Censo 2017*.

37 PNUD (2021). *Gobiernos locales y acción climática en Chile: Recomendaciones para promover una gobernanza climática multinivel que no deje a nadie atrás*.

5.2 Colombia

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5.2.1 Climate-related national policies, strategies or plans

5.2.1.1 National Climate Change Policy

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2017

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The Policy objective is to incorporate climate change into public and private decisions to build climate resilience and low-carbon development, reducing the risks of climate change and allowing the country to take advantage of the opportunities it generates. Urban climate action are emphasized under 'low-carbon and climate-resilient urban development' with the following lines of action: 1) provide cities with urban infrastructure resilient to floods or sea level rise; 2) reduce city water shortages through efficient use of water incentives and the reduction of losses and non-revenue water; 3) provide low-carbon, climate-resilient public transport alternatives; and 4) offer incentives for low-emission vehicles and implementation of non-motorized modes encouraging reduction of waste generation and waste reuse and recycling, incentivizing residential and non-residential energy efficiency and promoting conservation of the main ecological structure and management of the landscape, e.g., through green urban public spaces.

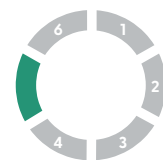
5.2.1.2 National Development Plan (NDP) 2022 – 2026 - "Colombia as a world power of life"

RESPONSIBLE INSTITUTION Presidency of the Republic of Colombia

DATE OF PUBLICATION Approved by the National Congress on 5 May 2023

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NDP aims to address climate change and promote sustainable development. Urban climate action is addressed mainly through the transformative axes of spatial planning around water and reindustrialization through the development of science, technology and knowledge to stop dependence on hydrocarbons and to make a safe energy



transition. Direct work in the urban sector related to the NDP and towards a carbon neutral economy is evident via a fair energy transition based on respect for nature, social justice and sovereignty, technological advancement of the transportation sector and promotion of active mobility, solid waste and water waste treatment guidelines and projects and the building of resilient cities and habitats through actions including risk management, a focus on public spaces and adequate housing.

5.2.1.3 National Plan for Adaptation to Climate Change (PNACC)

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2014

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The PNACC was formulated mainly to prepare for extreme climatic events and guide the formulation of programmes and projects for the implementation of adaptation and resilience-raising actions that guarantee sustainable development. In 2016, the National Planning Department (DNP), Ministry of Environment and Sustainable Development, Institute of Hydrology, Meteorology and Environmental Studies and National Unit for Disaster Risk Management jointly established priority lines of action for the consolidation of the PNACC, considered as starting points for adaptation strategy design and implementation (DNP et al., 2016). Strategies and actions proposed were based on the following objectives: manage knowledge about climate change and potential impacts; incorporate adaptation into planning; and promote development transformation to include environmental, territorial and sectoral resilience. Regarding the system of cities, the PNACC proposes guidelines for: (i) smart growth of cities; (ii) urban-rural linkages to protect ecosystems to guarantee water and food provision; (iii) green technologies in housing construction; and (iv) sea level increases in planning and infrastructure needs for coastal cities.

5.2.1.4 Colombia's Long-Term Climate Strategy - E2050

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The E2050 is a policy instrument that guides national, sectoral and territorial actions to build a climate-resilient future, while constituting a long-term planning exercise. The E2050 has commitments to achieve urban climate resilience by 2050 through several areas of focus including '6. Cities-regions with comprehensive urban development' that focuses on: orderly urban growth and effective local and regional planning; integrated management of resources and waste to activate a circular economy; mobility focused on quality, accessibility and reduction of negative externalities; highly efficient and adapted buildings; NbS in cities and regions; energy self-generation with renewable energy sources; and governance of human mobility.

5.2.1.5 Law 2169 of 2021 – Climate Action Law

RESPONSIBLE INSTITUTION Congress of Colombia, Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The Law's objective is to establish minimum goals and measures to achieve carbon neutrality, climate resilience and low-carbon development in the short, medium and long term. The urban sphere is addressed mainly through: definition of criteria for the sustainable

urban development of urban expansion, which allows articulation of public space, urban and peri-urban protected areas, storm drainage and wastewater management; promotion of sustainable buildings through efficient use of water and energy in new buildings; promotion of the reduction of GHGs through logistical planning in solid waste collection and transport activities; wastewater treatment; the conversion of vehicle fleets for public sanitation; and structuring an Energy Transition Fund for the transport sector.

5.2.1.6 Comprehensive Climate Change Management Plan Sector (PIGCCS) Housing, City and Territory

RESPONSIBLE INSTITUTION Ministry of Housing, City and Territory

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The PIGCCS contributes to the fulfillment of NDC goals for the urban environment through the following strategic lines and measures: (i) sustainable construction via reducing energy consumption in new buildings and implementing sustainable construction criteria in the life cycle of buildings; (ii) sustainable urban and territorial development through low-carbon urbanism, formulation of the habitat Nationally Appropriate Mitigation Action (NAMA) and sustainable land use criteria; (iii) comprehensive management of solid and water waste to reduce GHG emissions; and (iv) strengthening resilience of domestic drinking water systems including basin protection and circular economy to promote reuse via wastewater treatment.

5.2.1.7 (i) NAMA TANDEM – Active Transport and Demand Management, and (ii) National 5.2.1.8 Electric Mobility Strategy, 2020 – Electromobility

RESPONSIBLE INSTITUTION Ministry of Transport

DATE OF PUBLICATION 2018 and 2020

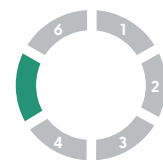
TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The NAMA aims to increase the modal share of active mobility modes by 5.5 percent by 2030 in select cities, helping to improve the quality of life of urban citizens, air quality, access to mobility, etc. The NAMA makes use of eight mitigation measures, including active transport incentivization and discouraging the use of individual cars.

The National Electric Mobility Strategy - Electromobility establishes an enabling policy and financial framework to more rapidly drive the transition to electromobility. This will be achieved through the formulation and implementation of policies that establish regulatory and technical standards for the commercialization and operation of electric vehicles. In addition, it is planned to implement communication and capacity-building strategies, along with the definition of an electricity tariff scheme for transportation. The main objective is to achieve technological parity with other forms of mobility, stimulating market demand. In addition, through the 2021 Law 2169, the Energy Transition Fund was created to close market gaps and promote the technological transition into zero-emission technology for freight and passenger transportation vehicles.

5.2.2 Mitigation challenges

According to Colombia's Third Biennial Climate Change Update Report (2021), the sector that generates the most emissions in the country is Agriculture, Forestry and Other Land Use (AFOLU) with 59 percent, followed by the mining and energy sector with 31 percent. According to the latest national GHG inventory (IDGEI, 2022), 60.6 percent of



the country's total GHG emissions are generated by the following activities: deforestation - 31.2 percent, enteric fermentation - 14.0 percent, burning of fuels in land transport - 9.8 percent and management of natural forests - 5.6 percent. Regarding mines and energy, the departments of Santander and Meta report the highest emissions from the sector (cumulatively 26.4 percent of the national total), mainly due to oil activities, followed by La Guajira for the use of fossil fuels in power generation and coal production. The transport sector generates 34,044.4 ktCO₂e, predominantly in land transport and civil aviation; Bogotá is the city with the highest number of emissions from the sector, followed by Cundinamarca. The industry sector emits 28,028.8 ktCO₂e notably from burning fuels and wastewater treatment and disposal; the departments of Valle del Cauca and Antioquia report the highest emissions (35 percent of the national total).

The housing and sanitation sector generates 15,743.1 ktCO₂e. Bogotá is the city with the highest emissions from the final disposal of solid waste (23.3 percent of the national total) and Antioquia has the highest domestic wastewater treatment and disposal emissions (12 percent of the national total). The tertiary and residential sector has emissions of 6,322.3 ktCO₂e, predominantly from fuel burning and with Bogotá Distrito Capital and Antioquia accounting for 28 percent of total emissions. With the 2020 NDC update, Colombia expanded its GHG reduction target from 30 percent by 2030 to 51 percent by 2050 and the reduction of black carbon emissions by 40 percent.

5.2.3 Mitigation responses

3.1 National Development Plan 2022 – 2026: The macro goal is for Colombia to be a global leader in climate action. Indicators for urban areas are: emit a maximum of 585 Mt CO₂e, corresponding to prioritized national GHG inventory (BUR-3) categories and operationalize four economic and financial instruments for climate action.

3.2 National goals for carbon neutrality, climate resilience and low carbon development (Law 2169 of 2021): In the climate action law, Law 2169 of 2021, each sector has specified goals and prioritized measures that contribute to the fulfillment of the NDC goals. Measures noted as follows are being implemented to date.

Measures in the mines and energy sector: (i) energy efficiency actions in the supply chain of electricity, hydrocarbons and mining, with goals and strategies for energy improvement, reduction of emissions and quantification of associated co-benefits; (ii) diversification of the national energy matrix and transformation of Non-Interconnected Zones (ZNI) through the dynamization of electricity generation and self-generation through Non-Conventional Renewable Energy Sources (FNCER) and the increase in coverage for electric energy service using reliable technologies with lower emission factors or their integration into the National Interconnected System.

Law 1964 of 2019 establishes goals to be achieved for integrated mass transportation systems with the implementation of electric fleets in a staggered manner from 2025 to 2035, starting with 10 percent e-buses by 2025 to 100 percent e-buses by 2035.

Law 1972 of 2019 establishes goals for strategic public transportation systems in which at least 20 percent of the fleet must be e-buses by 2030.

Measures in the housing, city and territory sector: (i) design, implement and operate solid waste treatment technologies; (ii) increase coverage of domestic wastewater management and biogas management through burning and/or use in wastewater treatment plants; (iii) implement strategies for the efficient use of water and energy in new buildings; and (iv) define criteria for the sustainable development of urban expansion soils, which allow articulation with public space, urban and peri-urban protected areas, storm drainage and wastewater management.

Measures of the trade, industry and tourism sector: (i) energy management and energy efficiency in industry, including optimization of energy use, fuel substitution and technological changes; and (ii) transition towards more efficient technologies, equipment and practices, including raw materials, abatement of process by-products, circularity of materials and substitution of products and/or services.

Transport sector measures: (i) accelerate the transition to electric mobility and encourage the transition to electric technology in public transport systems; (ii) develop financial instruments that generate enabling conditions for the circulation of at least 600,000 electric vehicles by 2030; and (iii) finance, design, implement and monitor projects that make optimal use of land in cities, based on the Dimensions of Sustainable Transport-Oriented Development (DOTS).

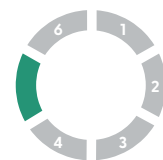
Environment and sustainable development sector: (i) reduction of GHG emissions due to the use of substitutes for ozone-depleting substances with high global warming potential; (ii) research institutes attached to and linked to the Ministry of Environment and Sustainable Development will coordinate the calculation of the GHG mitigation potential of high mountain ecosystems, mangroves and seagrasses, wetlands and urban trees for cities with more than 100,000 inhabitants; and (iii) adopt circular economy strategies and their monitoring in terms of GHG reductions.

5.2.4 Adaptation challenges

Climate change impacts, such as temperature and precipitation, have generated negative effects on the country's ecosystems, including glaciers and moorlands, as well as marine and coastal ecosystems. In the case of mountain glaciers, glacial area decreased between 1850 and 2021 from about 349 km² to 33.9 km² or 90 percent, and by about 26 percent between 2010 and 2020 (IDEAM, 2022). During the twentieth century, eight snow-capped peaks became extinct with only six still remaining today (IDEAM, UNDP, Ministry of Environment and Sustainable Development, et al., 2017).

The integrated ecosystems (glacier, moorlands and high Andean forest) associated with the high mountains are fundamental for the provision of water to the population and temperature regulation. The moorlands have suffered temperature increases and decreases in water supply (Llambí, 2012). Sea level rise is a significant concern on the coasts and insular areas (IDEAM, UNDP, Ministry of Environment, et al., 2017).

According to the Third National Communication on Climate Change (TCNCC), the average temperature is expected to increase by about 1.0°C during the period 2011-2040. Regarding rainfall, there could be considerable increases, on the order of 10 percent to 40 percent in the Andean region, with the highest in sectors such as the Coffee Region, Sabana de Bogotá, Oriente de Cauca and the Upper Magdalena Valley. Greater rainfall creates greater likelihood



of landslides, damage to aqueducts and road infrastructure and flooding in flat areas (IDEAM, UNDP, Ministry of Environment and Sustainable Development, et al., 2017). Decreases in precipitation will be 10 percent to 40 percent in the Caribbean, Amazon and Orinoco regions, accelerating and intensifying desertification and loss of water sources, with significant impacts on human health, agricultural production and provision of ecosystem services.

The NDC identifies the following adaptation priorities related to urban environments: (i) manage risk situations and vulnerability in energy infrastructure; (ii) optimize tools and methodologies to evaluate climate risk in transport; (iii) increase resilience to diseases associated with climate change and reinforce the health institutional framework; (iv) mitigate water and wastewater management risks and water reuse; and (v) guarantee 50 percent of actions programmed apply risk management and adaptation by 2030.

5.2.5 Adaptation responses

5.2.5.1 National Development Plan (PND) 2023 – 2026

The PND macro-goal of new territorial planning around water and environmental justice encompasses 13 territories with water cycle management programmes currently under implementation. An objective is to strengthen the right of access to citizen participation through citizen oversight and conflict resolution processes.

5.2.5.2 National Goals for Carbon Neutrality, Climate Resilience and Low Carbon Development (Law 2169 of 2021)

Climate action law, Law 2169 of 2021 goals and prioritized measures related to adaptation in urban areas are indicated below.

- Housing, city and territory sector: (i) develop guidelines, tools and criteria that guide the management of adaptation in the sector; (ii) develop protection and conservation actions by 2030 in 24 watersheds supplying aqueducts in municipalities; (iii) achieve 68 percent of domestic urban wastewater treatment by 2030; and (iv) reuse 10 percent of domestic wastewater treated by public aqueduct service providers by 2030.
- Health and social protection sector: By 2023, formulate adaptation actions in disease prevention and health promotion, which contribute to reducing cases of climate-sensitive diseases in 100 percent of health sector entities at the departmental, district and municipal levels and implement actions in 40 percent of the entities.
- Industry, trade and tourism sector: By 2030, at least 10 percent of companies in prioritized sectors will implement strategies, actions or projects to adapt to climate change.
- Transport sector: By 2025, design and implement two methodologies for calculating the risk on transport infrastructure and one pilot project for the applicability of green road infrastructure guidelines.
- Agricultural, fisheries and rural development sector: Expand the coverage and participation in the agroclimatic technical roundtables to five natural regions of the country (Amazon, Andean, Caribbean, Pacific and Orinoco) by 2030, in coordination with the national agroclimatic roundtable and provide agroclimatic information to all agricultural producers.
- Environment and sustainable development sector: Adopt and implement by 2030, 100 percent of the Integrated Management and Management Plans of Coastal Environmental Units (POMIUAC) with ecosystem-based adaptation actions on mangroves and seagrasses,

coral reefs and other coastal ecosystems. By 2030, the country will reduce areas affected by forest fires by 30 percent as compared to 2019, operationalizing risk and disaster management through the seven strategies defined in the NDC. Increase from 24 percent to 45 percent by 2030, the monitoring network with real-time transmission connected to early warning systems and coordinate with the National Unit for Disaster Risk Management the strengthening of territorial capacities for monitoring, surveillance and threat evaluation, as well as the timely dissemination of early warnings.

5.2.6 Means of implementation

Education and awareness-raising are central areas in which implementation gaps need to be filled at different levels (national, regional, departmental, municipal and sectoral) and this will improve capacities in the use of the information generated in the country. It is necessary to join efforts to develop and implement a platform for the management, calculation, reporting and visualization of the BUR-3, which is compatible with the other components of Colombia's monitoring, reporting and verification (MRV) system and which allows monitoring the commitments established in the NDC.

It is necessary to jointly identify existing information gaps to detect them in time and work to reduce them. This is especially true with respect to the information reported by the MRV climate finance system, which will provide accurate information for the management and mobilization of processes and resources. Identification, classification and reporting or technological needs should be done at the subnational as well as national level in a standardized manner, including capacity-building on the MRV system.

5.2.7 Conclusions and recommendations

Climate finance is a global mandate that, in order to achieve its effectiveness and compliance at the local level, requires recognition of key actors who have a direct relationship with ecosystems. It is necessary to expand knowledge at the territorial and sectoral level of the various sources of finance and how to manage these resources for the implementation of territorial and sectoral climate change plans and climate change projects and fulfillment of NDC goals.

Through the analysis of regulations and the institutional structure, it is concluded that there is a need for reform of the National Environmental System (SINA) and National Climate Change System (SISCLIMA) to enhance financing of corporations and research institutes that intervene in cities and municipalities. It is also a priority to strengthen the monitoring of climate investments and increase transparency regarding the collection and investment of fees and taxes that are part of the environmental authorities' own resources. It is urgent to increase investments in nature to close the gaps in climate and biodiversity finance to accelerate models of restoration, conservation and sustainable production.

Highlighting the strategic messages of E2050,³⁸ Colombia aims to transform itself into a climate-resilient society and economy by 2050: that is, carbon neutral and with high adaptive capacity in their territories and sectors. To achieve carbon neutrality by 2050, it is necessary

38 <https://unfccc.int/documents/311208>.



to achieve the emissions target presented in the NDC. For this, national emissions need to reach their highest peak level before 2030 and begin a downward trajectory. Early action (between now to five years) is key to achieving carbon neutrality goals by mid-century. Early action is required to initiate GHG mitigation and signal changes that need to be made in the medium and long term.

It is a priority for the private sector to anticipate and prevent climate transition risks (linking to social and environmental risks), related to the possible depreciation of assets, access to and management of resources, the need for qualified personnel, technological transformation and the potential loss of markets. To achieve climate resilience, it is essential to advance necessary actions to reduce socio-economic and educational inequalities and gaps, at the national level and between regions.

Colombia cannot achieve climate resilience by working alone. The technical and financial support of the international community will be essential to achieve this effort. Collaborative work with neighbouring countries and the region will also make it possible to advance joint actions that translate into greater climate ambition. All dimensions of climate action must integrate a gender approach with full and effective, inclusive participation as both women and men are important agents of change. Each territory is different and for this reason, the needs, impacts and actions to close gender gaps depend on territorial variations and contexts.

Electricity demand and sustainable mobility will have to play a particularly important role in a carbon-neutral future. To this end, land transport modes must be electrified. Further, the construction of charging infrastructure should be accelerated and regulations for the adoption of various types of electric vehicles are updated.

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5.3 Côte d'Ivoire

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5.3.1 Climate-related national policies, strategies or plans

5.3.1.1 National Determined Contribution (NDC)

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION March 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Through its NDC, the country has committed to reducing its GHG emissions in the energy, waste, agriculture, forestry and processes sectors to 30.41 percent by 2030. The adaptation objective is to reduce the vulnerability of populations to climate change and increase resilience in the agriculture, livestock, aquaculture, forestry and land use, water resources, health and coastal zones sectors. The NDC targets 38 priority actions for mitigation (12 conditional and 16 unconditional) and 20 priority actions for adaptation with issues of territorial planning and development and climate-compatible and resilient urban infrastructure.

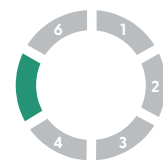
5.3.1.2 Integrated coastal management and development plan (PAGIL)

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Law 2017 - 378 on the Planning, Protection and Integrated Management of the Coastline established the Integrated coastal management and development plan (PAGIL) to address the social, economic and environmental challenges related to the coastal zone, which is facing anthropogenic pressure and adverse effects of climate change. The PAGIL provides local authorities with a territorial planning framework with a coherent, integrated and inclusive intervention approach regarding the use of the coastal zone, focusing on the main cities and those experiencing an important concentration of major economic activities. The PAGIL is composed of action plans that translate the path to be followed by territorial and urban planning and development policies for 2050.



5.3.1.3 National REDD+ Strategy

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2017

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The National REDD+ Strategy was adopted by the Council of Ministers on 3 November 2017. It aims to reduce deforestation and forest degradation to enable an increase in forest cover from 11 percent in 2015 to 20 percent in 2030, while ensuring poverty reduction and the human and social development of local communities within a framework of social, cultural and gender equity. The achievement of this objective is based on eight strategic options built around 'zero deforestation agriculture' due to the predominant role of agriculture in deforestation. Implementation of the strategies is supported by three key instruments required by the UNFCCC: (i) submission of emission levels for forests, estimated at around 41 million tons/yr of CO₂e over the period 2000-2015; (ii) establishment of a national forest monitoring system; and (iii) operationalization of the information system on safeguards.

5.3.1.4 National Strategy for Disaster Risk Reduction and its action plan (SN-RRC 2020-2030)

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The overall objective of the SN-RRC is to significantly and sustainably increase the resilience of Côte d'Ivoire, its national institutions and local authorities with respect to disasters to help create acceptable and safe living conditions. It sets out various levels of responsibility and considers such critical areas as the gender dimension, factors linked to climate change, urban risk, inclusion of people with disabilities, human security, the protection of public and private investments, voluntary action and accountability. Built around the vision 'For a Côte d'Ivoire that is resilient to natural, technological and man-made hazards and disaster risks by 2030,' the strategy is built around four strategic axes, 11 results and 79 actions.

5.3.1a Further information about the key climate-related policies, strategies or plans described above

The NDC adaptation section takes the SN-RRC and PAGIL into account, demonstrating interlinkage. In addition, the country elaborated its Climate Change Law, not yet endorsed by the parliament, which establishes a national climate change agency that will strengthen coordination of climate actions countrywide.

5.3.2 Mitigation challenges

The climate projections for Côte d'Ivoire show temperatures will increase between +1.3 to 2.3°C by 2050, rainfall will change from -2 to +7 percent with increased frequency and intensity of heavy rainfall events, change in length of dry spells will increase from -8 to +1 days and sea level will rise from +18 to 45 cm.³⁹

39 USAID (2018). *Climate Risk Profile – West Africa*.

Climate risks are recognized in several important sectors of the economy: coastal fisheries could see a 26 percent reduction by 2050; a substantial loss could occur in area suitable for cocoa cultivation due to rising temperatures; water vulnerability or stress can intensify; coastal erosion can increase; and loss of forest cover can be foreseen due to the use of firewood and dependence on charcoal.⁴⁰

The economic impact of climate change will result in a loss of 380-770 billion CFA Francs by 2040, notably within the agriculture sector, human capital and infrastructure.⁴¹ The agricultural sector is mainly rain-fed and hence particularly vulnerable, with projected reductions in productivity and water availability and droughts between 2015 and 2100.⁴²

Presently, forestry resources are largely contained within protected areas. In 2015, 64 percent of Ivorian forests were located within protected zones. Deforestation hotspots are localized within community forests as well as protected areas with a three percent annual rate of deforestation between 1990 and 2000, rising to 4.2 percent between 2000 and 2015.

5.3.3 Mitigation responses

Based on the revised NDC, the overall cost of implementing the NDC mitigation component represents an overall budget of about \$10 billion.⁴³ The country has developed tools to support NDC implementation, including an investment plan and resource mobilization strategy. The key mitigation measures and responses for the implementation of the NDC are listed below.

- **Energy:** improve energy efficiency notably within the public sector, industry and households; strengthen the production of energy from renewable sources, notably solar energy.
- **Transport:** increase the ambition of electric vehicles in the vehicle fleet, promoting an innovative mass transport system notably within megacities. The country is aiming to produce 42 percent of energy from renewable energy by 2030.
- **Agriculture:** reduce open burning of agricultural residues, controlling emissions of methane emissions from livestock and controlling nitrous oxide emissions from synthetic nitrogen fertilizer.
- **Waste:** implement controlled landfills through intercommunality; recycling; micro-methanization; and composting.
- **Forestry and land use:** reduce deforestation and improve afforestation.

In addition, the country has prioritized cross-cutting measures namely the promotion of green jobs, a just transition and the territorialization of the NDC implementation. To achieve expected results, government resources must send out a strong signal to other stakeholders about the state's commitment and concrete actions. State budgeting must be sensitive to climate issues, as a catalyst for mobilizing other stakeholders, especially the private sector, particularly in the cocoa sector with respect to agriculture, forestry and land use where huge mitigation efforts are needed.

40 Ibid.

41 World Bank (July 2018). *Côte d'Ivoire Economic Update: So Tomorrow Never Dies - Key Messages*.

42 Ministère de l'Environnement, de la Salubrité Urbaine et du Développement Durable, Direction Générale De L'environnement. *Programme National Changement Climatique (PNCC)*, page 32.

43 Côte d'Ivoire (2022). *Contributions déterminées au niveau national (CDN) de la Côte d'Ivoire*.



5.3.4 Adaptation challenges

Côte d'Ivoire's forest area has decreased significantly in recent decades partly due to excessive exploitation. The country has an east-west coastline of 566 km that encompasses a variety of coastal habitats including coastal lagoons, estuaries, mangroves, swamps and humid zones.

The country is facing changes regarding inconsistent rainfall, sea level rise and warmer temperatures. Meanwhile, dry seasons are getting longer. Along the coastline, sea level is rising faster⁴⁴ than the global average, exacerbating coastal hazards – this is particularly important when it comes to the Ivorian urban areas because the majority of settlements, infrastructure and other assets are located in low-lying coastal zones. Around 30 percent of the population lives on the coastal plains (nearly 7.5 million inhabitants) where almost 80 percent of the country's economic activities are found.⁴⁵

Currently, more than two-thirds of the coastline is already affected by erosion. Rising sea levels, erosion from extreme weather and increased storm surge related to climate change represent a significant and growing threat to mangroves. The degraded mangroves have affected livelihoods (due to the capacity of mangroves to provide fishery and wood and also as potential areas to attract eco-tourism) and reduced the water systems' benefits for coastal protection, flood buffering and stabilizing substrates composed of fine sediments, among other ecological benefits. Estimates indicate that 60 percent of the mangroves have been lost around Abidjan. Mangroves are also recognized as a primary storm surge barrier.

5.3.5 Adaptation responses

Poor vertical and horizontal coordination among stakeholders on climate change priorities, as well as on spatial strategies to adapt to climate change, creates challenging and slow implementation of effective actions in the urban sector. In addition, there is an incomplete understanding of how coastal dynamics and natural and socio-economic systems interact and how these interdependencies lead to increased vulnerability to climate change. Capacity needs to be enhanced to build, mainstream and manage such knowledge.

Smart investments need to be reexamined to withstand extreme weather events and flooding and to manage stormwater and reduce heat in cities, e.g., drainage systems, green infrastructure and permeable pavements. Ultimately, these initiatives need to enhance community participation and ownership by creating new jobs, protecting existing jobs and supporting a just transition for those who need to adapt to a low carbon economy. Community resilience building and climate education need to be at the heart of these technical approaches as community involvement to support risk awareness and decision-making will constitute real change.

Given the uncertainty and urgency to adapt to increasing coastal erosion and flooding, it's needed to develop a more agile way to identify, design, test, implement and scale-up adaptation measures. There is a need to develop a community-informed, learning-by-doing environment in which a wide range of fit-for-purpose, low-cost, multi-benefit solutions can be

44 *State of the Climate in Africa* 2019 (WMO-No. 1253)..

45 World Bank (July 2018). *Côte d'Ivoire Economic Update: So Tomorrow Never Dies - Key Messages*.

developed, tested and monitored to rapidly find the most cost-effective or socially impactful solutions, using the green principle of building with nature and not against it.

Based on recent studies and mapping processes in the Greater Abidjan area (e.g., AMIC,⁴⁶ AF⁴⁷ and MiTsa⁴⁸), one of the priorities to address climate risks in Côte d'Ivoire is the development and implementation and respect of zoning regulations that prevent construction in flood-prone, coastal areas and promotion of sustainable land use.

To face aggressive deforestation, land-use planning to ensure variety and suitable distribution is advisable to reduce urban sprawl. This strategy could also mitigate growing migratory flows in the Lagos-Abidjan corridor, which, in addition to security factors, are strongly caused by climate change issues. The loss of coastal mangrove forests has further increased the vulnerability of informal settlements – restoration and protection of coastal mangrove ecosystems act as natural barriers against storm surges and sea level rise. The focus on flood mitigation and protection through an integrated approach needs to adopt NbS (e.g., retention facilities, mangrove restoration) and innovative measures such as the adoption of early warning systems and sustainable water and soil management. Among the benefits of developing such transformative interventions, is that they are able to locally rebalance hydrodynamics and the water cycle. These solutions can provide the enabling environment for supporting sustainable livelihoods, under the climate resilient agriculture and under indirect benefits deriving from mangrove restoration.

5.3.6 Means of implementation

On a technical level, Côte d'Ivoire would need to further invest in renewable energy technologies to reduce its dependence on fossil fuels (currently 62.5 percent⁴⁹). This includes expanding biomass, solar, wind and hydropower capacity. Improved agricultural technologies and approaches (e.g., urban agriculture, drought-resistant crops) would be helpful to adapt to changing climate conditions and make food more sustainable and accessible for all. Investment in electric and hybrid vehicles and the development of public transportation systems is crucial to reduce emissions in the urban context. Waste-to-energy technologies would address both waste management issues and provide renewable energy sources (based on initial analysis, approximately 1,446 tons (24 percent) of waste is not collected each day and 1.9 kg/cap of plastic leaks into the environment.⁵⁰

Côte d'Ivoire requires smoother access to international climate finance mechanisms to support climate projects. The country has engaged in mobilizing innovative climate finance related to green bonds and carbon markets. In parallel, the private sector should be encouraged to engage in climate issues and ensure green investments through financial mechanisms for risk mitigation.

On the institutional level, the policy and regulatory framework needs to be strengthened and contextualized and a strong monitoring capacity is required to manage the climate

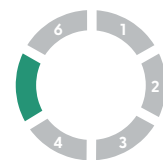
46 *Enhancing the opportunities of Labour Migrants and Local Communities in vulnerable conditions to integrate in Greater Abidjan, Côte d'Ivoire.*

47 Adaptation Fund. *Improved Resilience of Coastal Communities in Côte d'Ivoire and Ghana.*

48 OIM. *Project on Urban and Peri-urban Agriculture for Population Resilience.*

49 AFREC (2015).

50 JICA and UN-Habitat WaCT implementation (2023).



situation and attract new investment. To this end, improving the horizontal coordination at the government level and coordination among government ministries, agencies and stakeholders is necessary for efficient implementation.

5.3.7 Conclusions and recommendations

Côte d'Ivoire is one of the world's fastest-growing economies, but faces a number of challenges, including climate change. Côte d'Ivoire's revised NDC aims to reduce its GHG by 31.5 percent by 2030 compared to 2005 levels and to become carbon neutral by 2050. The country is committed to reducing vulnerability to climate change and increasing resilience by: (i) promoting the use of clean and renewable energy sources; (ii) combating deforestation and restoring and sustainably managing ecosystems; and (iii) implementing strategies to reduce people's vulnerability and increase resilience to climate change.

The country has recently engaged in the elaboration of major tools for NDC implementation, such as creation of the national climate change agency, a national climate fund and the establishment of a national MRV system. For the country to be effective in implementation of the NDC and major climate policies, strategies and plans, there is a need to: better integrate NDC targets into key sectoral policies, strategies and plans; support territorialization of the NDC by allowing cities and local territories to translate NDCs within their local development strategies and plans; strengthen NDC coordination and monitoring; and enhance capacity on strategic partnership development and resource mobilization related to climate.

5.4 Cuba

CONTRIBUTING AUTHORS:

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5.4.1 Climate-related national policies, strategies or plans

5.4.1.1 State Plan for the implementation of the New Urban Agenda⁵¹

RESPONSIBLE INSTITUTION Institute of Territorial Planning and Urban Planning

DATE OF PUBLICATION December 2019

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The State Plan for the implementation of the New Urban Agenda (PAN) in Cuba 2017-2036 constitutes a plan to improve urban and territorial development. The PAN designs a strategic framework, where the axis of risk and climate change is considered; in this axis it is proposed to reduce the exposure of human settlements to risks, increase urban resilience and reduce vulnerabilities by considering NbS. The Plan advocates the development of compact urban structures, where the internal potential of cities is maximized, vulnerabilities are reduced and adaptation to extreme weather events is anticipated.

5.4.1.2 State Plan to confront Climate Change “Task Life” (Tarea Vida)⁵²

RESPONSIBLE INSTITUTION Ministry of Science, Technology and Environment

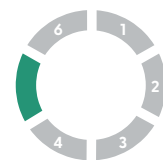
DATE OF PUBLICATION April 2017

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The State Plan to confront Climate Change, “Task Life” (Tarea Vida) foresees a set of adaptation and mitigation actions to contribute to increasingly resilient human settlements. Tarea Vida seeks to protect human life and its quality in conditions of a changing climate. To achieve this, it involves all sectors of the economy and society and is applied at the national and local level. The Plan’s objective is to mitigate climate change and promote less carbon-intensive economic development and to provide an action framework

51 IPF and UN-Habitat (2017). *Plan de Estado para la Nueva Agenda Urbana 2036*.

52 CITMA (2021). Tarea Vida, FOLLETO CITMA 5.cdr (cubaenergia.cu); Tarea vida - Ministerio de Ciencia, Tecnología y Medio Ambiente de Cuba (gob.cu).



to reduce vulnerability by applying construction technologies and an urban cadastre that mitigate climate change impacts on coastal urbanization.

5.4.1.3 **Directive No. 1 of 2022 of the President of the National Defense Council for the Management of Disaster Risk Reduction in the Republic of Cuba**⁵³

RESPONSIBLE INSTITUTION National General Staff of the Civil Defense of Cuba

DATE OF PUBLICATION November 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The actions of the Civil Defense are aimed at educating, preparing and training the population and state agencies to confront and reduce risks in the face of climate change related disasters. In the country, there are 124 Management Centers for Disaster Risk Reduction (CGRRD). The CGRRD are the instrument of local governments for estimating and monitoring the risk associated with events that threaten the territory and allow decision-making and planning of the disaster risk reduction process.

5.4.1.4 **First Nationally Determined Contribution of Cuba 2020-2030 (updated)**⁵⁴

RESPONSIBLE INSTITUTION Undetermined

DATE OF PUBLICATION 2022 (updated version)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NDC provides the principal lines of action in adaptation, which remains the national priority in the fight against climate change in Cuba. The updated NDC prioritizes adaptation measures in many sectors, with emphasis on coastal zones. It also presents an expansion of the mitigation goals that, in addition to those related to renewable energy and energy efficiency, incorporate contributions in transportation (e.g., less carbon intensive ground transportation) and forestry. Specific adaptation approaches include the planning of urban reorganization processes for vulnerable settlements and infrastructure (e.g., reduce population density in low-lying coastal areas), in accordance with the country's economic conditions, as well as maintaining and introducing the scientific results of studies on hazard, vulnerability and risk into the country's territorial and urban development plans.

5.4.1a **Further information about the key climate-related policies, strategies or plans described above**

Adequate land use strategies, resilient and sustainable construction practices and relocation of vulnerable settlements are key measures promoted through Cuba's climate-related policies. As a result of Tarea Vida and PAN, 15 prioritized attention areas vulnerable to climate change were identified. The CGRRD are a concrete tool to localize climate action and to support local governments to reduce climate vulnerability.

5.4.2 **Mitigation challenges**

According to the National Inventory of GHGs, emissions in Cuba are dominated by CO₂ (63 percent). The energy sector is the primary emitter responsible for more than 70 percent of Cuba's CO₂e emissions.⁵⁵ Cuba has traditionally depended on imports to meet energy needs;

53 **Directive No.1/2022** of the President of the National Defense Council for the Management of Disaster Risk Reduction in the Republic of Cuba.

54 Cuba **First NDC (Updated submission)** | UNFCCC.

55 Pérez, Carlos Sosa, and Javier Bolufé Torres (2019). **Inventario Nacional de Emisiones de Gases de Efecto Invernadero. Serie Entendiendo El Cambio Climático.**

however, since 2020, Cuba's political and economic sanctions have further complicated this situation affecting its ability to secure reliable energy supplies. Cuba's energy sector has experienced challenges due to limited domestic resources.

In 2022, the energy consumption of the Cuban population reached 8,056.50 GWh, constituting 43.96 percent of the total energy consumption in the country.⁵⁶ The electricity consumption in the residential sector has doubled in the past two decades from 4246.1 GWh in 2000 to 8515.7 GWh in 2021 and a monthly consumption of 164.0 kWh/client in 2022.⁵⁷ By 2040, electricity consumption is projected to increase by 22 percent.⁵⁸ Factors driving this large increase can be attributed to rising tourism, air conditioning and refrigerator use.

Cuba's residential sector also faces important challenges related to a lack of resources for maintenance and construction. According to the National Housing Programme (NHP), the housing deficit sits at nearly 929,665 houses, of which 402,120 are to be rehabilitated.⁵⁹ Although some buildings were designed following tropical architectural principles, passive building strategies are required for proper natural lighting, ventilation and solar protection.

5.4.3 Mitigation responses

The building standard, NC 220, establishes energy-efficient design requirements for the building envelope, electrical power and lighting, ventilation and air conditioning and hot water supply.⁶⁰

On average, Cuba receives approximately 5.5 kWh/m²/day of solar radiation, making it a favourable region for solar energy projects and initiatives. Since 2001, Cuba has equipped 2,364 schools in remote areas with solar PV systems.⁶¹ The application of solar energy has also been diversified into 1,188 solar pumping stations, mainly for water used in livestock farming, but also for population and irrigation, through 34,000 solar water heaters.

Cuban cities have studied mobility issues from a planning perspective. Havana and Santiago de Cuba have mobility plans in place. Havana is developing multimodal and integrated urban connectivity projects, capable of generating urban patterns of short distances. Distributor nodes and buses have been established that promote the rapid public transportation system, integrated transportation and railway systems and a safe, sufficient and adequate infrastructure for pedestrians, electric scooters and cyclists and technological innovations in transportation systems and transit, in order to reduce congestion and pollution and improve efficiency, connectivity, accessibility, health and quality of life.

In its 2020 updated NDC, Cuba strengthens climate change mitigation and adaptation policies and actions, prioritizing energy and the residential sector. Cuba set commitments to generate 24 percent of electricity from renewable sources by 2030, to avoid an estimated 20.6 million ktCO₂e emissions, as well as to increase energy efficiency in commercial, residential and agriculture sectors, to avoid the emission of an estimated 700,000 ktCO₂e.⁶²

56 ONEI (Edición 2023). *Oficina Nacional de Estadística e Información. Anuario Estadístico de Cuba 2022*.

57 Ibid.

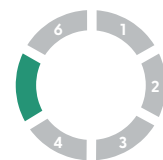
58 UNEP (July 2022). *Cuba Country Savings Assessment*.

59 Oficina Nacional de Normalización.

60 Seifried, Dieter (2013). *Cuban Energy Revolution – A Model for Climate Protection?*

61 OLADE (2022). *Panorama Energético de América Latina y el Caribe*.

62 UNFCCC (2022). *Cuba First Nationally Determined Contributions, Cuba First NDC (Updated submission)*.



5.4.4 Adaptation challenges

Cuba is exposed to many different climate hazards, namely drought, hurricanes and flooding, which are increasing in frequency and intensity. Hurricanes of categories 3, 4 and 5 have affected Cuba more frequently in recent years, causing damage to human systems, as well as to the natural ecosystems, which further increases the island state's vulnerability.⁶³ Cuba faces destruction of settlements due to projected sea level rise. Moreover, the rate of coastal retreat has risen to up to 3m/year, with an average of 1.2m/year, resulting in the loss of infrastructure and dunes.⁶⁴

It is estimated that 20 percent of the Cuban island is categorized as flooding risk area. According to Tarea Vida, articulated with the PAN, there are 574 human settlements vulnerable to saline intrusion in Cuba. The land surface at risk of being permanently submerged would cover an estimated 2,691.47 km² (2.4 percent) of currently emerged territory and projections indicate that by 2100 6,371.05 km² (5.8 percent) would be submerged. If the corresponding adaptation measures are not taken, by the year 2050, 15 settlements would disappear, of which 11 are rural and 100 would be partially affected. Also, 14,195 homes for permanent use and 3,168 for temporary use would be affected, as well as 1,367 installations. This implies that 41,310 people are at risk of being displaced to other locations within or outside coastal human settlements.⁶⁵

5.4.5 Adaptation responses

As a result of Tarea Vida and PAN, 15 prioritized attention areas were identified. Regulations, prohibitions, viable protection solutions, relocation and accommodation analysis were formulated. Case studies were prepared in Cárdenas, Varadero, Bahía de La Habana, Malecón, Manzanillo, Surgidero de Batabanó and 35 other settlements in the prioritized areas. 110 settlements affected by climate change were defined, out of which 35 (29 percent) were prioritized by the Tarea Vida and of which 16 are currently being relocated, 15 are proposed for relocation by 2050 and four are to be relocated by 2100. All of this brings improvements for their economic, environmental and social development by eliminating or reducing vulnerabilities due to the effects of climate change.

The Decree Law 212 (DL-212) entitled 'Coastal Zone Management' serves to implement strict zoning that regulates development and ensures protection of the coastal ecosystems. This Law establishes the limits of the coastal zone and its corresponding zone of protection, which then determines the types of activities allowed. The Law determines that the coastal zone shall preferably remain unoccupied, authorization given only for the development or the execution of activities or facilities that due to their own nature do not allow any other location, as long as they comply with and environmental impact assessment.

Cuba has adopted an Urban, Suburban and Family Agriculture Programme (AUSF) which is an urban environmental sustainability strategy that aims to improve the microclimate, nutrient

63 CITMA (2020). *Cuba: Tercera Comunicación Nacional a La Convención Marco de Las Naciones Unidas Sobre Cambio Climático*.

64 UNDP (2021). Annex VI (b)-Environmental and Social Assessment Report Green Climate Fund Funding Proposal, pp. 1-131.

65 CIMTA (2017). Confronting Climate Change in the Republic of Cuba, *Plan de Estado para el Enfrentamiento al Cambio Climático de la República de Cuba* (unesco.org).

recycling, water management, biodiversity and minimize urban waste. The programme enables residents to take advantage of underused spaces by transforming them into food production units. The programme promotes a strong agricultural movement in cities and settlements that increases the compactness of cities, boosts the urban economy and helps avoid displacement. The programme supports the three pillars of the New Urban Agenda, planning, mobility and urban economy.

5.4.6 Means of implementation

The initial investments required for energy efficiency and renewable energy approaches in housing construction and rehabilitation pose a major challenge in implementing projects. The considerable expenditure required for the purchase of materials and adoption of renewable energy technologies makes it difficult to consider large-scale implementation, while individual households face difficulties in executing smaller-scale improvements.

The lack of financing options hampers the ability to undertake climate-smart housing construction and rehabilitation projects.

Cuba's economic, commercial and financial blockade restricts trade and exchange activities, limiting access to materials, crucial research, information, technologies and best international practices in urban and housing development from an environmental and climate-smart perspective. This isolation hampers progress in adopting modern and sustainable approaches to housing projects.

5.4.7 Conclusions and recommendations

A good articulation exists between plans and strategies with respect to the NDC, prioritizing vulnerability reduction and the implementation of strategies to relocate vulnerable human settlements,⁶⁶ together with actions aimed at coastal protection and emissions reduction. However, local governments face challenges in adopting climate adaptation and mitigation measures, as well as the linking of climate strategies with financial capacities or the incorporation of financial mechanisms to enable their adoption.

Tarea Vida identifies at-risk populations and regions, formulates a hierarchy of strategic areas and tasks in which scientists work alongside local communities and authorities to incorporate mitigation actions, including the shift to renewable energy sources and environmental protection. Tarea Vida also envisions the implementation of several climate-related programmes for enhanced climate resilience, rational water use and soil conservation.

However, Cuba continues to face difficulties in implementing local climate actions due to a lack of financial resources, which undermines the transition to more resilient and sustainable communities.

Furthermore, Cuba is currently implementing and updating their national regulatory framework to reduce risks in coastal areas and enhance the development of sustainable, low-emission housing. At the same time, existing laws for climate adaptation and mitigation need to be better integrated into urban development and land use.

66 CIMTA. *Proyecciones tarea vida 2021-2025*.



It is therefore necessary to continue strengthening local climate action, ensuring that existing laws and regulations can be effectively implemented, and that climate change mitigation and adaptation programmes are supported by adequate financial mechanisms, channeling financial resources and international funding to the municipal and provincial levels.

5.5 El Salvador

CONTRIBUTING AUTHORS:

Adriana Erazo, Ryna Avila (UNDP), Claudia Mondragón (UN-Habitat)

5.5.1 Climate-related national policies, strategies or plans

5.5.1.1 National Climate Change Plan (PNCC)

RESPONSIBLE INSTITUTION Ministry of Environment and Natural Resources

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The National Climate Change Plan is the reference and articulating instrument for the actions of the public administration to address climate change. This includes the following components and strategic actions for the period 2022-2026 to: improve conditions, technical capacities and access to resources; generate guidelines and regulations; develop and implement initiatives, projects and activities that will lead the country to adapt and progressively build resilience, as well as reduce the generation of emissions; and move towards the decarbonization of the economy. The integration of climate change in land use planning with an emphasis on urban planning is one of the PNCC components.

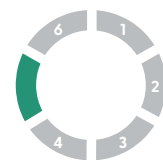
5.5.1.2 Initial Plan for Adaptation to Climate Change in the San Salvador Metropolitan Area (PIACC-AMSS)

RESPONSIBLE INSTITUTION Metropolitan Development Council (CODEMET)

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The Initial Plan for Adaptation to Climate Change in the San Salvador Metropolitan Area defines the measures for adaptation to climate change in relation to an increase in extreme precipitation, changes in annual precipitation and temperature increase and establishes the associated needs for financing, technology transfer and capacity-building for its implementation to reduce vulnerability to climate change.



5.5.1.3 El Salvador's Nationally Determined Contribution

RESPONSIBLE INSTITUTION Ministry of Environment and Natural Resources

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION In compliance with the commitments made by El Salvador under the Paris Agreement, the NDC includes climate change mitigation and adaptation measures, means of implementation, financing, development, technology transfer and capacity-building. The mitigation and response measures are focused on the sector level, namely energy, AFOLU, agriculture, biodiversity and ecosystems, cities, infrastructure, water resources, sanitation and solid waste, health and transport. These measures directly integrate urban content in the sectors of cities, infrastructure, energy and transport and indirectly in sanitation, solid waste and health.

5.5.1.4 Climate Change Policy for the Public Works, Transport and Urban Development Sector

RESPONSIBLE INSTITUTION Ministry of Public Works, Transport, Housing and Urban Development

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The Policy presents actions to achieve higher levels of resilience in public works, as well as for the prevention, attention and reduction of the population's vulnerability. It proposes the following: strengthen the legal and regulatory framework; build climate knowledge to plan and understand problems in adaptation and mitigation; promote intra and inter-institutional coordination; adopt measures to raise awareness among all sectors of the population; delimit the territorial focus of planning actions, urban development and city systems; describe the climate scenarios for El Salvador and present a characterization in sector data; and summarize and explain the trends for mitigation and adaptation measures for cities and public works and present initiatives for clean transportation, among other points.

5.5.1a. Further information about the key climate-related policies, strategies or plans described above

At the national level, the highest authority on climate change issues is the Ministry of Environment and Natural Resources, which coordinates the development of the national climate agenda with sectors and institutions. In terms of urban development, different institutions have a mandate, such as the Ministry of Public Works, Ministry of Interior and Territorial Development, Ministry of Housing, Planning Office of the Metropolitan Area of San Salvador and Ministry of Environment and Natural Resources.

5.5.2 Mitigation challenges

The main sources of GHG emissions from urban areas are related to the consumption of fossil fuels, which include energy supply for electricity production (mainly coal, gas and oil), transportation and the use of electricity in commercial, office, industrial, health, education and residential establishments, as well as for construction activities. According to the Third National Communication on Climate Change (2018), the results of the 2014 National Greenhouse Gas Inventory indicate that the sector that contributes most to GHG emissions is agriculture, forestry and other land use (AFOLU), with 57.8 percent (11,793.5 kt of CO₂e). This is followed by the energy sector, with 30.7 percent (6,268.5 kt CO₂e), the waste sector, with 9.2 percent (1,871.2 kt CO₂e) and the industrial processes and product use sector, with 2.3 percent (461.6 kt CO₂e).

In the AFOLU sector, the most relevant category is land (9,518.5 kt CO₂e), followed by livestock (1,782.3 kt CO₂e). In the energy sector, the main emitting category is fuel combustion activities (6,087.1 kt CO₂e), while in the waste sector, the category with the greatest relevance in emissions is solid waste disposal (1,096.5 kt CO₂e), followed by the wastewater treatment and discharge category (771.4 kt CO₂e). Regarding the industrial processes and product use sector, the category with the greatest emissions is the minerals industry category (376.3 kt CO₂e), followed by the use of hydrofluorocarbons as ozone-depleting substance (ODS) substitutes (85.3 kt CO₂e).

5.5.3 Mitigation responses

Strategic actions include the implementation of systematic monitoring schemes, early warning and scientific research to provide information for decision-making to the state, as a whole, as well as to the productive sectors and citizens, in order to avoid or reduce as much as possible the social and economic impacts of the climate crisis. The state also promotes low-emission sustainable development and commits to reduce a cumulative total of approximately 50,857 kt of CO₂e for the period 2035-2040, with respect to the 2015 measurement (Government of El Salvador, 2021).

At the sector level, a series of mitigation measures have been implemented to reduce annual GHG emissions, prioritizing the energy, agriculture, forestry and land use sectors, which are considered to have the highest emissions. Notably, the mitigation measures implemented in the energy sector are listed below.

- Reduce GHG emissions linked to electricity generation up to 61 percent with respect to the value reported in the base year, 2019. This will be achieved through an increase in renewable energy generation and the incorporation of natural gas to provide electricity.
- Implement energy efficiency actions in public lighting and at the government, commercial and residential consumer level by replacing public lighting, refrigeration and air conditioning equipment with more efficient ones.
- Replace the use of petroleum-based fuels in industry and commerce with natural gas.
- Introduce the use of electric energy to mobilize the vehicle fleet, especially for public and private passenger transportation.

5.5.4 Adaptation challenges

El Salvador is experiencing a rapid increase in urban populations which brings pressing development challenges related to lack of social inclusion, vulnerability to natural phenomena and lack of economic opportunities and competitiveness. The growing concentration of population and the location of economic activity in high-risk areas have resulted in increased vulnerability to natural catastrophic events, which has translated into increased exposure and vulnerability, with loss of human and economic life. These factors, combined with global climate change and increased climate variability, are likely to exacerbate exposure to hurricanes, floods, erosion, landslides and droughts.

In addition, it is evident that El Salvador has accelerated the depletion of its agricultural frontier, undergoing major changes in land-use dynamics and is currently experiencing urban sprawl on agricultural land.



In this context, resilient cities can improve the protection of human lives and enhance and sustain economic growth. The impacts of climate change significantly affect the urban environment, the quality of life in cities and the provision of essential services, such as transport, water, energy, housing, health and social services, especially if this growth is unplanned and unmanaged.

5.5.5 Adaptation responses

Key adaptation actions and strategies for the urban sector that have been prioritized include these listed below.

- Measures to address flooding in the Acelhuate River basin include: (i) construction works for the reduction of storm water flows and flood damages; (ii) construction works for the reduction of damage in precarious urban settlements located in high-risk areas; and (iii) training to implement and improve risk management plans with a gender perspective.
- Measures to adapt to landslides in the Las Cañas River basin include: (i) construction works to reduce slope erosion and landslide damage; (ii) urban forestation; (iii) construction works for damage reduction in precarious urban settlements; and (iv) training to implement and improve risk management plans with a gender focus.
- Measures to improve housing, including resilience, include: (i) construction works for damage reduction in precarious urban settlements located in wind-risk areas; (ii) training to implement and improve risk management plans with a gender approach; (iii) community and institutional strengthening to face climate risks; (iv) elaboration of risk diagnostics and zoning; (v) awareness raising to climate risks and training in their management; and (vi) community-level measures that contribute to social management.
- Instrumentation and implementation of early warning equipment for adaptation and resilience to climate change in communities.
- Improvement of early warning, emergency care and recovery systems in the epidemiological monitoring process for diseases sensitive to climate change (especially arboviruses), to reduce risks to human health.
- Monitoring of the water quality of discharges into receiving systems as well as follow up at the national level.
- Measures for enhanced waste management include waste reduction, separation at source, recovery, disposal and final disposal and promoting recycling and a circular economy that is adaptive to climate change and variability.

5.5.6 Means of implementation

A primary need regarding technology is stronger early warning systems in cities in relation to floods, landslides and heat waves. Financing is a priority as well, particularly related to sectoral climate change adaptation measures in health, solid waste and infrastructure. Regarding institutional capacity, capacity-building of institutional technicians is a sizable need for the implementation of sectoral plans to support the NDC.

5.5.7 Conclusions and recommendations

In recent years, progress has been made in the national climate agenda and to a lesser extent at the urban level. At the urban level, climate risks (previously vulnerability) have been identified for the Metropolitan Area of San Salvador (AMSS), however, these risks have yet to be determined in other major cities. Further, there are no GHG inventories at the city or municipality level.

The National Adaptation Plan, which is currently being developed, will identify and generate actions at the territorial level.

Despite El Salvador's enormous progress in its national climate agenda, which includes climate change adaptation and mitigation measures with sectors directly linked to urban areas, several challenges, listed below, remain to be resolved.

- Climate risks faced by San Salvador and by other Salvadoran cities: increase in extreme events that generate floods and landslides; changes in the annual rainfall and precipitation regime, which affects the availability of groundwater resources; increase in temperature, which generates health risks for the human population.
- Socio-economic conditions and population density.
- Exposure to extreme natural events.
- A lack of financing to implement the strategic actions included in the NDC, although some of these are supported through projects, as is the case of infrastructure.

5.6 Fiji

CONTRIBUTING AUTHORS:

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5.6.1 Climate-related national policies, strategies or plans

5.6.1.1 Updated Nationally Determined Contribution (NDC)⁶⁷

RESPONSIBLE INSTITUTION Climate Change Division at the Office of the Prime Minister

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Fiji's contribution to GHG emissions represents 0.006 percent of total global emissions. Despite the minor contribution, Fiji has committed to achieve net-zero emissions by 2050 as reflected in the 2020 updated NDC. The NDC has 12 targets, including reducing 30 percent of business-as-usual CO₂ emissions from the energy sector, reaching close to 100 percent renewable energy power generation by 2030 and reducing energy sector CO₂ emissions by 10 percent through energy efficiency. An NDC target focused on review of the Building Code is particularly relevant to cities and towns. The NDC also commits to multi-hazard and risk assessments in support of climate-resilient human settlements, strengthening existing and future housing stocks and climate-resilient upgrading of informal settlements. Through this document, Fiji also committed to enact its Climate Change Bill - approved by parliament in 2021 – and to operationalize its National Adaptation Plan (currently under review). Moreover, the updated NDC is seen as a mechanism to provide “up-front information to facilitate clarity, transparency and understanding.”⁶⁸

⁶⁷ Government of the Republic of Fiji. (2020). *Updated Nationally Determined Contribution*.

⁶⁸ Ibid, p. 1.

5.6.1.2 National Climate Change Policy (NCCP)⁶⁹

RESPONSIBLE INSTITUTION Climate Change Division at the Office of the Prime Minister

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NCCP focuses both on adaptation and mitigation targets, seeking to protect future development from climate impacts. It presents its long-term Vision for 2050 for achieving a “resilient and prosperous Fiji, in which the wellbeing of current and future generations is supported and protected by a socially inclusive, equitable, environmentally sustainable, net-zero emissions economy” and a medium-term Vision for 2030. The policy identifies eight guiding principles – sustainable wellbeing, social cohesion, inclusivity, transparency and communication, partnership, integrated learning, agility and urgency. Key focus areas include capacity development, sustainable financing and private sector engagement and transitions. The NCCP identifies locally-driven adaptation solutions among its key objectives, emphasizing the role subnational government actors play in the delivery of NCCP objectives at the local level. Furthermore, it raises the importance of focusing on urban areas when decarbonizing sectors, such as transport.

5.6.1.3 National Adaptation Plan (NAP)⁷⁰

RESPONSIBLE INSTITUTION Climate Change Division at the Office of the Prime Minister

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The NAP identifies 160 adaptation measures to be prioritized over its five-year timeframe and an updated version is expected to be released in 2024. The 2018 NAP includes five system components and five sectoral components. System components, which aim to enhance an enabling environment for climate-resilient development, include climate information services and management, horizontal integration, vertical integration, climate change awareness and knowledge and resource mobilization. Sector components intend to reduce climate-related impacts and vulnerabilities in sectors including food and nutrition security, health, human settlements, infrastructure and biodiversity. While all these components are relevant to the urban realm, the human settlements sector component directly raises the need to tackle urban climate vulnerability.

5.6.1.4 National Disaster Risk Reduction Policy (NDRRP)⁷¹

RESPONSIBLE INSTITUTION National Disaster Management Office (NDMO) at the Ministry of Rural and Maritime Development

DATE OF PUBLICATION 2018

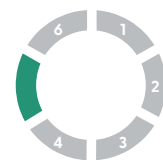
TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and disaster risk

BRIEF DESCRIPTION The NDRRP seeks to prevent new disaster risk and reduce existing disaster risks in line with regional (e.g., Framework for Resilient Development in the Pacific) and global frameworks (e.g., Sendai Framework, 2030 Sustainable Agenda, etc.). It outlines Fiji’s National Disaster Management Institutional Framework, identifying local governments as liaison agencies under the National Disaster Management Act. The NDRRP identifies several barriers associated with legislation, national planning, governance, DRR coordination, human resources, etc. These include lack of integration between adaptation and DRR into sectoral

69 Government of the Republic of Fiji. (2019). *Republic of Fiji National Climate Change Policy 2018-2030*.

70 Government of the Republic of Fiji. (2018). *Republic of Fiji National Adaptation Plan. A Pathway towards climate resilience*.

71 Government of the Republic of Fiji. (2018). *National Disaster Risk Reduction Policy*.



planning, inadequate consideration of climate change and disaster risk issues in land-use plans (both in urban and rural areas), lack of infrastructure plans and lack of demarcation of responsibilities between agencies.

5.6.1a Further information about the key climate-related policies, strategies or plans described above

Climate change mitigation, adaptation and DRR are strategic priorities in Fiji, as reflected in several laws and national policies, plans and strategies. Among the most prominent laws passed to tackle climate change and DRR are the 2021 Climate Change Act (CCA) and the 1998 Natural Disaster Management Act (currently under review). Both Acts adopt a people-centred approach, follow risk-informed approaches and emphasize strengthening Fiji's resilience.⁷² The CCA requires mainstreaming climate change action into national and subnational development planning processes.

Other key policies include the 2017 five-year and 20-year National Development Plans (under review), 2017 NDC Implementation Roadmap 2017-2030, 2018 Fiji Low Emission Development Strategy 2018-2050, 2022 NDC Investment Plan, 2011 National Housing Policy (under review), 2016 Citywide Informal Settlements Upgrading Strategy 2016-2025 and the National Building Code (under review).

5.6.2 Mitigation challenges

Fiji's NDC is specific to the energy sector in terms of a GHG baseline due to it being the single-largest emissions source in 2013 (reference year). The 2013 baseline total energy sector CO₂ emissions were close to 1,500 Gg.⁷³ The electricity sector CO₂ emissions in 2013 were 340 Gg.⁷⁴ The main emission sources associated with electricity and other energy generation and use are diesel and heavy fuel oil generators; fuel wood and kerosene (used as household fuels); LPG used in households and the commercial and tourism sectors.⁷⁵ Fiji's Low Emission Development Strategy, which lays out the pathway towards a zero-carbon economy, considers the following sectors: electricity and other energy generation and use; land transport; domestic maritime transport; AFOLU; wetlands; waste; and tourism, commerce, industry and manufacturing as cross-cutting sectors.⁷⁶ Not only are these sectors relevant for urban areas, but the rapid urbanization taking place in Fiji has been recognized as an important opportunity to avoid the generation of additional emissions (e.g., from infrastructure, transport, buildings).⁷⁷

5.6.3 Mitigation responses

To achieve its target of reducing CO₂ emissions in the energy sector by around 30 percent compared to BAU by 2030, Fiji aims to raise its renewable energy share in electricity generation from approximately 60 percent in 2013 to 100 percent by 2030.⁷⁸ Additionally, the nation seeks

72 IFRC (2021). *Climate-smart disaster law in Fiji*.

73 Government of the Republic of Fiji (2015). *Fiji Intended Nationally Determined Contribution*.

74 Ibid.

75 Government of the Republic of Fiji (2018). *Fiji Low Emission Development Strategy 2018-2050*.

76 Ibid.

77 Ibid.

78 Government of the Republic of Fiji (2020). *Updated Nationally Determined Contribution*.

to reduce 10 percent of CO₂ emissions from economy-wide energy efficiency improvements.⁷⁹ The actions identified in the NDC Implementation Roadmap 2017-2030 amount to an estimated 627,000 tCO₂ reduction in emissions per year against the BAU baseline in 2030,⁸⁰ including 427,000 tCO₂/yr to be reduced under the electricity generation and transmission sub-sector. Some actions under this sub-sector are transitioning to biomass-based power generation, hydro power generation, solar PV generation and grid extension improvement.

An additional 137,000 tCO₂/yr are to be reduced under the land and maritime transport sub-sector.⁸¹ Examples of actions identified include a vehicle replacement programme including hybrid vehicles for buses, taxis and private cars.⁸² Lastly, an additional 30,000 tCO₂/yr would be achieved by reducing emissions on the energy demand side through efficiency measures.⁸³ The remaining 33,000 tCO₂/yr have already been achieved through 2017.⁸⁴

5.6.4 Adaptation challenges

Fiji is threatened by multiple climate-related hazards, including cyclones, storm surges, floods, extreme precipitation, increased temperatures, landslides and droughts. Climate change affects multiple sectors as well, including food security, health, human settlements and infrastructure.

Agriculture faces impacts related to changes in precipitation, sea level rise, tidal surges and salt intrusion.⁸⁵ While expected impacts vary across different types of crops, several staple crops (e.g., rice, taro, sweet potato) are expected to experience moderate to high negative impacts.⁸⁶ Moreover, impacts on fisheries is a major concern expected to rise over the medium and long term.⁸⁷ In relation to health, direct injuries and loss of lives due to climate change (e.g., dengue fever, typhoid fever, leptospirosis and diarrheal disease) are major concerns as well.

Under the human settlements sector, high levels of exposure and vulnerability are a major issue. Approximately 75 percent of Fiji's population lives in coastal areas.⁸⁸ There is a lack of climate-resilient housing and a low level of insurance coverage of the housing stock. Infrastructural assets exhibit high levels of exposure and vulnerability to climate-related hazards, often being located in coastal and flood plain areas. Water and wastewater management are particularly vulnerable, with investment costs to strengthen sectoral resilience estimated at Fijian Dollars 1.1 billion. Among the key risks affecting water infrastructure are inadequate protection against runoff intrusion into pumping stations and treatment plants, soil erosion and landslides and limited diversity of water supply sources. Environmental pressures from

79 Ibid.

80 Government of the Republic of Fiji (2017). Fiji NDC Implementation Roadmap 2017-2030.

81 Ibid.

82 Ibid.

83 Ibid.

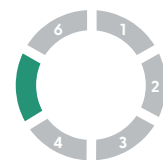
84 Ibid.

85 Government of Fiji. (2017). *Climate Vulnerability Assessment. Making Fiji Climate Resilient*.

86 Taylor, M., McGregor, A., and Dawson, B. (2016). *Vulnerability of Pacific Island agriculture and forestry to climate change*. Noumea, French Calendonina: Pacific Community.

87 Dey, M.M., Gosh, K., Valmonte-Santos, R., Rosegrant, M.W., and Chen, O.L. (2016a). Economic impact of climate change and climate change adaptation strategies for fisheries sector in Fiji. *Marine Policy*. 67, pp. 164-170.

88 Swail V, Grimes S, Pilon P, Canterford R, Barrett C, Simonov Y (2019). Early warnings of coastal inundation. *World Metrological Organization Bulletin*, 68(2).



habitat loss, over-exploitation, pollution and climate change pose serious threats to biodiversity and ecosystems that provide important ecosystem services to urban areas and beyond.

5.6.5 Adaptation responses

The updated NDC (2020) includes human settlements planning, climate-resilient informal settlements and the strengthening of the housing stock. The 2018 NAP identified 160 adaptation measures, targeting the five system focus areas and the five sector focus areas. As already mentioned, the sectors considered include food and nutrition security, health, human settlements, infrastructure, biodiversity and the natural environment with strategies including climate smart agriculture to combat issues related to prolonged dry and wet seasons, relocating highly vulnerable communities and implementing the concept of ‘building back better.’

5.5.6 Means of implementation

While Fiji has set high ambitions in terms of reducing emissions and addressing climate risks, several barriers hinder mitigation and adaptation implementation.

Firstly, several legislations and national-level policies, plans and strategies are outdated. For example, the National Housing Policy (2011), National Building Code (1990), Town Planning Act (1946) and Land Act (1937). Moreover, Town Planning Schemes, which are comprised of land-use zoning plans and standards for development control purposes, were prepared in the 1970s and 1980s and are also outdated. Only three of the 14 Town Planning Schemes have been updated since then. Several national-level policies, plans and regulations (NDP, NAP, NHP, National Building Code) are currently under review, providing the opportunity for a more comprehensive focus on urban climate change mitigation, adaptation and DRR.

A second barrier is limited horizontal and vertical coordination, and this is reflected in low levels of awareness of national climate policies at the local government level. There is also a need to localize the ambitions identified in national policies, strategies and plans sectorally and through local plans and strategies.

Thirdly, limited availability of data (spatial, hazard, socio-economic, etc.) and limited technical capacity are important factors constraining risk-sensitive land-use planning. While DRR and DRM plans have been developed for towns and cities, other processes relevant for risk-informed planning (e.g., vulnerability and risk assessments, hazard maps) are lacking. As highlighted in the NDP, there is an urgent need to improve planning processes by incorporating adaptation and DRM into town planning schemes and developing hazard maps for all urban centres.

Finally, Fiji faces significant financial constraints and impacts associated with the COVID-19 pandemic, cyclones and other disaster events affect financial and fiscal capacities to respond to climate change.

5.6.7 Conclusions and recommendations

Fiji has set high mitigation and adaptation ambitions and adopted several acts, policies, strategies and plans at the national level to pursue these ambitions. These provide guidance and strategic direction on how to achieve these goals and mainstream climate change action across sectoral and local policies (a requirement under the Climate Change Act). However, challenges such as outdated policies, strategies and plans, limited coordination between actors, limited awareness of the existing policies and mechanisms in place, partial data, technical capacity and financial constraints, hinder effective implementation. In light of these issues and seeking to acknowledge the important role of urban areas in advancing climate action, several recommendations are below.

- Improve guidance on and awareness of the processes and mechanisms in place to enable mitigation and adaptation mainstreaming into sectoral and local policies. Considering there are several urban development-related national policies under review (including the housing policy), there is an opportunity for a more comprehensive focus on urban climate mitigation, adaptation and DRR.
- Review critical policies and strategies (such as the 1946 Town Planning Act and the Fiji Informal Settlements Upgrading Strategy) with a view towards providing urban and local actors with clear guidance on accelerated climate action.
- Adopt risk-sensitive, land-use planning, identifying the safest areas to guide new urban development and at-risk areas to manage existing risks. Considering the Ministry of Local Government is currently carrying out a Master Plan for major urban centres in Viti Levu and is reviewing town planning schemes for several urban areas (including Suva, Lautoka and Nadi), ensuring adaptation and resilience are priorities in these processes is critical.
- Improve coordination across key institutions advancing mitigation, adaptation and DRR.
- Enhance the capacity of key actors engaged in mitigation and adaptation planning and implementation (e.g., geographic information system (GIS) technical capacities, risk-sensitive land-use planning, scenario planning, anticipatory governance).
- Improve access to climate information (e.g., projections, hazard maps, down-scaled climate data) and data sharing among stakeholders engaged in mitigation, adaptation and DRR.
- Allocate more funds to support access to low-emission technologies and climate-resilient development.
- Strengthen awareness and multi-stakeholder engagement, including local governments, private sector, civil society organizations and multilateral agencies.

5.7 Iraq

CONTRIBUTING AUTHORS:

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5.7.1 Climate-related national policies, strategies or plans

5.7.1.1 Nationally Determined Contributions (NDC), Iraq

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION In the updated NDC, Iraq is increasing its conditional mitigation target from 13 percent to 15 percent (compared to BAU) and the unconditional mitigation target from 1 percent to 2 percent. The NDC increases the renewable energy target to as much as 12 GW of installed power capacity and an estimated \$100 billion to achieve conditional targets. The NDC mentions the challenges of the legacy of armed conflict, including the destruction of infrastructure, comparably high military expenditures, continued instability, widespread unemployment and poverty as the backdrop in which the country commits to its delivery, but also acknowledges the contribution of the NDC to achieving peace, security and economic stability for the country's future. Iraq's economy today very much depends on revenues from the oil and gas industry. Achieving mitigation targets must go hand in hand with diversification of the economy. The NDC recognizes the need for rebuilding Iraq's cities after the armed conflict and views it as an opportunity to transform towards low-carbon, green and more liveable and environmentally friendly places. However, it assumed a mostly sectoral approach without any specific reference to cities.

5.7.1.2 National Adaptation Plan (NAP)

RESPONSIBLE INSTITUTION Government of Iraq (with UNDP, funded through the Green Climate Fund)

DATE OF PUBLICATION 2024 (anticipated)

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The NDC refers to the NAP as one of the fundamental plans on which the country will rely for increasing resilience in prioritized sectors over the next 30 years. Projected

to be finalized in mid-2024, the draft version of the NAP is annexed to the updated NDC. The NAP underlines that nearly every sector will be affected by climate change, including the highly fragile water resources sector, agriculture and food production, industry, health, education, tourism and sanitation and waste. The NAP identifies climate risks, measures exposure and establishes the climate vulnerability assessment. This is coupled with a study on public expenditure, climate modelling and adaptation options for each sector. NAP implementation requires international support and regional cooperation. Strategies directly related to the NAP include the National Strategy for Water, National Strategy for Agriculture, National Biodiversity Strategy and Action Plan and National Framework for Integrated Drought Risk Management in Iraq. The NAP does not make specific reference to cities or 'urban adaptation.'

5.7.1.3 Strategy for Water and Land Resources of Iraq (SWLRI)

RESPONSIBLE INSTITUTION Ministry of Water Resources

DATE OF PUBLICATION 2015

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The SWLRI (2015-2035) was formulated in response to an imminent water crisis. The Strategy emphasizes the urgency of major reforms in water usage, allocation and negotiations with neighbouring upstream countries to ensure water security. Built on extensive data collection, The Strategy boasts the creation of advanced databases framing Iraq's hydrological regime. The Strategy prioritizes projects based on optimal utilization of water and land resources, being industry-supportive and ensuring equitable distribution. Key focus areas include the water-food-energy-environment nexus, outlining the interconnectedness of these sectors. The Strategy lays out plans for optimizing water use, ensuring food security, promoting sustainable energy and safeguarding the environment. It concludes by highlighting investment strategies, key numerical targets and urgent actions required to mitigate the impending water crisis. It takes an integrated, cross-sectoral approach, with some reference to cities.

5.7.1.4 Renewable Energy Policy

RESPONSIBLE INSTITUTION Ministry of Electricity

DATE OF PUBLICATION 2024 (anticipated)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION This policy is currently under development and under discussion at the Energy Committee of the Iraqi parliament. The policy will regulate the production and consumption of renewable energy, including through independent power producers and the private sector. It sets the framework for achieving the ambitious NDC target of reaching 12 GW of renewable energy by 2030. The policy also foresees the establishment of a Renewable Energy Regulatory Authority under the Ministry of Electricity.

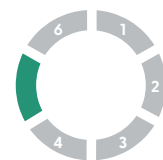
5.7.1.5 Solid Waste Management (SWM) Act

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION 2024 (anticipated)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION Iraq's Solid Waste Management Act is currently under development and has been identified as one of the strategic objectives of the National Strategy of Environmental Pollution Reduction and Action Plan 2022-2030. This Act will make provisions for the update of the National Database on Municipal Solid Waste, the revision and update of solid waste management laws and standards, the promotion of solid waste management behaviour changes



(public awareness) and assessment of existing solid waste management infrastructure. It may also foresee the establishment of a Central Regulatory Entity for solid waste management and promote private sector involvement. The SWM Act will include a framework for a national investment programme into solid waste management infrastructure with a particular emphasis on landfill rehabilitation.

5.7.1.6 Green building codes and national housing policy

RESPONSIBLE INSTITUTION Government of Iraq (with UNDP, funded through the Green Climate Fund)

DATE OF PUBLICATION Unknown

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION Currently, there are about 36 building codes in Iraq, but enforcement and implementation are lacking. The building sector and housing production is well recognized in Iraq for its ability to generate employment and income and for its contribution to the 'welfare' of Iraqi individuals, families and communities, and thus contributing as well to peace and stability. Current efforts are being made to unify and reform building codes and housing policies and to remove obstacles to a more efficient housing delivery. The transition towards green buildings, improved resource efficiency and tackling environmental challenges in the housing and building sector is presently more private sector-driven than public sector-driven. The significance of the building sector is expected to increase in the future, as Iraq's cities are being rebuilt.

5.7.1.7 The Green Growth Strategy (The Green Paper)

RESPONSIBLE INSTITUTION Government of Iraq (with UNDP)

DATE OF PUBLICATION October 2024 (anticipated)

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION This strategy is being developed by the Ministry of Planning and Ministry of Environment, with technical advisory support by UNDP. The Green Growth Strategy in Iraq serves as a comprehensive guideline detailing Iraq's vision for sustainable growth that integrates environmental, climate change and disaster concerns within its economic and social development goals. This strategy outlines Iraq's ambition to address challenges like water scarcity, energy needs and employment by 2050 and emphasizes investments in youth, green technologies and human resources while combating inequalities and injustices. Key priorities include ensuring clean air, water and soil, promoting energy-efficient infrastructures and encouraging sustainable food sources, low carbon public transport and technological innovations with multiple references to cities and human settlements.

5.7.2 Mitigation challenges

In Iraq, the dominant GHG emitting sector is oil and gas, followed by electricity/heat, transportation, waste and agriculture. However, the high level of GHG emissions from oil and gas is significantly greater than the contribution of all other sectors. In 2019, fugitive emissions from oil and gas made up nearly half of the total annual GHG emissions (46.6 percent, 151.12 Mt), followed by electricity/heat (25.7 percent, 83.44 Mt), transport (10.9 percent, 35.45 Mt), waste (3.6 percent, 11.65 Mt), manufacturing/construction (3.4 percent, 10.99 Mt), buildings (2.9 percent, 9.51 Mt) and industry (2.9 percent, 9.39 Mt), which are all significant sectors in urban areas.⁸⁹

89 Our World in Data. *Iraq: CO2 Country Profile*. (All figures are in Mt of CO₂e.)

Iraq's GHG emissions have steadily increased since 1990,⁹⁰ mainly due to population growth and increased oil production, and have doubled over the past decade. The growth of GHG emissions in Iraq over recent years has overtaken the growth of GDP.⁹¹

Together, urban sectors account for approximately 50 percent of GHG emissions with an urban population of nearly 70% in 2021. For the time being (and perhaps also in the foreseeable future) oil and gas requires the most attention in terms of GHG emission reduction. But Iraqi cities, urban areas and towns should also be given due attention for realizing a low carbon development path in Iraq.

The urban poor experience shortages in water and electricity and often don't have access to adequate housing. A sustainable, low-carbon urban development pathway for Iraqi cities must also address the needs of the urban poor and yield tangible improvements in their living conditions in line with the SDGs.

5.7.3 Mitigation responses

Iraq's mitigation response is prioritized on addressing the high emission contribution of oil and gas and energy/heat production, but includes other sectors. Mitigation actions found in the NDC include:

- reducing flaring at oil and gas facilities;
- improving monitoring to reduce methane venting;
- conducting leak detection and repair campaigns at oil and gas facilities;
- fuel switching from liquid fuels to natural gas;
- reducing methane emissions from landfills and agriculture;
- improving energy efficiency;
- expanding renewable energy technology; and
- deploying sustainable public transportation technologies.

An urban relevance is clearly recognizable in the last four mitigation actions.

Iraq is the second largest gas flaring country after Russia, with around 40 percent of its gas production flared. Iraq has developed a roadmap to reduce gas flaring for the upcoming years, with the target of zero flaring by 2030.

The Global Methane Pledge, which was launched at COP26 in November 2021, aims to catalyse action to reduce methane emissions. Over 100 countries are participating in the pledge, including Iraq, agreeing to take voluntary actions to collectively reduce global methane emissions at least 30 percent from 2020 levels by 2030. Iraq is working with the World Bank through its Global Gas Flaring Reduction Partnership to achieve zero flaring by 2030.

Current mitigation projects in the waste sector focus mainly on waste-to-energy (WtE) applications, but also on landfill rehabilitation in connection with landfill gas capture. Several projects are either currently being implemented or in their planning stages to harvest WtE

⁹⁰ Ibid.

⁹¹ World Bank (2022). *Iraq – Country Climate and Development Report*.



in cities in Iraq. Attempts are also taking place to convert solid waste into refuse-derived-fuel (RDF) for co-incineration during cement production. While the use of RDF does not reduce the carbon intake, since the RDF are high calorific materials initially made from oil, their use helps to substitute other liquid or solid fossil fuels otherwise used in the cement production process.

Current mitigation projects in the energy sector focus on increasing the use of renewable energy technologies and increasing energy efficiency. There is a clear relevance to urban areas, for instance ongoing street lighting upgrades to solar power in Baghdad. Other projects focus on increasing power plant efficiency, including conversion to combined heat and power generation. There is a move away from liquid fuels to natural gas in power generation, more applicable to smaller power plants in the national grid run at times of peak demand.

The Kurdistan region of Iraq is particularly advanced in the use of renewable energy in cities and in the generation of energy from waste.

Current mitigation projects in the transportation sector focus on the improvement and extension of public transportation in cities by promoting a modal shift in public transport. Mitigation projects in the building sector focus on reconstruction efforts of Iraq's damaged cities by applying modern building regulations and with the vision of creating sustainable, liveable and green cities that reinforce peace and harmony. These cities are envisioned as sustainable and resilient, also in light of a growing impact of climate change. Existing building codes are being reviewed and green building codes are to be issued, such as prescribing the use of thermal insulation and energy efficient lighting. Integrated solar PV systems are in use as decentralized systems for buildings and neighbourhoods.

5.7.4 Adaptation challenges

Iraq is counted among the five countries globally that are most severely threatened by the impact of climate change.⁹² Climate impacts can be felt today, as the country is facing:

- rising annual mean temperature and extreme heat;
- changing rainfall patterns and prolonged drought;
- increasing water shortages, also as part of a regional water management and distribution problem (lower levels of water in the Euphrates and Tigris river system),
- increased land degradation, drying marshlands, loss of agricultural land and climate migration (rural to urban); and
- more extreme sand and dust storms.

Iraq has increasingly faced severe drought. For instance, in 2021/2022, temperature levels in the summer rose above 50 degrees and seasonal rains did not come as expected; certain areas of the country, like the Southern marshlands, began to dry out, threatening the livelihood of subsistence farmers. The Euphrates and Tigris river system that has served as a reliable source of water in the country for millennia, today needs to be carefully regulated. Water scarcity turns into water stress in the event of drought, as rivers can no longer substitute for

92 UNEP (2019). GEO 6.

failing rainfall. Small scale subsistence farmers usually have very limited means to compensate for the loss of crops and livestock.

Water shortages are apparent in urban areas. The amount of water available and affordable, as well as its quality, is changing. In Iraq's cities, the urban poor in informal settlements are suffering most from water shortages.

Extreme heat particularly impacts Iraqi cities, leading to a loss of productive capacity during the day and during the summer months, making outdoor activities and work difficult. The economy compensates by shifting activities away from the peak hours of the day towards the morning and evenings.

Sand and dust storms are increasingly a challenge, resulting in changing land use and growing patches of dry and bare land in areas formerly used for agriculture. In the absence of irrigation, finer clay and silt particles can be subject to wind erosion, sand and dust storms and soil loss. Sand and dust storms have significant impacts on cities and urban populations. The economic impact of sand and dust storms in monetary terms is about \$14.7 billion annually,⁹³ with a significant burden on human health through respiratory and cardio-vascular illnesses and allergies, etc.

5.7.5 Adaptation responses

Adaptation responses of Iraq as laid out in the NDC focus on agriculture, health, water, LULUCF and tourism. The water resources sector in Iraq has the highest priority in climate change adaptation and is prominently featured in the corresponding sections of the updated NDC. Adaptation measures proposed include exploring new sources (especially groundwater), to invest in seawater desalinization, to develop new river dams and reservoirs and to raise water efficiency and to reduce the potential for future conflicts through 'water diplomacy' and regional cooperation.

The NDC recognizes the river water pollution problem, but without mentioning cities explicitly. Cities, especially along the main Euphrates and Tigris Rivers, are major sources of river pollution. Wastewater treatment and recycling plants are proposed to reduce water pollution and increase efficiency and to serve as a non-conventional water source.

Water and wastewater infrastructure in Iraq's cities are often in precarious condition because no major investments have been made over the past 30 years due to armed conflict and an embargo. Cities continue to develop and have often outgrown the existing supply grids. Water works and wastewater treatment plants have insufficient capacity. Investments in upgrading, repairing and extending water-related urban infrastructure should be made climate-proof to take future impacts of climate change into consideration.

Coherent urban development policies are generally lacking in Iraq and planning frameworks on which urban adaptation planning could be implemented are limited. While the NDC can be considered progressive in some regards, implementation at the local level may face barriers due to policy and planning framework shortcomings.

93 World Bank (2019). *Sand and Dust Storms in the MENA Region – Sources, Costs and Solutions*.



5.7.6 Means of implementation

The NDC indicates that the below requirements must be met to achieve mitigation and adaptation targets.

- International financial support of up to \$100 billion.
- Supported innovation and transfer of environmentally friendly technology in line with Iraq's national needs.
- Stability of the oil market to ensure that the national economy does not fluctuate.⁹⁴
- Building of capacities of national staff to keep pace with modern and environmentally friendly technologies and developments.
- Enhanced participation of the private sector in NDC implementation.
- Supported institutions working on climate change to enable them to prepare and implement climate policies and make national decisions consistent with international requirements to ensure transparent NDC implementation.

While not indicated in the NDC, fighting corruption is an important factor in NDC implementation. Institution building, capacity-building, especially at the local level, including for basic service providers and utility companies, may also be critical. It will be necessary to improve horizontal and vertical integration of levels of governance.

The question of how to distribute the \$100 billion, especially for local NDC implementation, was not addressed in the NDC.

5.7.7 Conclusions and recommendations

While agricultural areas of Iraq and the oil and gas industry are especially critical to consider when managing the climate crisis, cities of all sizes are also increasingly affected by climate change.

The executive summary of the updated NDC of Iraq underlines that:

Iraq is taking strong steps forward towards the restoration of destroyed cities in line with modern building systems to transform them into environmentally friendly, sustainable green cities, as living evidence of peace within the Iraqi society and to encourage the use of renewable energy and green construction, ensuring sustainability towards climate change risks, especially after the COVID-19 pandemic, which exacerbated the situation.

Unfortunately, the NDC never refers back to this vision, nor does it develop this narrative further, to translate this vision for rebuilding the cities of Iraq into an integrated approach for sustainable, low carbon and climate resilient urban development. An increased emphasis on cities in the NDC, similar to agricultural areas and the oil and gas industry, would help respond to this gap.

⁹⁴ This point refers to the revenue stream from the oil and gas industry without which the low-carbon transition is not feasible, underlining the dependency of Iraq (certainly for the period of validity of the NDC) on oil and gas production. This creates a paradoxical situation.

5.8 Lao People's Democratic Republic (the)

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5.8.1 Climate-related national policies, strategies or plans

5.8.1.1 Lao PDR Nationally Determined Contribution (NDC)

RESPONSIBLE INSTITUTION Responsible institution: Department of Climate Change (DCC), Ministry of Natural Resources and Environment (MONRE)

DATE OF PUBLICATION 2015 (1st NDC) and 2021 (2nd NDC or updated version)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The revised NDC demonstrates greater ambition, outlining an unconditional emission reduction goal of 60 percent by 2030, compared to the baseline scenario. This is achieved through enhanced mitigation efforts in forestry and energy with integration of gender equality aspects. The conditional mitigation efforts cover the transportation sector that links to urban development, such as developing a bus rapid transit system in Vientiane and usage of a new railway. The 2021 NDC expands its adaptation component, emphasizing the critical role of a circular economy in fostering low-carbon development. The NDC prioritizes formulating an adaptation strategy and action plan for AFOLU, water resources and urban development. A key adaptation goal outlined in the NDC is to bolster integration of adaptation within sector-specific strategies, including results-based management frameworks for critical sectors like urban development.⁹⁵

5.8.1.2 The National Strategy on Climate Change towards 2030 (NSCC)

RESPONSIBLE INSTITUTION DCC, MONRE

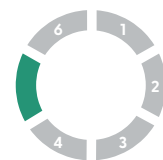
DATE OF PUBLICATION 2010 (approval of an updated version is underway)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The updated NSCC for 2030 was endorsed in 2023 and an English translation is under review.⁹⁶ The updated NSCC commits to transforming Lao PDR into a low-

⁹⁵ Nationally determined contributions registry.

⁹⁶ MONRE (2023). *National Strategy on Climate Change* Final draft 2022 (expected to be endorsed by the GoL in 2023).



emission nation, setting emission targets at < 0.6 and 1.2 tonnes per capita per year by 2025 and 2030, respectively. The strategy strengthens capacities in various areas, including legal frameworks, institutions, technology, human and financial resources, economics, cooperation and coordination, research, information exchange, education and climate change awareness. It delineates six primary goals aimed at integrating mitigation and adaptation into national, sectoral and local policies, strategies, programmes and projects. It seeks to bolster resilience and adaptability of communities, production systems, business value chains, infrastructure, ecosystems and the environment. The updated NSCC specifies actions that promote low emission urban planning, infrastructure, transportation and non-motorized transportation with urban planning highlighted, which demonstrates its importance.

5.8.1.3 National Adaptation Programme of Action (NAPA) and National Adaptation Plan (NAP)

RESPONSIBLE INSTITUTION DCC, MONRE

DATE OF PUBLICATION 2009 (NAPA)/Approval underway (NAP)

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The NAPA was initially introduced as a climate policy framework, outlining short-term adaptation actions and priorities for sectors such as agriculture, forestry, water resources and health for 2010-2020.⁹⁷ The government has plans to replace the NAPA with a NAP in 2023 which will identify main priorities for long-term adaptation measures, tying them to the NDC. The primary goal of the NAP is to mitigate vulnerability to climate change impacts by fostering adaptive capacity and resilience. It also aims to integrate adaptation into new and existing policies, programmes and activities, including the development planning processes and strategies within key sectors such as AFOLU planning, health, urban development and transport, energy and mining, water resources, education and tourism.⁹⁸

5.8.1.4 National Green Growth Strategy towards 2030 (NGGS) and Long-term Low-Emission Development Strategy (LT-LEDS)

RESPONSIBLE INSTITUTION Ministry of Planning and Investment (NGGS) and DCC, MONRE (LT-LEDS)

DATE OF PUBLICATION 2019 (NGGS)/Approval underway (LT-LEDS)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The NGGS emphasizes the significance of renewable natural resources, pollution and waste management, environmental fiscal tools and nature-based tourism as key factors in driving a circular economy.⁹⁹ The NGGS proposes numerous interventions across seven critical sectors – natural resources and environment, agriculture and forestry, industry and commerce, public works and transport, energy and mines, information, culture and tourism, and science and technology. The NGGS prioritizes urban development through design of urban plans, housing and building construction and management in urban areas. It promotes eco-friendly, efficient and domestically produced construction materials and enhanced waste management systems in larger towns and creating trial model green urban and rural areas. However, the NGGS does not provide corresponding implementation strategies. Lao PDR is developing a LT-LEDS to guide sustainable and resilient growth, with the assistance from World Bank, which will serve as an inclusive and comprehensive planning framework, identifying medium- and long-term low-emission development actions across sectors and

⁹⁷ GoL (2009). *Lao PDR National Adaptation Programme of Action* (NAPA).

⁹⁸ MONRE (2023). *Lao PDR National Adaptation Plan* (NAP), second draft.

⁹⁹ Secretariat for Formulation of National Green Growth Strategy of the Lao PDR (December 2018). *National Green Growth Strategy of the Lao PDR till 2030*.

defining its implementation roadmap to achieve net-zero emissions commitment by 2050 as set in the updated NDC.¹⁰⁰

5.8.1.5 National Master Plan for Land Allocation

RESPONSIBLE INSTITUTION Responsible institution: Department of Land, MONRE

DATE OF PUBLICATION 2018

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The National Master Plan for Land Allocation is a critical piece of legislation on land management with clear scope, categories and use of lands to manage, protect, develop and use lands following sustainable practices. The Plan defines preserved and conserved land, including forestland covering 70 percent of the country's land area, including wetlands. Land allocation and land use planning is implemented at multiple levels and coordinated with relevant stakeholders.¹⁰¹ MONRE is translating this Plan into plans at the sub-national level, covering integrated management of natural resources and the environment, including climate change. The revised National Forestry Strategy will enhance efforts to promote resilience and establish a link between adaptation co-benefits and mitigation efforts.

5.8.1.6 Law on Urban Planning

RESPONSIBLE INSTITUTION Department of Housing and Urban Planning, Ministry of Public Works and Transport

DATE OF PUBLICATION 2017

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The Law on Urban Planning was revised in 2017. It provides the overall framework and legal principles for urban planning in Lao PDR, with four town planning levels: national, provincial, regional and urban.¹⁰² In general, the new legislation offers a more explicit policy on promoting urban development and promotes investment roles for government, the private sector, public-private partnerships and foreign direct investment. The Urban Planning Law has two articles relating to climate change: the first requires that risks posed by climate change must be taken into consideration by any construction; and the second concerns environmental impact assessments.

5.8.2 Mitigation challenges

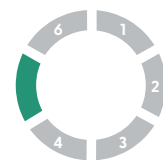
Lao PDR was a net carbon sink in 1990, according to the first National Communication to the UNFCCC. However, by 2000, the country became a net GHG emitter, as reported in the Second National Communication. The LULUCF sector contributes over 70 percent of GHG emissions, with the remaining emissions originating from the energy, waste and industry sectors. Most CO₂ emissions are attributed to land-use change and forestry, including biomass use (42,758 Gg), with only 1,004 Gg attributed to the energy sector. CH₄ emissions stood at 6,440.7 tCO₂e, with the agricultural sector (rice cultivation, enteric fermentation) being the most significant source of emissions (5,280 tCO₂e). Remaining emissions came from the land-use change and forestry sector. The agricultural sector was also largely responsible for N₂O emissions, contributing 7.7 out of 8.4 GgN₂O.¹⁰³

100 The Center for Climate Strategies (2022). *Lao PDR LT-LEDS*.

101 GoL (2018). *National Master Plan for Land Allocation*.

102 GoL (2017). *Law on Urban Planning* (revised version).

103 GoL (2012). *Second National Communication to the UNFCCC*.



Emissions in each sector are projected to increase rapidly but remain relatively small compared to the agricultural sector. Emissions in the energy sector tripled from approximately 1,000 Gg to 3,000 GgCO₂ between 2010 and 2020. The cement industry, which is the main source of emissions within the industrial sector, increased significantly as well from approximately 47.3 GgCO₂ in 2010 to 1,530 GgCO₂ in 2020. Deforestation is the primary driver of emissions in the forestry sector. In 1990, the sector was a large sink, absorbing 104,570 Gg CO₂, but this figure decreased to just 2,047 GgCO₂ by 2000. Forest cover declined from approximately 10 million hectares in 2020 to nine million hectares in 2020 as a net source of emissions.

5.8.3 Mitigation responses

The government outlined several mitigation strategies to curb future GHG emissions, contingent on international assistance. Key measures identified in the NDC and NSCC include: increasing forest cover to 70 percent by 2030, thereby cutting emissions from deforestation; executing the Renewable Energy Development Strategy to attain 30 percent small-scale renewable energy use by 2030, while prolonging renewable energy (solar and wind) and energy efficiency programmes until 2050; promoting electric vehicles in transport, alongside the new Bus Rapid Transit system; and altering water management in 50,000 hectares of lowland rice cultivation. Urban development emissions reduction was not addressed in the NDC.¹⁰⁴

Since 2009, Lao PDR has implemented over 10 mitigation projects, predominantly in forestry, energy and transport. These include the Clean Development Mechanism (CDM), Reduction of Deforestation and Forest Degradation (REDD+) and Bilateral Cooperation in Reducing Greenhouse Gas Emissions (JCM) and Nationally Appropriate Mitigation Actions (NAMAs) in energy and transport.¹⁰⁵ Recently, pilot projects focusing on energy efficiency and conservation have significantly increased, like a cooperation programme between Japan and the ASEAN Centre for Energy and the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) programme between Lao PDR and Thailand.¹⁰⁶

5.8.4 Adaptation challenges

Most research studies affirm changes in rainfall and temperature patterns in Lao PDR with an increase in magnitude of extreme events, especially urban floods. Flood hazards associated with tropical typhoons and storms have rendered urban areas extremely vulnerable to floods¹⁰⁷ – this is due to the rising water levels in major rivers, such as the Mekong River, which directly affect the major cities of Vientiane Capital, Savannakhet, Pakse and Luang Prabang, resulting in severe impacts on social, economic and environmental factors.¹⁰⁸

Generally, key sectors relevant for urban adaptation include land and forestry, agriculture, infrastructure and urban development, health, water and energy.¹⁰⁹ Lao PDR has a comprehensive and progressive institutional framework, having established specific agencies

104 Nationally determined contributions registry.

105 MONRE (2023). *National Strategy on Climate Change*, final draft 2022 (expected to be endorsed by the GoL in 2023).

106 ADB (2022). *Supporting the Implementation of ADB's Climate Change Operational Framework 2017–2030*.

107 World Bank and ADB (2021). *Climate Risk Profile of Lao PDR*.

108 UN-Habitat (2020). *Lao PDR National Climate Change Vulnerability Assessment*.

109 MONRE (2023). *Lao PDR National Adaptation Plan (NAP)*, second draft.

to work cross-sectorally to support climate change adaptation and urban development. Within MONRE, the main departments for climate change and urban land management are the Department of Climate Change (DCC) and the Department of Land (DOL), respectively. Meanwhile, the Ministry of Public Works and Transport (MPWT) is responsible for urban planning and development, with a mandate that includes water supply, urban drainage and waste management.

5.8.5 Adaptation responses

The government has identified several adaptation actions intended to mitigate climate risks and impacts. Adaptation measures in the 2nd NDC cover six areas, which are agriculture, forest and land use change, water resources, transport and urban development, public health and energy. The short-term emphasis for all the sectors is the integration of climate change into the sector's strategies and action plans. Long-term adaptation targets in all the sectors focus on promoting resilience through a more robust information system, sustainable resource management, improvement of infrastructure resilience and capacity-building.

The NDC notes numerous adaptation measures, including: promoting appropriate technologies for climate change adaptation including nature-based and circular economy solutions; strengthening water resource information systems for adaption; increasing resilience of urban development and infrastructure to climate change, including through the use of green infrastructure and NbS; promoting ecosystem-based adaptation solutions in the transport and urban development sector; and enhancing climate resilience and sound management in the energy sector.¹¹⁰

5.8.6 Means of implementation

Lao PDR faces numerous challenges in implementing climate change adaptation and mitigation, including limited knowledge and integration into development plans, insufficient budgets, inadequate technical skills, limited access to suitable technology and an absence of monitoring and evaluation (M&E) and monitoring, reporting and verification (MRV) systems to measure progress on achieving climate policies. A knowledge-sharing gap also exists across sectors and levels, with limited participation due to a lack of precise coordination and mandates.¹¹¹

For effective climate action, the government requires domestic and international support, including financial aid, policy development and capacity-building, and as noted in the 2nd NDC report, significant mitigation measures are conditional.¹¹² A specific mechanism is needed to ensure successful allocation and utilization of funds in priority sectors like forestry, agriculture, energy and transport. Climate needs better integration into national sectoral policies, such as those related to land, water, energy, health, transportation and urban development. Capacity development and technology transfer are essential, particularly in the energy and transport sectors. Finally, an M&E and MRV framework to measure progress on climate policies (e.g., NDC, NSCC) and a national coordination mechanism among the ministries in key sectors are essential.¹¹³

¹¹⁰ [Nationally determined contributions registry.](#)

¹¹¹ MONRE (2023). *National Strategy on Climate Change*, final draft 2022 (expected to be endorsed by the GoL in 2023).

¹¹² [Nationally determined contributions registry.](#)

¹¹³ Ibid.



5.8.7 Conclusions and recommendations

Despite Lao PDR's expansive climate change policies, including the NDC, NSCC, NAPA, SNC, etc., effective implementation is hindered by several challenges, notably financial constraints in policy development and implementation. There is also an over-reliance on development partners. However, climate finance has significantly increased in the last decades. Most climate finance has focused on mitigation rather than adaptation investments, especially in climate change resilience development.

Other barriers include limited political will and lack of long-term commitment, supportive policies and legal frameworks. Low technical and institutional capacities and lack of incentives for climate investment hamper adaptation implementation and lead to an absence of M&E and MRV frameworks. Limited access to low-emission technologies likewise hinders mitigation measures. Ministry coordination and low capacity to integrate low-emission strategies into development plans at the local level are obstacles.^{114, 115}

To address these challenges, Lao PDR should consider the below actions.¹¹⁶

- Integrate adaptation and mitigation into national and sectoral policies where these concepts are currently absent or indirect.
- Allocate more finance to support access to international low-emission technologies and climate-resilient development.
- Enhance the capacity of national and local governments, including the identification of practical adaptation and mitigation measures.
- Improve cross-sectoral governance and institutions based on international best practices and lessons learned.
- Invest in education and technical skills for planning and managing mitigation and adaptation measures.
- Improve coordination mechanisms for climate change mainstreaming among sectors and development partners.
- Establish M&E and MRV mechanisms for tracking progress on climate policy implementation for both adaptation and mitigation.
- Build public awareness and enhance multi-stakeholder involvement, including local governments, the private sector and gender-related offices.

114 Oxford Policy Management (2018). *Overcoming the NDC Implementation Gap: Policy Brief*.

115 Ibid.

116 Ibid.

5.9 Lebanon

CONTRIBUTING AUTHORS:

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5.9.1 Climate-related national policies, strategies or plans

5.9.1.1 Nationally Determined Contribution (NDC) update

RESPONSIBLE INSTITUTION Ministry of Environment, Government of Lebanon

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Lebanon's 2020 NDC update addresses climate change through a comprehensive approach. Key pillars include mitigation, adaptation and capacity-building. In terms of mitigation, Lebanon aims to reduce GHG emissions by enhancing energy efficiency, transitioning to renewable energy, fuel switching to natural gas and improving waste management. Lebanon aims to reduce emissions by 7,790 Gg CO₂e unconditionally and 12,075 Gg CO₂e conditionally by 2030. The NDC update sets a target of meeting 18 to 30 percent of electricity demand and 11 to 16.5 percent of heat demand in the building sector from renewable energy. With regard to adaptation, the country seeks to strengthen its resilience to climate impacts, particularly in agriculture, water resources and coastal areas. Despite Lebanon's high urbanization rate,¹¹⁷ the country's NDC update lacks explicit integration of urban related content, except for recognition of the need for overall enhancement of "urban and rural areas to subsist climate-related disasters."

5.9.1.2 National Adaptation Plan (NAP) (under preparation)

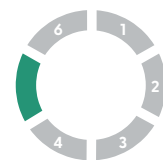
RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION Ongoing (targeted completion in 2027)

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The NAP is currently under development as part of the Green Climate Fund readiness project "Increased Resilience of Municipal Water Resources in Lebanon." The plan aims to develop a medium- and long-term approach to reducing vulnerability to climate

¹¹⁷ See 'Conclusions and recommendations' section for some figures.



impacts and to facilitate the integration of adaptation into ongoing planning processes while optimizing the use of existing plans in preparing the ground for the development of NAP activities. Moreover, the aim is to prepare Lebanon's first climate change adaptation (CCA) strategy through a multistakeholder process and coordination mechanism. It also aims to improve the capacity of decision-makers and local communities to mainstream CCA into national and local water-sector planning processes in urban areas.

5.9.1.3 Long-Term Low Emissions Development Strategy (LT-LEDS) (under preparation)

RESPONSIBLE INSTITUTION Ministry of Environment

DATE OF PUBLICATION Ongoing (targeted completion in 2024)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The LT-LEDS is currently under development by the government. It defines a range of estimated national GHG emissions and removal activities, sets a vision for 2050 from the main sectors and proposes a GHG reduction goal by mid-century. Potential LEDS policy measures are evaluated to guide future policy development, including procedures for aligning LEDS measures with broader national objectives and SDGs, expansion of LEDS measures into all sectors, improved design specifications and mechanisms and more intensive feasibility analysis. Sectors include tourism and transport, where urbanization and resilient urban infrastructure constitutes a cornerstone for improvement. Moreover, the LT-LEDS enables a shift to a low carbon economy by removing barriers to clean investments, enhancing research and development and decoupling economic growth and GHG emissions in line with inclusive sustainable development and a just transition.

5.9.1a Further information about the key climate-related policies, strategies or plans described above

The linkages between the NDC, LT-LEDS and NAP are crucial for Lebanon's approach to addressing climate change under the Paris Agreement in both the short- and long-term while aligning with overall development objectives. NDCs are short- to medium-term climate action plans typically covering a five to 10-year period, while the LT-LEDS focus on the long-term 2050 vision for sustainable development and an emissions reduction pathway, integrating low carbon economic growth to reach neutrality. The NAP addresses adaptation as well, outlining a strategy for identifying, prioritizing and implementing adaptation measures to reduce vulnerability to climate impacts.

5.9.2 Mitigation challenges

As per the latest **National Communication to the UNFCCC** in 2022, Lebanon's major emitting sectors in 2019 were: energy (55 percent); transport (25 percent); industrial processes (11 percent); waste (6 percent); and AFOLU (3 percent), which are all primarily concentrated in urban areas despite the lack of distinction between urban and other emission sources within the report.

Despite a recent increase in distributed solar energy projects as a result of an electricity supply crisis (installed capacity reached 869 MW in 2022 compared to 56 MW in 2018¹¹⁸) the energy sector still plays a significant role in GHG emissions. Mitigation challenges

118 Based on personal communication with the Lebanese Center for Energy Conservation.

encompass technical issues, such as: energy insecurity due to a heavy reliance on imported petroleum; grid instability and capacity constraints; limited integration of renewable energy; inadequate local funding for small-scale renewable projects; policy and regulatory challenges for renewable energy deployment and certification and standardization for off-grid solar systems (Law 462 established the rules and principles governing the electricity sector).

In the forestry sector, technical and financial hurdles hinder progress. The absence of monetary valuation for forestry services, inadequate promotion of sustainable resource use and limited financial resources for reforestation efforts contribute to challenges. Legal and institutional obstacles arise from an outdated Forest Law and lax enforcement, resulting in intense forest fires and poor land management. Insufficient buffer zones around reserves and failure to implement the 2005 National Physical Master Plan of the Lebanese Territory¹¹⁹, decreed in 2009, compound the difficulties. The lack of a monitoring system for forests, disjointed responsibilities in forest management and a disconnect between research and decision-making exacerbate mitigation challenges. Based on Global Forest Watch, Lebanon lost nine percent of its tree cover between 2001 and 2022¹²⁰.

The solid waste sector faces policy, legal, regulatory, institutional, financial, technical and environmental hurdles, including an absence of clear legislation regarding waste management procedures, weak environmental monitoring, political interference and a lack of decentralized planning. Insufficient waste collection infrastructures, a lack of cost accounting methodologies and environmental risks from dumpsites further complicate waste sector mitigation efforts.

5.9.3 Mitigation responses

Mitigation efforts targeting GHG emissions in major emitting sectors (notably, energy, AFOLU, transportation and waste management) are integrated into the NDCs and LT-LEDS. The LT-LEDS assesses various scenarios, including business as usual and a 2050 vision, to reduce emissions while fostering resilient, sustainable and equitable growth and avoiding carbon-intensive technology lock-in. Mitigation measures outlined in Lebanon's fourth National Communication¹²¹ highlight the emission reduction potential of activities in various sectors (for instance, transitioning to 75 percent newly registered hybrid vehicles by 2050 can reduce emissions by up to 17 percent).

In the energy sector, efforts by several United Nations agencies, among others, have been geared towards promoting renewable energy solutions where essential services are provided at schools, health centres, public water wells, etc. Specialized energy engineers are employed to design and implement interventions addressing conflict areas within the electricity and energy sector. 'Energy Hubs', which are virtual open spaces for individuals and institutions interested in innovation, entrepreneurship, research and SDGs in the energy sector, have been established to foster collaboration between initiatives and stakeholders for clean energy transition, technology transfer, support for green start-ups and mentorship for local renewable energy and energy efficiency companies. A "Photovoltaic System Design Guidebook for Lebanon" is forthcoming.

119 DAR-IAURIF (2005). **National Physical Master Plan of the Lebanese Territory** (NPMPLT). Commissioned by CDR.

120 **Global Forest Watch** (n.d.). Lebanon Deforestation Rates and Statistics.

121 MoE/UNDP/GEF (2022). **Lebanon's Fourth National Communication** to the UNFCCC. Beirut.



In the AFOLU sector, mitigation action has been geared towards land degradation neutrality (LDN) in mountain landscapes in such areas as land rehabilitation, landscape-scale surveys, socio-economic assessments and the development of a Geographic Information System (GIS) platform for LDN. Subnational plans for strategic forest management and the identification of socio-economic needs and directions for multiple unions of municipalities have been initiated.

Transport sector activities have focused on improving policy frameworks,^{122, 123} institutional capacities and technical infrastructure for electric vehicles, green public transport and end-of-life vehicle management. Following the 2015 waste crisis,¹²⁴ international financial support played a pivotal role in improving Lebanon's solid waste management systems. Notable achievements in the sector include health-care waste baseline assessments, market opportunity assessments for Refuse Derived Fuel and the initiation of national governance and cost recovery frameworks for municipal solid waste management.

5.9.4 Adaptation challenges

Based on climate change simulations for the region, models indicate by the end of the 21st century, country-wide temperatures could increase 5.1–5.9°C during summer months.^{121, 125} Finer resolution analysis^{121, 126} indicates that the increase of annual temperature for the period 2021-2040 as compared to the reference period (1995-2014) is about 1.2°C on average; the Bekaa Valley and most coastal areas across Lebanon will suffer the most from such increases. Precipitation is expected to decrease by 6.5 to 9 percent by mid-century and by 9 to 22 percent by 2100. Expected impacts include increased risks of flooding, droughts, landslides and fires, particularly in urban areas where green areas and public spaces are mismanaged and have become scarce.¹²⁷

Key climate change-impacted sectors and areas include: 1) the water sector through decreased water availability; 2) the energy sector through increased energy demand for indoor microclimate control; 3) the health sector through increased health risks and vector- and water-borne diseases; 4) the tourism sector through decreased availability of natural scenery and increased vulnerability of infrastructure and cultural heritage sites; 5) coastal areas (where the majority of the main Lebanese cities and population are located) through sea level rise and erosion; and 6) urban areas through the heat island effect impacting the health and well-being of urban populations,¹²⁸ especially in disadvantaged and informal areas.

122 UN-Habitat Lebanon (2021). **Guide for Mainstreaming Transport and Mobility in Lebanon's National Urban Policy**, Beirut.

123 UN-Habitat Lebanon (2021). **Lebanon's National Urban Policy Synthesis Report: Intersection of Housing and Transport**, Beirut.

124 In 2015, a series of protests were held in Lebanon in response to the government's failure to find solutions to a waste crisis caused by the closure of the Beirut and Mount Lebanon region waste dump in Naameh (south of Beirut).

125 World Bank (2022). **Climate Change Knowledge Portal - Lebanon: Current Climate Trends and Significant Change Against Natural Variability**.

126 Swedish Meteorological and Hydrological Institute (SMHI) and United Nations Economic and Social Commission for Western Asia (ESCWA). 2021. **Future Climate Projections for the Mashreq Region: Summary Outcomes**. RICCAR Technical Report, Beirut. E/ESCWA/CL1.CCS/2021/RICCAR/TECHNICAL REPORT.7

127 UN-Habitat Lebanon and ESCWA (2021). **State of the Lebanese Cities – Governing Sustainable Cities Beyond Municipal Boundaries**.

128 Ibid, pp. 186-187.

5.9.5 Adaptation responses

Key adaptation responses at the national level include projects related to reforestation and natural resources management, including fire prevention and control, sustainable non-conventional water supply, energy efficiency and sustainable agriculture. Notable reforestation efforts have been implemented, focusing on reforestation, establishment of hill lakes for water harvesting in mountainous regions and other irrigation infrastructure and climate-proof forest management in mountainous areas.¹²⁹

Water sector activities have focused on rainwater harvesting in urban and rural settings and to a lesser extent, on wastewater reuse. A national guideline for rainwater harvesting systems has been developed.¹³⁰ Wastewater reuse pilots have been implemented in Haush Sneid and Ablah, in addition to an ongoing Adaptation Fund project of treated wastewater effluent for agricultural zones in Zahle City, Bekaa Governorate¹³¹. A recent World Bank-funded project (GATE)¹³² is currently in the process of identifying suitable wastewater reuse schemes, which will likely cover peri-urban settings. A publication on water-sensitive urban design guidelines for public spaces is currently in its final review stages.

In the context of energy efficiency, the Ministry of Energy and Water, Électricité du Liban, and distribution service providers (DSPs) have completed several projects in urban and other areas for rehabilitating and upgrading the public electricity grid, decreasing grid losses and improving energy efficiency. Despite these efforts, losses were still high at 34 percent at the beginning of 2019.

Sustainable agriculture efforts have concentrated on water-efficient irrigation and reduction of freshwater withdrawals, promotion of sustainable agricultural livelihoods of vulnerable farmers, increasing adaptive capacity of agriculture and promotion of permaculture.

5.9.6 Means of implementation

Despite the above-described efforts, critical gaps exist in the implementation of climate mitigation and adaptation strategies, spanning technology, finance, planning and institutional capacity.

Technology

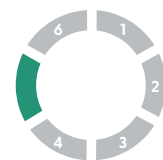
- Despite some growth in small-scale solar energy systems, Lebanon needs more renewable energy technology transfer and capacity-building to expand renewable energy sources like solar, wind and geothermal power. Limited expertise and funds hinder their integration into the electricity supply infrastructure, exacerbating urban electricity shortages.
- Climate-resilient agricultural technologies are underutilized, especially in urban areas where they can enhance food security and reduce flooding risks. Increasing awareness and access to such climate-smart technologies is crucial.

129 Ministry of Environment / United Nations Development Program / United Nations International Children's Emergency Fund / United Nations High Commissioner for Refugees. 2021. Lebanon State of the Environment and Future Outlook: Turning the Crises into Opportunities

130 MoEW and UNDP (2016). National Guideline for Rainwater Harvesting Systems. Beirut.

131 UN-Habitat Lebanon (2023). Increasing the Resilience of Both Displaced Persons and Host Communities to Climate-change-related Water Challenges in Jordan and Lebanon, Regional Project/Programme Proposal. Funded by Adaptation Fund.

132 World Bank (2023). Green Agri-food Transformation for Economic Recovery (GATE) - P180334, Project Information Document. Washington, D.C.



Finance

- Access to climate funding, nationally and internationally, must increase to support mitigation and adaptation projects, with financial plans integral to NDC updates. Scarce funding for resilience projects, like coastal protection and infrastructure upgrades, is a notable gap.
- The absence of climate risk insurance leaves Lebanon exposed to climate-related damages. Establishing financial instruments for compensation in the case of extreme weather events is essential.

Planning

- Comprehensive climate data and research are lacking, including at the urban level. Investments in climate monitoring infrastructure, data collection and research, including through area-based assessments, are vital for informed decision-making, especially for climate modeling and risk assessment. Collaboration among state and non-state stakeholders, including at the local level, is critical.
- Incorporating environmental and climate considerations into national¹³³ and local urban planning¹³⁴ and urban policy reform processes is essential to reduce stress on natural and man-made assets. Establishing urban observatories could support evidence-based planning and decisions.
- Inclusive planning and decision-making processes are crucial to actively include vulnerable groups most affected by climate change.

Institutional capacity

- Strengthening governance and institutional capacity for climate action at national and subnational levels, including in urban areas, is necessary, with a focus on technical expertise and coordination.

5.9.7 Conclusions and recommendations

The strengths of Lebanon's climate-related policies and plans include a comprehensive approach demonstrated by the inclusion of both mitigation and adaptation measures within the NDC, multistakeholder engagement in the development of the NAP and a commitment to long-term, sustainable, low-emission development through the LT-LEDS. Weaknesses include the need for improved integration of urban-specific content in relevant policies, plans and strategies, given Lebanon's high urbanization rate – 88.9 percent in 2020 and set to rise to 90.6 percent by 2030.¹³⁵ Well-managed urbanization is closely linked to taking into consideration climate change issues in an integrated manner. The development of urban climate policies and strategies and concentration of climate action in urban and peri-urban areas could improve the impact of national climate action and contribute to sustainable development in the long term.

Gaps include limited access to climate data and research, including at the city level, lack of

133 Although the 2005 National Physical Master Plan of the Lebanese Territory (NPMLPT), decreed in 2009, includes a number of environmental considerations, it has remained largely unimplemented and requires updating/rewriting (UN-Habitat Lebanon and ESCWA, 2021, pp. 185-186).

134 As mentioned in the UN-Habitat Lebanon and ESCWA *State of the Lebanese Cities* report (2021), no strategic environmental assessment (SEA) "yet appears to have been used for masterplans," even though an SEA Decree (No. 8213) for public sector policies, plans and programmes was issued in 2012.

135 UNDESA (2018). *World Urbanization Prospects: The 2018 Revision*. Information about the country's urban expansion can be found in UN-Habitat Lebanon and ESCWA (2021).

climate financing mechanisms and institutional capacity of climate change focal points within government institutions. In addition, the “State of Environment Report 2020” lists a number of recommendations (pp. 337-338) to address 'haphazard urbanization,' such as “enforcing existing legislation and even further through updating and implementing the provisions” of the NPMPLT (p. 33) and developing and adopting “missing strategic and detailed urban masterplans (with the needed Strategic Environmental Assessment studies as per Decree 8213/2012)” (p. 1).¹³⁶

Additional recommendations related to urban development and related to climate considerations have been outlined in the “State of the Lebanese Cities” report.¹³⁷ The recently formed Urban Policy Working Group within the Lebanon Reform, Recovery and Reconstruction Framework (3RF) continues its work to identify urban policy challenges and reform priorities; it would be advisable that it takes into consideration climate-related issues, potentially in coordination with other relevant coordination groups, including the **3RF Port and Transport Working Group**.

¹³⁶ MoE, UNDP, UNICEF and UNHCR (2021). . **Lebanon State of the Environment and Future Outlook: Turning the Crises into Opportunities – SOER 2020**. Beirut.

¹³⁷ UN-Habitat Lebanon and ESCWA (2021). **State of the Lebanese Cities 2021**, Beirut.



5.10 Madagascar

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5.10.1 Climate-related national policies, strategies or plans

5.10.1.1 National Policy on Climate Change (PNLCC)

RESPONSIBLE INSTITUTION Ministry of Environment and Sustainable Development (MEDD)

DATE OF PUBLICATION 2011

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The Policy sets the objectives of promoting appropriate national measures to reduce the degree of vulnerability to climate change and GHG emissions and of developing behaviours contributing to the fight against climate change at all levels. Five strategic axes comprise this Policy: strengthening adaptation actions; implementation of mitigation actions; integration of climate change at all levels; development of sustainable financing instruments; and promotion of research, development and transfer of technology and adaptive management.

5.10.1.2 National Plan on Adaptation to Climate Change in Madagascar (PNA or NAP)

RESPONSIBLE INSTITUTION MEDD

DATE OF PUBLICATION 2019, updated 2021

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The National Adaptation Plan (NAP) is structured around three main strategic axes: strengthen governance and integration of adaptation; implement a priority sector action programme; and finance adaptation to climate change. Madagascar's NAP identifies key priority areas, such as agriculture, fisheries and infrastructure, and outlines actions to reduce the country's vulnerability to climate change. Madagascar's NAP also emphasizes the importance of building resilience at the local level and involving communities in decision-making processes.

5.10.1.3 National Risk and Disaster Management Policy (PNGRC)

RESPONSIBLE INSTITUTION Conseil National de Gestion des Risques et de Catastrophes (CNGRC), led by the Prime Minister

DATE OF PUBLICATION 2015

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The PNGRC is the national risk and disaster management policy, which aims to establish disaster risk management (DRM) as a pillar of sustainable development. The policy was translated into the national risk and disaster management strategy (SNGRC) for 2016-2030.

5.10.1.4 Madagascar Nationally Determined Contribution (NDC)

RESPONSIBLE INSTITUTION MEDD

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Whereas the first NDC (2016) only considered the agriculture, energy, land use and land use change and forestry and waste sectors, the second NDC (2022) added industrial processes and product use. This raised the ambitions in relation to the emission sources. By 2030, the second NDC aims to reduce GHG emissions by 19 percent, or 32,642 Gg CO₂e. In addition to this reduction in emissions, the NDC aims to strengthen the GHG absorption capacity by around 20 percent, i.e., 37,809 Gg CO₂e of additional sequestration. The NDC also includes sectoral and regulatory policy development activities that should enable the country to progressively extend its climate actions in parallel with its sustainable development objectives.

5.10.2 Mitigation challenges

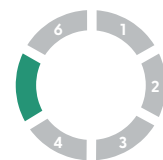
Forest loss and land use change are the most important causes of the decline in national GHG absorption capacity. Between 2010 and 2020, these will be the main sources of GHGs, accounting for more than 80 percent of national emissions. Agriculture is the second largest emitter, contributing 16 percent of national GHG emissions. Subsistence farming (traditional rice crops, maize, manioc, extensive cattle rearing) is rapidly destroying carbon stocks in forests and wetlands.

In 2010, energy was responsible for two percent of national emissions. The residential sub-category (including cooking energy: over 90 percent of the population use wood energy as a fuel) remains the largest energy user. It is followed by energy industries. Fossil fuel consumption for transport (road and rail) is estimated at half the total volume imported, or around 500,000 m³. Industrial processes and product use and waste together only contributed around 0.4 percent of national emissions in 2010. Emissions from the waste sector tend to increase with rapid population growth.¹³⁸

Madagascar's NDC includes mitigation measures for all sectors compared to the national reference scenario BAU. By 2030, Madagascar aims for a reduction of around 30 MtCO₂e of GHG emissions (14 percent compared to BAU) on the basis of the GHG inventory from 2000 to 2010. Added to this reduction is the increase in absorptions from the LULUCF sector on the order of 61 MtCO₂e in 2030 or an increase of 32 percent compared to BAU. If nothing is done, Madagascar's emissions will increase by approximately 87 MtCO₂e between 2000 and 2030 to 214 MtCO₂e. Absorptions will drop from 290 MtCO₂e in 2000 to 192 MtCO₂e in 2030, which will bring the country from sink status to become an emitter in 2030.¹³⁹

¹³⁸ NDC 2 (2022).

¹³⁹ NDC 1 (2015). Introduction.



5.10.3 Mitigation responses

The key urban sector mitigation strategies and actions are linked to energy and transport, notably the energy industries and residential sub-sectors, which are dominated by the consumption of wood energy. Reducing wood energy consumption would lead to a reduction in emissions of around 1,000 Gg CO₂e by 2030.¹⁴⁰

Mitigation measures that are national priorities and part of current, recent and/or upcoming initiatives highlighted by government counterparts include these below.

- Develop hydroelectric projects with a capacity of up to 590MW and a solar farm with a capacity of 20 MWp at national level: potential mitigation of 16,900 G CO₂e and 580 G CO₂e, respectively.
- Promote access to low-cost electricity services through the supply, installation and maintenance of photovoltaic solar power generation systems serving basic health centres, totaling 0.5MW through the DEMOS project: potential mitigation of 20 Gg CO₂e.
- Operationalize the wood-energy saving programme by disseminating energy-saving stoves.
- Scale-up bioenergy initiatives (production of bioethanol and biofuels for cooking).
- Strengthen application of legal frameworks.
- Develop a national transport policy and regulatory frameworks that take account of the fight against climate change.
- Develop a regulatory framework to combat polluting car emissions and road accidents.

5.10.4 Adaptation challenges

Due to its geographical location and socio-economic characteristics, Madagascar is a particularly vulnerable country and exposed to a wide range of hazards. The main climate risks in Madagascar include drought, cyclones, floods, longer dry seasons, torrential rain and an eight percent drop in rainfall since 1990. Between 1990 and 2020, Madagascar recorded 70 major climatic disasters, including 64 cyclonic disturbances and six episodes of severe drought. Sea levels rose by 0.6 cm per year between 1994 and 2008.¹⁴¹ The drought of 2020/2021 in the Great South of Madagascar made up of the Androy, Anosy and Atsimo-Andrefana Regions and the hurricane season of 2022 exemplify how disasters are still difficult to anticipate and prevent despite their cyclical nature.

The key sectors on which urban adaptation is focused are agriculture, water, biodiversity, public health and coastal areas.¹⁴² The need for adaptation measures in these sectors has been highlighted in the NDC targets and NAP. Furthermore, by 2050, the following changes are predicted to occur with high probability: decreases in precipitation of up to -8 percent; a reduction in the amount of water available of 25 percent in the north and east and 40 percent in the southwest; a rise in temperatures of +1.2°C to +2.1°C; and a rise in sea level of up to 43 cm (2080).¹⁴³ Scientists and models predict also that cultivated land will be more exposed to drought.

Climate risks must also be considered through their systemic interconnections. Risk reduction - adaptation, prevention, anticipation - is not included in the state's budgetary programming, but

¹⁴⁰ Stratégie nationale d'approvisionnement en bois énergie (SNABE).

¹⁴¹ NDC 2 (2022).

¹⁴² Ibid.

¹⁴³ *Profil de risque climatique: Madagascar.*

it nevertheless devotes considerable budgets to post-disaster response and reconstruction. The lack of a programme approach for disaster risk reduction (DRR) and climate change adaptation (CCA), and in particular the lack of integration between the two, and the overlapping responsibilities of the different institutions, constitute obstacles to the effectiveness of the state's public policy. Concrete and immediately transposable recommendations are proposed to strengthen coordination and monitoring and evaluation. Reform of decentralization and territorialization of public policies and the integration of DRR and CCA in spatial planning are the main capacity-building issues in 2020-2030.¹⁴⁴

5.10.5 Adaptation responses

Madagascar key adaptation actions and strategies that are national priorities for the urban sector and part of current, recent and/or upcoming initiatives highlighted by government counterparts, include:

- ensure sustainable use of natural resources;
- introduce and disseminate fodder species adapted to climate change and promote melliferous and nutritious plants cultivation;
- develop integrated water resource development and management plans that consider climate change in all regions and increase investment in water management and provision of sustainable solutions to droughts caused by the prolonged absence or irregularity of rainfall;
- establish pumping stations and hydrological observation/river level measurement/flood forecasting stations and reinforce dykes to protect against flooding through civil engineering infrastructure coupled with green infrastructure;
- implement the infrastructure governance mechanism;
- strengthen resilience of natural ecosystems and ecosystem services through reforestation and restoration and strengthen protected areas and ecosystems security and governance;
- conserve in-situ and ex-situ threatened species;
- establish a data management and monitoring and evaluation mechanism for climate-health issues and on climate hazards and their impact on urban areas;
- support a national plan for adapting the health sector to climate change;
- build capacity in the healthcare system and for stakeholders on adaptation and integrate health and climate change into institution research programmes;
- improve early warning systems, including the monitoring system for climate-sensitive diseases, covering 80 percent of the country; and
- build technical, institutional and operational capacity in integrated coastal zone management.

Madagascar has adopted a coordination and collaboration approach that operates at two levels. At the strategic level, the National Council for Risk and Disaster Management is chaired by the Prime Minister, the Emergency Prevention and Management Unit (CPGU) drives disaster risk management and the National Platform for Disaster Risk Reduction (PNRRC) is a national platform for exchange and sharing between all stakeholders in DRR. At the operational level, a central operational structure is attached to the Ministry of the Interior with divisions at the territorial level (BNGRC) and a reflection committee of disaster responders supports the central operational structure (CRIC).

¹⁴⁴ Republic of Madagascar (April 2023). *Rapport national volontaire de l'examen à mi-parcours du Cadre de Sendai* (EMP CS).



Madagascar participates in several cooperative institutions, including the Coalition for Disaster Resilient Infrastructure, Indian Ocean Commission (resilience and disaster response) and Indian Ocean Rim Association (DRR coordination body). Several notable multilateral organization-supported initiatives are ongoing, including those to support an early warning system, urban resilience, social protections and operational management centre. Madagascar is a member of the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia. Collaborative initiatives with non-governmental organizations are a priority in such areas as local risk and disaster management committees capacity-building and operationalizing an early warning system hotline.

5.10.6 Means of implementation

Most of the resources needed to implement strategies and actions for urban mitigation and adaptation to climate change depend on the availability of external financial resources, capacity-building initiatives and the transfer of innovative technologies from developed and developing countries able to provide support in the fight against climate change. Institutional challenges and gaps include: financing for adaptation and preparation measures (simulation exercises, pre-positioning, enhancement of technical platforms, health training and laboratories, etc.); a mechanism for coordinating measures to prevent climate and disaster risks; and a financing mechanism for adaptation to climate change to provide resources for the development of framework documents, benchmarks and standards.

In terms of human resources, capacity-building of stakeholders is a primary need to improve capacities to adapt to the local context and the rotation system for personnel dealing with emergencies.¹⁴⁵ Capacity to develop and mobilize climate-smart technologies is insufficient and there is a lack of consideration for gender, climate empowerment and participation of all stakeholders.

Overall, the needs are mainly related to financial support and capacity-building. The priority goals of capacity-building are: a strengthened national coordination structure for GHG inventories and for planning and programming mitigation projects; accounting for emissions and emission reductions; technological best practices arising from national research and development; an enhanced national system for sharing technical and operational knowledge; and a monitoring and evaluation system to provide granular climate-related data.

5.10.7 Conclusions and recommendations

The success of urban climate change mitigation and adaptation measures depends largely on financial and technical assistance from developed and developing countries. This situation constitutes a weakness in terms of achieving national targeted objectives. All the objectives and expected results may not be achieved if a sustainable strategy for mobilizing and securing resources and building local capacity is not developed and implemented. It is also important to note the excellent alignment of mitigation measures with adaptation measures, which is a strength for Madagascar.

¹⁴⁵ Republic of Madagascar (April 2023). *Rapport national volontaire de l'examen à mi-parcours du Cadre de Sendai* (EMP CS), Challenges.



5.11 Malawi

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5.11.1 Climate-related national policies, strategies or plans

5.11.1.1 Updated Nationally Determined Contributions (intended NDCs)

RESPONSIBLE INSTITUTION Ministry of Forestry and Natural Resources

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The updated NDC outlines Malawi's climate change priorities and pledge on what it intends to do to contribute to the global goal of limiting temperature rise and reaching the 1.5°C target under the Paris Agreement and adapt to climate impacts. The first submission covered 2015-2040 and the updated NDCs cover 2020-2040. Malawi presents an unconditional contribution to reduce CO₂ emissions by six percent in the year 2040 based on domestically supported and implemented mitigation measures and policies. A conditional target of a reduction by 45 percent is also presented based on the provision of international support and funding. Adaptation options have been identified relating to three pillars, namely: (i) institutional framework; (ii) knowledge, technology and financing; and (iii) resilience of the most vulnerable. The NDCs cover all priority sectors, including energy, industrial processes and product use, AFOLU and waste for mitigation. The urban content is more pronounced in the energy, industry and waste sectors.

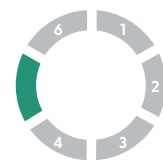
5.11.1.2 National Climate Change Management Policy (NCCMP)

RESPONSIBLE INSTITUTION Ministry of Natural Resources, Energy and Mining - Environmental Affairs Department

DATE OF PUBLICATION 2016

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The Policy articulates areas of priority for climate change management in the country, policy actions and programmes needed to address challenges of climate change. The Policy seeks to guide programming of interventions for reduction of GHG emissions,



as well as adapting to the adverse effects of climate change and climate variability. The overall goal is to promote climate change adaptation, mitigation, technology transfer and capacity-building for sustainable livelihoods through Green Economy measures for Malawi. Policy priority areas include adaptation, mitigation, capacity-building, education, training and awareness, research, technology development and transfer and systematic observation and climate finance. The Policy is relevant to addressing issues of resilience to climate-related risks, hazards and disasters. However, the Policy leaves out issues of urban climate-related risk. A Policy review is underway and has yet to be finalized.

5.11.1.3 Nationally Appropriate Mitigation Actions (NAMAs) for Malawi

RESPONSIBLE INSTITUTION Ministry of Natural Resources, Energy and Mining - Environmental Affairs Department

DATE OF PUBLICATION 2015

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION NAMAs is a multi-sectoral document that represents the government's commitment to supporting global efforts to reduce GHG emissions and enhance carbon sinks to reduce the negative impacts of climate change and climate variability that cut across all socio-economic sectors. To achieve the goal, the document: (i) prioritizes areas that spur national development resulting in the reduction of GHG emissions and enhanced sink capacity; and (ii) provides direction for the required support for the implementation of integrated project briefs whose implementation will be based on approaches for measurement, reporting and verification (MRV). Priority areas identified for the NAMAs are agriculture, land use and land use change and forestry, energy, waste management and industrial processes.

5.11.1.4 Forestry Policy

RESPONSIBLE INSTITUTION Ministry of Natural Resources, Energy and Mining. Forestry Department

DATE OF PUBLICATION 2016

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The goal of the Forestry Policy is the conservation, establishment, protection and management of trees and forests for the sustainable development of Malawi through: (i) improving provisions of forest goods and services; (ii) controlling deforestation and forest degradation; (iii) promoting strategies that contribute to increased forest cover by two percent by 2021; and (iv) developing sustainable management of existing forest resources. The Forestry Policy is relevant for both the rural and urban areas. However, the policy dwells on conserving rural community forests and less on urban areas.

5.11.1a Further information about the key climate-related policies, strategies or plans described above

The National Climate Change Management Policy (NCCMP) and other important national guiding documents, such as Malawi 2063, the Malawi Economic Growth Strategy (MEGS) and the Malawi Growth and Development Strategies (MGDS) III, are all referenced and aligned in the updated NDC, which builds on the NCCMP's commitment to combating climate change through the development of both mitigation and adaptation responses. The 2020 National Adaptation Plan (NAP) Framework directs efforts to produce its NAP and similarly is aligned with the NDC by restating Malawi's willingness to move forward with the NAP process.

5.11.2 Mitigation challenges

The latest national inventory data in the updated 2020 NDCs estimates total GHG emissions, excluding forestry and other land use (FOLU), at 9.33 million tonnes of CO₂ equivalent (tCO₂e) for 2017. Also in 2017, agriculture accounted for the largest share of the total (5.07 million tCO₂e, 54 percent of the total), followed by energy (2.34 million tCO₂e, 25 percent of the total) and waste (1.67 million tCO₂e, 18 percent of the total). Emissions from industrial processes represented just 0.24 million tCO₂e, or around three percent of total emissions. Emissions from livestock represented the largest emissions source category, followed by emissions from managed soils in crop production. Other major sources included CO₂ emissions from fossil fuel use in transport, which accounted for 11 percent of the total, and methane emissions from unmanaged waste disposal sites or dumps, which accounted for 13 percent of the total, excluding FOLU.

Key to urban areas are emissions from the waste in unmanaged disposal sites, open burning and wastewater discharge. In the NAMA on waste, municipal solid waste is one of the major contributing factors to GHG emissions. Another sector that is more specific to the urban setting is the fuel combustion activities in the energy sector (energy industries, manufacturing industries, transport and other sectors). The quantitative data on emissions is only at the national level, however, and does not disaggregate to components of area-specific contributions, e.g., urban versus rural areas. The increasing rate of urbanization and the continuous need to clear land for human settlements offer one of the greatest threats to biodiversity and ecosystems in Malawi.

According to Yanira M. Ntupanyama, Secretary for Forestry and Natural Resources, Malawi NDCs, 2021: “Even though Malawi’s contribution to greenhouse gas emissions is very low on a global scale, it is scientifically accepted that human activities such as deforestation and land use change, consumption of fossil fuels such as coal, diesel and petrol, pollution from manufacturing industries and improper waste management, release greenhouse gases into the atmosphere, which cause global warming.”

5.11.3 Mitigation responses

A detailed assessment of GHG mitigation options identified for Malawi in the NDCs (2020) estimates a total emissions reduction potential of around 17.7 million tCO₂e in 2040 against the BAU scenario in the same year of 34.6 million tCO₂e, equivalent to a reduction of 51 percent. Mitigation measures have been grouped according to unconditional and conditional contributions. Unconditional contributions represent a reduction of six percent relative to BAU in the year 2040, which is equivalent to an estimated mitigation level of 2.1 million tCO₂e in 2040 (as an unconditional target, it is based on domestically supported and implemented mitigation measures and policies). The conditional contribution consists of an additional reduction of 45 percent relative to BAU in 2040 and is equivalent to an estimated mitigation level of 15.6 million tCO₂e in that year. This targeted contribution is based on the provision of international support and funding.

In the urban context, as waste is one of the key sources of GHG emissions, the 2020 NDCs identify waste-to-energy plants and wastewater treatment and re-use as important mitigation measures at the household, institutional and industry levels to reduce waste generation,



resulting in reduced CH₄ and CO₂ emissions. Waste-to-energy will focus on the installation of incinerators to generate up to 250 GWh of electricity per year in two cities, Blantyre and Lilongwe, achieving reduced CH₄ emissions from landfill sites and avoided CO₂ from displacement of grid power.

Waste-water treatment and reuse will focus on the rehabilitation and construction of sewerage network and wastewater treatment plants in Blantyre, Lilongwe, Mzuzu and Zomba, achieving a reduction in CH₄ and N₂O emissions from wastewater and sewage. Currently, efforts to reduce waste in urban areas are a priority in Malawi as evidenced by the development of the National Waste Management Strategy 2019-2023 which sets out key priorities, such as: a) formulate policies and enact legislation to reduce waste generation; b) promote responsible public behaviour on waste management; c) promote waste segregation at source; d) reduce, reuse, recycle and recover energy from waste and promote waste treatment; and e) establish environmentally sound infrastructure and systems for waste management.

5.11.4 Adaptation challenges

Urban areas in Malawi face increasing challenges due to climate change. The vulnerabilities of urban settings necessitate a thorough understanding of the adaptation challenges they face in the context of climate change. Through the National Adaptation Programme of Action (NAPA), Malawi identified sectors that are affected by climate change, including agriculture, human health, energy, fisheries, wildlife, water, forestry, infrastructure and gender. Most of these sectors have their own climate action-related policies and strategies. However, as noted in the National Climate Change Management Policy (2016), save for the NAPA, most of these policies and national documents did not explicitly address action on climate change mitigation and adaptation.

Considerable steps have been achieved towards adaptation but there are still many challenges that urban areas in Malawi continue to encounter, including these described below.

- **Urbanization and population:** One of the foremost challenges is rapid urbanization. Urban areas are experiencing a sharp rise in population growth and informal settlements, leading to increased exposure to climate-related hazards. This urban expansion often occurs without adequate infrastructure, putting residents at higher risk during disasters.
- **Inadequate infrastructure:** Urban areas often lack resilient infrastructure to withstand extreme weather events. For example, inadequate drainage systems and poorly constructed buildings exacerbate flash flood risks and vulnerability to climate-related disasters, such as landslides, cyclones and tropical storms, drought, heatwaves and vector-borne diseases.
- **Water scarcity:** Climate change-induced droughts and water scarcity have significant consequences for urban areas. Residents struggle to access clean water, leading to health and sanitation challenges.
- **Limited resources and capacity:** Municipal authorities in Malawi's urban areas often have limited resources and technical capacity to address climate change adaptation and disaster risk management effectively. This leads to a lack of preparedness and response capacity during crises.
- **Socio-economic vulnerability:** Urban populations in Malawi often include marginalized communities with limited access to resources and services. These communities are disproportionately affected by climate-related disasters, exacerbating existing inequalities.

- **Knowledge and awareness gaps:** There is a need to improve knowledge dissemination and awareness regarding climate change impacts and adaptation strategies among urban residents, local governments and stakeholders.

Addressing adaptation challenges related to climate change and disaster risk management in Malawi's urban areas requires a multi-faceted approach. It involves strengthening infrastructure, enhancing capacity, improving governance and promoting community resilience. Collaboration among government agencies, non-governmental organizations and the private sector is essential to create sustainable solutions that mitigate the impacts of climate change on urban communities.

5.11.5 Adaptation responses

To address climate risks in the urban sectors in Malawi, it is crucial to implement key adaptation actions and strategies. These strategies should be aimed at reducing vulnerability, enhancing resilience and promoting sustainable urban development. The 2016 National Climate Change Policy recognized that "adaptation to climate change in Malawi is hampered by the country's heavy dependence on natural resources, endemicity to climate sensitive diseases, high poverty and weak technical and financial resources" and calls for multisectoral approaches to address these challenges.

A 2020 stocktaking by the Ministry of Natural Resources, Environment and Mining recommended some thematic areas to be considered for medium- and long-term adaptation planning described below.

i. Improve weather and climate forecasting

- Establish and enhance early warning systems to provide timely information on weather-related hazards to urban residents.
- Promote public awareness and education about disaster preparedness.

ii. Develop infrastructure

- Invest in climate-resilient infrastructure, including flood defenses, improved drainage systems and resilient housing construction techniques.
- Retrofit existing infrastructure to withstand extreme weather events and changing climate conditions.

iii. Promote catchment management practices

- Protect and restore urban ecosystems, such as wetlands and forests, to provide natural resilience against climate impacts.

iv. Conduct integrated water resource management

- Enhance water resource management to address water scarcity and flood risks.
- Promote rainwater harvesting, efficient water uses and sustainable waste management.

v. Monitor climate through adequate databases and easy access for all

- Invest in climate research and data collection to better understand local climate risks.
- Ensure data accessibility and use for evidence-based decision-making.
- Establish and enhance robust monitoring and evaluation frameworks to assess the effectiveness of adaptation measures and make necessary adjustments.

vi. Build capacities and improve governance

- Strengthen local government capacity for climate risk management and adaptation planning.
- Promote multi-stakeholder collaboration and partnerships for effective climate governance.
- Provide training and capacity development programmes for urban planners, engineers and decision makers on climate adaptation best practices.



Implementing these adaptation actions and strategies will contribute to building climate resilience in Malawi's urban areas and help mitigate the impacts of climate change on the urban population and infrastructure. It is essential for stakeholders at the local, regional and national levels to collaborate and prioritize climate adaptation in urban planning and development.

5.11.6 Means of implementation

To fully implement the mitigation and adaptation contributions, Malawi requires support in the form of finance, capacity-building and technology transfer. The total estimated cost for NDC mitigation measures identified through 2040 is estimated at around \$41.8 billion for mitigation measures and around \$4.5 billion for adaptation measures. Of this total, around one third is estimated to be required over the next decade (2020-2030) and two thirds in the subsequent decade (2030-2040). The Government of Malawi continues to commit significant resources to climate change relevant strategies, however, there is clearly a need for increased levels of bilateral and multilateral financial support.

Addressing climate change in urban areas in Malawi, particularly in the context of mitigation and adaptation, requires a comprehensive understanding of the needs and gaps in technology, finance and institutional capacity across various sectors. Needs in the below three areas are highlighted.

i. Water resources management

- **Technology needs:** Improved water resource monitoring and management technologies, water-efficient supply systems and flood control infrastructure.
- **Institutional capacity gaps:** Strengthening of water management authorities and coordination mechanisms and capacity development for sustainable water resource management.

ii. Infrastructure and urban planning

- **Technology needs:** Climate-resilient building designs and construction materials and advanced urban planning tools for disaster risk reduction.
- **Institutional capacity gaps:** Capacity-building for urban planning departments and local authorities and integration of climate considerations into urban development policies.

iii. Finance and investment

- **Technology needs:** Climate finance tracking and management and access to platforms for climate-related funding opportunities.
- **Institutional capacity gaps:** Strengthening of financial institutions and regulatory frameworks for climate finance and building the capacity of local organizations

Addressing these needs and closing the gaps in technology, finance and institutional capacity is crucial for effectively delivering mitigation and adaptation climate solutions in Malawi's urban centres. Collaboration between government agencies, international organizations, the private sector and civil society is essential to achieve meaningful progress in climate action.

5.11.7 Conclusions and recommendations

The strengths and gaps in the context of mitigation and adaptation challenges and responses in urban areas of Malawi are presented below, along with normative recommendations to strengthen the integration of cities in national climate-related policies, strategies and plans.

i. Strengths

- Malawi has a strong tradition of community-based adaptation and resilience-building initiatives, fostering local ownership of climate responses.
- The country benefits from international climate finance mechanisms and partnerships, which can fund climate projects and capacity-building.
- Malawi has a National Climate Change Policy and a Climate Change Management Act, providing a regulatory and strategic framework for climate action.

ii. Gaps

- Inadequate climate data and information systems hinder informed decision-making and planning for both mitigation and adaptation.
- Urban areas are growing rapidly, but urban planning often lacks climate considerations, leading to increased vulnerability.
- Integration of climate concerns into various sectors, including agriculture, energy and health, remains a gap in policy and planning.
- Challenges exist in accessing and adopting climate-resilient technologies and the capacity for research and innovation.
- Coordination among government ministries, departments and agencies involved in climate change needs improvement.

iii. Recommendations to strengthen integration of urban areas in adaptation and mitigation strategies

- Invest in climate data collection and research to inform evidence-based decision-making.
- Develop and implement climate-resilient urban infrastructure projects to reduce vulnerability.
- Strengthen the capacity of government institutions, local authorities and communities to effectively adapt and mitigate climate impacts.
- Encourage private sector participation in climate projects and promote green investments.
- Incorporate climate education into school curricula and awareness campaigns to engage the public.
- Incorporate climate considerations into city planning, zoning regulations and building codes to ensure resilience.
- Encourage cities to develop their climate action plans in alignment with national strategies.
- Establish mechanisms for urban areas to access climate finance for implementing climate projects.
- Promote the development of climate information systems at the local level and facilitate data sharing between cities and the national government.

5.12 Nepal

CONTRIBUTING AUTHORS:

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5.12.1 Climate-related national policies, strategies or plans

5.12.1.1 Second Nationally Determined Contribution (NDC)

RESPONSIBLE INSTITUTION Ministry of Forest and Environment

DATE OF PUBLICATION 2020

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION Despite Nepal's negligible contribution to global emissions, the country has taken necessary measures to help limit the global average temperature rise below 1.5°C. The second NDC for the period 2021-2030 considers the principle of common but differentiated responsibilities and respective capabilities in light of national circumstances. The NDC has defined quantified and policy-based mitigation targets and adaptation priorities for critical sectors. The Long-Term Strategy for Net-Zero Emissions (LTS), submitted in 2021, has the vision to "minimize emissions and sustainably achieve net-zero emissions by 2045." The LTS anticipates the need for ambitious policymaking, social reform, energy system transformation and technological advancements that will result in a carbon-neutral, inclusive and resilient society.

5.12.1.2 Nepal's NDC Implementation Plan

RESPONSIBLE INSTITUTION Ministry of Forest and Environment

DATE OF PUBLICATION August 2023

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The Plan outlines priority actions, the monitoring mechanism, timeline, responsible agencies and necessary resources for implementation of the NDC at the national and local levels to achieve NDC targets across sectors and sub-sectors, namely: energy, AFOLU, industrial processes and products use, urban settlements and tourism. It integrates gender, social inclusion and governance as cross-cutting issues. Under 'urban climate action,' the focus in the Plan is mainly on preparing directives for a Municipal Clean Energy

Plan and promotion of clean energy for household, commercial and industrial use. This includes clean transportation through use of electric vehicles for both private and public transport and promotion of low-carbon mobility in urban areas. In addition, the Plan promotes agroforestry around cities, urban wastewater, fecal sludge and solid waste management, implementation of green building codes and preparation of integrated and climate resilient urban development plans.

5.12.1.3 National Climate Change Policy (NCCP)

RESPONSIBLE INSTITUTION Ministry of Forest and Environment

DATE OF PUBLICATION 2019

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NCCP builds on constitutional rights of citizens for a 'clean and healthy environment' and focuses on building climate resilient societies. In addition to building resilience, objectives include promoting a green economy through low carbon development. The NCCP has identified climate change priorities for eight sectors, namely agriculture, biodiversity, water resources, human habitats, physical infrastructure, tourism, social infrastructure and disaster risk reduction and management. It has set objectives for each of the sectors and recommended a series of actions to fulfill these objectives. Under human settlements in urban and rural municipalities, the NCCP highlights formulating land use plans in the face of climate change risks and preparing standards and regulations to build resilient infrastructure. It further recommends promoting adaptation programmes based on the concept of sponge cities and non-motorized transportation to reduce carbon footprints of the cities.

5.12.1.4 National Adaptation Plan 2020-2050 (NAP)

RESPONSIBLE INSTITUTION Ministry of Forest and Environment

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION The NAP sets out a framework for adaptation actions against adverse impacts of climate change across sectors and at all three levels of government. The NAP is based on the assessment of climate change risk and vulnerability and analysis of climate change scenarios, which show a projected average increase in annual temperature and fluctuations in precipitation with increasing numbers of extreme rainfall days. It outlines both short-term and medium-term priority programmes for actions up to 2025 and 2030, respectively. Building coherence with the NCCP, the NAP outlines priority actions for rural and urban settlements within three adaptation programmes: mainstreaming adaptation in settlements planning; assisting vulnerable settlements to cope with climate impacts; and improving the enabling environment to promote climate resilient building design and construction practices. These actions focus on adaptive infrastructure, rural-urban linkages and ensuring the safety of lives and livelihoods.

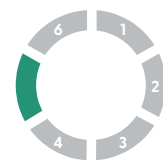
5.12.1.5 National Urban Policy (NUP, Draft 2023) and National Urban Development Strategy (NUDS, 2017)

RESPONSIBLE INSTITUTION Ministry of Urban Development

DATE OF PUBLICATION 2023/2017

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The NUP underscores resilient and green development as two of its five guiding principles. It primarily focuses on mitigating the extant and onset of risks to



settlements due to impacts of disasters and climate change. The NUP prioritizes reducing GHG emission and heat island impacts, increasing groundwater recharge and promoting the use of renewable energy and environment-friendly infrastructure for progressing towards low-carbon development.

The NUDS recommends a set of strategic actions for a balanced and prosperous national urban system by 2030. NUDS analyzes existing conditions of urban sub-sectors, including urban systems, infrastructure, environment, economy, finance, investment, governance and land. It outlines priority issues of the urban environment, such as building by-laws, urban pollution, open spaces, community-based organizations, urban forests and urban agriculture. NUDS stresses the concept of urban resilience and the need to incorporate this into urban planning to enable the cities to cope with climatic vulnerabilities.

5.12.1a Further information about the key climate-related policies, strategies or plans described above

The custodian of the NDC, NAP and Climate Change Policy is the Ministry of Forest and Environment, while that of NUDS and NUP is the Ministry of Urban Development with little coordination between the two in terms of implementation. Though the National Council for Environmental Protection and Climate Change Management was formed three years after promulgation of the 2019 Environmental Protection Act, effectiveness has been limited.

5.12.2 Mitigation challenges

The Third National Communication (TNC) report provides an overview of the key GHG emitting sectors, which amounts to 28,166.06 Gg CO₂e based on 2011 data. The energy sector comprised of transportation and cooking are the main contributors of GHG emissions amounting to 14,751.66 Gg CO₂e. Commercial, institutional and residential sub-sectors within the energy sector, largely due to burning large amounts of biomass (in domestic stoves, heating furnaces and open fires), contribute 73 percent of energy sector emissions. Following the energy sector, AFOLU emissions total 12,121.33 Gg CO₂e and waste 924.67 Gg CO₂e. Within the energy sector, manufacturing, industry and construction are the major contributors of CO₂ (mainly brick and cement), followed by the transportation sector (mainly four wheelers).

Challenges have limited mitigation implementation. Notably, coordination among government institutions regarding climate change and GHG data sharing, integration and management is insufficient. Due to unavailability of reliable and disaggregated national data, secondary data has been used in the TNC report. In addition, legal and institutional arrangements are insufficient to coordinate national and provincial government institutions on data collection, monitoring and reporting. GHG emission from cities have not been calibrated due to lack of validation with national data availability as a baseline.

While the NDC sets targets for reducing GHG emission, particularly though transport and fuel/ biomass, policies are yet to be in place that are consistent and incentivize the shift towards clean energy. In addition, AFOLU is the second largest emitter of GHG, but emission estimates are limited to only livestock and agriculture and do not account for rapid urbanization and change in land use. In Nepal, GHG emissions have almost doubled in the last decade and rapid urbanization with increased projected emissions will challenge the achievement of the

national net zero target by 2045 unless policy measures are strictly implemented to reduce emissions. Further, the Steering Committee for NDC implementation does not include the Ministry of Urban Development, which impedes coordinated actions for mainstreaming the NDC into sectoral plans.

5.12.3 Mitigation responses

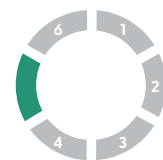
The Nepal NDC sets the target to achieve net zero by 2045, while its contributions to global GHG emissions are negligible. Nepal's NDC and NDC Implementation Plan emphasizes taking a multisectoral approach to reduce emissions from the highest emitting sectors identified in the NDC.

The government aims to mitigate emissions mainly through the transport sector by increasing sales of e-vehicles to cover 90 percent of all private passenger vehicle sales, including two-wheelers (e.g., motorcycles) and 60 percent of all four-wheel public passenger vehicle sales, with an increase in charging stations, to reduce emission by 28 percent by 2030. For cooking, the goal is to ensure 25 percent of households use electric stoves as their primary mode of cooking in urban areas, install 500,000 improved cookstoves and install an additional 200,000 household biogas plants and 500 large scale biogas plants in rural areas by 2030. By 2030, these targets would reduce emissions by about 23 percent. The government aims to treat 380 million litres/day of wastewater before discharge and 60,000 m³/year of fecal sludge managed, to reduce 258 Gg CO₂e in emissions. Low-carbon urban development will also be promoted through development and enforcement of green building codes, urban greenery and non-motorized mobility, through integrated, climate-responsive urban planning.

5.12.4 Adaptation challenges

As noted in the NAP, the average annual temperature in Nepal has increased at the rate of 0.056 degrees Celsius between 1971 and 2014, while precipitation decreased in all seasons, with the highest rate of increase in temperature and decrease in precipitation occurring in the high mountains and Himalayan regions. It further points out that extreme precipitation events are increasing. According to the Representative Concentration Pathway (RCP) 4.5 and RCP 8.5 emission scenarios for the periods 2010-2040 and 2050-2080, warming and erratic rainfall are likely to be more frequent in the future, with a decrease in precipitation during the pre-monsoon season.

The NAP outlines major climate hazards, including extreme weather events, heat waves, floods, landslides, avalanches, forest fires and chronic stresses, such as drought, changes in precipitation pattern, snow cover changes, glacier retreat and glacial lake outburst floods. The most vulnerable sector to climate change is agriculture, which is a major economic sector in Nepal. Climate change adversely impacts agricultural production and food security, as well as biodiversity and local livelihoods. Climate change further impacts availability of timber and non-timber forest products, water resources, rural and urban settlements, physical infrastructures, nature-based tourism and public health with a rise in vector-borne and water-borne diseases. The key factors of vulnerability include an unbalanced urban system, poor urban and land use planning, inadequate access to infrastructure and a rise in informal settlements, among others.



5.12.5 Adaptation responses

The NAP outlines adaptation programmes in eight thematic sectors to achieve the goal of building a climate-resilient society. These programmes focus on NbS, robust physical infrastructure, adaptive capacity of settlements through risk sensitive land use planning and livelihood opportunities for vulnerable groups. Some specific activities include promoting alternative sources of energy, building check dams for rainwater harvesting and protection of river valley settlements, mainstreaming adaptation in land use planning, promoting resilient construction practices and enhancing adaptive capacities of vulnerable settlements.

Some key adaptation actions underway include formulating provincial and municipal risk sensitive land use plans to integrate climate change adaptation and disaster risk reduction into land use planning. Urban resilience roadmaps of municipalities have been prepared to promote resilient development planning based on existing and anticipated accumulated future risks to urban development by taking a systemic approach. Urban ecosystem-based adaptation for climate-resilient development in the Kathmandu Valley is another programme that intends to build climate change resilience of urban communities by implementing urban ecosystem-based approaches to adaptation. Local climate actions, such as establishing early warning systems, climate smart agriculture, alternative energy sources and green infrastructures, are being implemented in collaboration with all three levels of government.

5.12.6 Means of implementation

The total budget required to implement a total of 64 priority programmes of the Nepal NAP is \$47.4 billion until 2050, with Nepal contributing \$1.5 billion and external support totaling \$45.9 billion. The government requires \$2.1 billion per year for the delivery of adaptation services through the implementation of the NAP for the medium term by 2035. The NDC estimates \$33 billion is needed to achieve NDC targets, of which the government expects to mobilize \$3.4 billion through internal resources and the rest to be fulfilled from international and multilateral financing, therefore being mostly conditional on international support.

Different institutions at the federal, provincial and local levels are designated to implement the NAP. However, these institutions are not yet fully operational. For instance, the Forest, Environment and Disaster Management Section of local government is designated as a focal unit to implement NAP priority programmes at the local level, but it does not have adequate technical capacity. Coordinated action between sectoral agencies and ministries is identified as a key challenge for implementation of the NDC and NAP to achieve the national targets. Further, the government has prioritized system capacity-building across all tiers of the government for NDC and NAP implementation. The government has also identified the need to strengthen data generation and information management to track, monitor and report on emissions.

5.12.7 Conclusions and recommendations

Nepal is highly vulnerable to climate change, yet it contributes minimally to GHG emissions. Despite negligible contributions to global emission, Nepal is highly committed to attain net-zero by 2045 and has set ambitious targets to reduce emissions from various sectors.

As a least developed country, Nepal is facing a multitude of challenges to reduce impacts of climate change mainly due to limited human and financial resources. Coordinated action is required to push for climate-informed development and investment in all key sectors. Rapidly urbanizing, Nepal needs to take urgent action to integrate climate information in decision-making for urban development and investment. A revised urban policy is still awaiting approval and strategies are yet to be updated in the evolving context of climate change and federalization.

Key emitting sectors are urban transportation and building construction in urban landscapes, while in cities where the risks are compounded and complex, socio-economic issues play a dominant role in implementation of adaptation actions. Nepal needs to take urgent action on making investments and infrastructure climate-resilient and adaptive to climate change, thus strengthening the nexus between climate and urban development.

Below are recommendations to strengthen the urban response to climate change in Nepal.

- Mainstream climate change adaptation into urban development and planning to improve the climate resilience of urban areas. Federal and provincial governments can support local governments in building capacities to anticipate and prepare for climate impacts by incorporating adaptation objectives into sectoral development policies and plans.
- Improve urban mobility by enhancing public transportation and non-motorized transportation through policy instruments such as incentive-based mechanisms and awareness raising to increase usage of alternative modes of transportation.
- Promote alternative building materials to reduce usage of energy-intensive construction materials, such as cement, steel and aluminum. These can include compressed stabilized earth blocks and locally available materials (bamboo, wood, stones, etc.). Incentives should be provided in the building permit system to promote alternative materials and green and passive design.
- Formulate risk sensitive land use plans to mainstream adaptation and disaster risks into city planning and incorporate NbS, such as restoring wetlands, permeable pavements and stormwater parks into urban design.

5.13 Palestine (the State of)¹⁵⁴

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5.13.1 Climate-related national policies, strategies or plans

5.13.1.1 Palestine's first Nationally Determined Contributions (NDC) - Updated Submission

RESPONSIBLE INSTITUTION Environment Quality Authority (EQA)

DATE OF PUBLICATION October 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Palestine's NDC emphasizes that adaptation remains its first priority, considering that its contribution to global emissions is miniscule, with a focus on promoting the adaptation-mitigation nexus. The NDC focuses on actions that can be implemented despite the prolonged Israeli occupation. Among the 12 sectors classified as 'highly vulnerable' to climate change, the 'urban and infrastructure' sector stands out. In this sector, the adaptation strategies, consistent with those outlined in the NAP, are identified, including disaster risk management capacity-building for extreme climate events, such as heatwaves, floods and droughts and the importance of building climate-resilient road transport infrastructure.

5.13.1.2 Palestine's Nationally Determined Contributions (NDC) implementation plans

RESPONSIBLE INSTITUTION Environment Quality Authority (EQA)

DATE OF PUBLICATION August 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION NDC implementation plans have been developed for six of the 12 most vulnerable sectors in Palestine, as identified in the NAP. These are agriculture, energy, health, transport, waste and water, all of which have cross-cutting priority related to urbanization. These plans are intended to enhance Palestine's opportunities to access climate finance and thereby facilitate successful implementation and delivery of NCD-related targets. They also provide a detailed financial breakdown of planned activities to achieve the NDC targets. The

146 This Country Profile was written before the ongoing war on the Gaza Strip.

NDC implementation plans, in particular energy, transport, water and waste management, form a pivotal framework to enhance climate resilience with a strong emphasis on cross-cutting urban considerations.

5.13.1.3 National Urban Policy for Palestine (2023) - “Towards Sustainable Urban Development, Enabling Sovereignty and Resilience of Palestinian Cities and Communities”

RESPONSIBLE INSTITUTION Ministry of Local Government (MoLG)

DATE OF PUBLICATION 2023

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The National Urban Policy (NUP) serves as a strategic framework for addressing urban challenges and opportunities. The core pillars outlined in the NUP encompass housing, transportation, natural and cultural heritage, sustainable urban-rural development, disaster risk management, urban governance and urban economy. The methodology comprises phases like feasibility, diagnosis, formulation, implementation and monitoring, with a focus on participation, capacity development and projects. Climate change has been intricately woven into these discussions among stakeholders, particularly within the disaster risk management pillar, demonstrating its pervasive influence on policy formulation across all the areas of focus identified.

5.13.2 Mitigation challenges

Overall GHG emissions in Palestine have almost doubled between 2006 and 2021,¹⁴⁷ however, it still accounts for less than a 0.01 percent contribution to global emissions. The sectors contributing most significantly to emissions are energy (particularly electricity, accounting for 34 percent of the final consumption of energy), transportation (30 percent)¹⁴⁸ and waste management (23 percent). In 2021, Palestine's emissions amounted to approximately 5.3 MtCO₂e and the NDC aims to achieve a 17.5 percent reduction from BAU levels by 2040. According to 2021 data from the Palestinian Central Bureau of Statistics, the energy and transportation sectors emitted 3.87 MtCO₂eq, while waste management accounted for 0.85 MtCO₂eq.

The primary obstacle to achieving such targets is the various restrictions imposed by the geopolitical circumstances and dependency on importing energy. Electricity heavily relies on imports from Israel (about 90 percent) and Palestine's energy mix consists of oil (65 percent), coal and others (24 percent) and renewables (11 percent) in 2020.¹⁴⁹

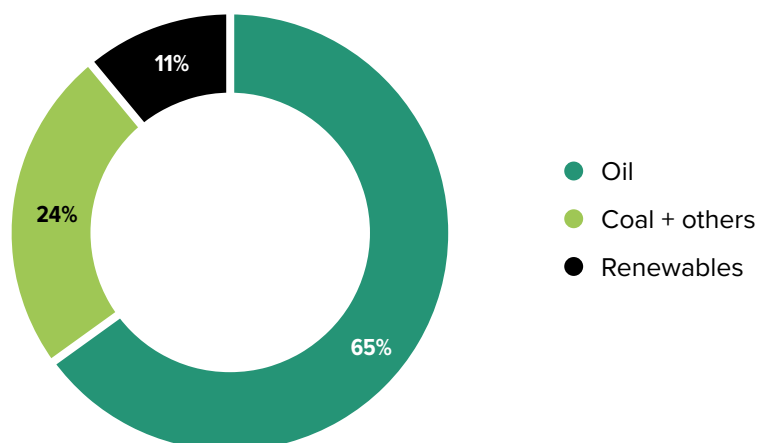
Other notable impediments to achieving NDC targets along with sustainable urbanization include limitations on the import and export of materials and products, as well as restricted access to land and resources imposed by the occupation, resulting in weak urban conditions and over-crowdedness. According to the NUP, Palestine's urban population growth rate was 2.85 percent in 2020, leading to increased demand across various sectors. Specifically, the urban population constituted 85 percent in 2023 and is projected to reach 88.3 percent by 2030.

¹⁴⁷ Palestinian Central Bureau of Statistics. Overall GHG emissions in Palestine* by Year (1000 ton CO₂ eq.), 2006-2021.

¹⁴⁸ State of Palestine (2021), *Nationally Determined Contribution (NDC) implementation plans: Transport – Reducing emissions in the road transport sector.*

¹⁴⁹ IRENA, *Energy Profile, State of Palestine.*

Total energy supply in 2020



(Source: IRENA Energy Profile State of Palestine)

5.13.3 Mitigation responses

As the largest contributing sector to GHGs emissions, the energy sector primarily aims to promote renewable energy and enhance energy efficiency by shifting 20 percent of electricity generation to renewables by 2030, which could cut emissions by 635,000 tonnes CO₂ eq annually until 2040. In Palestine, solar PV is the primary source of renewable energy with around 100MW installed as of 2023. Energy efficiency focuses on the residential sector, which is responsible for 60 percent of total consumption, targeting a 5,000 GWh reduction and 3.5 million tonnes of CO₂ per year by 2030. This strategy comprises efficient appliance adoption, energy market restructuring, conservation, demand-side management, smart homes and grid cities.¹⁵⁰

In the waste management sector, mitigating methane emissions is particularly urgent as it is estimated that methane accounts for 76 percent of waste sector GHG emissions, mainly from random dumpsites.¹⁵¹ Thus, the concept of 'waste-to-energy' represents significant mitigation opportunities.¹⁵² Waste collection is also contributing to CO₂ emissions; due to the offsetting relationship between improvements in waste collection vehicles and the increase in their numbers due to population growth, enhancing the collection system emerges as a critical challenge, particularly in the urban context.

Random dumpsites in Palestine

Location (Governorate)	Number of random dumpsites	Number of local government units using dumpsites	Population (year 2022)	(Estimated) Quantity (t/day)
Salfit	9	18	84,000	107
Nabulus	12	24	97,955	85
Ramallah and Al Beireh	50	60	184,001	179
N&NW Jer. JSC	1	2	2,885	5
Gaza and North Gaza	3	4	286,601	308.7
Total	75	108	655,442	684.7

(Source: Data Book on Solid Waste Management in Palestine Version 3, 2022)

¹⁵⁰ World Bank (2016). *West Bank and Gaza Energy Efficiency Action Plan 2020-2030*, Final Report.

¹⁵¹ The State of Palestine's Initial National Communication Report.

¹⁵² Ministry of Local Government and Japan International Cooperation Agency (2023). *Data Book on Solid Waste Management in Palestine*, Version 3, 2022.

5.13.4 Adaptation challenges

The ongoing geo-political situation in Palestine heightens vulnerabilities and hampers adaptive capabilities. The National Adaptation Plan identifies 12 sectors as 'highly vulnerable' to climate change impacts and the geo-political situation. The NDC implementation plans were developed for six sectors, namely agriculture, energy, health, transport, waste and water. Prioritizing climate change adaptation is evident, though limited funding has yet to fully address urban impacts, especially on vulnerable groups.

Palestinian urban centres experience escalating climate sensitivity aggravated by rapid urbanization. Inadequate road infrastructure exacerbates vulnerabilities, with heavy rainfall causing erosion, collapses and accidents.

It is important to mention that carrying out adaptation interventions in Palestine presents a challenging task, requiring specific expertise, advanced technologies and capacity development. Furthermore, international climate funding tends to prioritize mitigation measures over adaptation initiatives.

5.13.5 Adaptation responses

Urgent action is needed in urban areas to establish climate-resilient infrastructure, which includes implementing large-scale public transportation systems and adopting electric vehicles. The transportation sector is intricately linked to waste collection, where despite a 98 percent coverage rate, the aging and insufficient waste collection fleet leads to adaptation uncertainty and significantly higher CO₂ emissions.¹⁵³

Mainstreaming disaster risk reduction and climate change into national planning is crucial for sustainable development and climate adaptation. A National Spatial Plan (NSP) identifies vulnerable areas and populations, integrating adaptation measures to prepare communities for climate impacts and to collect and analyze climate-related data to inform decision-making and adaptation strategies. Palestine's emphasis on expanding green open spaces in future plans aligns with a holistic approach to climate adaptation. Such spaces enhance community resilience and improve urban quality of life, emphasizing sustainable spatial planning and green infrastructure integration into climate adaptation strategies.

5.13.6 Means of implementation

To effectively address the urban climate issues in Palestine, it is essential to prioritize key areas identified in the NDC. Firstly, technology transfer and accessing the latest available and suitable technologies is necessary to advance more effective efforts. Investment in climate-related research and data collection is required to inform decision-making and to produce more robust plans, strategies and policies. Capacity-building is another critical challenge that needs attention as well as the lack of finance. The estimated cost for implementing NDC actions is \$5,930 million from 2021 to 2040, with a funding gap of at least \$2,742 million. In addition to seeking further cooperation from the international community, leveraging private sector finance, especially in revenue-generating sectors like agriculture and energy,

¹⁵³ The State of Palestine (2021). *Nationally Determined Contribution (NDC) implementation plans: Waste – Improving waste management*.



is essential. Innovative approaches like blended finance can be useful tools to de-risk private sector investments.¹⁵⁴

5.13.7 Conclusions and recommendations

Climate change and urbanization in Palestine present unique challenges within the context of occupation and rapid population growth, and they also present opportunities for mitigation and adaptation efforts. Population growth will heighten pressures on public services, natural resources and urban housing, negatively affecting human development outcomes especially in occupied East Jerusalem and the besieged Gaza Strip. It is essential for Palestine's policymakers to consider the implications of land use changes, including urbanization, on GHG emissions when developing climate policies and land management strategies. Sustainable land use practices, afforestation and reforestation efforts can play a crucial role in reducing net GHG emissions and enhancing climate resilience.

A significant strength in addressing climate change in Palestine is the increasing awareness of the issue, leading to government and civil society organizations actively incorporating it into national policies and strategies. However, limited access to clean energy sources, inefficient waste management systems and inadequate infrastructure further exacerbate the vulnerability of urban areas to climate-related hazards.¹⁵⁵

To address these challenges, Palestine can prioritize strengthening integration of cities into national climate policies by investing in resilient infrastructure and promoting sustainable spatial planning. Leveraging ongoing financial sector reforms, focused on stability, inclusion and digitalization, presents an opportunity to embed environmental and social considerations into financial institutions' core strategies. In addition, building the capacities of institutions and communities in disaster risk management is crucial for addressing urban-related climate challenges.

154 UNDP (2010). *Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority*.

155 State of Palestine (2016). *National Adaptation Plan*.

5.14 Philippines (the)

CONTRIBUTING AUTHORS:

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5.14.1 Climate-related national policies, strategies or plans

5.14.1.1 Philippine Development Plan (PDP) 2023-2028

RESPONSIBLE INSTITUTION Economic and Development Authority

DATE OF PUBLICATION 2023

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The PDP serves as the government's overall guide in development planning for six years. It reflects the government's socio-economic policies, strategies and programmes in support of and consistent with the development agenda of the President and is geared towards the attainment of development goals and objectives in the long-term development plan. This includes climate change adaptation and mitigation priorities. The underlying theme of the current PDP is transformation with the goal to "achieve economic and social transformation for a prosperous, inclusive and resilient society." While urban context and climate-related contexts are spread and mentioned across the whole document, Subchapter 2.3 on livable communities has the most specific content on the resilience of urban areas and human settlements, while the entire Chapter 15 specifically discusses strategies and outcomes to accelerate climate action and strengthen disaster resilience. Urban and human settlements-related adaptation and mitigation strategies and targets are mostly presented in these two segments of the PDP.

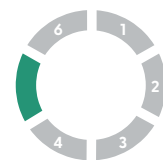
5.14.1.2 Philippine Nationally Determined Contribution (NDC)

RESPONSIBLE INSTITUTION Climate Change Commission

DATE OF PUBLICATION 2021 (updated version)

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NDC conveys the country's progressive climate change mitigation commitment and adaptation challenges and requirements, including addressing residual loss and damage, in pursuit of low carbon, sustainable and climate and disaster-resilient



development. According to its NDC, “The Philippines commits to a projected GHG emissions reduction and avoidance of 75 percent, of which 2.71 percent is unconditional and 72.29 percent is conditional, representing the country’s ambition for GHG mitigation for the period 2020 to 2030 for the sectors of agriculture, wastes, industry, transport and energy. This commitment is referenced against a projected business-as-usual cumulative economy-wide emission of 3,340.3 MtCO₂e for the same period.” Recognizing the country’s exposure and vulnerability to climate change impacts and the increasing losses and damages, the NDC likewise states the need for adaptation measures to preempt, reduce and address residual loss and damage in sectors that include agriculture, forestry, coastal and marine ecosystems and biodiversity, health and human security.

5.14.1.3 National Climate Change Action Plan (NCCAP) 2011-2028

RESPONSIBLE INSTITUTION Climate Change Commission

DATE OF PUBLICATION 2011

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation

BRIEF DESCRIPTION Developed as mandated by the Climate Change Act of 2009, the NCCAP outlines seven thematic areas of government action to address climate change, namely food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy and knowledge and capacity development. The NCCAP serves as a baseline in designing national priority programmes that address the needs of the most climate-vulnerable sectors. While all the thematic areas of focus are relevant to urban areas, the specific outcome on cities falls under the priority theme of 'climate-smart industries and services' and the human settlements and services outcomes are included as part of the 'human security' thematic priority.

5.14.1.4 National Housing and Urban Development Framework (NUDHF)

RESPONSIBLE INSTITUTION Department of Housing and Sustainable Urban Development (DHSUD)

DATE OF PUBLICATION 2017

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NUDHF is the development framework for urban and urbanizing areas which guides the collective efforts of stakeholders to improve the performance and efficiency of the country’s urban systems. The NUDHF recognizes climate change resilience as a base for spatial structuring and sectoral development as a key framework principle. As such, the NUDHF considers resilience as the foundation in planning and decision-making for spaces and for addressing sectoral and cross-sectoral challenges. The NUDHF promotes strategies that have direct references to climate adaptation and mitigation through urban planning and design, housing development and urban infrastructure and basic services (e.g., water, waste, energy and drainage).

5.14.1.5 National Housing and Urban Development Sector Plan (NHUDSP)

RESPONSIBLE INSTITUTION DHSUD

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Adaptation and mitigation

BRIEF DESCRIPTION The NHUDSP is a 20-year roadmap to harmonize and sustain housing and urban development initiatives by consolidating existing and proposed programmes, projects and activities of DHSUD, its key shelter agencies and stakeholders. It operationalizes the National Urban Development and Housing Framework and cuts across the six-year administrative terms to ensure the continuity of all initiatives laid out in the plan. The national sector plan follows the vision 'Better, Greener, Smarter Human Settlements and Urban Systems in a

More Inclusive Philippines' set by the Philippine New Urban Agenda and the aforementioned Framework, collectively considered as the national urban policy.

Climate and disaster resilience are well articulated in the results of sectoral PPAs, while green and low-emission development are specifically noted as key results in the NHUDSP. The DHSUD articulated in this document that it will provide technical inputs to the Climate Change Commission on the updating of the National Climate Change Action Plan, including the identification of urban indicators for climate change action.

5.14.2 Mitigation challenges

The NDC references GHG emissions from the 2010 national GHG inventory covering the following sectors (emission levels in parentheses): agriculture (43.152 MtCO₂e); waste (15.559 MtCO₂e); industrial process and product use (IPPU) (8.363 MtCO₂e); transport (24.174 MtCO₂e); and energy (53.105 MtCO₂e) for a total of 144.452 MtCO₂e. The projected BAU cumulative emissions for 2020-2030 for the same sectors are 3,340.3 MtCO₂e as noted in the NDC. LULUCF is not included in the 2021 NDC.

The Philippine Energy Plan 2018-2040 states: “Total greenhouse gas (GHG) emissions from energy-related activities increased by 4.1 percent, or 123.3 million tonnes of CO₂ equivalent (MtCO₂e) in 2018 from 118.5 MtCO₂e the previous year. All sectors contributed to the rise in GHG, specifically power generation and transport. Power generation contributed more than half (51.7 percent) of the total GHG emissions in 2018, while the transport sector contributed 27.9 percent. The considerable growth in GHG emissions is mainly due to the utilization of coal for power generation and oil in the transport sector.”

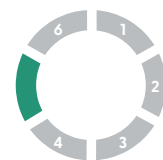
The NDC does not specify 'urban emissions' mainly because: 1) the NDC followed a sectoral approach in presenting country emissions; and 2) there is no official data that disaggregates the activity by geographic scope, e.g., urban and rural. However, the PDP 2023-2028 mentions urban-related mitigation challenges.

Regarding waste, the PDP highlighted that “only 39 percent of barangays [unit of government] utilize material recovery facilities and only 29 percent have secured access to sanitary landfill facilities (SLF). Diversion of solid waste has also been low, even in Metro Manila, at a rate of 54 percent in 2021.” On transport, the PDP noted that the use of low-capacity transport modes like private vehicles is prevalent and contributes to worsening traffic congestion, especially in highly urbanized cities. It noted transport corridors are designed to serve private motorists, are non-climate-responsive, unsafe and lack separate lanes for active transport.

Energy, transport, waste and land use change are the most relevant sectors to urban emissions, although excluded in the Philippine NDC. The total share of urban-related emissions from said sectors are relevant, noting that 47 percent of the population reside in areas classified as urban and 70 percent of the country's GDP comes from cities and urban areas.

5.14.3 Mitigation responses

The current PDP outlines the strategies and actions for implementing the NDC. Under the outcome of 'low carbon transition enabled,' the PDP stated that “lead sectoral agencies in



collaboration with the private sector, will adopt innovative and transformative low-carbon emitting technologies in the energy, agriculture, waste, industry and transport sectors.” Relevant to cities and urban areas, the PDP reiterates “the government will also explore the localization of NDC policies and measures to increase the capacity and contribution of LGUs to national mitigation actions.” NDC policies and measures developed through a multisectoral and consultative process with the leadership of the Climate Change Commission, should include adaptation and loss and damage considering the country's vulnerability.

While the PDP presented targeted mitigation results in delivering the 2.71 percent unconditional commitments of the NDC, the Philippine Energy Plan 2018-2040 responds with a target of 2.8 percent reduction from 2020-2030, for both conditional and unconditional actions. Pursuing this target is equivalent to GHG emission reduction of about 1.37 percent of the country's NDC target. The Climate Change Commission further indicates mitigation responses, including the following, which are mostly urban-focused: transport (public utility vehicle fleet modernization, motor vehicle inspection, bus rapid transit and rail projects); energy (energy efficiency); waste (expanded wastewater treatment facilities); and IPPU (clinker substitution with supplementary materials in cement production, shift to low global warming potential refrigerants).

Local Government Units, which includes cities, are required by law to develop Local Climate Change Action Plans. This plan is mainstreamed into their respective mandated plans, namely their Comprehensive Land Use Plan and Comprehensive Development Plan, to facilitate implementation.

Cities and other local governments are developing community-based GHG inventories with the Climate Change Commission's support. In line with this, the NHUDSP listed projects, programmes and activities on urban planning and design, transit-oriented development, urban infrastructure development and public space creation as part of the mitigation response from the urban sector.

5.14.4 Adaptation challenges

The Philippines is highly vulnerable to the impacts of climate change, including those due to changing mean temperature and precipitation, rising sea levels and the occurrence of extreme events. The PDP notes that between 2011 and 2021, the country incurred PHP673.30 billion worth of damage and losses due to tropical cyclones alone. These damages and losses from climate change are expected to increase under a BAU scenario, reaching up to 7.6 percent of the country's gross domestic product by 2030 and 13 percent by 2040.¹⁵⁶ Climate change-induced economic losses are particularly high in urban and peri-urban areas. As the growth in urban population continues and urban densities increase, so will the climate and disaster risks and vulnerabilities of hazard-exposed urban communities and vulnerable groups, especially among informal settlers and urban poor.¹⁵⁷

The increasing fragility of urban ecosystems due to land degradation, water stress and scarcity and poor air quality makes climate risks and vulnerabilities of Philippine cities more complex. Urban climate risks are compounded by settlement designs that are not responsive to climate change impacts, the age of built structures and the low adaptive capacity of

156 World Bank Group (2022). *Philippines Country Climate and Development Report*. CCDD Series.

157 Department of Housing and Sustainable Urban Development (2021). *NHUDSP 2040*.

communities. Risks from urban heat are also increasing in many towns and cities due to these vulnerabilities. Further, urban food security is an adaptation challenge with changing weather patterns and trends affecting agriculture production activities and food sources. When Super Typhoon Haiyan made landfall in 2013, the flow of goods, including daily food supplies, became a big challenge, resulting in several social and security issues.

Geographic location and geophysical features of cities and towns, predominantly along or near the coasts, are key factors in the exposure to climate risks. With this, it is a priority to make resilience building a key aspect of spatial planning to ensure adaptation to current and future climate-related risks and trends.¹⁵⁸

5.14.5 Adaptation responses

The National Climate Change Action Plan guides adaptation actions and outlines a long-term programme and strategies for adaptation, focusing on seven thematic priority areas, namely food security, water sufficiency, ecosystem and environmental stability, human security, climate-smart industries and services, sustainable energy and knowledge and capacity development.¹⁵⁹

Given the NCCAP and NDC, the DHSUD developed and started implementing urban-related adaptation measures to achieve the targets and priorities identified considering urbanizations trends and realities. For climate adaptation and resilience building, the NHUDSP specified the following objectives as part of wider sustainable urban development objectives:

- ensure that all urban plans and designs reflect resilience principles, processes and tools to address climate and disaster and other system-wide risk issues;
- reduce risks of urban poor and informal settler families to climate change and disaster impacts through housing;
- improve water and sanitation infrastructure, particularly in water-stressed urban areas and areas at risk to climate change;
- improve drainage systems to adequately address demands of urbanization and impacts of climate change; and
- increase the technical capacity of government to address existing and emerging concerns, including climate change and environmental degradation, growing inequality, intensifying public health risks and the impact of new technologies.

Key adaptation strategies and actions in the NHUDSP include: support spatial/area-based analysis of climate change and disaster risk; establish enhanced resilience indicators in land use and development plans; establish an urban database including climate and environmental data; implement a watershed planning approach; review and update land use planning and zoning standards and guidelines; strengthen housing design standards to include disaster-resilience; update the National Building Code and Structural Code to include climate and disaster-resilient design and construction methods, tools and materials and enhanced housing design standards; provide credit facilities for climate and disaster resilient infrastructure projects; and issue an Administrative Order to require implementing climate-resilient hydraulic structures and retention basins for flood control and drainage systems.

¹⁵⁸ DHSUD, National Urban Development and Housing Framework.

¹⁵⁹ National Integrated Climate Change Database Information and Exchange System (NICCDIES).



5.14.6 Means of implementation

The implementation plan to operationalize NDC policies and measures, including the corresponding financing, technology and capacity development, is yet to be developed. Similarly, a need exists to develop and operationalize a measurement, reporting and verification system for the NDC.

As with other developing countries, the Philippines faces substantial challenges in implementing adaptation and risk reduction strategies, strengthening community and ecosystem resilience and transitioning to green growth pathways. Limited financial resources and technical capacity of many Local Government Units to utilize risk information, including adaptation and disaster risk reduction assessment tools, hinder them from effectively implementing local resiliency programmes. Thus, funds from other sources will need to supplement country funds. However, financial risks around climate change investments hamper the mobilization of significant private sector financing to drive climate-resilient and low-carbon transition. In addition, potential investors would need to deal with complex regulatory requirements, inconsistent transition standards and lack of credible risk data. Moreover, the government has yet to fully account for the value of natural capital and ecosystem services to better inform its policies and decisions, including in adaptation and disaster risk reduction.¹⁶⁰

The above needs and gaps also apply when it comes to implementing specific urban climate actions outlined by the NHUDSP.

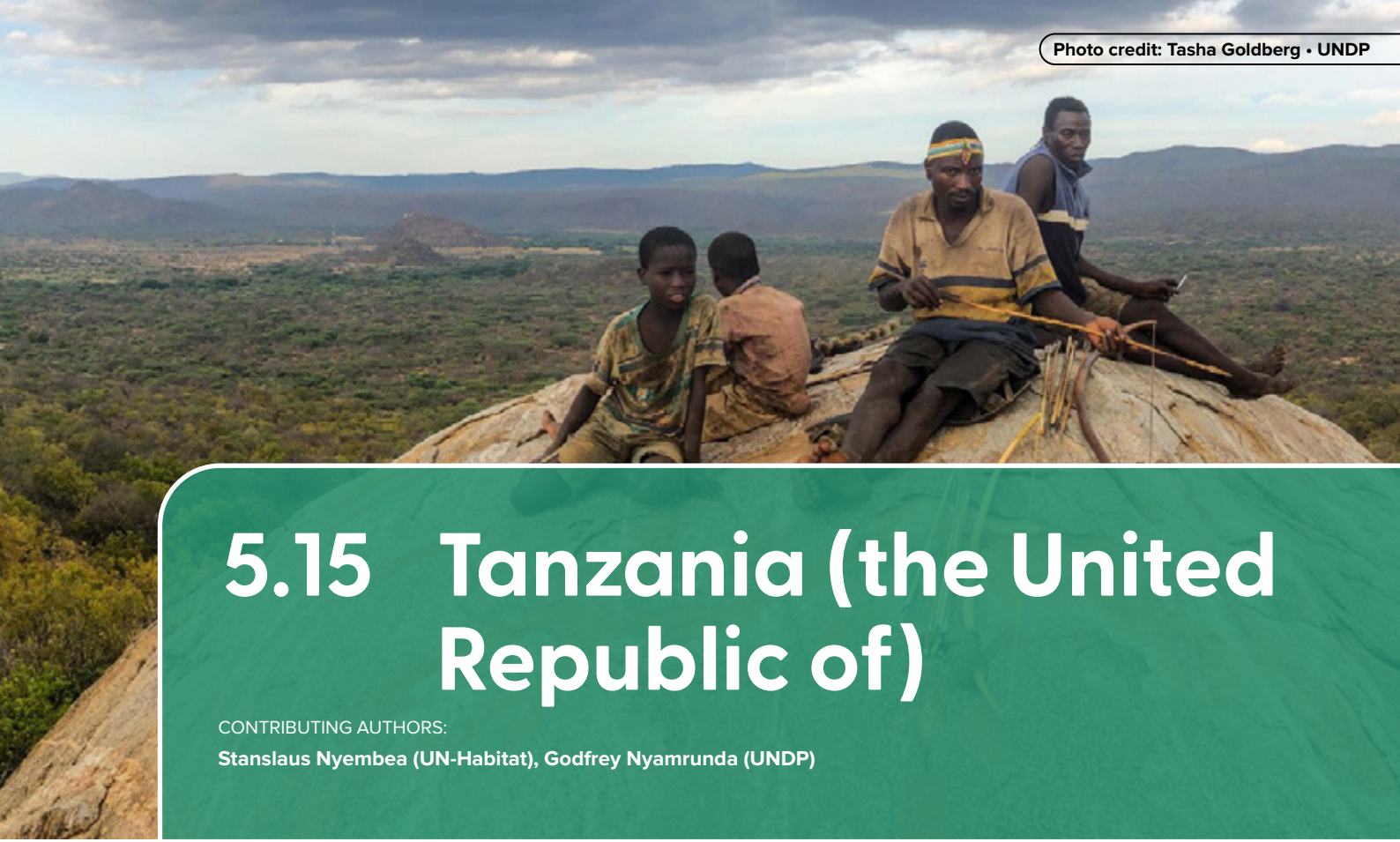
5.14.7 Conclusions and recommendations

While several adaptation and mitigation responses have been identified and some are ongoing, further work is needed to accelerate the achievement of the country's NDC, including more deliberate and calculated actions specific to cities and urban areas.

For instance, given the lack of spatial anchoring combined with the largely sectoral approach of the country's NDC, specifying urban emissions has been a challenge to implement in the Philippine context. Nonetheless, as part of its cross-cutting strategies, the PDP has articulated the government's intention to "explore the conduct of regional GHG inventory to assess and determine the potential contribution of regions in attaining the NDC targets." This may be an opportunity to consider urban dimensions of GHG accounting. It will allow for the formulation and monitoring of urban-specific targets for the NDC, especially within relevant sectors such as energy, transport, waste and land use change, among others.

For adaptation, DHSUD and the Climate Change Commission are working together in pursuing urban climate actions. DHSUD has implemented several measures to ensure that urban-related considerations are captured in adaptation planning and action. The Philippines will be implementing its Roadmap to Institutionalize Natural Capital Accounting "to better inform planning and programming towards increasing the resilience of ecosystems and communities and comprehensively accounting for the country's wealth." This can be further supported and enhanced, such that it not only contributes to capital stock monitoring and valuation of ecosystem services, but also informs the development of ecosystem-based adaptation measures and NbS.

160 Philippine Development Plan 2023-2028.



5.15 Tanzania (the United Republic of)

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5.15.1 Climate-related national policies, strategies or plans

The United Republic of Tanzania has separate climate related national policies, strategies and plans to allow flexibility and ownership in managing these rapidly changing issues.

5.15.1.1 Environmental Management Act (EMA) No. 20, 2004

RESPONSIBLE INSTITUTION National Environmental Management Council (NEMC)

DATE OF PUBLICATION 2004

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION This principal piece of legislation regulates all environmental affairs in the country. It takes precedence on environmental matters. The law establishes several organs for management of environmental matters. The Act is under the Vice President's Office. Among other things, the law guides how environmental impact assessments and strategic environmental assessment should be conducted. Other matters that the law guides include pollution prevention and control and waste management, among others.

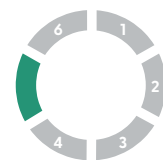
5.15.1.2 National Environmental Policy, 2021

RESPONSIBLE INSTITUTION Vice President's Office

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The overall objective of the Policy is to provide policy guidance and oversight on environmental management for sustainable socio-economic development in Tanzania. The Policy is to guide all environmental matters in the country for current and future generations by putting in place different strategies for addressing the identified environmental challenges the country faces. The Policy recognizes the challenge urban communities face in terms of accessing clean drinking water, deterioration of urban catchment areas, inadequate waste and solid waste services, noise pollution and poor urban planning.



5.15.1.3 Zanzibar Environment Management Act, 2015

RESPONSIBLE INSTITUTION Zanzibar Environmental Management Authority (ZEMA)

DATE OF PUBLICATION 2015

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The act provides better provisions relating to the conservation, protection, enforcement and management of the environment of Zanzibar and matters connected therewith. Under the act, ZEMA has been entrusted with a number of functions to help safeguard the environment, including issuing environmental certificates, permits and approvals, undertaking environmental monitoring, promoting environmental awareness and enforcing regulations and standards.

5.15.1.4 National Environmental Master Plan for Strategic Interventions (NEMPSI) (2022–2032)

RESPONSIBLE INSTITUTION Vice President's Office

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NEMPSI addresses the limited spatial information on environmental degradation and appropriate intervention options. The NEMPSI sought to limit interventions that were generic and inappropriate and that inefficiently used resources at local and national levels. The NEMPSI objectives are to: i) provide the existing status of environmental challenges, indicating the causal effect, existing initiatives and constraints; ii) provide the direction of required changes; iii) indicate priority focus areas; and iv) establish fact-based intervention options for addressing the environmental challenges. Environmental challenges in cities and urban areas are highlighted as well as the widespread impacts of urbanization.

5.15.1.5 Nationally Determined Contribution

RESPONSIBLE INSTITUTION Vice President's Office

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The NDC aims to build country resilience to the impacts of climate change and play a role in reducing GHG emissions. The most relevant adaptation strategies to urban areas are those that address clean energy options, land/urban planning and building climate resilient infrastructures. Tanzania has prioritized four mitigation sectors in the NDC, namely energy, transport, forestry and waste, which are crucial in the urban development arena.

5.15.1.6 National Climate Change Response Strategy 2021–2026 and Zanzibar Climate Change Strategy

RESPONSIBLE INSTITUTION Vice President's Office

DATE OF PUBLICATION 2021 and 2014, respectively

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The National Climate Change Response Strategy sets adaptation and mitigation interventions to strengthen Tanzania's resilience to the impacts of climate change and its contribution to the global efforts of reducing GHG emissions. The Strategy is cognizant of the problem of urbanization in the country. Urbanization is understood to lead to poor waste management, increased demand for resources (such as water, energy and sanitation and hygiene services), increased slums and improper land use plans, air pollution-transport due to dust and waste, heat island effects due to the enlarged built environment, increased floods due to poor waste management and improper land use planning.

Zanzibar, a semi autonomy island, has its own climate change strategy that envisions a climate resilient and sustainable Zanzibar by 2030. The Zanzibar strategy identifies a responsive framework with four strategic objectives: build adaptive capacity; focus on win-win, low-cost or no-regret measures; mainstream resilience and low-carbon development; and plan for long-term challenges.

5.15.2 Mitigation challenges

Tanzania's GHG emission level is very small; its per capita emissions were estimated at 0.22 tCO₂e in 2014.¹⁶¹ However, this data might have changed as the country has been classified as a middle low-income country since 2018. The country is committed to reducing its GHG emissions, with the key emitting sectors being energy, transport, forestry and waste management.¹⁶² The Tanzania NDC commits to reduce GHG emissions economy-wide between 30-35 percent relative to the business-as-usual scenario by 2030.

The emitting sectors that have direct bearing on the urban sector are energy, transport and waste management. Deforestation in the country has many drivers, however, the chief driver is charcoal making and fuelwood as the main source of energy for cooking, with more than 90 percent of the population and households depending on these. Charcoal is produced in rural areas and consumed mainly in cities and towns. It is estimated that Dar es Salaam alone uses 70 percent of the charcoal produced in the country.¹⁶³

5.15.3 Mitigation responses

To mitigate the impacts of climate change and make the country more resilient, Tanzania has identified several mitigation strategies and actions. The strategies and actions that are urban relevant include the use of natural gas and renewable energy. It is reported that the country has an estimated 57 trillion cubic feet of discovered reserves of which to-date over 100 million cubic feet have been exploited to produce 527 MW.¹⁶⁴ In the forestry sector, the country plans to improve conservation efforts, afforestation and reforestation. The country plans to encourage communities to engage in converting waste material into energy, waste material re-use and recycling, reducing the consumption of charcoal and promoting clean energy technologies for energy generation, such as wind, hydro, solar and bio-energy.

The country had made significant achievements in the use of natural gas and hydro power. Though widely criticized, the country is constructing the Mwl. Julius Nyerere Hydropower Plant (JNHPP) in the renowned Selous Game Reserve (presently referred to as Mwl. Nyerere National Park). JNHPP is expected to produce 2,115 MW.¹⁶⁵

5.15.4 Adaptation challenges

The primary urban climate risks the country face include floods, droughts¹⁶⁶ and increases in sea level, especially in Zanzibar and coastal communities in the mainland, and increased

¹⁶¹ Nationally Determined Contributions 2021, p. 5, Vice President's Office, United Republic of Tanzania.

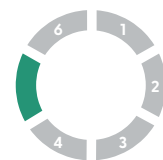
¹⁶² Ibid, p. 13.

¹⁶³ Ng'hily, Dickson (7 July 2022). *The charcoal time bomb: why trade to cost Tanzania dearly*, *The Citizen*.

¹⁶⁴ Nationally Determined Contributions 2021, p. 14, Vice President's Office, United Republic of Tanzania.

¹⁶⁵ Ministry of Energy, Power (2020). *Master Plan*.

¹⁶⁶ *National Climate Change Response Strategy 2021-2026*, p. 56.



water levels in areas around Lake Tanganyika (Kigoma-Ujiji District). The key urban sectors that are affected include water, waste, human health, infrastructure and industry and informal settlements.¹⁶⁷ Communities and areas using pit latrines are the most vulnerable due to water contamination after heavy rains. Rural open water sources near farms that use chemical fertilizers and farm wastes will also be affected, thus causing human health risks. Places experiencing prolonged and severe droughts are forcing communities to move to other areas looking for clean water. Communities depending on clean water from shallow wells and dams will also be forced to search for water during dry seasons and prolonged droughts.

5.15.5 Adaptation responses

To address climate risk, the country has developed several key adaptation actions and strategies for the urban sector. The National Climate Change Response Strategy 2021-2026 identifies several strategies and actions including: development of green/low carbon urbanization and industrialization plans that promote green space; land use plans; NbS towards adaptation; and enhancing green cities by promoting green buildings, transport, energy and infrastructures. The 2021 NDC suggests the following strategies and actions for addressing urban sector related risks: strengthening early warning systems and weather forecasting and dissemination infrastructure; mainstreaming climate change in the engineering and architecture curricula; and incorporating climate considerations in the design and development of new infrastructure.

The NDC stresses climate resilient energy systems, exploration of options for energy diversification and promotion of climate-smart rural electrification.¹⁶⁸ To address the risks related to 'water, sanitation and hygiene' in the urban sector, the NDC proposes the promotion of climate-smart integrated water resources management, devising sustainable wastewater management and innovations, promotion of climate-resilient investments and suitable water supply technologies and infrastructure for sanitation and hygiene services.¹⁶⁹ For the 'land use and human settlements development' in the urban sector, the NDC suggests promoting resilient land use planning and management and development of climate-resilient human settlements.¹⁷⁰

5.15.6 Means of implementation

Like many other developing countries, Tanzania faces several challenges related to financing and limited technology and institutional capacities which significantly affect the ability to deliver mitigation and adaptation climate solutions.¹⁷¹ The NDC notes: “the NDC implementation plan depends largely on climate finance mechanism[s] under UNFCCC, bilateral and multilateral Climate Financing sources” and non-governmental organizations and private companies. The country has not set aside its own sources of funds for the implementation of the strategies and planned actions.¹⁷²

¹⁶⁷ Ibid, p. 47.

¹⁶⁸ Nationally Determined Contributions 2021, p. 10, Vice President's Office, United Republic of Tanzania.

¹⁶⁹ Ibid, p. 11.

¹⁷⁰ Ibid, p. 11.

¹⁷¹ Ibid, p. 2.

¹⁷² Ibid, pp. 22-25.

5.15.7 Conclusions and recommendations

The NDC recognizes charcoal as the predominant energy source and commits to reducing the consumption of charcoal in urban and rural areas by promoting affordable alternative energy sources through regulations and policies for charcoal production and use. Presently, no charcoal policies or regulations have been put in place to actualize the commitment.

To address climate change, Tanzania needs to address the use of wood fuel and charcoal as it is the largest source of deforestation, with deforestation estimated at 469,420 ha/year.¹⁷³ Access to modern fuels and low impact urbanization is of paramount importance. Due attention should be given to urban settlements, especially mega cities like Dar es Salaam, the major consumer of charcoal. Modern fuels serve multiple purposes: aiding adaptation by preserving trees as carbon sinks; reducing carbon dioxide in the atmosphere; and curbing GHG emissions.

Though Tanzania has two legal systems, one for Tanzania (mainland) and one for Zanzibar, climate actions and environmental matters generally are union matters and are coordinated by the Vice President's Office under the Ministry of State (Union and Environment) with Zanzibar having a separate system and institutions.

¹⁷³ *The National Land Policy 2021*, p. 17.



5.16 Zimbabwe

CONTRIBUTING AUTHORS:

Millie Macleod, Solomon Mutambara and Richwell Musoma (UNDP)

5.16.1 Climate-related national policies, strategies or plans

5.16.1.1 National Climate Policy (NCP)

RESPONSIBLE INSTITUTION Ministry of Environment, Climate and Wildlife

DATE OF PUBLICATION 2016

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION The Zimbabwe NCP provides an overarching framework with key principles and guidance for the implementation of all national climate-related strategies. It has been designed to support the implementation of Zimbabwe's Nationally Determined Contributions, create resilient communities and decouple the national economy from climatic variations and impacts.

The NCP identifies climate change as a primary challenge in long-term sustainable development, calling for climate-proofing of key policies and socio-economic infrastructure, strengthening of climate change governance, increasing education and awareness, improving early warning and climate services, conducting research to inform planning and future policy orientation and creating robust sustainable climate finance frameworks. The NCP mainstreams climate issues in all sectors of the Zimbabwean economy including energy, agriculture, industrial processes, waste management, forestry, human settlement, mining and health.

5.16.1.2 Revised Nationally Determined Contributions (NDC)

RESPONSIBLE INSTITUTION Ministry of Environment, Climate and Wildlife

DATE OF PUBLICATION 2021

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION Zimbabwe's Revised NDC includes a target of 40 percent per capita emissions reduction across all sectors of the economy below the projected business-as-usual scenario by 2030. This is a substantial increase from the initial NDC's 33 percent target and includes an expanded list of mitigation measures covering all International Panel on Climate

Change (IPCC) sectors. The NDC identifies climate-resilient infrastructure and design as a key measure that would reduce climate sensitivities and benefit urban areas and populations, by reducing the sensitivity of the energy sector.

5.16.1.3 Long-Term Low Emissions Development Strategy (2020–2050)

RESPONSIBLE INSTITUTION Ministry of Environment, Climate and Wildlife

DATE OF PUBLICATION 2022

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation and adaptation

BRIEF DESCRIPTION In accordance with Article 4.10 of the Paris Agreement, Zimbabwe developed its LT-LEDS in line with Zimbabwe's vision of becoming an upper-middle income economy by 2030. The LT-LEDS is a framework for mainstreaming climate change mitigation across all IPCC sectors towards a low carbon development pathway. This includes measures that support the implementation of the revised NDC, including implementation of renewable energy and energy efficiency initiatives, climate smart agricultural practices, low carbon transport systems, sustainable forest management, solid waste management and sustainable industrial development.

5.16.1.4 National Renewable Energy Policy (NREP)

RESPONSIBLE INSTITUTION Ministry of Energy and Power Development

DATE OF PUBLICATION 2019

TYPE OF POLICY, STRATEGY, OR PLAN Mitigation

BRIEF DESCRIPTION The NREP aims to improve the share of renewable energy in the overall energy mix and enhance cost-effectiveness in the implementation of sustainable energy sources, through establishment of market-oriented measures and regulatory instruments for the renewable energy sector. It sets overall targets for renewable energy based on NDC interventions, demand-supply scenarios, grid absorption capacity and the ability of utilities to pay for renewable energy electricity. It aims to achieve an installed renewable energy capacity of 1,100 MW, or 16.5 percent of the total electricity supply, by year 2025 and 2,100 MW or 26.5 percent of total electricity supply, by 2030.

5.16.1a Describe further information about the key climate-related policies, strategies or plans described above

Climate-related policies in Zimbabwe complement each other. The NCP provides an overarching framework with key principles and guidance for the implementation of all national climate-related strategies and the NDCs. All climate-related policies are informed by and complement Zimbabwe's National Development Strategy. The NREP sets overall targets for renewable energy in the country based on the NDCs. The Energy Policy spells out the need for energy efficiency policies, targets and measures, while the Industrial Development Policy encourages the use of energy efficiency practices in the sector. The LT-LEDS aims to develop incentives for enhancing energy efficiency investments and practices, while the National Climate Change Response Strategy encourages efficient resource use and low-carbon pathways in all activities, fostering resilient, low-carbon energy infrastructure, among other strategic objectives.

5.16.2 Mitigation challenges

According to Zimbabwe's revised NDC, the AFOLU and energy sectors are the two largest emitters, contributing 54 percent and 33 percent, respectively in 2017. This is consistent with



trends since 2010, with the AFOLU sector fluctuating significantly compared to the energy sector, which showed less variability.

In addition to agriculture falling within one of the key emitting sectors, the NCP also identifies this sector as being one of the most climate-sensitive, whereby climatic variability negatively impacts the livelihoods of a majority of the Zimbabwean population, disproportionately affecting women and other marginalized groups.

5.16.3 Mitigation responses

The revised NDC identifies several response measures for each sector as listed below.

- **Energy:** Reducing transmission and distribution losses; expansion of solar grids and microgrids; additional biogas capacity; energy efficiency improvements in agriculture, commercial, domestic, manufacturing and mining; biodiesel in fuel; and developing a transport fuel economy policy and improving public transport.
- **IPPU:** Increasing clinker substitution with fly ash and blast furnace slag; decomposition of N₂O emissions through a secondary catalyst; and HFC (hydrofluorocarbon) phasedown.
- **AFOLU:** Increasing area of forest land and area of forest plantation and reducing area burned.
- **Waste:** Investing in waste to energy and composting organic matter in the long term.

5.16.4 Adaptation challenges

A landlocked country, Zimbabwe has a high vulnerability profile and is vulnerable to the impacts of the changing climate because of multiple interacting stresses, such as soil degradation, lack of lucrative output markets, a declining natural resource base linked to population pressures and deterioration of societal 'safety nets' related to extreme poverty. Zimbabwe has endured various natural hazards including droughts, epidemic diseases, floods and storms over the past century.

Between 1900 and 2023, Zimbabwe encountered 10 drought events, 24 epidemic episodes, 16 epidemic disasters between 2000 and 2016 (epidemic outbreaks tend to follow the cycle of flooding and water-borne diseases, such as cholera, which are endemic in many rural parts of the country), 14 floods and 8 extreme storms. These events resulted in the deaths of roughly 8,000 people, with more than 20 million people affected, and total damages of \$950 million. The country is also struggling with an HIV prevalence rate of 14.7 percent. Women continue to lag in terms of opportunities and empowerment, causing a gendered vulnerability dimension for prevailing risk factors. Climate variability and change is a burden that exacerbates existing challenges.

Migration as an adaptation mechanism to climate change and disaster and a means to seek economic prospects and opportunities for human development continues to shape the region. Population movement trends are rural-to-urban and urban-to urban migration, with population growth and urbanization taking place at a fast rate.

5.16.5 Adaptation responses

The Zimbabwean government developed the Zimbabwe Climate Change Response Strategy in 2014 to provide a framework for coordination and mainstreaming of climate change considerations into the country's developmental plans. The strategy led to the development of the country's National Adaptation Plan (NAP), National Adaptation Programme of Actions (NAPA) and Nationally Appropriate Mitigation Actions (NAMAs) as mandated by the Kyoto Protocol and the UNFCCC. The NAP focuses on mainstreaming climate risks into national developmental planning, programmes and policies. Urban systems contribute significantly to climate change and stand to suffer heavily from its effects. As such, priority adaptation measures include:

- developing and implementing climate-smart agriculture solutions and strengthening the resilience of agricultural value chains and markets;
- enhancing early warning and climate-related disaster risk reduction systems;
- ensuring climate-resilient infrastructure and design; and
- developing and promoting resilient water resources management.

Considering that adaptation strategies tend to be best employed as localized initiatives, urban development plans are a useful vehicle for delivering locally appropriate adaptive action for urban areas. In urban areas most climate change adaptation decisions are made by 'private actors,' including households, businesses and individuals, who try to manage their exposure to risks and maximize opportunities when they arise. These private actors require supportive enabling conditions and policies that equip them with the necessary incentives, resources, knowledge and skills.

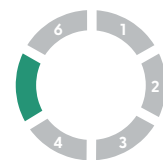
5.16.6 Means of implementation

In order to identify the means of implementation, the gaps and needs described below should be addressed.

Huge funding gap for adaptation: According to the revised NDC, the mitigation measures alone are estimated to cost \$4.8 billion; the adaptation measures will be costed in the forthcoming NAP. Early action and investment can help avoid the higher economic and social costs of disaster relief and recovery and deliver wide-ranging health, social, environmental and economic 'co-benefits' for urban populations.

Weak capacity of actors to facilitate adaptation: There is a need to build government institution capacities to:

- conduct comprehensive vulnerability assessments and develop appropriate response models;
- develop mechanisms to mainstream climate change adaptation and disaster risk management into development programmes;
- strengthen the capacity of the Meteorological Services Department to carry out research on climate change through improved data collection and management and climate modelling; and



- strengthen the documentation of and tapping into indigenous knowledge systems to complement scientific knowledge for climate change forecasting and early warning systems.

Weak institutional arrangements: National institutional arrangements should bridge the divide between disaster risk management and climate change adaptation, particularly in terms of legislation, operational and management structures, working agendas and time horizons. This will effectively mitigate the risk of duplicating efforts and resources and creating competing actions and potential conflicts with unintended negative consequences, including maladaptation.

Weak coordination of adaptation efforts: Multilevel and cross-level institutional coordination between different political and administrative levels (governmental and administrative agencies and private stakeholders) is a crucial mechanism for promoting adaptation planning and implementation. Private sector involvement is critical.

Poor financial market institutions to support adaptation: Insurance is widely seen as a cost-effective tool for climate adaptation planning, implementation and management for increasing financial resilience. In Zimbabwe, insurance for adaptation is largely non-existent or in its infancy largely due to poorly developed financial markets, economic instability and the poor public image of the insurance industry in the country.

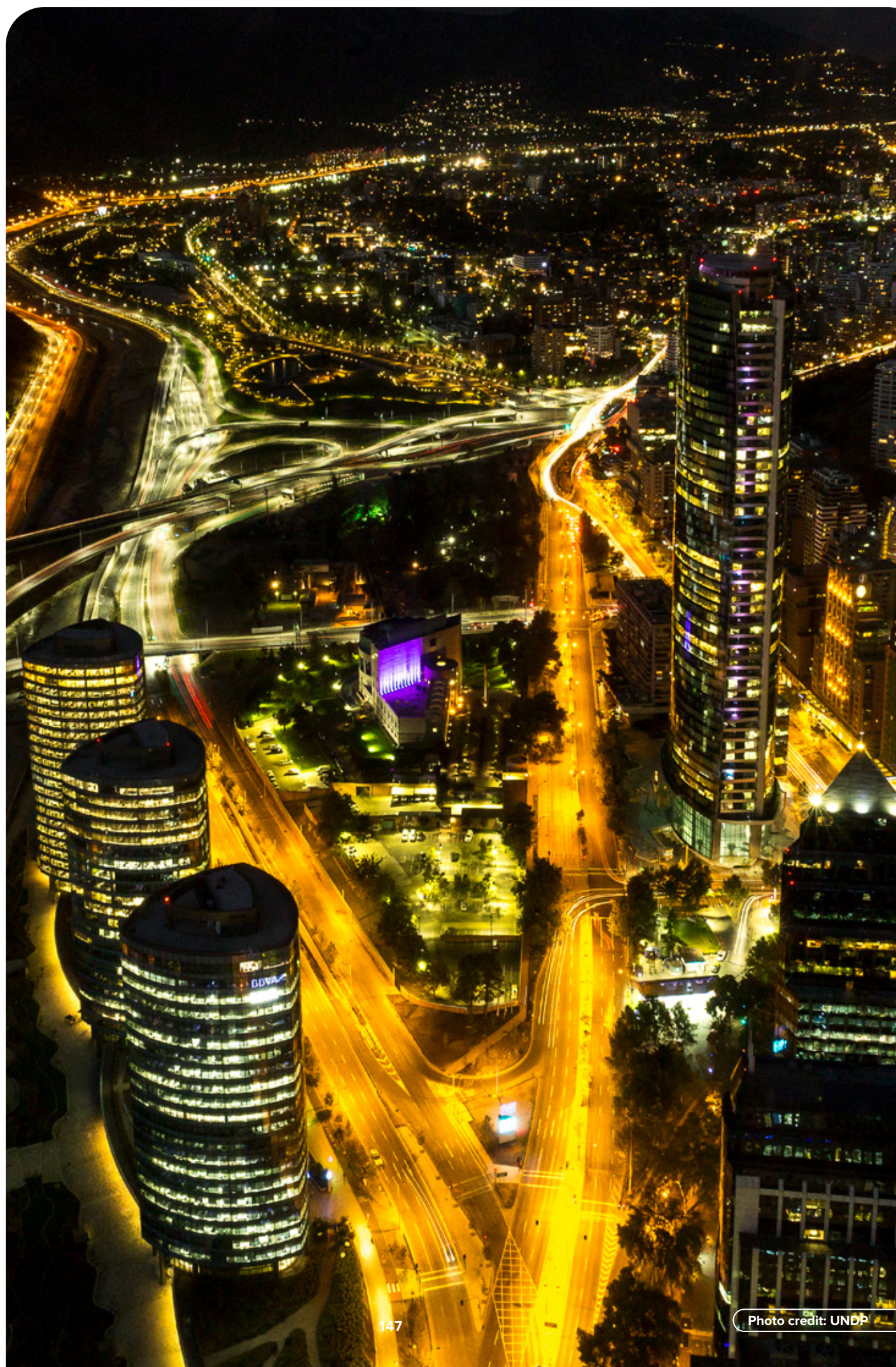
The pervasiveness of patriarchal dominance in Zimbabwe's rural communities serves as a barrier for effective adaptation, particularly for women who are disproportionately affected by climate change. Gender inequality is manifested through exclusion of women from decision-making, planning processes, access to climate change information and opportunities and ownership of essential resources, such as land and property rights, which compromises their capacity to adapt effectively.

5.16.7 Conclusions and recommendations

Based on the gaps and challenges identified for effective mitigation and adaptation, the below recommendations are made.

- Facilitate more aggressive resource mobilization (domestic, international, private and public financial resources) to bridge the huge funding gap for climate change adaptation.
- Build government institutional capacity to develop appropriate response models, to effectively mainstream adaptation and disaster risk management in urban and rural development programmes and tap into indigenous knowledge systems to complement scientific knowledge for climate change forecasting and early warning systems.
- Promote multilevel and cross-level institutional coordination between different political and administrative levels to enhance efficiency and effectiveness in climate change adaptation and mitigation.
- De-risk private sector investment in climate change adaptation and develop affordable insurance systems that promote adaptive behaviour.
- Enhance capabilities to expand the adaptive capacity of local actors and enhance opportunities for policy formulations of larger governance networks and learning opportunities for policy formulations.

- Support government to establish an enabling framework for sharing and disseminating information on climate change (i.e., at provincial, district and ward levels).
- Develop rural resilience initiatives for enhanced community coping capacity and disaster risk reduction in urban and rural spaces of vulnerability, including adapted urban and rural life skills-based disaster prevention.
- Integrate disaster risk reduction and resilience in the expansion of existing urban areas and urban planning and development of new urban settlements, with a focus on housing, water and sanitation, basic service delivery and access to social infrastructure and urban livelihood opportunities.
- Explore adaptation options to reduce the impacts of climate variability and change, such as diversifying crop cultivar/type, staggering planting dates, using fertilizer, selecting local cattle breeds and establishing community woodlots. Options should address both climatic risk and other constraints, such as markets and social challenges.
- Enhance equity (specifically considering gender) in adaptation by ensuring equality in sharing of climate change burdens and benefits, equal distribution of resources and opportunities, including climate change information and disaster early warning awareness.
- Promote deliberate investment in relevant technologies that enhance adaptation techno-science mechanisms, including enhanced irrigation systems, drought resistant crops, remote sensing, local weather forecasting and early warning information systems. Targeted infrastructure should include irrigation facilities, water catchments, boreholes, schools, quality roads, health care facilities and transport.





SECTION 6

Key findings, conclusions and recommendations

6.1 Key findings: Global Review

The key findings of the 2023 global review of the urban content of the NDCs are below.⁷

- 1. A large number of the NDCs have moderate to strong urban content.** Of the 194 NDCs analyzed, 53 (27 percent) fall into Cluster A, 76 (39 percent) fall into Cluster B, and about one-third of the NDCs (34 percent) have low or no urban content (Cluster C).
- 2. A significant increase (13 percent) in strong urban content (Cluster A) has been seen over the last half-decade,** increasing from 14 percent in 2016/2017 to 27 percent in 2023.
- 3. About half of the NDCs (44 percent; 86 NDCs) mention both urban adaptation and mitigation. Meanwhile, 11 percent of the NDCs focus only on urban adaptation and 10 percent of the NDCs focus only on urban mitigation.**
- 4. Of the NDCs with urban content (Clusters A + B):**
 - more urban climate responses are mentioned than challenges;
 - urban mitigation responses are included in 75 percent (97 NDCs);
 - urban mitigation challenges are included in 44 percent (57 NDCs);
 - urban adaptation challenges are included in 68 percent (88 NDCs); and
 - urban adaptation responses are included in 50 percent (65 NDCs).



- 5. Energy, transport and mobility and waste are the most mentioned sectors in urban mitigation challenges and responses. Infrastructure and water are the two most mentioned sectors in urban adaptation challenges and responses.** These two findings are consistent with the results from 2022.
- 6. Climate hazards at the urban level are mentioned in only 40 percent of the NDCs with urban content** (Clusters A + B; 51 NDCs). Flooding is the most mentioned urban climate hazard (39 NDCs).
- 7. Mitigation challenges and mitigation responses are both mentioned more at the national level than the urban level.** For mitigation challenges, energy, LULUCF and waste are the three most mentioned sectors at both levels. For mitigation responses, energy, LULUCF, transport and mobility and waste are the most mentioned sectors at both levels.
- 8. As with mitigation, adaptation challenges and adaptation responses are both mentioned more at the national level than the urban level.** For adaptation challenges, water is the most mentioned sector at the national level, and infrastructure is the most mentioned sector at the urban level. For adaptation responses, agriculture and food and water are the most mentioned sectors at the national level and infrastructure and water are the most mentioned sectors at the urban level.
- 9. Climate hazards are mentioned more at the national level than at the urban level.** 89 percent of the NDCs analyzed (172 NDCs) identified climate hazards at the national level. Only 26 percent of the NDCs analyzed (51 NDCs; 40 percent of the NDCs with urban content) identified climate hazards at the urban level.
- 10. Drought, flooding and temperature rise are adaptation hazards included in most NDCs at the national level.** This is followed by a lower inclusion of other national climate hazards, notably sea level rise, storm events, heat/cold waves, vector-borne diseases and land degradation. Flooding is the climate hazard included in most NDCs at urban level, followed by limited inclusion of several other hazards.
- 11. The vast majority of NDCs identify requests related to technology, capacity-building and finance at the national level, with a limited number of NDCs identifying these requests at the urban level.** At the national level, the most requests were made for technology (160 NDCs), followed by capacity-building (155 NDCs) and finance (141 NDCs). Specific requests made at the urban level were for finance (26 NDCs), capacity-building (9 NDCs) and technology (7 NDCs).
- 12. Cross-cutting issues are mentioned in NDCs at both national and urban levels, however mentions at the urban level are limited.** At the national level, the most mentioned cross-cutting issues are participation, gender and loss and damage. At the urban level, the most mentioned cross-cutting issues are NbS (green and blue infrastructure), participation, gender and informal settlements.

6.2 Key findings: Country Profiles

- 1. Urban-specific policies, strategies and actions that are incorporated into NDCs are frequently also incorporated in other climate- and development-relevant policies,** such as National Adaptation Plans (NAPs), Long-term Low-Emission Development Strategies (LT-LEDS) and subnational climate action plans.
- 2. Holistic, systems-wide approaches to urban climate solutions support tackling complex issues, such as climate change.** For example, the State of Palestine emphasizes expanding green open spaces and green infrastructure in future plans, such as through improving adaptive capacity. Such spaces enhance community resilience and improve quality of life in urban areas.
- 3. Mitigating climate risks is sometimes a key aspect of development planning and budgetary planning.** In addition, resources should be devoted to post-disaster response and reconstruction.
- 4. Local capacity-building of human resources was identified as a primary requirement to enhance adaptive capacity.** Madagascar, for example, uses a rotation system for personnel dealing with emergencies to address strains on local capacity.
- 5. Climate change resilience is sometimes a core aspect of spatial structuring and sectoral development.** The Philippines National Housing and Urban Development Framework, for instance, considers resilience a foundation in planning and decision-making for land use and for addressing sectoral and cross-sectoral challenges.
- 6. Roadblocks to accessing city-level climate finance include financial risks around climate investments, complex regulatory requirements, inconsistent standards, lack of credible risk data, lack of creditworthiness and lack of access to international sources of finance.** To address this, Malawi, for instance, emphasizes enhancing climate finance tracking and management and access to platforms for climate-related funding opportunities.
- 7. Impacts of climate change significantly affect urban environments,** including quality of life and the provision of essential services, such as transport, water, energy, housing, health and social services. Impacts may be greater when urban growth is unplanned and unmanaged.
- 8. Local areas within countries sometimes use distinct approaches for addressing climate change.** Colombia highlights how territorial variations and contexts should be considered when considering needs, impacts and actions.



6.3 Conclusions

The NDCs are the cornerstone of the Paris Agreement, embodying each country's efforts to reduce GHG emissions and adapt to climate impacts. In principle, this should be done by identifying mitigation and adaptation challenges, the actions required to respond to these challenges and the means of delivering on these actions, namely climate finance, technology and capacity-building.

There is increasing awareness that the climate battle will be won or lost in cities, and that cities hold the key to achieving operationalization of the Paris Agreement. The importance of urban climate action was reiterated at recent high-level global meetings, including the G7 Urban Development Ministerial Meetings, the G20 and most recently through several high-level meetings and initiatives at COP28. Notably, the COP28 Presidency hosted the second Ministerial Meeting on Urbanization and Climate Change to discuss the need to align urban, local and national strategies and to unlock climate finance for cities and local government-led climate action.

The COP28 Presidency also hosted the first-ever Local Climate Action Summit attended by mayors and governors from more than 60 countries. During the Summit, leaders highlighted the importance of adopting concrete actions and strategies to enhance multi-level governance and partnerships to accelerate global climate progress, including incorporating subnational governments into the design and implementation of the NDCs. The **Outcome Statement on Urbanization and Climate Change** from the COP28 Local Climate Action Summit and Ministerial Meeting on Urbanization and Climate highlights fundamental issues concerning housing, urban development and climate change.

During COP28, the Coalition for High Ambition Multi-level Partnerships (CHAMP) was launched as well. CHAMP is a commitment by over 70 national governments to work in partnership with their subnational authorities on a new way of approaching the preparation and implementation of their next NDCs in time for COP30 in 2025.

One fundamental principle of the Paris Agreement is to update NDCs every five years and to progressively scale up climate ambitions. Enhancing ambitions is even more critical during the subsequent NDC iterations considering that the latest data presented in the 2023 Emissions Gap Report predicts that 2030 GHG emissions must fall by 42 percent to achieve the 1.5°C target pathway.

The importance of cities for climate action is also increasingly apparent in the growing number of NDCs highlighting urban content, particularly the increasing number of NDCs with strong urban content.

The number of NDCs determined through this report to have strong or moderate urban content (Clusters A and B) is 129 of the 194 NDCs analyzed, or 66.5 percent, which is still rather limited, even though the percentage of the most recent NDCs with strong urban content has increased by 12 percentage points, from 14 percent in 2016/2017 to 26 percent in 2023.

About half of the NDCs analyzed, or 44 percent, contain provisions related to both climate change mitigation and adaptation in cities. Limited integration of urban mitigation and

adaptation actions may create negative rebound effects and reduce the effectiveness of urban climate actions and the efficient use of resources. Moreover, the identification of urban mitigation challenges, including urban climate risks, is also limited. The lack of a comprehensive baseline makes the tracking of progress and assessing the effectiveness and impact of urban climate actions more challenging.

The most mentioned sectors for urban mitigation are energy, LULUCF, transport and waste. The built environment sector is less frequently mentioned, despite this sector being responsible for substantial levels of GHG emissions. The most mentioned sectors for urban adaptation are water and infrastructure. Coastal areas, human health and ecosystems are less frequently mentioned despite the importance these sectors have for urban climate adaptation.

The identification of means of implementation at the urban level, which is instrumental to supporting urban climate action, is extremely limited across finance, technology and capacity-building needs. Cross-cutting issues at the urban level are mentioned in some NDCs, for example, NbS, gender, participation and informal settlements. This can be understood as a positive attempt to go beyond siloed or sectorial approaches and to integrate climate action.

The inclusion of cities in the development and implementation of the NDCs through strengthening the urban content not only represents an opportunity to raise climate ambitions globally but a necessity to operationalize and strengthen climate action.

Numerous examples shared in the Country Profiles showcase the emphasis placed on urban areas in NDCs and other national climate policies. **Pakistan** highlighted green open spaces in future plans and sustainable spatial planning to enhance community resilience. **The Philippines** recognized climate resilience as a foundation for spatial structuring and sectoral development in its National Housing and Urban Development Framework. **El Salvador** flagged resilient cities as important vehicles to improve the protection of human lives and enhance and sustain economic growth.

Challenges and bottlenecks that need to be overcome to scale urban climate ambition were highlighted in Country Profiles. **Madagascar** noted the need to include risk reduction in the State's budgetary programming. **Zimbabwe** identified institutional gaps to more effectively mainstream adaptation and disaster risk management in urban and rural development programmes and to tap into indigenous knowledge systems to complement scientific knowledge for climate change forecasting and early warning systems. **Chile** specified capacity gaps among public service professionals as a challenge for mainstreaming adaptation and mitigation and discussed the most critical challenges related to financial mechanisms and access to public and private climate resources among cities. **Malawi** emphasized the essential character of multilateral stakeholder engagement across national-to-local levels to prioritize and better collaborate on adaptation in urban planning and development. **Iraq** highlighted the restoration and transformation of destroyed cities to environmentally friendly, sustainable green cities as living evidence of peace.

This report, and past analyses of the urban content of the NDCs, aims to improve evidence-based decision-making by informing and supporting the efforts of national and subnational governments to raise their climate policy and action ambitions by ensuring a strong urban focus.



NDCs and NDC revision processes are opportunities to raise urban climate ambitions by: (i) strengthening the inclusion of subnational governments and subnational areas of focus in NDCs; (ii) enhancing the communication of NDCs by reflecting all the national and sectoral policies that empower urban areas to enhance their climate mitigation and adaptation capacities; and (iii) articulating NDC climate finance needs.

In exploring the urban content of each NDC, this report found that a large number of NDCs do not have urban content. This does not necessarily imply that the country does not have national urban policies related to climate, nor that there are no urban climate policies, plans or actions under development and implementation in the countries. However, a lack of urban content in the NDCs — a primary document for reflecting a country's major national climate policies and showcasing its mitigation and adaptation climate challenges and ambitions internationally — may limit a country's opportunity to create synergies, improve efficiency of resource use and minimize duplication between local and national climate action. Moreover, those NDCs with moderate levels of urban content, and in some cases those NDCs with strong urban content, could also benefit from further strengthening of their urban provisions.

6.4 Recommendations

Based on the present analysis, several recommendations were identified for national NDC focal points, national government experts and policymakers in climate change and experts in housing and urban development ministries. Other urban stakeholders, such as municipal authorities, and international experts involved in the NDCs are also addressed through these recommendations with the hope that urban climate action can be further enhanced through the NDC revision and implementation processes.

- 1. Strengthen national climate ambitions by improving the urban climate focus in the NDCs.** Encourage Parties to include urban content so that all NDCs contain urban content. For those NDCs with strong and moderate urban content, strengthen their urban content further; particularly include content related to means of NDC implementation (finance, technology and capacity-building).
- 2. Enhance multi-level governance through vertical integration by ensuring coherence of urban climate action with national policies.** An alignment of urban climate action with national policies, for both adaptation and mitigation and including challenges and responses, is needed. This requires a stronger harmonization and integration, which is considered fundamental for NDC operationalization and achievement of mitigation and adaptation goals. Vertically integrating urban and subnational climate action with NDC and other national goals may help to secure appropriate finance, technology and capacity-building to support the implementation of urban climate action.
- 3. Strengthen multi-level governance through horizontal integration by ensuring coherence of urban climate action across national policies.** Ensure the coherence in urban content between the NDCs and other national policies and ensure that urban climate action is integrated and mainstreamed across national urban policies and other relevant national policies.

4. Develop a national framework for efficient and effective urban climate action and avoid siloed approaches in favour of integrated and cross-sectoral strategies.

Currently, most of the NDCs take a sectoral approach, yet the urban context is ideal for developing integrated, cross-sectorial frameworks of climate action. Cross-sectoral strategies and the integration of mitigation and adaptation at urban levels may also help to avoid mal-adaptation, mal-mitigation and help to increase co-benefits.

5. Facilitate the participatory development of the NDCs, including involving subnational stakeholders.

Actively involve a range of local and urban stakeholders in the NDC revision process to strengthen the NDC content. While the NDCs may be nationally led and have a prominent national focus, subnational contributions are needed to raise national ambitions, to operationalize climate action on all levels and to enhance fairness so no one is left behind. The active participation of subnational level stakeholders should be fundamental throughout the NDC design, development and implementation processes to achieve stronger urban content and encourage climate action in general.

6. Jointly identify subnational, urban and local needs for finance, technology and capacity-building. Likewise, identify the corresponding means of implementation and include these in the NDCs.

A clearer identification of these needs is fundamental to operationalize climate action at the urban level. Measures must be in place that can ensure that urban climate actions are implemented and will meaningfully contribute to national and global strategies and policies.

7. Monitor, report and verify urban climate action.

This should include developing mechanisms that will allow urban climate achievements to be part of national reporting and the verification process under the Paris Agreement (including through the Ministerial Meeting on Climate Change and Urbanization) and the Global Stocktake.

The NDCs are generally lacking specific provisions regarding the monitoring, reporting and verification of urban climate challenges and responses. This is affecting the tracking of urban climate needs, as well as progress and the impact of actions. Monitoring, reporting and verification at the subnational level may depend also on the availability of clear baselines in terms of local climate GHG emissions and climate risk assessments, particularly in relation to exposures and vulnerabilities.

8. Strengthen the analysis of urban climate challenges, including urban climate risks and GHG emissions, to more clearly articulate actions and define baselines for urban climate mitigation and adaptation.

The NDCs focus more on urban mitigation and adaptation responses than challenges. Information on climate risks (hazards, vulnerability and exposure) and urban GHG emissions is found in only a few of the NDCs. The limited availability of this information at the urban level strongly restricts the definition of baselines for monitoring progress and assessing the impacts of local climate actions. Moreover, the complete or partial absence of urban climate baselines may potentially favour mal-adaptation and mal-mitigation, or even lead to inaction at urban levels.



9. Build the capacities of national and urban stakeholders for stronger inclusion of urban content in the NDCs and to support urban climate action and its implementation.

Capacities should be enhanced to support a more systematic identification of urban climate challenges and development of appropriate responses, in addition to strengthening the capacities of national UNFCCC focal points and climate change negotiators with regard to the urban dimensions of climate change.

10. Communicate the urban dimensions of the NDCs at subnational, national and global levels. Strengthen communication and awareness raising efforts on the urban dimensions of the NDCs to local and national stakeholders. Communicate the urban dimensions of the NDCs to the global community, including to climate funds and development partners.

The potential of articulating national climate change challenges and planned actions often remains untapped. Revised NDCs with stronger urban content provide the opportunity to bring urban and national stakeholders together to advocate for stronger action nationally, multilaterally and internationally, including vis-à-vis climate funds and development partners.

11. Finance urban climate action. Urban climate action in the NDCs should be accompanied by clearly defined budgets and financial plans aligned with the identification of needs. Based on the analysis in this report, only 26 NDCs (13 percent) include financial requests at the urban level. To facilitate access to climate finance, climate action projects should be clearly articulated with an identification of budget needs and provisions, including blended finance and conditioning or incentivizing sector investments.

12. Progressively strengthen the urban dimensions of future NDCs. Conduct urban analyses of the NDCs on a regular basis, aligned with each NDC review cycle at minimum. A broad range of stakeholders, including national and subnational urban stakeholders, need to contribute to the process of these reviews.

6.5 Recommendations for future analyses

To create an even more comprehensive and integrated knowledge framework on urban climate action in the future, it is recommended to expand the analysis of the NDCs by considering the actions below.

- 1.** Analyse the NDCs for urban content at each new NDC submission cycle to monitor progress.
- 2.** Replicate urban content analysis exercises for National Adaptation Plans (NAPs) and for Long-Term Low-Emission Development Strategies (LT-LEDSs). This could help form a more complete overview of urban content across the main national climate policies under the Paris Agreement.
- 3.** By using the full set of indicators developed for analysing the urban content of the NDCs, the urban content of national climate policies, strategies and plans could be analyzed and enhanced in all countries. This could be accompanied by an analysis of the multi-level governance system for every country, including an analysis of interactions

between national and local authorities and between different parts of the national administration in the preparation and update of national urban policies.

4. Local or urban climate plans could be mapped and analyzed in all countries, using a taxonomy that is aligned and harmonized with the analysis of national climate policies. This could include an urban carbon budget and an urban assessment of climate risks (hazards, vulnerability and exposure).
5. Sectorial analyses could be conducted to assess cross-cutting issues, for instance NbS, water, gender and human health.
6. Specific analyses on the means of implementation (finance, technology and institutional capacity) could be conducted across national climate and urban policies.
7. Urban climate action-related information should be made openly accessible and useable through a data dashboard. Policy briefs should be prepared to facilitate the use of the information by policymakers.
8. Normative guidelines for urban aspects of NDCs, NAPs and LT-LEDS should be developed.

All the above activities are part of a proposed integrated knowledge framework that could strengthen urban climate action, which is fundamental to achieve the objectives of the Paris Agreement. These efforts should be conducted in coordination and collaboration with key stakeholders.

A knowledge framework such as is described in the steps above is considered strategic to support informed decision-making at national and urban levels. A knowledge framework is also essential for international organizations to strengthen their direct cooperation and support to countries in the development and implementation of their national and urban climate policies and plans.



Annexes

List of countries with urban clusters

Cluster A = strong urban content

Cluster B = moderate urban content

Cluster C = low or no urban content

Country	Urban cluster in 2023
Afghanistan	B
Albania	A
Algeria	B
Andorra	A
Angola	B
Antigua and Barbuda	C
Argentina	B
Armenia	C
Australia	B
Austria	C
Azerbaijan	B
Bahamas (the)	B
Bahrain	A
Bangladesh	B
Barbados	B
Belarus	C
Belgium	C
Belize	B
Benin	A
Bhutan	A
Bolivia (Plurinational State of)	B
Bosnia and Herzegovina	C
Botswana	C
Brazil	B
Brunei Darussalam	C
Bulgaria	C
Burkina Faso	B
Burundi	B
Cabo Verde	A
Cambodia	A
Cameroon	B
Canada	B
Central African Republic (the)	B
Chad	B

Country	Urban cluster in 2023
Chile	B
China	A
Colombia	A
Comoros (the)	C
Congo (the)	A
Cook Islands (the)	C
Costa Rica	B
Côte d'Ivoire	B
Croatia	C
Cuba	B
Cyprus	C
Czech Republic (the)	C
Democratic People's Republic of Korea (the)	C
Democratic Republic of the Congo (the)	B
Denmark	C
Djibouti	B
Dominica	B
Dominican Republic (the)	A
Ecuador	A
Egypt	A
El Salvador	A
Equatorial Guinea	A
Eritrea	B
Estonia	C
Eswatini	B
Ethiopia	A
Fiji	C
Finland	C
France	C
Gabon	B
Georgia	C
Germany	C
Ghana	B
Greece	C

Cluster A = strong urban content
Cluster B = moderate urban content
Cluster C = low or no urban content

Country	Urban cluster in 2023
Grenada	C
Guatemala	B
Guinea	B
Guinea-Bissau	B
Guyana	B
Haiti	B
Holy See (the)	A
Honduras	A
Hungary	C
Iceland	C
India	A
Indonesia	B
Iraq	B
Ireland	C
Israel	C
Italy	C
Jamaica	C
Japan	B
Jordan	A
Kazakhstan	B
Kenya	A
Kiribati	B
Kuwait	B
Kyrgyzstan	A
Lao People's Democratic Republic (the)	A
Latvia	C
Lebanon	A
Lesotho	B
Liberia	A
Liechtenstein	C
Lithuania	C
Luxembourg	C
Madagascar	B
Malawi	B
Malaysia	A
Maldives	B
Mali	B
Malta	C

Country	Urban cluster in 2023
Marshall Islands (the)	C
Mauritania	A
Mauritius	B
Mexico	B
Micronesia (Federated States of)	C
Moldova (the Republic of)	A
Monaco	A
Mongolia	B
Montenegro	B
Morocco	A
Mozambique	A
Myanmar	A
Namibia	B
Nauru	B
Nepal	A
New Zealand	C
Nicaragua	B
Niger (the)	B
Nigeria	B
Niue	C
North Macedonia	B
Norway	C
Oman	B
Pakistan	B
Palau	C
Palestine (the State of)	A
Panama	A
Papua New Guinea	A
Paraguay	A
Peru	C
Philippines (the)	C
Poland	C
Portugal	C
Qatar	B
Republic of Korea (the)	B
Romania	C
Russian Federation (the)	C
Rwanda	A

Cluster A = strong urban content

Cluster B = moderate urban content

Cluster C = low or no urban content

Country	Urban cluster in 2023
Saint Kitts and Nevis	B
Saint Lucia	B
Saint Vincent and the Grenadines	C
Samoa	C
San Marino	C
São Tomé and Príncipe	C
Saudi Arabia	A
Senegal	B
Serbia	C
Seychelles	B
Sierra Leone	A
Singapore	A
Slovakia	C
Slovenia	C
Solomon Islands	C
Somalia	B
South Africa	B
South Sudan	B
Spain	C
Sri Lanka	A
Sudan (the)	B
Suriname	A
Sweden	C
Switzerland	C
Syrian Arab Republic (the)	B
Tajikistan	B
Thailand	B

Country	Urban cluster in 2023
The Gambia	A
The Kingdom of the Netherlands	C
Timor-Leste	B
Togo	A
Tonga	C
Trinidad and Tobago	C
Tunisia	A
Türkiye	A
Turkmenistan	B
Tuvalu	B
Uganda	A
Ukraine	C
United Arab Emirates (the)	B
United Kingdom of Great Britain and Northern Ireland (the)	C
United Republic of Tanzania (the)	B
United States of America (the)	C
Uruguay	A
Uzbekistan	C
Vanuatu	B
Venezuela (Bolivarian Republic of)	A
Viet Nam	A
Zambia	C
Zimbabwe	B

Country Briefs

Country Briefs were prepared for each NDC to provide a snapshot of areas with an urban focus, if any, and to summarize the findings of Chapter 4.

The Country Briefs include the elements listed below, provided in a consistent format.

- i. The top of each Country Brief shows the urban content cluster (Cluster , , or ) and a short explanation of the primary reasons the cluster was selected.
- ii. Following this are three sections — adaptation, mitigation and climate hazards.
- iii. As discussed in Chapter 2, the analysis explores whether each NDC identifies challenges and responses for numerous sectors, and highlights if the sectors are discussed in a national context and/or an urban context. Challenges and responses, if any, are noted in the Country Briefs in the adaptation and mitigation sections.
- iv. The climate hazards section considers if the NDC highlights climate hazards (e.g., floods, droughts) in the national context and/or urban context.

For this 2023 global review, a total of 194 NDCs were analyzed, including the latest version of all NDCs submitted no later than 27 June 2023. The NDCs are publicly available on the UNFCCC's online registry.

Afghanistan

B

Urban challenges for adaptation and urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste		●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transportation and mobility and LULUCF sectors, while a mitigation challenge was identified in the industry sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		●
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the agriculture and food sector, while the ecosystem and biodiversity, water and industry sectors were only presented with responses.
- At the urban level, adaptation challenges were identified in the agriculture and food, water and human health sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	
Ecosystems & biodiversity		●		
Water		●	●	
Human health			●	
Industry		●		
Infrastructure				
Coastal areas				
Others				

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise and heat/cold waves were identified at the national level, while vector-borne diseases were identified as a climate hazard at the urban level.

Albania

A

A dedicated paragraph on urban content concerning adaptation was found (NDC, p. 83).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF		●	●	
Built environment	●	●		●
Waste	●	●	●	●
Water	●	●	●	●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility, waste and water sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	●
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	●
Saltwater intrusion	●	●
Water acidification	●	
Wildfire	●	
Others	●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry and infrastructure sectors.
- At the urban level, adaptation challenges were identified in the agriculture and food, human health and coastal areas sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●	●	
Water	●	●	●	
Human health	●	●	●	●
Industry	●	●	●	
Infrastructure	●	●		●
Coastal areas	●	●	●	●
Others			●	

CLIMATE HAZARDS

- All climate hazards were identified at the national level, while floods, droughts, sea level rise, vector-borne diseases, land degradation and saltwater intrusion were identified as climate hazards at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●			
Waste		●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility and LULUCF sectors. The built environment and industry sectors were only recognized as challenges.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health		●		
Industry				
Infrastructure				
Coastal areas	●			
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, land degradation and wildfires were identified at the national level, while land degradation was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment and waste sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, a mitigation response was presented in the energy sector.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●			
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas				
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and human health sectors, while adaptation challenges were identified in the water and others sectors and an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of droughts and temperature rise were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment		●		
Waste	●	●	●	●
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, whereas industry was only acknowledged as a challenge.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		●
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●	●	●
Others	●		●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal sectors.
- At the urban level, adaptation challenges were identified in the infrastructure and coastal sectors, while only a response was identified for the human health sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, heat/cold waves, vector-borne diseases and saltwater intrusion were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transportation and mobility, LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water		●		
Human health		●		
Industry				
Infrastructure	●	●		
Coastal areas				
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and infrastructure sectors. While the ecosystem and biodiversity, water and human health sectors were only presented with responses.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion	●	
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, saltwater intrusion and water acidification were recognized at the national level.

Argentina

B

An urban challenge for mitigation was mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF		●		
Built environment				
Waste			●	
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy sector, while mitigation responses were presented in the transport and mobility and LULUCF sectors
- At the urban level, a mitigation challenge was identified in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the agriculture and food sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

Armenia

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		
Transport & Mobility				
LULUCF		●		
Built environment				
Waste		●		
Water				
Industry		●		
Others				

MITIGATION

- At the national level, mitigation responses were presented in the energy, LULUCF, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water	●			
Human health				
Industry		●		
Infrastructure		●		
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the water sector, while the agriculture and food, ecosystem and biodiversity, industry and infrastructure sectors were only presented with responses.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of droughts and temperature rise were identified at the national level.

NATIONAL		URBAN			NATIONAL		URBAN
Challenges	Responses	Challenges	Responses				
Energy	●			MITIGATION At the national level, mitigation responses were presented in the energy, transport and mobility and LULUCF sectors.	Floods		
Transport & Mobility	●				Droughts		
LULUCF	●				Sea level rise		
Built environment					Storm events		
Waste					Temperature rise		
Water					Heat/cold wave		
Industry					Vector-born diseases		
Others					Land degradation		
				ADAPTATION - At the national level, adaptation responses were presented for the agriculture and food, ecosystem and biodiversity, industry, infrastructure and coastal areas sectors. - At the urban level, an adaptation response was presented for the others sector.	Saltwater intrusion		
					Water acidification		
					Wildfire		
					Others		

CLIMATE HAZARDS

NATIONAL		URBAN			NATIONAL		URBAN
Challenges	Responses	Challenges	Responses				
Energy	●		●	MITIGATION At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.	Floods		
Transport & Mobility			●		Droughts	●	
LULUCF	●		●		Sea level rise		
Built environment			●		Storm events		
Waste	●		●		Temperature rise		
Water	●		●		Heat/cold wave		
Industry	●		●		Vector-born diseases		
Others					Land degradation		
				ADAPTATION At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.	Saltwater intrusion		
					Water acidification		
					Wildfire		
					Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		
Transport & Mobility		●		
LULUCF				●
Built environment		●		
Waste				●
Water				
Industry		●		
Others				

MITIGATION

- At the national level, mitigation responses were presented for the energy, transport and mobility, built environment and industry sectors.
- At the urban level, mitigation responses were presented for the LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity				●
Water				
Human health				
Industry				
Infrastructure		●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation responses were presented for the agriculture and food and infrastructure sectors.
- At the urban level, adaptation response was identified for the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and heat/cold waves were identified at the national level.
- The climate hazards of floods and storm events were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment	●			●
Waste	●	●	●	●
Water	●			
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while mitigation challenges were identified in the built environment, waste and industry sectors.
- At the urban level, mitigation challenge and response was identified in the waste sector, while mitigation responses were presented in the energy, LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●	●	
Coastal areas	●	●	●	
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and heat/cold waves were identified at the national level.
- The climate hazards of floods and storm events were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy				
Transport & Mobility				
LULUCF				
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, a mitigation response was identified in the industry sector.

	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, industry, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the agriculture and food, ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, temperature rise and heat/cold waves were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy				
Transport & Mobility				
LULUCF				
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors.
- At the urban level, mitigation responses were presented in the waste, transportation and mobility and energy sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, infrastructure sectors, while the ecosystem and biodiversity, water and coastal areas sectors were only presented with responses.
- At the urban level, adaptation responses were presented in the water and infrastructure sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and heat/cold waves and saltwater intrusion were identified at the national level.

Barbados

B

Urban responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF		●		●
Built environment		●		
Waste		●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, water and industry sectors, while mitigation responses were presented in the LULUCF, built environment and waste sectors.
- At the urban level, mitigation responses were presented for the transportation and mobility, or LULUCF sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●			
Infrastructure	●			●
Coastal areas	●	●		
Others	●			●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, adaptation responses were presented in the agriculture and food, infrastructure and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and heat/cold waves were identified at the national level.

Belarus

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●			
Built environment		●		
Waste	●			
Water				
Industry		●		
Others				

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while the transport and mobility, built environment and industry sectors were only presented with responses.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the agriculture and food sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors, while the built environment sector was only presented with a response.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●		
Coastal areas	●	●	●	
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge was identified in the coastal areas sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- All the climate hazards were identified at the national level.
- The climate hazards of floods and sea level rise were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		●
Transport & Mobility		●		●
LULUCF		●		●
Built environment				●
Waste		●		●
Water	●			●
Industry				
Others				●

MITIGATION

- At the national level, a mitigation challenge was identified in the water sector, while the energy, transport and mobility, LULUCF and waste sectors were only presented with responses.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, LULUCF, built environment, waste, water and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health	●	●		●
Industry				
Infrastructure		●		●
Coastal areas	●	●		●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases and saltwater intrusion were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF		●		
Built environment		●		●
Waste		●		●
Water				●
Industry		●		
Others		●		

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while the transport and mobility, LULUCF, built environment, waste, industry and others sectors were only presented with mitigation responses.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, built environment, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

Bolivia (Plurinational State of)

B

Urban challenges and responses for mitigation and adaptation and urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●	●	●
Water	●	●	●	
Industry	●			
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and water sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, a mitigation challenge and a response were identified in the waste sector, while a mitigation challenge was identified in the water sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●	●	
Industry				
Infrastructure	●	●		
Coastal areas				
Others				

ADAPTATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and water sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, a mitigation challenge and a response were identified in the waste sector, while a mitigation challenge was identified in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise		
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	●
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise, heat/cold waves, vector-borne diseases, land degradation, wildfires were identified at the national level.
- The climate hazards of floods, droughts, storm events, vector-borne diseases and land degradation were identified at the urban level.

Bosnia and Herzegovina

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste		●		
Water	●			
Industry		●		
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and others sectors, while mitigation responses were presented in the transport and mobility, built environment, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●			
Human health	●			
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food sector, while adaptation responses were identified in the ecosystem and biodiversity, water and human health sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise, heat/cold waves, wildfires and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		
Transport & Mobility		●		
LULUCF		●		
Built environment				
Waste		●		
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation responses were presented in the energy, transport and mobility, LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity				
Water	●	●		
Human health		●		
Industry				
Infrastructure		●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food and water sectors, while adaptation responses were presented in the human health and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods and droughts were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		
Transport & Mobility		●		
LULUCF		●		
Built environment				
Waste				
Water	●			
Industry				
Others		●		

MITIGATION

- At the national level, a mitigation challenge was identified in the water sector, while mitigation responses were presented in the energy, transport and mobility, LULUCF and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure		●		●
Coastal areas				
Others	●	●		●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and others sectors.
- At the urban level, adaptation responses were identified in the infrastructure and others sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of droughts, storm events, temperature rise, land degradation and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were identified in the transport and mobility and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●			
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, human health and coastal areas sectors, while adaptation challenges were identified in the ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- All climate hazards, except others, were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

Burkina Faso

B

Urban responses for mitigation and adaptation and an urban climate hazard were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		●
Transport & Mobility		●		●
LULUCF	●	●		●
Built environment				
Waste		●		
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenge and response was identified in the LULUCF sector, while mitigation responses were presented in the energy, transport and mobility and waste sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water		●		●
Human health		●		
Industry				
Infrastructure		●		●
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, ecosystem and biodiversity sectors, while adaptation responses were presented in the water, human health, infrastructure and others sectors.
- At the urban level, adaptation responses were presented in the water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, temperature rise, land degradation and others were identified at the national level.
- The climate hazard of floods was identified at the urban level.

Burundi

B

Urban challenges for mitigation and responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment				
Waste	●	●	●	●
Water	●			
Industry	●	●		
Others				●

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while a mitigation challenge was identified in the water sector.
- At the urban level, mitigation challenges and responses were identified in the energy and waste sectors, while mitigation responses were presented in the transport and mobility and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		
Industry	●			
Infrastructure	●	●		
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors, while an adaptation challenge was identified in the industry sector.
- At the urban level, an adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne diseases, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility		●	●	●
LULUCF	●	●	●	
Built environment				●
Waste	●	●		
Water		●	●	
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were identified in the transport and mobility and water sectors.
- At the urban level, mitigation challenge and response was identified in the transport and mobility, while mitigation challenges were identified in the energy, LULUCF and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●		
Water	●	●	●	
Human health	●	●		
Industry				
Infrastructure			●	
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, adaptation challenge and response was identified in the agriculture and food sector, while adaptation challenges were identified in the water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	●
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others	●	●

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for heat/cold waves.
- The climate hazards of droughts and others were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment	●	●		●
Waste	●	●		
Water		●		
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified for the transport and mobility, LULUCF, built environment, waste, industry sectors, while the energy, water and others sectors were only presented with responses.
- At the urban level, responses were presented for the energy, transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●	●	●
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified for all sectors.
- At the urban level, adaptation challenges and responses were identified for the infrastructure sector, while the ecosystem and biodiversity sector was only presented with a response.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	●
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation, saltwater intrusion and wildfires were identified at the national level.
- The climate hazard of heat/cold waves was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF	●	●		
Built environment				
Waste	●	●		●
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while a mitigation response was presented in the transport and mobility sector.
- At the urban level, mitigation responses were presented in the energy, transport and mobility and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health		●		
Industry	●	●		
Infrastructure	●			●
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, industry and coastal areas sectors.
- At the urban level, an adaptation challenge was only identified in the agriculture and food sector, while the water and infrastructure sectors were only presented with responses.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment	●	●		●
Waste	●	●		
Water		●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors, while a mitigation response was presented in the water sector.
- At the urban level, mitigation responses were presented in the energy, LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●	●		
Water		●		
Human health		●		
Industry		●		
Infrastructure		●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenge and response was presented in the ecosystem and biodiversity sector, while adaptation responses were presented in the agriculture and food, water, human health, industry and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave	●	●
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, temperature rise, heat/cold waves and wildfires were identified at the national level.
- The climate hazard of heat/cold waves was identified at the urban level.

Central African Republic (the)

B

Urban challenges and responses for mitigation and adaptation and urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment		●	●	●
Waste	●	●		●
Water			●	●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the built environment and water sectors, while mitigation responses were presented in the LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, adaptation challenge and response was identified in the water sector, while adaptation response was presented in the agriculture and food sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne diseases, land degradation and wildfires were identified at the national level.
- The climate hazards of floods and land degradation were identified at the urban level.

Chad

B

Urban challenges and responses for mitigation and adaptation and one urban climate hazard were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility				
LULUCF	●	●	●	●
Built environment		●		●
Waste	●	●	●	●
Water	●	●	●	●
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and water sectors.
- At the urban level, mitigation challenges and responses were identified in the LULUCF, waste and water sectors, while a mitigation challenge was identified in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure	●	●	●	●
Coastal areas				
Others		●	●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, adaptation challenges and responses were identified in the water and infrastructure sectors, while an adaptation challenge was identified in the others sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and wildfires were identified at the national level.
- The climate hazard of floods was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water	●			
Industry	●	●		
Others	●	●	●	●

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water, industry and others sectors, while a mitigation challenge was identified in the water sector.
- At the urban level, mitigation challenge and response was identified in the others sector, while mitigation responses were presented in the transport and mobility and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	
Water	●	●		●
Human health	●	●	●	●
Industry				
Infrastructure	●			
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, an adaptation challenge and a response were identified in the human health sector, while an adaptation challenge was identified in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave	●	
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, heat/cold waves, land degradation, water acidification and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment	●	●		●
Waste	●			
Water	●			
Industry	●	●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment and industry sectors, while mitigation challenges were identified in the waste, water and others sectors.
- At the urban level, mitigation challenges and responses were identified in the energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	●
Water	●	●	●	●
Human health	●	●		●
Industry	●			●
Infrastructure	●	●	●	●
Coastal areas	●		●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors, while adaptation challenges were identified in the industry and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity, water, infrastructure and coastal sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		●
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of land degradation was identified at the national level.
- The climate hazard of sea level rise was identified at the urban level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●			MITIGATION - At the national level, mitigation challenges and responses were identified in the energy, transportation and mobility, LULUCF, built environment, waste and industry sectors, while a mitigation challenge was identified in the water sector. - At the urban level, mitigation challenges were identified in the built environment and industry sectors, while mitigation responses were presented in the transport and mobility, waste and water sectors.
Transport & Mobility	●	●		●	
LULUCF	●	●			
Built environment	●	●	●		
Waste	●	●		●	
Water	●			●	
Industry	●	●	●		
Others					
	Challenges	Responses	Challenges	Responses	
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION - At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, human health and infrastructure sectors. - At the urban level, adaptation challenge and response was identified in the water sector, while an adaptation challenge was identified in the human health sector.
Ecosystems & biodiversity	●	●		●	
Water	●		●	●	
Human health	●	●	●		
Industry					
Infrastructure	●	●			
Coastal areas	●				
Others					

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of storm events, temperature rise, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●			MITIGATION At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation challenges were identified in the transport and mobility, waste and water sectors.
Transport & Mobility	●				
LULUCF	●	●			
Built environment		●			
Waste	●	●			
Water	●				
Industry	●				
Others					
	Challenges	Responses	Challenges	Responses	
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure, coastal areas and others sectors.
Ecosystems & biodiversity	●	●			
Water	●	●			
Human health	●	●			
Industry					
Infrastructure	●	●			
Coastal areas	●	●			
Others	●	●			

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, heat/cold waves, vector-borne diseases and land degradation were identified at the national level.

Congo (the)

A

Cities were mentioned as an adaptation priority with a dedicated section (NDC, p. 27).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment		●		
Waste	●	●	●	●
Water	●	●		●
Industry	●	●		
Others			●	

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, mitigation challenges and responses were identified in the transport and mobility and built environment sectors, while mitigation responses were presented in the energy and water sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	
Ecosystems & biodiversity	●	●	●	
Water	●	●	●	●
Human health	●	●		
Industry	●			●
Infrastructure	●	●		
Coastal areas	●	●		●
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenge and response was identified in the water sector, while adaptation challenges were identified in the agriculture and food and ecosystem and biodiversity sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others		●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise and heat/cold waves were identified at the national level.
- The climate hazard of sea level rise was identified at the urban level.

Cook Islands (the)

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●			
Waste	●	●		
Water	●	●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors, while a mitigation challenge was identified in the built environment sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●	●		
Water		●		
Human health				
Industry				
Infrastructure				
Coastal areas		●		
Others		●		

ADAPTATION

- At the national level, adaptation challenge and response was identified in the ecosystem and biodiversity sector, while adaptation responses were presented in the agriculture and food, water, coastal areas and others sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		●
Water	●	●		●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and water sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●		
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, an adaptation response was identified in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	●
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne and land degradation were identified at the national level.
- The climate hazards of floods and storm events were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●			
Built environment	●	●		
Waste	●	●		●
Water				●
Industry		●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment and waste sectors, while mitigation challenges were identified in the LULUCF and others sectors.
- At the urban level, mitigation responses were presented in the waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●			
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors, while an adaptation challenge was identified in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		●
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and wildfires were identified at the national level.
- The climate hazard of sea level rise was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				●
Waste		●		
Water		●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while mitigation responses were presented in the transport and mobility, waste and water sectors.
- At the urban level, a mitigation response was presented in the built environment sector.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health		●		
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●	●	●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, infrastructure and coastal areas sectors, while adaptation responses were presented in the human health and others sectors.
- At the urban level, adaptation challenges and responses were identified in the infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	●
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, land degradation and saltwater intrusion were identified at the national level.
- The climate hazards of floods and land degradation were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

Democratic People's Republic of Korea (the)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF		●		
Built environment				
Waste				
Water				
Industry	●			
Others				

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while a mitigation challenge was identified in the industry sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

Urban challenges and responses for mitigation and adaptation and urban climate hazards were mentioned.

Democratic Republic of the Congo (the)



	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility		●	●	●
LULUCF	●	●		
Built environment				
Waste	●	●	●	●
Water		●		●
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the transport and mobility, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility, waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, human health and coastal areas sectors, while adaptation responses were presented in the ecosystem and biodiversity and infrastructure sectors.
- At the urban level, adaptation challenge and response was identified in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, heat/cold waves, land degradation and wildfires were identified at the national level.
- The climate hazards of floods, droughts and land degradation were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		●
Water		●		●
Industry	●			
Others		●		

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while mitigation responses were presented in the water and others sectors.

• At the urban level, mitigation responses were presented in the energy, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health				
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others				

ADAPTATION

• At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and coastal areas sectors.

• At the urban level, adaptation response was presented in the water sector.

NATIONAL URBAN

Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazards of floods, droughts, sea level rise, temperature rise, land degradation and saltwater intrusion were identified at the national level.

• The climate hazard of sea level rise was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, a mitigation response was presented in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water		●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the built environment and water sectors.
- At the urban level, mitigation challenge and response was identified in the transport and mobility sector, while a mitigation response was identified in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●	●	●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenge and response was presented in the coastal areas sectors, while an adaptation response was presented in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification	●	
Wildfire	●	
Others	●	●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne, water Acidification, wildfires and others were identified at the national level.
- The climate hazards of floods and others hazards were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water		●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors, while mitigation responses were presented in the built environment and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry		●		
Infrastructure	●	●	●	
Coastal areas	●	●	●	
Others		●		

ADAPTATION

• At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors, while adaptation responses were presented in the industry and others sectors.

• At the urban level, adaptation challenges were identified in the infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others	●	

CLIMATE HAZARDS

• All climate hazards were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		●
LULUCF				
Built environment	●	●	●	●
Waste	●	●		
Water		●		●
Industry	●	●		
Others		●		

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste and industry sectors, while mitigation responses were presented in the water and others sectors.

• At the urban level, mitigation challenge and response was identified in the built environment sector, while mitigation responses were presented in the energy, transport and mobility and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●	●	
Water	●	●	●	
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas	●	●	●	●
Others		●		

ADAPTATION

• At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

• At the urban level, adaptation challenges and responses were identified in the agriculture and food and coastal areas sectors, while adaptation challenges were identified in the ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

• The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, land degradation, saltwater intrusion and others were identified at the national level.

• The climate hazards of floods, sea level rise and storm events were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF	●	●		●
Built environment		●		
Waste	●			
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility and LULUCF sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●	●	●
Human health	●	●		
Industry		●		
Infrastructure	●	●		
Coastal areas		●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors, while adaptation responses were presented in the industry, coastal areas and others sectors.
- At the urban level, an adaptation challenge and a response were identified in the water sector, while an adaptation response was presented in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	●
Temperature rise	●	●
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and others were identified at the national level.
- The climate hazards of floods, storm events, temperature rise, land degradation and others were mentioned at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment	●	●		●
Waste	●	●		
Water				
Industry	●	●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, built environment and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●			
Industry	●			
Infrastructure	●	●		
Coastal areas	●	●		
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, infrastructure and coastal areas sectors, while adaptation responses were presented in the human health, industry and others sectors.
- At the urban level, adaptation responses were presented in the agriculture and food and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	●
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves and others were identified at the national level.
- The climate hazards of temperature rise and others were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors.
- At the urban level, a mitigation response was presented in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas		●		●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, adaptation responses were presented in the water and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of droughts, temperature rise, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise and heat/cold waves were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment		●		●
Waste	●	●		●
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors, while a mitigation response was presented in the built environment sector.
- At the urban level, mitigation responses were presented in the transport and mobility, built environment and waste sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●			
Infrastructure	●	●	●	
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, an adaptation challenge was identified in the infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise and land degradation were identified at the national level.
- The climate hazards of floods and land degradation were mentioned at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste		●		
Water				
Industry		●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility and LULUCF sectors, while mitigation responses were presented in the waste, industry and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, heat/cold waves, vector-borne diseases, land degradation, saltwater intrusion and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste	●	●		
Water		●		
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, waste and industry sectors, while mitigation responses were presented in the water and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health				
Industry	●			
Infrastructure	●	●		●
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge and a response were identified in the coastal areas sector, while adaptation responses were presented in the ecosystem and biodiversity, water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise	●	●
Storm events		
Temperature rise	●	●
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, temperature rise, vector-borne diseases and land degradation were identified at the national level.
- The climate hazards of Floods, sea level rise, temperature rise and land degradation were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, coastal areas and others sectors, while an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, temperature rise, heat/cold waves, vector-borne diseases and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		●
LULUCF	●	●		
Built environment		●		
Waste	●			●
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and industry sectors while mitigation responses were presented in the transport and mobility and built environment sectors.
- At the urban level, mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges	Responses	Challenges	Responses
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water		●		
Human health		●		
Industry				
Infrastructure				●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water and human health sectors.
- At the urban level, adaptation responses were presented in the infrastructure sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges	Responses	Challenges	Responses
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●			
Others	●			

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while mitigation challenges were identified in the industry and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry		●		
Infrastructure		●		
Coastal areas	●			
Others	●			

ADAPTATION

• At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water and human health sectors, while adaptation challenges were identified in the coastal areas and others sectors and adaptation responses were presented in the industry and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

• The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, land degradation, saltwater intrusion, wildfires and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		●
Water	●			
Industry	●			
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while mitigation challenges were identified in the water and industry sectors.

• At the urban level, mitigation response was presented in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		
Others				

ADAPTATION

• At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

• At the urban level, adaptation response was identified in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

• The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, vector-borne diseases, land degradation, saltwater intrusion, water acidification and wildfires were identified at the national level.

• The climate hazard of floods was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●	●	
Water				●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors.
- At the urban level, a mitigation challenge was identified in the waste sector and mitigation responses were presented in the energy and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity	●			
Water	●	●		
Human health			●	
Industry				
Infrastructure		●	●	
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the water and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the human health and infrastructure sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of sea level rise were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility				
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water	●			
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the built environment and industry sectors.
- At the urban level, mitigation a challenge was identified in the energy sector national level, while a mitigation response was presented in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●			
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, infrastructure and coastal areas sectors, while an adaptation challenge was identified in the human health sector.
- At the urban level, adaptation challenge and response was identified in the infrastructure sector, while adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, land degradation, saltwater intrusion, water acidification, wildfires and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility				
LULUCF	●	●		
Built environment				
Waste		●		
Water		●		
Industry		●		
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and others sectors, while mitigation responses were presented in the waste, water and industry sectors.
- At the urban level, mitigation challenge and response was identified in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water		●		
Human health		●		
Industry		●		
Infrastructure				
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and coastal areas sectors, while adaptation responses were presented in the water, human health, industry and others sectors.

NATIONAL URBAN

Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			●
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation challenges were identified in the transport and mobility and industry sectors.
- At the urban level, a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

NATIONAL URBAN

Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and others were identified at the national level.

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As a city-state, all mitigation activities mentioned are urban in nature; no urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste		●		
Water	●	●		
Industry	●			
Others				

MITIGATION

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water		●		
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

Honduras

A

Smart Cities and urban measures in support of gender inclusion and social inequality were mentioned (NDC, pp. 6, 16).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●	●	
Built environment				●
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, mitigation a challenge was identified in the LULUCF sector, while a mitigation response was presented in the built environment sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●		●	●
Industry				
Infrastructure	●		●	●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity and water sectors, while adaptation challenges were identified in the human health and infrastructure sectors.
- At the urban level, adaptation challenges and responses were presented in the human health and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise		
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods and storm events were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			
LULUCF	●	●		
Built environment				
Waste	●			
Water				
Industry	●			
Others	●	●		

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF and others sectors, while mitigation challenges were identified in the transport and mobility, waste, industry and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity		●		
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

• At the national level, an adaptation response was presented in the ecosystem and biodiversity sector.

NATIONAL URBAN

Floods		
Droughts		
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others	●	

CLIMATE HAZARDS

• The climate hazards of sea level rise, temperature rise, water acidification and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment	●	●	●	●
Waste	●	●	●	●
Water	●	●	●	●
Industry	●	●		
Others	●		●	●

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste, water and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	●
Water	●	●	●	
Human health	●	●		
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, heat/cold waves, vector-borne diseases, saltwater intrusion and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●	●	●
Water		●	●	●
Industry	●	●		
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water, industry and others sectors, while mitigation responses were presented in the transport and mobility and water sectors.
- At the urban level, mitigation challenges and responses were identified in the waste and water sectors, while mitigation responses were presented in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health		●		
Industry				
Infrastructure		●	●	●
Coastal areas	●	●		
Others		●		●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and coastal areas sectors, while adaptation responses were presented in the human health, infrastructure and others sectors.
- At the urban level, an adaptation challenge and a response were identified in the infrastructure sector, while adaptation responses were presented in the ecosystem and biodiversity and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, land degradation, wildfires and others were identified at the national level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●		●	MITIGATION - At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors, while a mitigation challenge was identified in the others sector. - At the urban level, a mitigation challenge and a response were identified in the built environment sector, while mitigation responses were presented in the energy, LULUCF and waste sectors.
Transport & Mobility	●	●			
LULUCF	●	●		●	
Built environment	●	●	●	●	
Waste	●	●		●	
Water					
Industry	●	●			
Others	●				
	Challenges	Responses	Challenges	Responses	
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION - At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors. - At the urban level adaptation challenges were identified in the industry and infrastructure sectors.
Ecosystems & biodiversity	●	●			
Water	●	●			
Human health	●	●			
Industry			●		
Infrastructure	●		●		
Coastal areas	●	●			
Others		●			

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation, water acidification and wildfires were identified at the national level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●			MITIGATION At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.
Transport & Mobility		●			
LULUCF	●	●			
Built environment		●			
Waste	●	●			
Water	●	●			
Industry	●	●			
Others					
	Challenges	Responses	Challenges	Responses	
	Challenges	Responses	Challenges	Responses	
Agriculture & food		●			ADAPTATION At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.
Ecosystems & biodiversity	●				
Water	●	●			
Human health	●				
Industry		●			
Infrastructure					
Coastal areas		●			
Others					

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water	●	●		
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●	●		
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the agriculture and food, water and human health sectors, while an adaptation challenge was identified in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment				
Waste		●		
Water		●		
Industry				
Others				

MITIGATION

- At the national level, the mitigation challenges and responses were identified in the energy and LULUCF sectors, while mitigation responses were presented in the waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water				
Human health		●		
Industry				
Infrastructure				
Coastal areas	●			
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the coastal areas sector, while adaptation responses were identified in the agriculture and food, ecosystem and biodiversity and human health sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of droughts, sea level rise, storm events and temperature rise were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			
LULUCF	●	●		
Built environment				
Waste	●			
Water				
Industry	●	●		
Others				●

MITIGATION

- At the national level, the mitigation challenges and responses were identified in the energy, LULUCF and industry sectors, while mitigation challenges were identified in the transport and mobility and waste sectors.
- At the urban level, a mitigation response was presented in the others sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenge and response was presented in the agriculture and food sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●		●
Built environment		●		●
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while mitigation response was presented in the built environment sector.
- At the urban level, a mitigation challenge and a response were identified in the energy sector, while mitigation responses were presented in the LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	●
Water	●	●		●
Human health	●	●		
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●	●	
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	
Storm events		
Temperature rise	●	●
Heat/cold wave	●	●
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, heat/cold waves, vector-borne diseases, land degradation, water acidification and wildfires were identified at the national level.
- The climate hazards of floods, droughts, temperature rise and heat/cold waves were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment	●	●		●
Waste	●	●		●
Water		●		●
Industry	●			
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment and waste sectors, while mitigation challenges were identified in the industry and others sectors.
- At the urban level, mitigation responses were presented in the energy, LULUCF, built environment, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health	●	●	●	●
Industry	●			
Infrastructure	●	●	●	
Coastal areas	●			
Others		●	●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors, while adaptation challenges were identified in the industry and coastal areas sectors.
- At the urban level, adaptation challenge and response was identified in the human health sector, while adaptation responses were presented in the infrastructure and others sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire		
Others	●	●

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for sea level rise and wildfires.
- The climate hazards of Flood, storm events and others were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while a mitigation challenge was identified in the industry sector and mitigation responses were presented in the transport and mobility and built environment sectors.
- At the urban level, a mitigation challenge was identified in the energy sector.

	Challenges		Responses		
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION
Ecosystems & biodiversity	●	●			
Water	●	●			
Human health	●	●			
Industry					
Infrastructure		●			
Coastal areas	●	●	●		
Others					

At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.

At the urban level, an adaptation challenge was identified in the coastal areas sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	●
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise and heat/cold waves were identified at the national level.
- The climate hazard of sea level rise was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry				
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the transport and mobility and others sectors.

	Challenges		Responses		
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION
Ecosystems & biodiversity	●	●			
Water	●	●			
Human health	●	●			
Industry					
Infrastructure		●			
Coastal areas		●			
Others		●			

At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and human health sectors, while adaptation responses were presented in the infrastructure, coastal areas and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	●
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases and water acidification were identified at the national level.
- The climate hazard of temperature rise was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			
LULUCF	●			
Built environment			●	
Waste	●			
Water				
Industry	●			
Others	●			

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while mitigation challenges were identified in the transport and mobility, LULUCF, waste, industry and others sectors.
- At the urban level, a mitigation challenge was identified in the built environment sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●		●	
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the water, human health, coastal areas and others sectors, while adaptation challenges were identified in the ecosystem and biodiversity sector.
- At the urban level, an adaptation challenge was identified in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, temperature rise, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water	●			
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the ecosystem and biodiversity, water, human health and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of temperature rise, vector-borne diseases and others were identified at the national level.

Lao People's Democratic Republic (the)

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	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water	●	●		
Industry	●			
Others				

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy, transport and mobility, LULUCF, waste and water sectors, while a mitigation challenge was identified in the industry sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health	●	●		●
Industry				
Infrastructure	●	●		●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, adaptation responses were presented in the ecosystem and biodiversity, water, human health and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne diseases and land degradation were identified at the national level.

Latvia

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were identified in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the waste sector. Adaptation challenges were identified for the ecosystem and biodiversity and human health sectors, and adaptation responses were identified for the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- Drought was the only climate hazard indicated at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●	●	
Built environment	●	●	●	
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste and industry sectors, while a mitigation response was presented in the transport and mobility sectors.
- At the urban level, mitigation challenges were identified in the LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health	●	●		●
Industry	●	●		
Infrastructure	●	●		
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the coastal areas sector, while adaptation responses were presented in the ecosystem and biodiversity, water and human health sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, heat/cold waves, vector-borne diseases, land degradation, wildfires and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others	●	●		

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy, LULUCF, waste, water, industry and others sectors, while mitigation responses were presented in the transport and mobility and built environment sector.
- At the urban level, a mitigation response was presented in the energy sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the ecosystem and biodiversity, water, human health and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise, land degradation and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		●
LULUCF	●	●		●
Built environment				●
Waste	●	●		●
Water				
Industry	●	●		
Others			●	●

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the others sector, while mitigation responses were identified in the energy, transport and mobility, LULUCF, built environment and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water		●		●
Human health	●	●		
Industry		●		
Infrastructure		●		●
Coastal areas	●	●		
Others			●	●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, human health and coastal areas sectors, while adaptation responses were presented in the water, industry and infrastructure sectors.
- At the urban level, adaptation challenge and responses were identified in the others sector, while adaptation responses were presented in the agriculture and food, water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, vector-borne diseases and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy		●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●			
Water				
Industry	●			
Others	●			

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the LULUCF sector, while mitigation challenges were identified in the waste, industry and others sectors and mitigation responses were presented in the energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity		●		
Water				
Human health		●		
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the ecosystem and biodiversity and human health sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges		Responses		
	Challenges	Responses	Challenges	Responses	
Agriculture & food		●			
Ecosystems & biodiversity	●				
Water	●	●			
Human health	●				
Industry		●			
Infrastructure					
Coastal areas		●			
Others					

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges		Responses		
	Challenges	Responses	Challenges	Responses	
Agriculture & food		●			
Ecosystems & biodiversity	●				
Water	●	●			
Human health	●				
Industry		●			
Infrastructure					
Coastal areas		●			
Others					

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

Madagascar

B

Urban responses for mitigation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while a mitigation response was presented in the built environment sector.
- At the urban level, a mitigation response was identified in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		
Others				

ADAPTATION

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, vector-borne diseases and others were identified at the national level.

Malawi

B

Urban responses for mitigation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment		●		●
Waste	●	●		●
Water	●			●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while a mitigation challenge was identified in the water sector.
- At the urban level, mitigation responses were presented in the LULUCF, built environment, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●			
Infrastructure	●	●		
Coastal areas				
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and others sectors, while an adaptation challenge was identified in the industry sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health		●		
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge and a response were identified in the infrastructure sector, while adaptation responses were presented in the ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, wildfires and others were identified at the national level.
- The climate hazard of sea level rise was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF				
Built environment	●			
Waste	●	●		●
Water				
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and waste sectors, while a mitigation challenge was identified in the built environment sector and mitigation responses were presented in the transport and mobility and industry sectors.
- At the urban level, mitigation responses were presented in the transport and mobility and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry		●		
Infrastructure	●	●		
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure, coastal areas and others sectors, while an adaptation response was presented in the industry sector.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, temperature rise, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility	●			
LULUCF	●	●		
Built environment	●			
Waste	●	●	●	●
Water		●	●	
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation challenges were identified in the transport and mobility, built environment and industry sectors.
- At the urban level, a mitigation challenge and response was identified in the waste sector, while mitigation challenges were identified in the energy and water sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health		●		
Industry				
Infrastructure	●	●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and infrastructure sectors, while an adaptation response was identified in the human health sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, land degradation and wildfires were identified at the national level. Flooding was highlighted at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

Marshall Islands (the)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste	●			
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and transport and mobility sectors, while a mitigation challenge was identified in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity	●			
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise	●	
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of sea level rise was identified at the national level.

Mauritania



A section was dedicated to habitat, urban planning and regional territory (NDC, p. 19).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water		●	●	
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while mitigation responses were presented in the built environment and water sectors.
- At the urban level, mitigation challenges and responses were identified in the energy and transport and mobility sectors, while a mitigation challenge was identified in the water sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●		
Industry	●			
Infrastructure		●		
Coastal areas	●	●	●	●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas responses, while adaptation responses were presented in the infrastructure and others sectors.
- At the urban level, adaptation challenges and responses were identified in the water and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	●
Storm events	●	●
Temperature rise	●	●
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, vector-borne diseases, land degradation and saltwater intrusion were identified at the national level.
- The climate hazards of floods, droughts, sea level rise, temperature rise were identified at the urban level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●			MITIGATION At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, waste and industry sectors, while mitigation responses were presented in the LULUCF, built environment and water sectors.
Transport & Mobility	●	●			
LULUCF		●			
Built environment		●			
Waste	●	●			
Water		●			
Industry	●	●			
Others					
	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION - At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, human health, industry, coastal areas and others sectors, while adaptation responses were presented in the water and infrastructure sectors. - At the urban level, an adaptation response was presented in the infrastructure sector.
Ecosystems & biodiversity	●	●			
Water		●			
Human health	●	●			
Industry	●	●			
Infrastructure		●		●	
Coastal areas	●	●			
Others	●	●			

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, vector-borne diseases and land degradation were identified at the national level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●		●	MITIGATION - At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste, industry and others sectors. A mitigation challenge was identified for the water sector. - At the urban level, mitigation responses were presented in the energy, transport and mobility and waste sectors.
Transport & Mobility	●	●		●	
LULUCF	●	●			
Built environment	●	●			
Waste	●	●		●	
Water	●				
Industry	●	●			
Others	●	●			
	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			ADAPTATION - At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors. An adaptation challenge was identified for the others sector. - At the urban level, adaptation responses were presented in the water and infrastructure sectors.
Ecosystems & biodiversity	●	●			
Water	●	●		●	
Human health	●	●			
Industry					
Infrastructure	●	●		●	
Coastal areas	●	●			
Others	●				

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise, vector-borne diseases and others were identified at the national level.

Micronesia (Federated States of)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●			
Transport & Mobility	●			
LULUCF				
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges were identified in the energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

A discussion on adaptation priorities includes a separate section on promoting resilient development of urban communities. Urban and land planning were identified in a dedicated section under cross-cutting capacity needs (NDC, pp. 31, 54).

Moldova (the Republic of)



	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●	●	●
Industry	●	●		
Infrastructure	●	●		●
Coastal areas				
Others				●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry and infrastructure sectors.
- At the urban level, an adaptation challenge and a response were identified in the human health sector, while adaptation responses were presented in the infrastructure and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise and heat/cold waves were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	
LULUCF				●
Built environment	●	●	●	
Waste	●	●		●
Water				
Industry	●	●		●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste and industry sectors.
- At the urban level, mitigation challenge and response was identified in the energy sector. Mitigation challenges were identified in the transport and mobility and built environment sectors and mitigation responses were presented in the LULUCF, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity			●	●
Water				
Human health		●		
Industry				
Infrastructure				●
Coastal areas		●	●	●
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the human health and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts		
Sea level rise	●	●
Storm events		
Temperature rise		●
Heat/cold wave		●
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of sea level rise and saltwater intrusion were identified at the national level.
- The climate hazards of sea level rise, temperature rise and heat/cold waves were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF	●	●		
Built environment				●
Waste	●	●		
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the transport and mobility, water and industry sectors.
- At the urban level, mitigation responses were presented in the energy and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health		●		
Industry				
Infrastructure				
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the ecosystem and biodiversity and water sectors, while adaptation responses were presented in the agriculture and food, human health and others sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of droughts and vector-borne diseases were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●			
LULUCF	●			
Built environment		●		●
Waste		●	●	●
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, a mitigation challenge and a response was identified in the energy sector, while mitigation challenges were identified in the transport and mobility and LULUCF sectors.
- At the urban level, a mitigation challenge and a response was identified in the waste sector, while mitigation responses were presented in the energy and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water	●			
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●			
Others	●			

ADAPTATION

- At the national level, adaptation responses were presented in the human health and infrastructure sectors, while adaptation challenges were identified in the agriculture and food, water, coastal areas and others sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise		
Storm events		
Temperature rise		●
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, heat/cold waves, land degradation and wildfires were identified at the national level.
- The climate hazards of floods, droughts and temperature rise were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●		●
Built environment	●	●	●	
Waste	●	●		●
Water	●	●		●
Industry	●	●		●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, a mitigation challenge and a response were identified in the transport and mobility sector, while mitigation responses were presented in the LULUCF, waste, water and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		●
Water	●	●		●
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		●
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation, wildfires and others were identified at the national level.

Mozambique

A

A section was dedicated to priority adaptation and resilience measures, with a subsection on infrastructure, urban areas, settlements and tourist and coastal zones (NDC, pp. 44–45).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility				●
LULUCF	●	●		
Built environment		●		
Waste	●	●		●
Water	●	●		●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, waste, water and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●	●	
Industry				
Infrastructure	●	●		●
Coastal areas	●	●	●	●
Others	●	●		

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure, coastal areas and others sectors.
- At the urban level, adaptation responses were presented in the water and coastal areas sectors, while an adaptation challenge was identified in the human health sector and an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, vector-borne diseases, land degradation and saltwater intrusion were identified at the national level.

Myanmar

A

A dedicated section was included on developing resilient, inclusive and sustainable cities and towns (NDC, pp. 40–43).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●	●	●
Built environment			●	●
Waste	●			●
Water			●	●
Industry	●			●
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility and LULUCF sectors, while mitigation challenges were identified in the waste, industry and others sectors.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●		●
Water		●	●	●
Human health	●	●	●	●
Industry	●	●		
Infrastructure	●		●	●
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, human health, industry and coastal areas sectors, while an adaptation challenge was identified in the infrastructure sector.
- At the urban level, adaptation responses were presented in the agriculture and food, water, human health, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise		
Storm events	●	●
Temperature rise		
Heat/cold wave	●	●
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, heat/cold waves and vector-borne diseases were identified at the national level.
- The climate hazards of floods, storm events, heat/cold waves and others were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		●
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the Energy, LULUCF, waste and industry sectors, while a mitigation response was presented in the transport and mobility sector.
- At the national level, a mitigation response was presented in the LULUCF sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others	●	●		●

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, coastal areas and others areas, while an adaptation response was presented in the infrastructure sector.
- At the urban level, adaptation responses were presented in the water and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and vector-borne, land degradation and water acidification were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility			●	●
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, a mitigation challenge and a response were identified in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	●
Ecosystems & biodiversity	●	●	●	●
Water	●	●	●	●
Human health	●	●		
Industry	●	●		
Infrastructure	●	●		
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in all the sectors.
- At the urban level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- All the climate hazards were identified at the national level, except for water acidification and others.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●			MITIGATION - At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were presented in the transport and mobility and others sectors. - At the urban level, a mitigation challenge and a response were identified in the built environment sector.
Transport & Mobility		●			
LULUCF	●	●			
Built environment			●	●	
Waste	●	●			
Water					
Industry	●	●			
Others		●			
	Challenges	Responses	Challenges	Responses	ADAPTATION At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the agriculture and food, ecosystem and biodiversity, human health and others sectors.
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●				
Ecosystems & biodiversity	●				
Water	●	●			
Human health	●				
Industry					
Infrastructure					
Coastal areas					
Others	●				

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy		●			MITIGATION At the national level, mitigation responses were presented in the energy, LULUCF and industry sectors.
Transport & Mobility					
LULUCF		●			
Built environment					
Waste					
Water					
Industry		●			
Others					
	Challenges	Responses	Challenges	Responses	ADAPTATION At the urban level, adaptation challenges were identified in the agriculture and food and industry sectors.
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●				
Ecosystems & biodiversity					
Water					
Human health					
Industry	●				
Infrastructure					
Coastal areas					
Others					

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of temperature rise and heat/cold waves were identified at the national level.

Nicaragua

B

Urban responses for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health		●		
Industry				
Infrastructure		●		
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and water sectors, while adaptation responses were presented in the human health and infrastructure sectors.
- At the urban level, an adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise		
Heat/cold wave	●	
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events and heat/cold waves were identified at the national level.

Niger (the)

B

Urban challenges and responses for mitigation and an urban response for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility		●		
LULUCF	●	●		●
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the Energy and LULUCF sectors, while a mitigation response was presented in the transport and mobility sector.
- At the urban level, a mitigation challenge and a response were identified in the Energy sector, while a mitigation response was presented in the LULUCF sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water		●		
Human health		●		
Industry		●		
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and ecosystem and biodiversity sectors, while adaptation responses were presented in the water, human health and industry sectors.
- At the urban level, an adaptation response was presented in the agriculture and food sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility		●	●	●
LULUCF	●	●	●	●
Built environment	●	●		
Waste	●	●	●	●
Water	●	●	●	●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●		
Industry	●	●		
Infrastructure	●			
Coastal areas	●			
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry and others sectors, while adaptation challenges were identified in the infrastructure and coastal areas sectors.
- At the urban level, adaptation challenge and response was identified in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise and land degradation were identified at the national level. The climate hazard of floods was mentioned at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment		●		
Waste		●		
Water		●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility sectors, while mitigation responses were presented in the built environment, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity				
Water	●	●		
Human health		●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water and coastal areas sectors, while adaptation responses were presented in the human health, infrastructure and others sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification	●	
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of droughts, sea level rise, storm events, temperature rise, vector-borne diseases, saltwater intrusion were identified at the national level.

North Macedonia

B

Urban challenges for mitigation and urban responses for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility	●		●	
LULUCF	●	●		
Built environment	●			
Waste	●	●		
Water				
Industry	●	●		
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, industry and others sectors, while mitigation challenges were identified in the transport and mobility and built environment sectors.
- At the urban level, mitigation challenges were identified in the energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water		●		
Human health		●		
Industry				
Infrastructure		●		
Coastal areas				
Others		●		●

ADAPTATION

- At the national level, adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and others sectors.
- At the urban level, an adaptation response was presented in the others sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of vector-borne diseases was identified at the national level.

Norway

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water				
Industry	●	●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge was identified in the agriculture and food sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of others was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste				
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●			
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, human health, infrastructure and coastal areas sectors, while adaptation challenges were identified in the ecosystem and biodiversity and water sectors.
- At the urban level, an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise	●	
Storm events	●	●
Temperature rise	●	●
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, temperature rise and saltwater intrusion were identified at the national level.
- The climate hazards of floods, storm events and temperature rise were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●		●
Built environment	●	●		
Waste	●	●		●
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors.
- At the urban level, a mitigation challenge and a response were identified in the transport and mobility sectors, while mitigation responses were presented in the LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●	●	●
Industry				
Infrastructure	●		●	
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors, while an adaptation challenge was identified in the infrastructure sector.
- At the urban level, an adaptation challenge and response was identified in the human health sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	●
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for water acidification and wildfires.
- The climate hazards of floods and heat/cold waves were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment	●	●		
Waste	●	●		
Water		●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment and waste sectors, while a mitigation response was presented in the water sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water	●			
Human health				
Industry				
Infrastructure	●			
Coastal areas	●			
Others				

ADAPTATION

- At the national level, adaptation challenges were identified in the agriculture and food, water, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and water acidification were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	
LULUCF	●	●		
Built environment	●	●	●	●
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport, LULUCF, built environment, waste and industry sectors.
- At the national level, a mitigation challenge and response was identified in the built environment sector, while a mitigation challenge was identified in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	
Water	●	●		●
Human health	●	●		
Industry	●	●		
Infrastructure	●	●	●	●
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified for all sectors.
- At the urban level, an adaptation challenge and response was identified in the infrastructure sector, while an adaptation challenge was identified in the ecosystem and biodiversity sector and an adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	●
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification	●	
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, saltwater intrusion and water acidification were identified at the national level.
- The climate hazards of floods, droughts and heat/cold waves were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			
LULUCF	●	●		
Built environment				
Waste				
Water	●	●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and water sectors, while a mitigation challenge was identified in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●	●	
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events and land degradation were identified at the national level.
- The climate hazard of floods was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	
LULUCF	●	●		
Built environment				
Waste	●	●	●	
Water		●		
Industry	●	●		●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors, while a mitigation response was presented in the water sector.
- At the urban level, mitigation challenges were identified in the transport and mobility and waste sectors, while a mitigation response was presented in the industry sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity				
Water		●	●	●
Human health	●	●	●	●
Industry				●
Infrastructure	●	●	●	●
Coastal areas		●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, human health and infrastructure sectors, while adaptation responses were presented in the water and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the water, human health, infrastructure and coastal areas sectors, while adaptation responses were presented in the agriculture and food and industry sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise	●	●
Storm events	●	●
Temperature rise	●	
Heat/cold wave	●	●
Vector-borne diseases	●	●
Land degradation	●	●
Saltwater intrusion		
Water acidification	●	
Wildfire		●
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and water acidification were identified at the national level.
- The climate hazards of floods, sea level rise, storm events, heat/cold waves, vector-borne diseases and land degradation were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●			
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while mitigation responses were presented in the transport and mobility, water and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	●
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●	●	●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were presented in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, storm events, temperature rise, heat/cold waves, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●			
Transport & Mobility				
LULUCF	●			
Built environment				
Waste	●			
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges were identified in the energy, LULUCF, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water	●			
Human health	●			
Industry				
Infrastructure				
Coastal areas				
Others	●			

ADAPTATION

- At the urban level, adaptation challenges were identified in the agriculture and food, water, human health and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise and land degradation were identified at the national level.

Philippines (the)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste		●		
Water				
Industry		●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while mitigation challenges were identified in the transport and mobility, waste and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water				
Human health	●	●		
Industry				
Infrastructure	●			
Coastal areas		●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and human health sector, while adaptation responses were presented in the ecosystem and biodiversity, coastal areas and others sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

Poland



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		●
LULUCF				
Built environment	●	●		●
Waste	●	●		●
Water	●	●	●	●
Industry	●			
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste, water and others sectors, while a mitigation challenge was identified in the industry sector.
- At the urban level, mitigation challenges and responses were identified in the energy and water sectors, while mitigation responses were presented in the transport and mobility, built environment and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	
Ecosystems & biodiversity	●	●		●
Water	●	●	●	
Human health		●		
Industry				
Infrastructure		●	●	●
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, coastal areas and others sectors, while adaptation responses were presented in the human health and infrastructure sectors.
- At the urban level, an adaptation challenge and a response were identified in the infrastructure sector, while adaptation challenges were identified in the agriculture and food and water sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events and heat/cold waves were identified at the national level.

Republic of Korea (the)

B

Urban responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment	●	●		
Waste	●	●		
Water				
Industry	●	●		●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors.
- At the urban level, mitigation responses were presented in the energy, LULUCF and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●		
Industry	●	●		●
Infrastructure	●	●		●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, adaptation responses were presented in the ecosystem and biodiversity, industry and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave	●	
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts and heat/cold waves were identified at the national level.

Romania

C

No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were identified in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors, and adaptation responses were identified in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- Droughts were identified as a climate hazard at the national level.

Russian Federation (the)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment, waste and industry sectors, while mitigation responses were presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water				
Human health	●	●		
Industry		●		
Infrastructure				
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and human health sectors, while adaptation responses were presented in the industry and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, temperature rise, vector-borne diseases, land degradation and wildfires were identified at the national level.

Rwanda



Human settlements were mentioned as a priority area (NDC, p. 53).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment		●		●
Waste	●	●	●	●
Water			●	●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while a mitigation response was presented in the built environment sector.
- At the urban level, mitigation challenges and responses were identified in the waste and water sectors, while mitigation responses were presented in the energy and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water	●	●		●
Human health	●	●		
Industry		●		
Infrastructure	●	●		
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the water, human health and infrastructure sectors, while adaptation responses were presented in the agriculture and food, ecosystem and biodiversity, industry and others sectors.
- At the urban level, an adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne diseases, land degradation and others were identified at the national level.

Saint Kitts and Nevis

Urban challenges and responses for adaptation and an urban climate hazard were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste				
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●	●	●	●
Industry				
Infrastructure	●			
Coastal areas	●	●		
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, human health, coastal areas and others sectors, while adaptation responses were identified in the ecosystem and biodiversity and infrastructure sectors.
- At the urban level, adaptation challenge and response was identified in the human health sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	●
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire		
Others	●	

CLIMATE HAZARDS

- All the climate hazards were identified at the national level, except for wildfires.
- The climate hazard of heat/cold waves was identified at the urban level.

Saint Lucia

Urban responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	
Transport & Mobility	●			
LULUCF	●	●		
Built environment		●		
Waste	●			
Water	●	●		
Industry				
Others			●	

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and water sectors, while mitigation challenges were identified in the transport and mobility and waste sectors.
- At the urban level, mitigation challenges were identified in the energy and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●			
Industry				
Infrastructure	●			
Coastal areas	●	●		
Others	●		●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and coastal areas sectors, while adaptation challenges were identified in the human health, infrastructure and others sectors.
- At the urban level, an adaptation challenge was identified in the others sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and vector-borne diseases were identified at the national level.

Saint Vincent and the Grenadines



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●			
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while a mitigation challenge was identified in the waste sector and a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water	●	●		
Human health	●	●		
Industry	●			
Infrastructure		●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, human health and coastal areas sectors, while adaptation responses were presented in the ecosystem and bio biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and land degradation were identified at the national level.

Samoa



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●			
Human health	●			
Industry				
Infrastructure	●			
Coastal areas	●	●		
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and coastal areas sectors, while adaptation challenges were identified in the ecosystem and biodiversity, water, human health, infrastructure, coastal areas and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others		

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for vector-borne diseases, land degradation and others.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water				
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and water sectors, while mitigation responses were presented in the built environment and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation response was presented in the agriculture and food sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF				
Built environment				
Waste	●			
Water				
Industry				
Others				

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while a mitigation challenge was identified in the waste sector and mitigation responses were presented in the transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity				
Water		●		
Human health				
Industry				
Infrastructure				
Coastal areas		●		
Others		●		

ADAPTATION

- At the national level, an adaptation challenge and a response was identified in the agriculture and food sector, while adaptation responses were presented in the water, coastal areas and others sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF	●	●		●
Built environment	●	●		●
Waste		●		
Water	●	●		●
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, built environment and water sectors, while mitigation responses were presented in the transport and mobility, waste and industry sectors.
- At the urban level, mitigation responses were presented in the energy, transport and mobility, LULUCF, built environment and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water	●	●		●
Human health				
Industry	●	●		
Infrastructure				●
Coastal areas	●	●		●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, industry and coastal areas sectors, while adaptation responses were presented in the ecosystem and biodiversity and others sectors.
- At the urban level, adaptation responses were presented in the water, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise		
Storm events	●	●
Temperature rise		
Heat/cold wave	●	●
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events and heat/cold waves were identified at the national level.
- The climate hazards of floods, droughts, storm events and heat/cold waves were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment				●
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and water sectors.
- At the urban level, a mitigation response was presented in the built environment sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure				●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, an adaptation response was identified in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, heat/cold waves, vector-borne diseases, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF				
Built environment		●		
Waste				
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, a mitigation challenge and a response were identified in the energy sector, while mitigation responses were presented in the transport and mobility, built environment, water and industry sectors.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●			
Industry		●		
Infrastructure	●			
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity and water sectors, while adaptation challenges were identified in the human health and infrastructure sectors and adaptation responses were presented in the industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of droughts and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		●
LULUCF		●		
Built environment				●
Waste	●	●		
Water	●	●		
Industry				
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, waste, water and others sectors, while a mitigation response was presented in the LULUCF sector.
- At the urban level, a mitigation challenge and a response were identified in the energy sector, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, an adaptation response was presented in the coastal areas sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- All climate hazards were identified as an adaptation risk at the national level, except for heat/cold waves.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		●
LULUCF	●	●		●
Built environment		●		●
Waste	●	●	●	●
Water		●	●	
Industry	●	●	●	
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were presented in the transport and mobility, built environment, water and others sectors.
- At the urban level, a mitigation challenge and a response were identified in the waste sector, while mitigation responses were presented in the transport and mobility, LULUCF and built environment.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●	●	
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas	●	●	●	
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure, coastal areas and others sectors.
- At the urban level, adaptation challenges were identified in the water and coastal areas sectors, while adaptation responses were presented in the agriculture and food and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and saltwater intrusion were identified at the national level.
- The climate hazard of floods was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility		●		●
LULUCF	●	●	●	
Built environment		●		●
Waste				
Water				
Industry		●		●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while mitigation responses were presented in the transport and mobility, built environment, water and industry sectors.
- At the urban level, a mitigation challenge and a response were identified in the energy sector, while mitigation responses were presented in the transport and mobility, built environment, water and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water	●			
Human health				
Industry				
Infrastructure		●		●
Coastal areas	●			
Others				

ADAPTATION

- At the national level, adaptation challenges were identified in the agriculture and food, water and coastal areas sectors.
- At the urban level, adaptation responses were presented in the infrastructure sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

• At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

• At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

• The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility				
LULUCF	●	●		
Built environment				
Waste				
Water		●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy and LULUCF sectors, while a mitigation response was presented in the water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity		●		
Water				
Human health		●		
Industry				
Infrastructure	●			
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges were identified in the agriculture and food and infrastructure sector and adaptation responses were presented in the ecosystem and biodiversity, human health and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, Storm events, temperature rise and heat/cold waves were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●	●	
Built environment			●	
Waste	●	●		
Water				
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors.
- At the urban level, mitigation challenges were identified in the LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity		●		
Water		●	●	●
Human health		●		
Industry		●		
Infrastructure		●	●	●
Coastal areas		●	●	
Others		●		

ADAPTATION

- At the national level, adaptation challenge and response was identified in the agriculture and food sector, while adaptation responses were presented in the ecosystem and biodiversity, water, human health, industry, infrastructure, coastal areas and others sectors.
- At the urban level, adaptation challenges and responses were identified in the water and infrastructure sectors, while an adaptation challenge was identified in the coastal areas sector and an adaptation response was identified in the agriculture and food sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	●
Temperature rise		●
Heat/cold wave		●
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		●
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, land degradation and others were identified at the national level.
- The climate hazards of floods, sea level rise, storm events, temperature rise, heat/cold waves and wildfires were identified at the urban level.

South Africa

B

Urban challenges and responses for mitigation and adaptation and urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●	●	
Built environment	●		●	●
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors, while a mitigation challenge was identified in the built environment sector.
- At the national level, mitigation challenge and response was identified in the built environment sector, while a mitigation challenge was identified in the LULUCF sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	
Human health	●	●		
Industry	●	●		
Infrastructure	●	●	●	
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge and a response were identified in the coastal areas sector, while adaptation challenges were identified in the water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	
Storm events	●	●
Temperature rise	●	●
Heat/cold wave	●	●
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire	●	●
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases and wildfires were identified at the national level.
- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves and wildfires were identified at the urban level.

South Sudan

B

Urban challenges and responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		
LULUCF	●	●	●	●
Built environment	●			
Waste	●	●	●	●
Water	●	●	●	●
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors, while a mitigation challenge was identified in the built environment sector.
- At the urban level, mitigation challenges and responses were identified in the energy, LULUCF, waste and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	●
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●	●	●
Coastal areas				
Others	●	●		●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and others sectors.
- At the urban level, adaptation challenges and responses were identified in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF	●	●		●
Built environment	●	●		●
Waste	●	●		●
Water		●		●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste and industry sectors, while a mitigation response was presented in the water sector.
- Energy and transport and mobility sectors, while mitigation responses were presented in the LULUCF, built environment, waste and water sectors.

	Challenges		Responses	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	
Human health	●	●	●	
Industry				
Infrastructure	●		●	●
Coastal areas	●	●	●	●
Others	●	●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, coastal areas and others sectors.
- At the urban level, adaptation challenges and responses were identified in the infrastructure and coastal areas sectors, while adaptation challenges were identified in the water and human health sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	●
Sea level rise	●	●
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	●
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	●
Water acidification	●	
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- All the climate hazards were identified at the national level.
- The climate hazards of floods, droughts, sea level rise, heat/cold waves and saltwater intrusion were identified at the urban level.

Sudan (the)

B

Urban responses for mitigation and urban challenges for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		●
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses are presented in the transport and mobility, water and industry sectors.
- At the urban level, mitigation responses for the energy and waste sectors were identified.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●	●	
Ecosystems & biodiversity	●	●	●	
Water	●	●		
Human health	●	●	●	
Industry				
Infrastructure		●		
Coastal areas	●	●	●	
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the agriculture and food, ecosystem and biodiversity, human health and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise vector-borne diseases, water acidification and others were identified at the national level.

Suriname

A

The mitigation section included a dedicated section on transport and urban infrastructure (NDC, pp. 18-19).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●	●	
Built environment	●	●		
Waste	●	●	●	
Water				
Industry		●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment and waste sectors, while a mitigation response was presented in the industry sector.
- At the urban level, a mitigation challenge and a response were identified in the transport and mobility sector, while mitigation challenges were identified in the LULUCF and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●	●	●
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts		
Sea level rise	●	●
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	●
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, temperature rise and land degradation were identified at the national level.
- The climate hazards of floods, sea level rise and land degradation were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●			
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation challenges were identified in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●			
Ecosystems & biodiversity				
Water	●			
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges were identified in the agriculture and food and water sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of temperature rise and others were identified at the national level.

Syrian Arab Republic (the)

B

Urban challenges and responses for mitigation and urban responses for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment	●	●	●	●
Waste	●	●		●
Water	●			
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport, LULUCF, built environment, waste and industry sectors, while a mitigation challenge was identified in the water sector.
- At the urban level, mitigation challenges and responses were identified in the energy and built environment sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry	●			
Infrastructure	●	●		●
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, infrastructure and coastal areas sectors, while adaptation challenges were identified in the ecosystem and biodiversity, human health and industry sectors.
- At the urban level, adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of droughts, storm events, temperature rise, heat/cold waves, land degradation, wildfires and others were identified at the national level.

Tajikistan

B

Urban responses for mitigation and adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water		●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while mitigation responses were presented in the built environment and water sectors.
- At the urban level, a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity				
Water	●	●		
Human health	●			
Industry		●		
Infrastructure		●		●
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and water sectors, while an adaptation challenge was identified in the human health sector and adaptation responses were presented in the industry and infrastructure sectors.
- At the urban level, an adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events and temperature rise were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others	●	●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, waste, industry and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure				
Coastal areas				
Others		●		●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and human health sectors.
- At the urban level, an adaptation response was presented for the others sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		
Built environment	●	●		
Waste	●	●		●
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, mitigation responses were presented in the energy and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		●
Industry				
Infrastructure	●	●		●
Coastal areas	●	●		
Others	●			

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation responses were presented in the agriculture and food, water, human health and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, land degradation and saltwater intrusion were identified at the national level.

The Kingdom of the Netherlands



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity	●			
Water	●	●		
Human health	●			
Industry		●		
Infrastructure				
Coastal areas		●		
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the water sector, while adaptation challenges were identified in the ecosystem and biodiversity and human health sectors and adaptation responses were presented in the agriculture and food, industry and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-born diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazard of droughts was identified at the national level.

Timor-Leste



An urban challenge for mitigation and an urban response for adaptation were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF				
Built environment				
Waste	●	●	●	
Water		●		
Industry		●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the water and industry sectors.
- At the urban level, a mitigation challenge was identified in the waste sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas	●	●		
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation response was presented in the infrastructure sector.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for water acidification and wildfires.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility		●		●
LULUCF	●	●		●
Built environment		●		●
Waste	●	●		●
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors
- At the urban level, mitigation responses were presented in the energy, transport and mobility, LULUCF, built environment and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		●
Water	●	●		●
Human health	●	●	●	
Industry				
Infrastructure	●	●		●
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, water, human health, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge was identified in the human health sector and adaptation responses were presented in the ecosystem and biodiversity, water and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, vector-borne diseases, land degradation and wildfires were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while a mitigation challenge was identified in the industry sector and a mitigation response was presented in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food and ecosystem and biodiversity sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification	●	
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise and water acidification were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●			
LULUCF				
Built environment				
Waste				
Water				
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy sector, while mitigation challenges were identified in the transport, mobility and industry sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity				
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

	NATIONAL	URBAN
Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, temperature rise and land degradation were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		●
Built environment	●	●	●	●
Waste	●	●	●	●
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, built environment, waste, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the built environment and waste sectors, while mitigation responses were presented in the transport and mobility and LULUCF sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		●
Industry		●		
Infrastructure	●	●	●	
Coastal areas	●	●		●
Others		●	●	

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges were identified in the infrastructure and others sectors and adaptation responses were presented in the agriculture and food, human health and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	
Storm events		●
Temperature rise	●	
Heat/cold wave	●	●
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification	●	
Wildfire	●	
Others	●	●

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for storm events.
- The climate hazards of floods, storm events, heat/cold waves and others were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●	●	●
LULUCF		●		●
Built environment	●	●		
Waste	●	●		
Water		●		
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste and industry sectors, while mitigation responses were presented in the LULUCF, water and others sectors.
- At the urban level, mitigation challenges and responses were identified in the energy and transport and mobility sectors, while a mitigation response was presented in the LULUCF sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure		●		●
Coastal areas				
Others	●	●		●

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and others sectors.
- At the urban level, an adaptation challenge and a response were identified in the water sector, while adaptation responses were presented in the infrastructure and others sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, land degradation, wildfires and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		●
LULUCF				
Built environment		●		
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, waste and industry sectors.
- At the urban level, mitigation responses were presented in the Energy and transport and mobility sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●		●
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water and human health sectors.
- At the urban level, adaptation responses were presented in the ecosystem and biodiversity and human health sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-born diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	●
Others		

CLIMATE HAZARDS

- All climate hazards were identified at the national level, except for saltwater intrusion, water acidification and others.
- The climate hazard of wildfires was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		●
Transport & Mobility	●	●		
LULUCF	●	●		●
Built environment				
Waste	●	●		●
Water	●			
Industry	●			
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF and waste sectors, while mitigation challenges were identified in the water and industry sector.
- At the urban level, mitigation responses were presented in the energy, LULUCF and waste sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure		●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors, while adaptation responses were presented in the infrastructure sectors.

NATIONAL URBAN

Floods	●	
Droughts		
Sea level rise	●	
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-born diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, sea level rise, storm events, vector-borne diseases, saltwater intrusion and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●	●	●
LULUCF	●	●		●
Built environment		●		
Waste	●	●	●	●
Water	●	●		●
Industry	●	●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors.
- At the urban level, mitigation challenges and responses were identified in the transport and mobility and waste sectors, while mitigation responses were presented in the LULUCF and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●	●	
Human health	●	●		
Industry		●		
Infrastructure	●	●		●
Coastal areas				
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the urban level, an adaptation challenge was identified in the water sector and an adaptation response was presented in the infrastructure sector.

NATIONAL URBAN

Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-born diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others		●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise and land degradation were identified at the national level.
- The climate hazard of others was identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water				
Industry	●	●		
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, water and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food				
Ecosystems & biodiversity		●		
Water				
Human health				
Industry				
Infrastructure				
Coastal areas				
Others	●			

ADAPTATION

- At the national level, an adaptation challenge was identified in the others sector and an adaptation response was presented in the ecosystem and biodiversity sector.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●			
Built environment	●	●		
Waste	●	●		
Water	●	●		
Industry	●	●		
Others		●		●

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste, water and industry sectors, while a mitigation challenge was identified in the LULUCF sector.
- At the urban level, a mitigation response was presented in the others sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		●
Human health	●	●		
Industry	●	●		
Infrastructure	●	●	●	●
Coastal areas	●	●	●	●
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry, infrastructure and coastal areas sectors.
- At the urban level, adaptation challenges and responses were identified in the infrastructure and coastal areas sector, while an adaptation response was presented in the water sector.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	
Temperature rise	●	●
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		●
Water acidification		
Wildfire		
Others		●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves and vector-borne diseases were identified at the national level.
- The climate hazards of floods, sea level rise, temperature rise, saltwater intrusion and others were identified at the urban level.

United Kingdom of Great Britain and Northern Ireland (the)

C No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF	●			
Built environment				
Waste	●	●		
Water				
Industry	●			
Others	●			

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation challenges were identified in the LULUCF, industry and others sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food		●		
Ecosystems & biodiversity		●		
Water				
Human health	●	●		
Industry				
Infrastructure				
Coastal areas				
Others				

ADAPTATION

- At the national level, an adaptation challenge and a response were identified in the human health sector, while adaptation responses were presented in the agriculture and food sector and ecosystem and biodiversity sectors.

NATIONAL	URBAN
Floods	
Droughts	
Sea level rise	
Storm events	
Temperature rise	
Heat/cold wave	
Vector-born diseases	
Land degradation	
Saltwater intrusion	
Water acidification	
Wildfire	
Others	

CLIMATE HAZARDS

United Republic of Tanzania (the)

B

Urban challenges and responses for mitigation and urban climate hazards were mentioned.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●	●	●
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				●
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors.
- At the urban level, a mitigation challenge and a response were identified in the energy sector, while mitigation responses were presented in the transport and mobility and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas	●	●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

NATIONAL	URBAN
Floods	●
Droughts	●
Sea level rise	●
Storm events	
Temperature rise	●
Heat/cold wave	
Vector-born diseases	
Land degradation	●
Saltwater intrusion	
Water acidification	
Wildfire	
Others	●

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, temperature rise, land degradation and others were identified at the national level.
- The hazards of floods, droughts and others were identified at the urban level.

United States of America (the)



No or low levels of urban content.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		
LULUCF		●		
Built environment	●	●		
Waste	●	●		
Water		●		
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, built environment, waste and industry sectors, while mitigation responses were presented in the LULUCF and water sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity		●		
Water		●		
Human health		●		
Industry				
Infrastructure		●		
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food sector, while adaptation responses were presented in the ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods		
Droughts		
Sea level rise		
Storm events		
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others		

CLIMATE HAZARDS

- The climate hazards of land degradation and wildfires were identified at the national level.

Uruguay



A section was dedicated to cities, infrastructure and land use planning, considering adaptation and mitigation co-benefits (NDC, pp. 9, 79).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		
Built environment				
Waste	●	●		
Water	●			
Industry	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste and industry sectors, while a mitigation challenge was identified in the water sector.
- At the urban level, a mitigation challenge was identified in the transport and mobility sector.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure	●	●		●
Coastal areas	●	●		●
Others		●		

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, infrastructure and coastal areas sectors.
- At the urban level, an adaptation challenge and a response were identified in the water sector, while adaptation responses were presented in the ecosystem and biodiversity, infrastructure and coastal areas sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	
Temperature rise	●	●
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves and vector-borne diseases were identified at the national level.
- The climate hazards of floods, sea level rise and temperature rise were identified at the urban level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water				
Industry	●	●		
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste and industry sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		
Water	●	●		
Human health	●	●		
Industry	●	●		
Infrastructure	●	●		
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health, industry and infrastructure sectors, while an adaptation response was presented in the coastal areas sectors.

NATIONAL URBAN

Floods		
Droughts	●	
Sea level rise		
Storm events		
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of droughts, temperature rise, vector-borne diseases, land degradation and others were identified at the national level.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment		●		
Waste	●	●		
Water		●		
Industry				
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF and waste sectors, while mitigation responses were presented in the transport and mobility and built environment sectors.

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●	●	
Water	●	●	●	●
Human health	●	●		
Industry				
Infrastructure	●	●		
Coastal areas		●		
Others				

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors.
- At the national level, an adaptation challenge and a response were identified in the water sector, while an adaptation challenge was identified in the ecosystem and biodiversity sector.

NATIONAL URBAN

Floods	●	
Droughts	●	
Sea level rise	●	
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation		
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, heat/cold waves, vector-borne diseases and saltwater intrusion were identified at the national level.

Venezuela (Bolivarian Republic of)

A

A dedicated adaptation section focused on the urban agriculture sector (NDC, pp. 97-99).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility	●	●		●
LULUCF	●	●		●
Built environment		●		●
Waste	●	●		●
Water	●	●		
Industry	●	●		
Others				

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		●
Ecosystems & biodiversity	●	●		●
Water	●	●		
Human health	●	●	●	
Industry	●			
Infrastructure		●		●
Coastal areas	●	●		
Others		●		

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water and industry sectors.
- At the urban level, mitigation responses were presented in the transport and mobility, LULUCF, built environment and waste sectors.

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and coastal areas sectors.
- At the urban level, an adaptation challenge was identified in the human health sector and adaptation responses were presented in the agriculture and food, ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave	●	
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire	●	
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, heat/cold waves, vector-borne diseases, land degradation, wildfires and others were identified at the national level.

Viet Nam

A

Adaptation sections were dedicated to topics including flood prevention for major cities and climate change impacts on urban development and housing (NDC, pp. 14-15, 19).

	NATIONAL		URBAN	
	Challenges	Responses	Challenges	Responses
Energy	●	●		
Transport & Mobility		●		
LULUCF	●	●		
Built environment				
Waste	●	●		
Water				
Industry	●	●		
Others	●	●		

	Challenges	Responses	Challenges	Responses
Agriculture & food	●	●		
Ecosystems & biodiversity	●	●		●
Water	●	●	●	●
Human health	●	●		
Industry	●			
Infrastructure	●	●		●
Coastal areas	●		●	●
Others				

MITIGATION

- At the national level, mitigation challenges and responses were identified in the energy, LULUCF, waste, industry and others sectors. A mitigation response was presented in the transport and mobility sectors.

ADAPTATION

- At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, human health and infrastructure sectors, while adaptation challenges were identified in the industry and coastal areas sectors.
- At the national level, adaptation challenges and responses were identified in the water and coastal areas sectors, while adaptation responses were presented in the ecosystem and biodiversity and infrastructure sectors.

	NATIONAL	URBAN
Floods	●	●
Droughts	●	
Sea level rise	●	●
Storm events	●	●
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion	●	
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts, sea level rise, storm events, temperature rise, vector-borne diseases, land degradation and saltwater intrusion were identified at the national level.
- The climate hazards of floods, sea level rise and storm events were identified at the urban level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●				MITIGATION At the national level, mitigation challenges were identified in the energy, transport and mobility, LULUCF and waste sectors.
Transport & Mobility	●				
LULUCF	●				
Built environment					
Waste	●				
Water					
Industry					
Others					
	Challenges	Responses	Challenges	Responses	ADAPTATION At the national level, adaptation challenges and responses were identified in the agriculture and food, water, human health, infrastructure and others sectors, while adaptation responses were presented in the ecosystem and biodiversity and industry sectors.
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●			
Ecosystems & biodiversity		●			
Water	●	●			
Human health	●	●			
Industry		●			
Infrastructure	●	●			
Coastal areas					
Others	●	●			

	NATIONAL	URBAN
Floods	●	
Droughts	●	
Sea level rise		
Storm events	●	
Temperature rise		
Heat/cold wave		
Vector-borne diseases		
Land degradation		
Saltwater intrusion		
Water acidification		
Wildfire		
Others		

CLIMATE HAZARDS

- The climate hazards of floods, droughts and storm events were identified at the national level.

	NATIONAL		URBAN		
	Challenges	Responses	Challenges	Responses	
Energy	●	●	●	●	MITIGATION - At the national level, mitigation challenges and responses were identified in the energy, transport and mobility, LULUCF, waste, water, industry and others sectors. - At the urban level, mitigation challenges and responses were identified in the energy and waste sectors, while mitigation challenges were identified in the LULUCF, built environment, water and industry sectors.
Transport & Mobility	●	●			
LULUCF	●	●	●		
Built environment	●		●		
Waste	●	●	●	●	
Water	●	●	●		
Industry	●	●	●		
Others	●	●			
	Challenges	Responses	Challenges	Responses	ADAPTATION - At the national level, adaptation challenges and responses were identified in the agriculture and food, ecosystem and biodiversity, water, industry and infrastructure sectors, while adaptation challenges were identified in the human health and others sectors. - At the urban level, adaptation challenges were identified in the water, human health, industry and infrastructure sectors.
	Challenges	Responses	Challenges	Responses	
Agriculture & food	●	●	●		
Ecosystems & biodiversity	●	●			
Water	●	●	●		
Human health	●		●		
Industry	●	●	●		
Infrastructure	●	●	●		
Coastal areas					
Others	●				

	NATIONAL	URBAN
Floods	●	
Droughts	●	●
Sea level rise		
Storm events	●	
Temperature rise	●	
Heat/cold wave		
Vector-borne diseases	●	
Land degradation	●	
Saltwater intrusion		
Water acidification		
Wildfire		
Others	●	

CLIMATE HAZARDS

- The climate hazards of floods, droughts, storm events, temperature rise, vector-borne diseases, land degradation and others were identified at the national level.
- The climate hazard of droughts was identified at the urban level.



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