Urban Development and the African NDCs:

From national commitments to City Climate Action

AFRICAN DEVELOPMENT BANK GROUP

Urban and Municipal Development Fund

SDU University of Southern Denmark

SDU Resilience

UNESCO Chair on Urban Resilience

Disclaimer

Acknowledgements

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Acronyms and abbreviations

NDC	Nationally Determined Contribution
NAP	National Adaptation Plan
CO2	Carbon Dioxide
CO2e	Carbon dioxide equivalent
COP	Conference of the Parties
EGM	Expert Group Meeting
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse gas
HDI	Human Development Index
INDCs	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land use, land-use change and forestry
MER	Monitoring, Evaluation, and Reporting
MRV	Monitoring, Reporting, and Verification
OECD	Organisation for Economic Co-operation and Development
RECNET	Recycling Cities Network
SDGs	Sustainable Development Goals
SDU.Resilience	UNESCO Chair of Sustainability at the University of Southern Denmark
UN-Habitat	United Nations Human Settlement Programme
UNFCCC	United Nations Framework Convention on Climate Change

Foreword

Dear Reader,

On the doorstep to the African COP27 in Sharm-El-Sheikh, Egypt, I am pleased to present the African Development Bank (AfDB) Group's Report "Urban Development and the African NDCs: From national commitments to City Climate Action". The report provides an analysis of the urban content of the national commitments of African countries under the Paris Agreement on Climate Change, the Nationally Determined Contributions (NDCs).

Africa is urbanizing fast, and additional 950 million people are forecasted to live in African cities by 2050, then approximately 60% of the total population on the continent. Cities already are the main drivers of economic development and prosperity. But while this urbanization brings well-known opportunities, the challenges are also plentiful, and are being amplified by climate change, putting at risk local and national development. Together we must address this rapidly and effectively, and sustainable cities are one of the keys to unlock climate resilient, green and equitable development in Africa.

This new analysis will serve as an important input to the discussion on climate change and the rapidly increasing role of cities in Africa. The results are very encouraging in this regard; 49 of the 54 African countries (91%) have included sustainable urban development as part of their climate commitments, in one way or the other. Most countries express the urgent need to act on adapting to climate change and build resilience of rapidly growing cities, the population centres and economics hubs on the continent. Resilient water and infrastructure systems in coastal regions for example are three Adaptation focus areas of many NDCs. Energy, waste and transport systems are often highlighted as means to improve low-carbon development. Addressing the Climate Challenge is a generational and together with the international community, governments can raise the bar to tackle the root causes and the negative effects of the climate crises.

The African Development Bank is committed to scaling up climate finance and investments to help countries achieve their goals under the Paris Agreement. We recognize that resilient and low carbon cities, like many other actions, are important pieces in the puzzle to achieve climate-proof, green and equitable growth. Through our Urban and Municipal Development Fund, we are ready to help identify and prepare transformative investments, and supporting governments to mobilize finance at scale to invest in climate action. It is my sincere hope that the analysis will provide an important input for further work on resilient and low-carbon urban development in Africa. Together with our regional member countries, we can raise ambition for contributing to the successful implementation of the Paris Agreement.

Mike Salawou, Director
Infrastructure and Urban Development Department
African Development Bank (AfDB) Group

Key findings

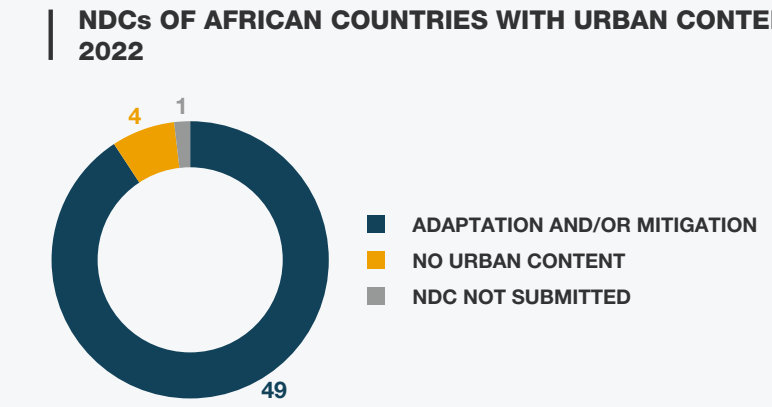
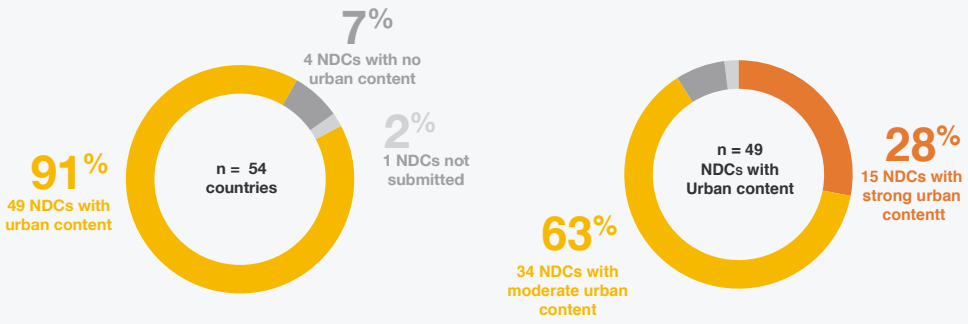


Figure 1. NDCs urban content analysis: adaptation and/or mitigation, no urban content; NDC no submitted.

01. **49 of the 53 African NDCs**, or 91% of the total analysed, have urban content.

02. **15 African NDCs, or 28% of the total analysed, have strong urban content**, identifying the urban sector as a priority; 34 African NDCs, or 63% of the total analysed, have moderate urban content, mentioning urban sector.

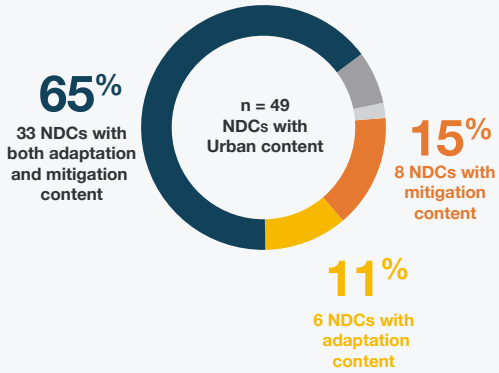
03. **African NDCs (91%) have higher urban content than the global ones (64%)**, 28% of African NDCs and 24% of global NDCs have strong urban content, and 63% of African NDCs and 39% of global NDCs have moderate urban content.



04. **The number of African NDCs with strong and moderate urban content has increased** compared to the first NDCs submission in 2016-17.

05. 35 NDCs, or **65% of the NDCs analysed, focus on urban adaptation and mitigation**, whereas 8 NDCs, or 15% of NDCs analysed, only focus on mitigation and 6 NDCs, or 11% of the NDCs analysed, only focus on adaptation.

06. African NDCs with urban content **focus more on mitigation and adaptation in a combined way (65%)**, compared to the global NDCs (43%).



07. **NDCs with urban content identify more urban responses than challenges**. 84% of NDCs with urban content identify urban mitigation responses, and 51% identify urban mitigation challenges. 57% identify urban adaptation responses, and 37% urban adaptation challenges.

08. **Waste and energy** are the most mentioned sectors in urban **mitigation challenges**.

09. **Waste, energy and transport** are the most mentioned sectors in urban **mitigation responses**.

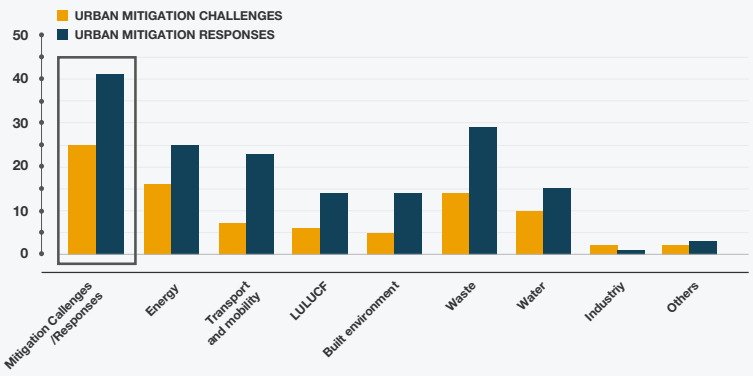


Figure 9. African NDCs urban content analysis 2022: Urban mitigation challenges and responses by sector.

10. **Water, infrastructures and coastal** areas are the most mentioned sectors in urban **adaptation challenges**.

11. **Water and infrastructure** are the most mentioned sectors in urban **adaptation responses**.

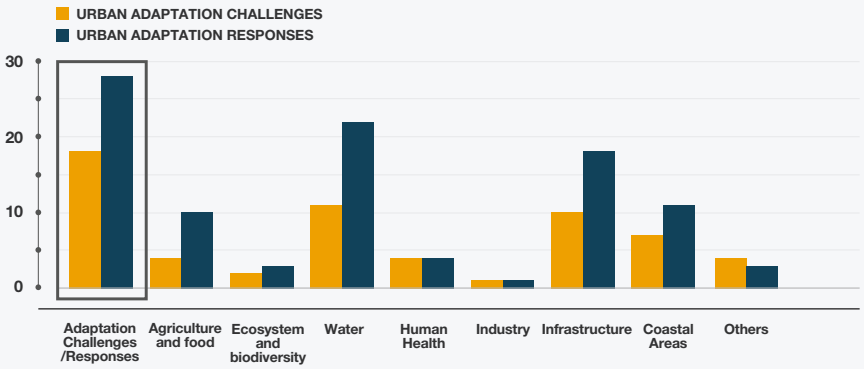


Figure 10. African NDCs urban content analysis 2022: Urban adaptation challenges and responses by sector.

12. The 37% of the NDCs with urban content identify urban adaptation hazards. **Flooding is the hazard** most mentioned at the urban level, although it is mentioned only in 12 NDCs.

13. Mitigation responses by sector are more frequently mentioned at the national level than at the urban level. The sectors with the higher number of mitigation responses identified both at the national and urban levels are 143 energy, 136 waste and 107 transport.

14. Adaptation responses by sector are more frequently mentioned at the national level than at the urban level. The sectors with the higher number of adaptation responses identified both at the national and urban levels are water and infrastructure.

15. Adaptation hazards are more frequently mentioned at the national level than the urban level: 47 NDCs identify national adaptation hazards, and 18 NDCs identify urban adaptation hazards. The adaptation hazards with the higher number of entries entry at national and urban level are floods and droughts.

16. The 83% of the African NDCs include **both conditional and unconditional targets**.

17. The 100% of African NDCs request **international financial support**, the 93% request technology support and the 87% request capacity building support.

18. The 92% of African NDCs requesting financial international support are also **providing an estimation of the costs** for implementing the necessary climate actions to achieve their targets.

Introduction

This report is the result of a collaboration between the African Development Bank (AfDB) Group and the UNESCO Chair on Urban Resilience at the University of Southern Denmark (SDU.Resilience). It presents an in-depth regional analysis of the urban development content of the Nationally Determined Contributions (NDCs) submitted by regional members countries of the African Development Bank to the Secretariat of the UN Framework Convention on Climate Change (UNFCCC) before the 19th of June 2022.

Nationally Determined Contributions (NDCs) represent the heart of the Paris Agreement. Per the Paris Agreement, Parties shall prepare, communicate, and maintain successive Nationally Determined Contributions that it intends to achieve (Article 4.2). While the emphasis of NDCs is on mitigation measures (Article 4.2), they may also serve as a means for Parties to communicate needs, plans and actions related to adaptation to climate change (Article 7.10-11), as well as to identify finance, technology and capacity building needs.

The Paris Agreement, in its preamble recognises the importance of the engagement of all levels of government and various actors in addressing climate change; this includes local governments and development partners. Furthermore, the Agreement affirms that support shall be provided to developing country Parties in implementing their NDCs (Article 4.5). In the area of climate adaptation, the Agreement recognizes the importance of support for international cooperation (Article 7.6). It particularly notes that United Nations specialized organisations 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). Moreover, the Conference of the Parties (COP) in Katowice articulated the need to facilitate clarity, transparency and understanding of the NDCs, specifically including human settlements and urban planning as key sectors for reporting specific adaptation projects, measures and activities that contribute to mitigation co-benefits.

Most parties submitted their first ‘Intended Nationally Determined Contributions’ (INDCs) in 2016, 164 INDCs were submitted following the approval of the Paris Agreement and its entering into force UN-Habitat and Recycling City Network (RECNET) with the University of Southern Denmark, the UNESCO Chair on Sustainability at the Technical University of Catalunya and Cologne University of Applied Sciences, together analysed the initial batch of NDCs for their urban content.

The African Development Bank carried out in 2018 a gap analysis of the African NDCs to identify barriers and opportunities to achieve the NDCs targets. The report concluded that African countries are in different stages in developing actions to tackle climate change and that African NDCs do not present the same structure. Common gaps were identified, recognising good work done so far and the areas where more efforts were needed.

In 2019, the African Development Bank Group in collaboration with Geodata Sierra Leone, analysed the adaptation component at the national level of the African NDCs. This analysis aimed to give support in the design and implementation of adaptation programmes and offer guidance on how to improve the presentation of adaptation components in the future. The report highlighted the recognition of adaptation components by most African countries and their financial need. The range of adaptation components and estimation costs differed significantly among countries.

The 2016 review focused on the urban content of global NDCs, whereas the 2018 and 2019 reviews focused on the Adaptation components and gaps of African NDCs. The present analysis represents a follow-up and a methodological advance in comparison to the previous analysis, focusing entirely on the African countries.

Currently, UN-Habitat and the UNESCO Chair on Urban Resilience at the University of Southern Denmark are realising a global analysis of the urban content of 193 NDCs submitted to UNFCCC. The results of this global analysis serve as a term of comparison for the analyses of the African NDCs of this review.
This report offers an in-depth regional analysis of the urban content of the African Nationally Determined Contributions (NDCs) submitted to the Secretariat of the UN Framework Convention on Climate Change (UNFCCC) before the 19th of June 2022. For the analysis, more than 200 indicators were used to analyse external data (e.g., Human Development Index and Income categorisation) and data within the NDCs including climate mitigation and adaptation challenges and responses, also considering sectors and sub-sectors. Details of the methodologies employed for the related reviews are provided below.

The review has three main objectives:

1. **Review and analyse African NDCs to identify the key urban content in terms of challenges and responses for climate mitigation and adaptation**

2. **Review the NDCs (both challenges and responses) along, including specific sectors (e.g., transport, water, energy, construction, etc.) and climate hazards (e.g., floods, cloud bursts, droughts, sea level rise, etc.).**

3. **Review the NDCs for any specific investment priorities and financial information that may be relevant to understand better Regional Member Countries (RMCs) priorities for urban climate action.**

The review of the African NDCs is pivotal to acknowledging key challenges that RMCs and their cities face concerning climate mitigation and adaptation. It also provides inputs to the conversations on how to respond to these challenges through urban climate action related to mitigation and adaptation and which investment priorities directly support the implementation of a Country's commitment under the Paris Agreement. This review aims to support the African Development Bank Group's work on ensuring sustainable development in Africa by identifying urban actions to adapt and mitigate climate change.
Following the present Introduction, Section (1) proceeds with a summary of the methodology and approach, and Section (2) offers a regional review of the current NDCs' urban content. Section (3) finally shows the key findings and recommendations to provide a more accurate representation of the urban content in national climate change policies and strategies and lay the foundation for conclusions and way forward.

[1] The Paris Agreement is a "legally binding international treaty on climate change adopted by 196 Parties at COP-21 in Paris on December 12 2015" and which entered into force on 4 November 2016. 'COP-21' was the 21st Conference of Parties to the UNFCCC. See https://unfccc.int/processand- meetings/the-paris-agreement/the-paris-agreement.

[2] Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018. Addendum Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. FCCC/PA/CMA/2018/3/Add.1

[3] Tollin N., Hamhaber J., Grafakos S., Lwasa S., and Morato J. 2017, Sustainable Urbanization in the Paris Agreement Comparative review for urban content in the Nationally Determined Contributions (NDCs). United Nations Human Settlements Programme (UN-Habitat), https://unhabitat.org/sustainable-urbanization-in-the-paris-agreement.

[4] African Development Bank 2018, 'Gap analysis report: African Nationally Determined Contributions (NDCs)', https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/African_NDCs_Gap_Analysis_Report.pdf

[5] African Development Bank and Geodata Sierra Leona 2019, 'Analysis of Adaptation components of Africa's Nationally Determined Contributions (NDCs), https://africandchub.org/resources/analysis-adaptation-components-africas-nationally-determined-contributions-ndcs

1.

Approach and metho-dology

This analysis is based on the revision of all the latest NDCs submitted by the regional member countries of the African Development Bank, to the UNFCCC, before 19th June 2022.
A total of 54 NDCs were analysed in their original languages, French and English. Only the latest version of all updated NDCs submitted before the 19th of June 2022 were analysed.
The review aims at giving a general overview of the urban content of the NDCs, considering both climate mitigation and adaptation and analysing knowledge gaps between challenges and responses at the national and urban levels. The NDCs review is based on a set of circa 200 indicators, structured into fourteen groups.

01. Geographic indicators
02. National context indicators
03. Urban context indicators
04. Emissions indicators
05. Key hazards

06. NDC national indicators – General
07. NDC national indicators – Challenges
08. NDC national indicators– Responses

09. NDC urban indicators – General
10. NDC urban indicators – Challenges
11. NDC urban indicators – Responses

12. Other national climate-related policies, strategies and plans
13. Cross-cutting national-level indicators
14. Cross-cutting urban-level indicators

Figure 2. List of indicators' groups used to analyse the NDCs' urban content.

The review categorises the urban content of the NDCs, which are clustered into three groups, as follows:

- **Strong urban content (Cluster A)**: NDCs with specific urban sections and/or NDCs in which urban areas are identified as priority sectors, excluding NDCs that are not backing the prioritisation with a
- **Moderate urban content (Cluster B)**: NDCs with urban mentions within the body of text.
- **Low or no urban content (Cluster C)**: NDCs with low or no explicit urban mention within the text.

The analysis and clustering are qualitative, thereby NDCs mentioning general municipal and/or local issues, or NDCs generically stating an urban prioritisation, but without a clear identification of specific urban challenges and/or responses, are not included in clusters B nor C.

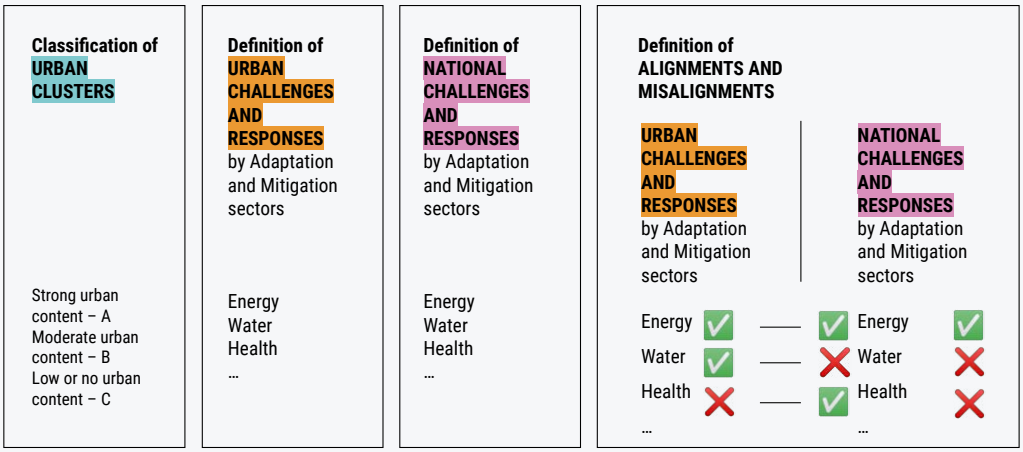


Figure 3. Synthesis of the data analyses made for analysing the urban content of NDCs.

The data analysis focuses also on identifying alignment and misalignment between climate challenges and responses (see Figures 2 and 3), using the following working definitions:

- **Mitigation challenges** are defined as a high-level of GHG emissions by sector (e.g., Transport and Energy);
- **Adaptation challenges** are defined as specific climate threats/impacts by sector (e.g., Human health and Infrastructures) and by climate hazard (e.g., Floods and Droughts);
- **Mitigation responses** are defined as policies, strategies and actions to reduce GHG emissions by sector;
- **Adaptation responses** are defined as policies, strategies and actions to limit the negative effects of climate change by sector and by climate hazard.

		Mitigation	Adaptation
National	Challenges	Sectors Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, Gender, Others	Sectors 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 waves, Vector-borne diseases (air and water), Land degradation, Saltwater intrusion, Water acidification, Wildfire, Others
	Responses		
Urban	Challenges	Sectors Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, Gender, Others	Sectors 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 waves, Vector-borne diseases (air and water), Land degradation, Saltwater intrusion, Water acidification, Wildfire, Others
	Responses		

Figure 4. Scheme of the sectors used to analyse NDCs adaptation and mitigation challenges and responses, both at the national and urban level.

[6] Low refers to the cases where the word “urban” appears but is no addressing challenges or responses (Figure 3): for example, some NDCs mention “urban population”, without addressing urban climate challenges and responses.

The review also aims at analysing and understanding the request for financial support, technology transfer and capacity building, both at the national and urban levels; moreover, data was analysed in relation to cross-cutting issues (e.g., Nature-based solutions and Informal settlements).

Table 1. Examples of urban mitigation and adaptation challenges and responses within African NDCs.

"The key water tower expected to disappear threatening Kenya's largest river that carries more than 60% of the country's hydropower and that has many cities and critical portion of Kenya's agricultural land." (Kenya p.5). Urban mitigation challenge | Energy, Agriculture and food security
"Support the implementation of infrastructure that foster the development of a bus public transport network for Monrovia" (Liberia, p.42). Urban mitigation response | Transport and mobility
"Several initiatives are aimed at combining agricultural and forestry activities to improve food security. This circular mitigation strategy aims to strengthen these initiatives to increase tree cover in The Gambia, both in urban and rural areas" (Gambia, p.14). Urban mitigation response | Agriculture and food security
"Sea level rise is already affecting coastal towns and communities and is expected lead to coastal erosion and wetlands loss" (Kenya, p.5). Urban adaptation hazard | Sea level rise
"Sea level rise is already affecting coastal towns and communities and is expected lead to coastal erosion and wetlands loss" (Kenya, p.5). Urban adaptation challenge | Coastal area
"Reuse of wastewater to reach a capacity of 183 million m3 in coastal cities" (Morocco, p,27). Urban adaptation response | Coastal areas

2.

Urban Content of NDCs in Africa

Map 1. Urban content in NDC 2022s: Africa.

This review contains the analysis of all 54 NDCs from African countries, all Regional Member States of the AfDB (see Annex 2 for a full list), including the latest version of all NDCs submitted before 19th June 2022. African cities are expected to increase the number of inhabitants by 950 million by 2050, being the region with the fastest forecasted urban growth. The urban development may result in higher levels of GHG emissions, as well as, in the unplanned growth of cities that can increase the vulnerability and exposure of urban population, in face of the raising frequency and intensity of climate induced hazards.

The review shows that urban development is a priority in 49 NDCs, or the 91% of the 53 NDCs analysed, that were

[7] The urban clusters are as follows: **Cluster A – Strong urban content** describes NDCs with specific sections dedicated to urban and/or NDCs in which urban is identified as priority sector, excluding NDCs that are not backing these prioritizations with significant identification of challenges or responses; **Cluster B – Moderate urban content**: describes NDCs with urban mentions within the body of text, classified as moderate urban content; **Cluster C – Low or no urban content** describes NDCs with low or no urban mention within the text and classified to have no explicit urban content.

submitted by regional member of AfDB to communicate their climate commitments for the implementation of the Paris Agreement (Figure 5 and 6). More in detail, 15 NDCs, or 28% of the total analysed, have strong urban content, identifying urban sector as a priority; 34 NDCs, or 63% of the total analysed, have moderate urban content, mentioning urban sector; and only 4 NDCs, or 7% of the total analysed have nor urban content (Figure 5 and 6). It should be noted that the lack of urban content in the NDCs does not necessarily mean that a country does not have policy, strategy or actions related to climate mitigation or adaptation and urban level.

This shows that AfDB's regional members have a high interest in urban sector in relation to their climate policies, and acknowledge the importance of cities in the operationalization of their national commitments for the Paris Agreement.

Table 2. List of Countries associated CO2e and Urban Population.

Country Name	Total GHG emissions per country [$MtCO_2$ eq]	Urban population [%] in 2021 or most recent data	Urban population [%] projection 2050
Strong urban content			
Benin	25,78	49%	65%
Cabo Verde	0,75	67%	77%
Congo	679,57	68%	80%
Ethiopia	183,37	22%	39%
Gambia	2,86	63%	77%
Kenya	73,4	28%	46%
Liberia	15,87	53%	68%
Mauritania	13,21	56%	73%
Morocco	91,15	64%	77%
Mozambique	106,74	38%	55%
Rwanda	7	18%	30%
Sierra Leone	9,45	43%	60%
South Africa	562,19	68%	80%
Togo	8,71	43%	60%
Tunisia	37,81	70%	80%
Moderate urban content			
Algeria	282,23	74%	85%
Angola	128,29	67%	80%
Burkina Faso	56,31	31%	50%
Burundi	8,04	14%	28%

Cameroon	124,79	58%	73%
Central African Republic	46,58	43%	60%
Chad	105,68	24%	39%
Côte d'Ivoire	51,51	52%	67%
Democratic Republic of the Congo	679,57	46%	64%
Djibouti	1,38	78%	85%
Egypt	351,96	43%	56%
Equatorial Guinea	15,24	74%	82%
Eritrea	6,78	36%	60%
Eswatini	2,69	24%	34%
Gabon	19,68	90%	95%
Ghana	12,75	58%	73%
Guinea	40,61	37%	54%
Guinea-Bissau	4,21	45%	57%
Lesotho	2,53	29%	46%
Madagascar	40,22	39%	58%
Malawi	19,34	18%	32%
Mali	44,16	45%	63%
Mauritius	6,83	41%	49%
Namibia	21,22	53%	72%
Niger	43,96	17%	28%
Nigeria	354,33	53%	70%
Senegal	33,6	49%	64%
Seychelles	0,78	58%	70%
Somalia	42,51	47%	64%
South Sudan	60,33	21%	36%
Sudan	127,07	36%	53%
Uganda	59,15	26%	44%
United Republic of Tanzania	154,89	36%	55%
Zimbabwe	117,96	32%	46%
Low or no urban content			
Botswana	52,34	72%	84%
Comoros	0,7	30%	41%
Sao Tome and Principe	0,4	75%	85%
Zambia	91,36	45%	62%

A similar review, analysing all 193 NDCs submitted globally, was recently done by UN-Habitat and SDU. Resilience, showing the following results: 24% NDCs have strong urban content, 39% NDCs have moderate urban content, and 37% NDCs have no urban content (Tollin N. et al. 2022).

Thereby, it is evident a higher attention to urban climate issues in African NDCs compared to global ones; this may also be related to the high urbanisation rate expected in the region for the next decades (Table 2). It is also important to consider that the growth of urban areas is linked to the increase of GHG emission in relation to the higher intensity of per capita emission of urban population versus rural ones. Moreover, the impact of climate change is a driver for relocation to urban areas and, at the same time, the unplanned and rapid growth of cities may increase the vulnerability and exposure of population for climate hazards.

In 2017 the first analysis of the urban content of the NDCs was developed in the report titled “Sustainable Urbanization in the Paris Agreement” (Tollin et al., 2017). It included the analysis of the urban content of the NDCs at the regional level, with a section for Africa.

The results showed that 41 out of 52 NDCs had urban content, with most African countries having moderate urban content (cluster B). This indicates that African countries are aware of climate challenges at the urban level and the importance of adopting responses.

The comparison between the urban content of African NDCs in 2016 and 2022 indicates that the urban content has increased. The number of NDCs with strong content and moderate content have both increased, and consequentially the number of NDCs with no urban content have decreased. This implies that some African countries with no urban content in 2016 have included some urban aspects in their updated version. It also indicates that some African countries have improved the urban content of their NDCs, making urban a priority. However, most African countries still do not prioritize urban in their NDC as most of them have moderate urban content.

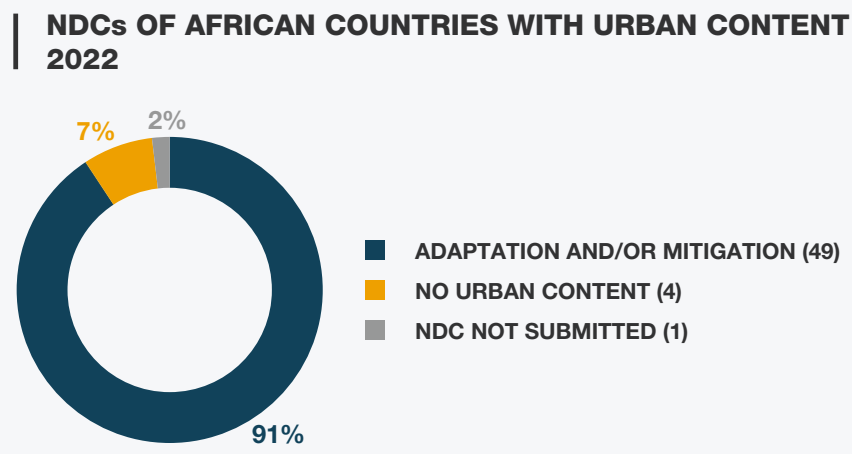


Figure 5. African NDCs urban content analysis 2022: Urban content (strong, moderate, low or no content, no submitted).

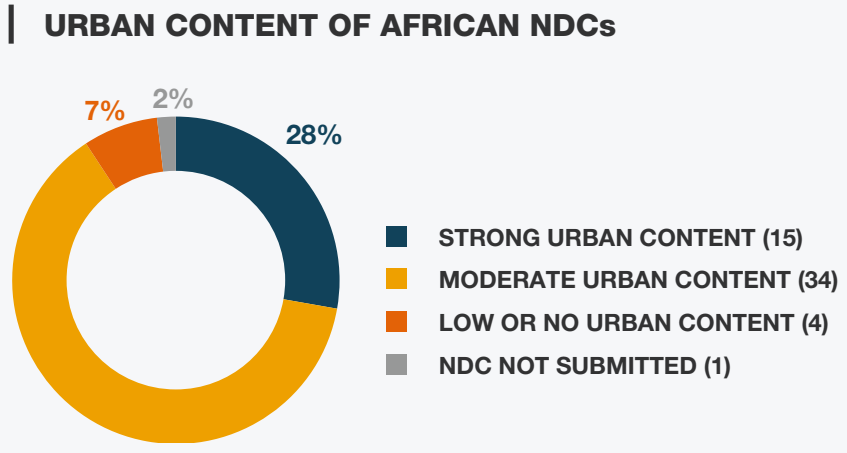


Figure 6. African NDCs urban content analysis 2022: adaptation and mitigation urban content, no urban content, NDC no submitted.

Urban mitigation and adaptation content

Analysing the adaptation and mitigation content at the urban level for African NDCs, the review s shows that 35 NDCs, or 65% of the NDCs analysed, focus on both urban adaptation and mitigation priorities, whereas 8 NDCs, or 15% of NDCs analysed, only focus on mitigation and 6 NDCs, or 11% of the NDCs analysed, only focus on adaptation. 4 NDCs, or 7% of the NDCs analysed, have no urban mitigation nor adaptation content (Figure 7). Moreover, the share of African NDCs adaptation is much higher compared to global ones. The integration of urban mitigation and adaptation is important, not only because cities are both responsible for GHG emission and exposed to climate change impacts, but also considering that integrating urban climate mitigation and adaptation actions can increase the efficiency of use of resources, including financial ones.

URBAN MITIGATION AND ADAPTATION CONTENT

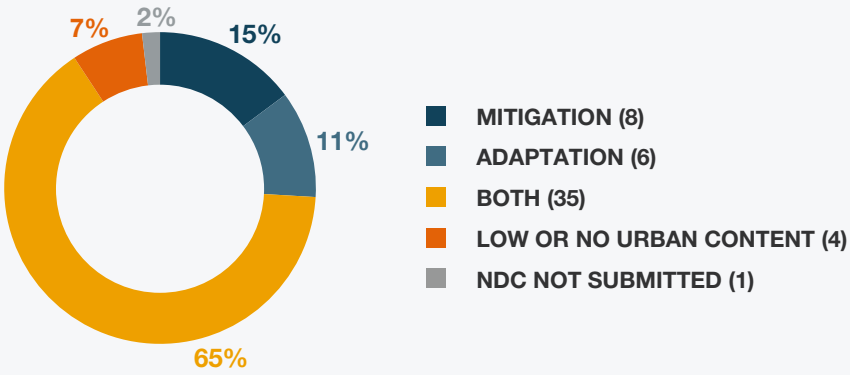


Figure 7. African NDCs urban content 2022: urban mitigation and adaptation content.

Map 2: African NDCs with urban content 202.
Countries with urban mitigation and/or adaptation content

Urban climate challenges and responses

Mitigation challenges, indicating GHG emissions by sector, and adaptation challenges, indicating climate threats by sector, were analysed with mitigation responses, indicating actions for GHG reduction by sector, adaptation responses, indicating actions to limit the negative effects of climate change by sector and by type of hazard. The analysis of the urban content related to adaptation and/or mitigation challenges and responses shows that most African NDCs focus on both adaptation and mitigation priorities.

However, the African NDCs with urban content overall identify more often urban mitigation and adaptation responses than challenges (Figure 8).

This indicated that there may be the need to better include in the NDCs a more explicit and clear definition of key urban climate mitigation challenges, as well as climate adaptation risks, to further support the definition and justification of urban climate mitigation and adaptation responses. This is also important to facilitate a clearer monitoring of performance and impact assessment of urban climate actions.

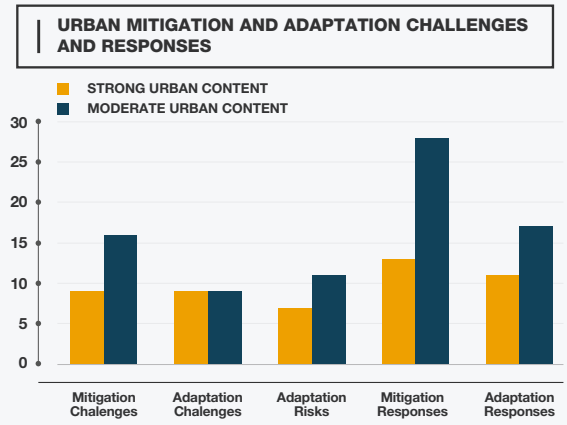


Figure 8. African NDCs urban content 2022: Urban mitigation and adaptation challenges and responses (Clusters A+B).

Urban mitigation challenges and responses by sector

The analysis of the urban mitigation challenges and responses show that 41 NDCs, or 84% of the NDCs with urban content, identify urban mitigation responses, and that 25 NDCs, or 51% of the NDCs with urban content, identify urban mitigation challenges (Figure 9). This implies that a high number of African NDCs are identifying specific urban mitigation actions in key sectors, but a lower number of NDCs are explicitly including an analysis of the urban causes of GHG emission by sector. There is a need for improving the quantification of GHG emissions per sector, also to strength and to support the operationalization and monitoring of ambitious urban mitigations actions. Waste and energy are the sectors that African NDCs consider the most challenging for GHG emissions at urban level, followed by water, transport, built environment and LULUCF, although the latest are mentioned only in few NDCs (Figure 9).

African NDCs focus most frequently on waste, energy and transport sectors by identifying specific urban mitigation actions; urban mitigation actions are also focusing on water, built environment and LULUCF sectors, although in a lower number of NDCs (Figure 9). Thereby, energy, transport and waste, are currently the sectors with a significant opportunity for investments in sustainable urban development and improved service delivery that also have a high potential for low-carbon development. Land use, built environment and water are currently considered as complementary sectors, but their importance for a low-carbon transition may increase in the future. Moreover, there is a need for increasing the more explicit identification of emission by sector in the NDCs to better guide the prioritization of actions in key sectors for low-carbon development. Finally, the integration across sectors of urban mitigation actions shall be further explored, also insight of more efficient use of financial resources.

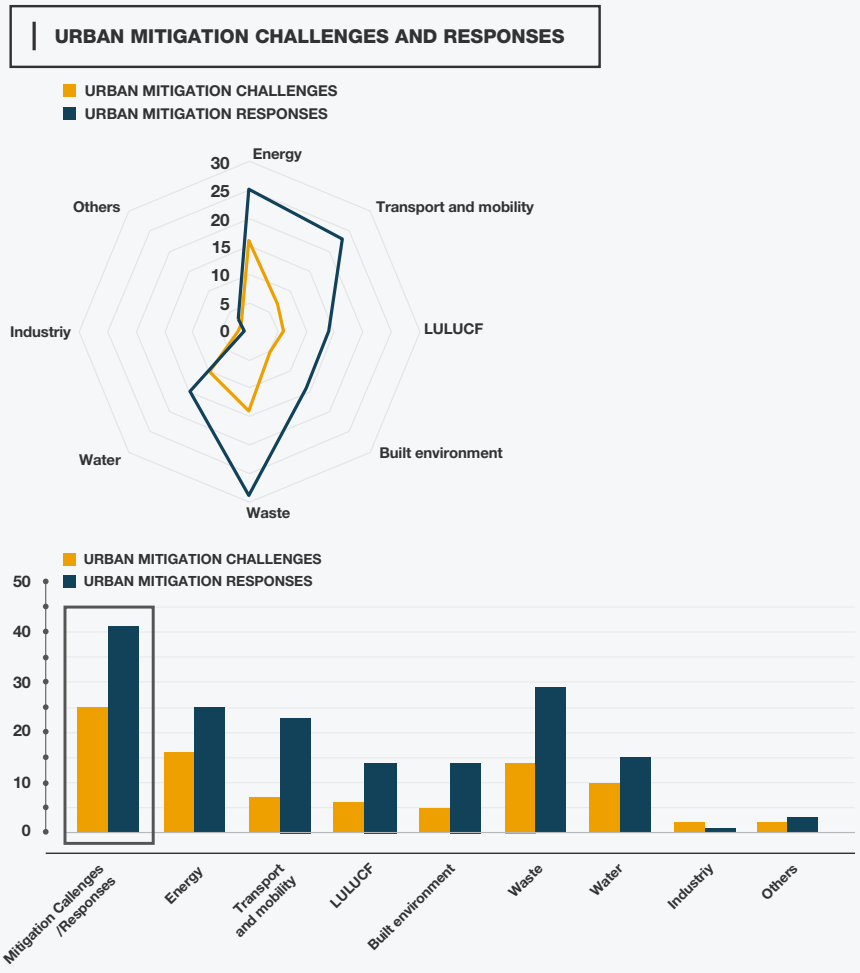


Figure 9. African NDCs urban content analysis 2022: Urban mitigation challenges and responses by sector.

"The key water tower expected to disappear threatening Kenya's largest river that carries more than 60% of the country's hydropower and that has many cities and a critical portion of Kenya's agricultural land." (Kenya, p.5). Urban mitigation challenge | Energy

"- Reduce emissions by 25.63 Gg CO2e per year by supporting the implementation of a landfill gas recovery system on When Town Landfill by 2022; Reduce emissions by 25.63 Gg CO2e per year by supporting the implementation of a landfill gas recovery system on Cheeseman burg Landfill by 2025" (Liberia, p.20). Urban mitigation response | Waste

Urban adaptation challenges and responses by sector

The analysis of the urban adaptation challenges and responses show that 28 NDCs, or 57% of the NDCs with urban content, identify urban adaptation responses, and that 18 NDCs, or 37% of the NDCs with urban content, identify urban adaptation challenges (Figure 10).
This implies that only a limited number of African NDCs are identifying specific urban adaptation actions in key sectors, and even a lower number of NDCs are explicitly including an analysis of the negative impact of climate change by sector. Thereby there is a clear need to improve the impact assessment of climate disaster in specific sectors, to monitor the effectiveness of urban adaptation efforts; and to further strength and expand the identification of urban adaptation actions.
Water, infrastructures and coastal areas are the sectors that African NDCs consider the most challenging for climate adaptation, although these urban adaptation challenges are mentioned only by circa one on five NDCs. Moreover, very few NDCs mention urban adaptation challenges in other sectors, like agriculture and food, ecosystems and biodiversity, and human health (Figure 10).
African NDCs focus most frequently on water and infrastructure sectors by identifying specific urban adaptation actions; some NDCs identify also urban adaptation actions on coastal areas, agriculture and food (Figure 10).
Thereby, water and infrastructure, followed by coastal areas and agriculture and food, are currently the sectors with a significant opportunity for investments in in urban climate adaptation, to reduce the negative impact of climate change and for sustainable urban development.
Overall, there is a strong need for increasing the more explicit identification in the NDCs of adaptation challenges and climate impact by sector. This is essential to better guide the prioritization of actions in key urban sectors, and the adequate provision of financial support, which is essential to reduce loss and damages. Finally, the integration across sectors of urban adaptation actions shall also be explored further, also insight of more efficient use of financial resources.

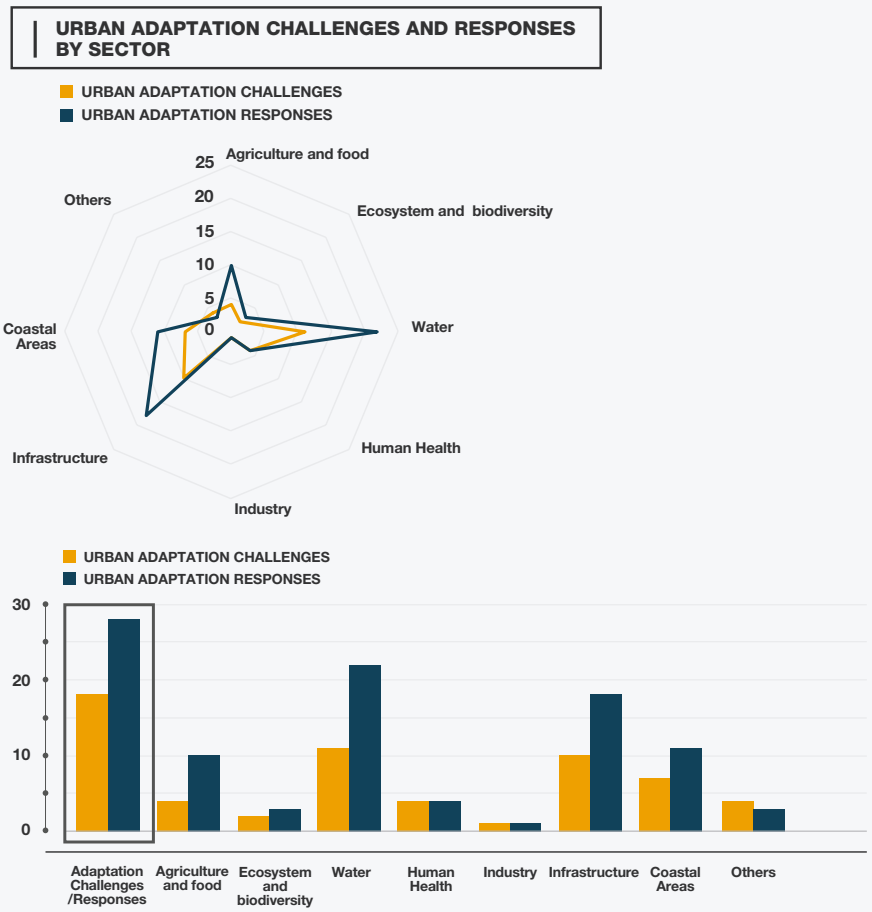


Figure 10. African NDCs urban content analysis 2022: Urban adaptation challenges and responses by sector.

"Heavy rains, flooding and soil erosion put both urban and rural infrastructures at risk, particularly for poor and vulnerable groups" (Ethiopia, p.4). Urban adaptation challenge | Infrastructure

"Pillar 3 of the SPCR consists of an integrated programme designed to enhance the climate resilience of the urban areas in The Gambia – namely the GBA and the growth centres – while also covering infrastructural issues beyond the urban areas. Specific components include developing climate-resilient integrated waste management, addressing the associated need for climate-resilient roads and drainage systems, and actions to climate proof water supply and sanitation infrastructure, as well as energy infrastructure. Livelihoods opportunities associated with renewable energy, waste management and urban agriculture will be supported, particularly for women, youth and disadvantaged groups, including differently abled people" (Gambia, p.23). Urban adaptation response | Agriculture and food security, Ecosystem and biodiversity, Water, Human health, Infrastructure

Urban adaptation hazards

The analysis of urban hazards shows that only 18 African NDCs, or 37% of the NDCs with urban content, identify urban adaptation hazards. Flooding is the hazard most mentioned at the urban level and, thus, considered the main threat for African cities, although it is only mentioned by 12 NDCs, or 24% of African NDCs with urban content (Figure 11). Other hazards specifically mentioned are: droughts, 6 NDCs; sea level rise and land degradation, 4 NDCs each; storms, heat waves and temperature rise, 3 NDCs each. Moreover, there are three hazards that are not mentioned at all as a threat for African cities: vector-borne diseases, salt water intrusion and water acidification (Figure 11).

It is important to note that many urban climate hazards identified are related to excess of scarcity of water, e.g. floods, droughts and sea level rise, and with change in temperatures, in the short and long term, e.g. temperature rise and heat waves. Much more attentions should be dedicated to profiling urban climate hazards and to include this information in the NDCs, particularly in relation to urban adaptation challenge by sector. This is important for the definition and prioritization of effective urban climate adaptation actions, and as a mean to better justify and strength the financial requests for the implementation of urban climate adaptation.

"The increase in intensity and frequency of extreme events under the effect of climate change (torrential rains in a limited time, waves of extreme heat, marine submersion, storms, etc.) have shown the limits of the traditional conception of urban spaces in Tunisia" (Tunisia, p.31). Urban adaptation hazards | Storm events

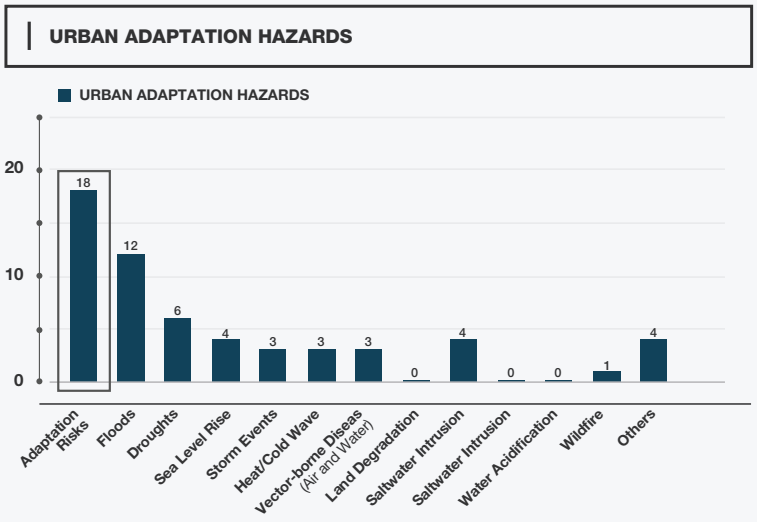


Figure 11. Urban hazards – Bar chart.

Mitigation challenges by sector (national vs urban)

The 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. Looking at specific mitigation challenges by sector at national level, the most mentioned ones are: energy 50 NDCs, LULUCF, 47 NDCs, waste 45 NDCs, industry 40 NDCs, and transport 32 NDCs. The most mentioned mitigations challenges at urban level are: energy 16 NDCs, waste 14 NDCs, and water 10 NDCs (Figure 12).

This shows that there is ample space to improve the identification of mitigation challenges at urban level, for sectors that are highly considered both at national and urban level, e.g. energy, and for sectors that are not much included at national nor at urban level, e.g. built environment; for example, the latest is certainly a sector that will be increasingly responsible of GHG emission, considering the current urbanization rate in the region. The identification of mitigation challenges at urban level, particularly for sectors that are already identified as a priority at national level, can contribute to raising the national ambitions for a low-carbon transition, exploring the contribution that cities can make to it.

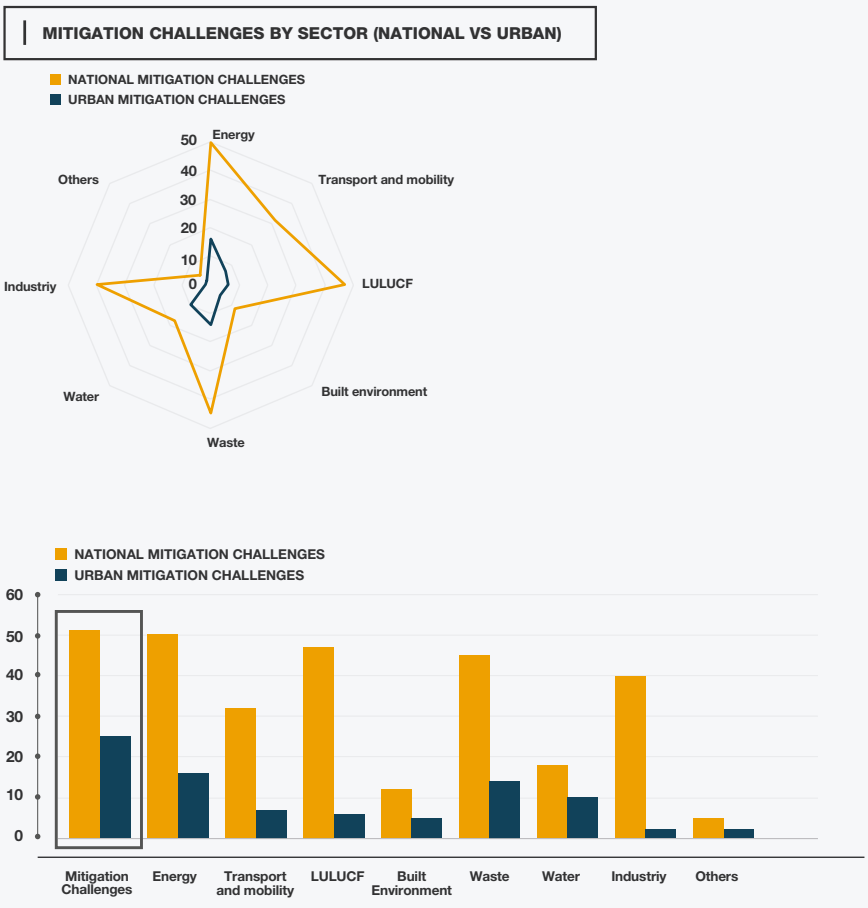


Figure 12. African NDCs urban content analysis 2022: Mitigation challenges by sector (national vs urban).

Mitigation responses by sector (national vs urban)

The comparison between national and urban mitigation responses shows that mitigation responses are not as frequently mentioned at the urban level as at the national level. Looking at specific mitigation responses by sector at national level, the most mentioned ones are: energy 52 NDCs, LULUCF, 50 NDCs, waste 48 NDCs, and transport 45 NDCs. Other sectors are also mentioned at national level in a considerable number of NDCs: industry, 36 NDCs, built environment, 26 NDCs, and water, 20 NDCs. The most mentioned mitigations responses at urban level are: waste, 29 NDCs, energy, 25 NDCs, and transport, 23 NDCs. Other sectors are also mentioned at urban level, although in a lower number of NDCs: water, 15 NDCs, LULUCF, 14 NDCs, and built environment, 14 NDCs (Figure 13).

This shows that there is ample space to increase the urban mitigation action as a mean to raise and operationalize the ambitions for a low-carbon development, as identified at national level. Strengthening and expanding mitigation actions at urban level, and related financial investment, can certainly start from sectors that are already of strong interest both at national and urban level, like energy, transport and waste. Moreover, in the future perspective, there is also the opportunity increase national and urban alignment in sectors like LULUCF and industry; as well as, to increase the ambition, both at national and urban level for mitigation actions on water and built environment.

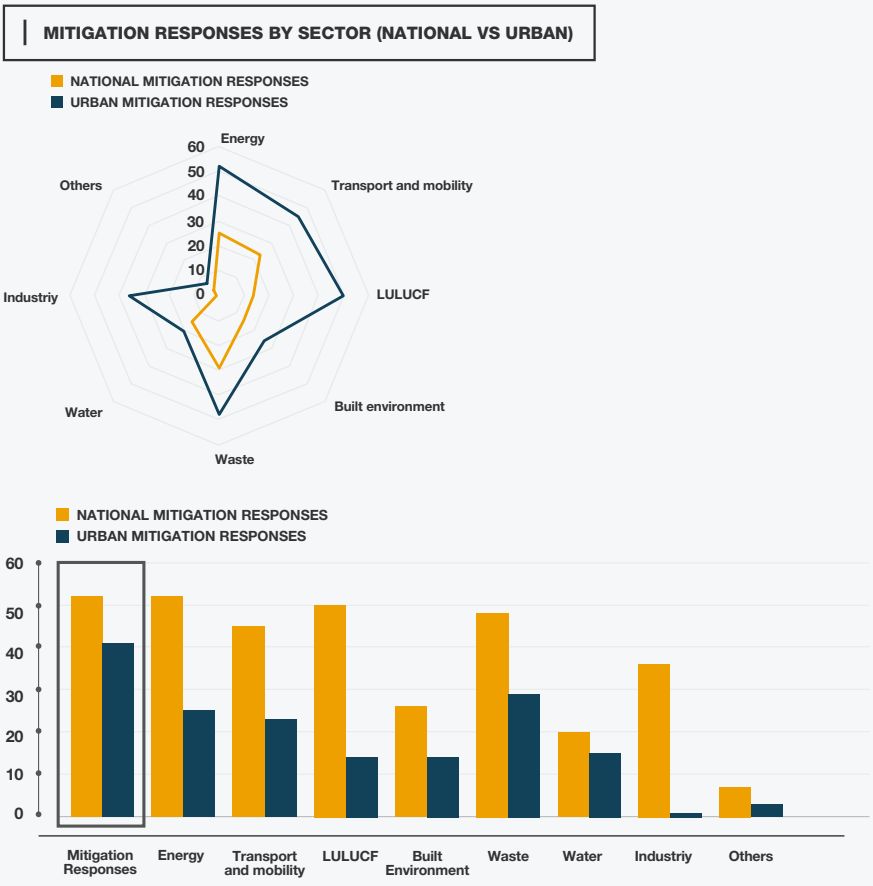


Figure 13. African NDCs urban content analysis 2022: Mitigation responses by sector (national vs urban).

Mitigation challenges and responses by sector (national vs urban)

The analysis of the national and urban mitigation challenges and responses shows that, in general, there are more mentions to mitigation responses than challenges in the African NDCs at the national and urban level. At the national level, energy, LULUCF, and waste are considered the most challenging sectors and are also the ones with more mitigation responses. At the urban level, waste and energy are considered the most challenging sectors and also the ones with more responses. industry is barely mentioned at the urban level even though it is frequently mentioned for mitigation challenges and responses at the national level (Figure 14).

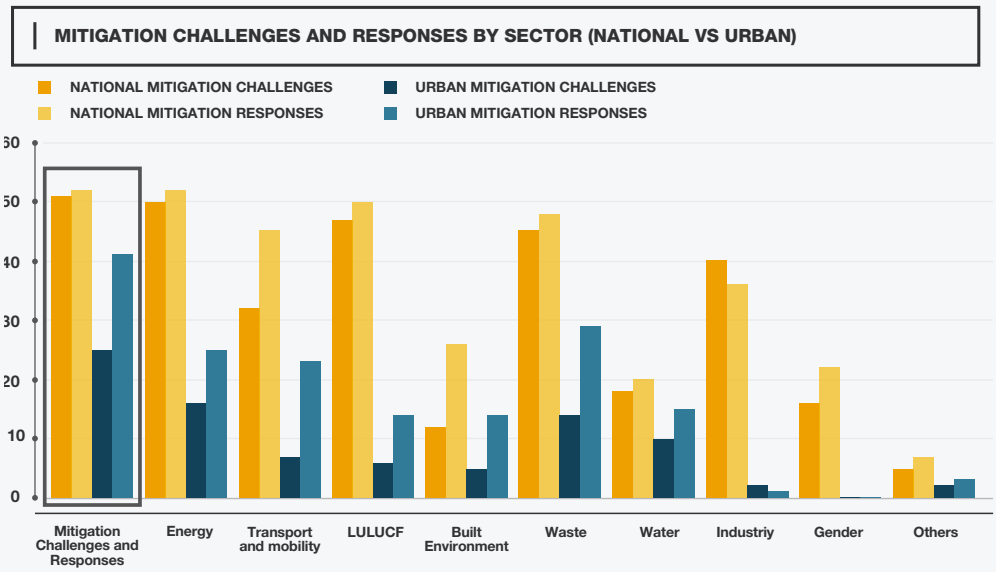


Figure 14. African NDCs urban content analysis 2022: Mitigation challenges and responses by sector (national vs urban).

Adaptation challenges by sector (national vs urban)

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. Looking at specific adaptation challenges by sector at national level, the most mentioned ones are: agriculture, 51 NDCs, water, 44 NDCs, human health and ecosystem, 41 NDCs each; these are followed by infrastructure and coastal areas, 31 NDCs each. The most mentioned adaptation challenges at urban level, although in a significant lower number of NDCs compared to national level entries, are: water, 11 NDCs, infrastructure, 10 NDCs, and coastal areas 7 NDCs (Figure 15).

This shows that there is very ample space to improve the identification of adaptation challenges at urban level, across all sectors, considering the high share of African NDCs with urban content, and the low number of NDCs with clearly identified urban adaptation challenges, versus the high and very high number of NDCs identifying adaptation challenges at national level. The identification of adaptation challenges at urban level, is essential to determine the needs for financial support, required for the operationalization of adaptation actions at local level, as well as to monitor and assess the effectiveness of urban adaptation actions, and the related financial investments, also in relation to the contribution to the overall national adaptation actions.

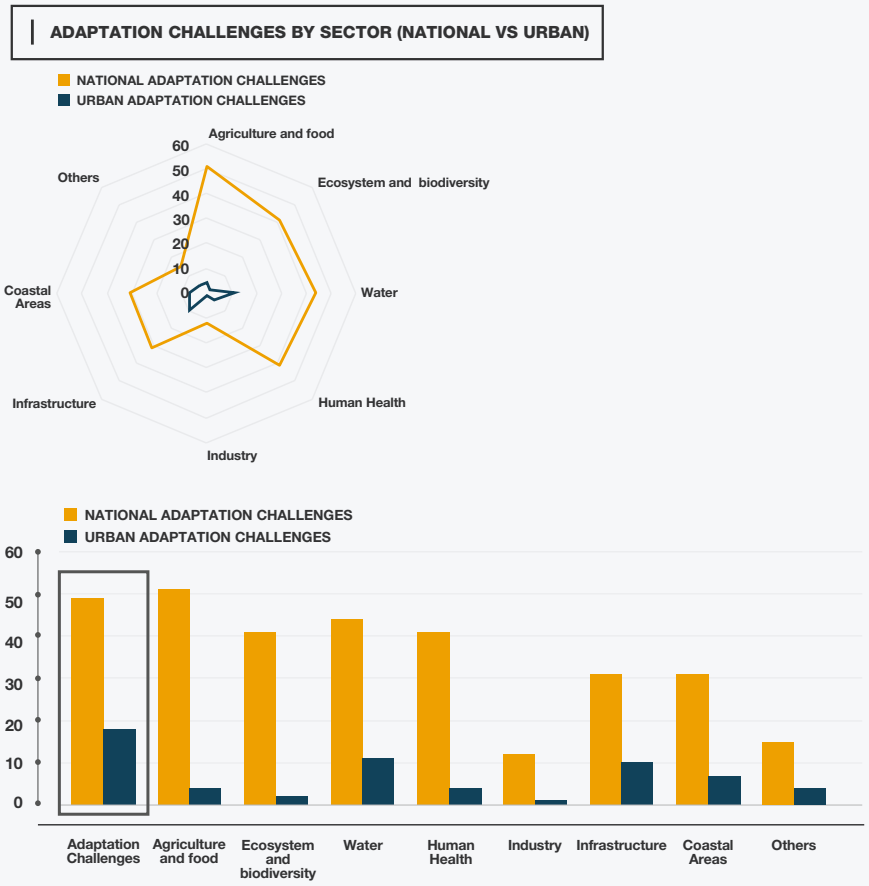


Figure 15. African NDCs urban content analysis 2022: Adaptation challenges by sector (national vs urban).

Adaptation responses by sector (national vs urban)

The comparison between national and urban adaptation responses shows that adaptation responses are not as frequently mentioned at the urban level as at the national level. Looking at specific adaptation responses by sector at national level, the most mentioned ones are: water, 51 NDCs, Agriculture, 50 NDCs, ecosystems, 48 NDCs, human health, 45 NDCs infrastructures, 41 NDCs, and coastal areas, 34 NDCs. The most mentioned adaptation responses at urban level are: water, 22 NDCs, infrastructures, 18 NDCs, followed by coastal areas, 11 NDCs, and agriculture, 10 NDCs (Figure 16).

This shows that there is ample space to increase the urban adaptation action as a mean to contribute effectively to national climate adaptation policies and priorities. Strengthening and expanding adaptation actions at urban level, and related financial investment, can start from sectors that are already of strong interest both at national and urban level, like water, infrastructures and coastal areas. Moreover, in the future perspective, there is also the opportunity increase national and urban alignment in sectors like agriculture, ecosystems and human health; sectors that are currently showing a high gap between national and urban level.

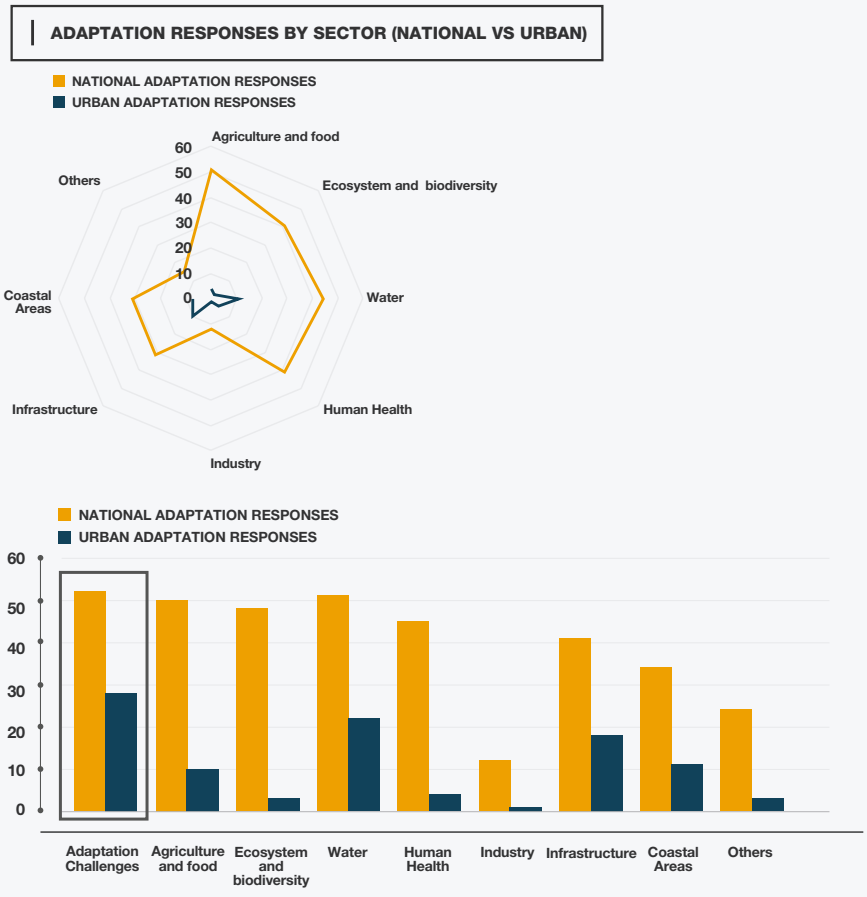


Figure 16. African NDCs urban content analysis 2022: Adaptation responses by sector (national vs urban).

Adaptation challenges and responses by sector (national vs urban)

The analysis of the national and urban adaptation challenges and responses shows that, in general, adaptation responses are more mentioned than challenges at the national and urban level. At the national level, water, agriculture and food, ecosystem and biodiversity, and human health are the most mentioned challenging sectors in terms of adaptation and also the ones with more responses. At the urban level water, infrastructure and coastal areas are the most challenging sectors and also the ones with more responses. Ecosystem and biodiversity and industry are not mentioned at the urban level for adaptation challenges and responses, even though most African countries account for them at the national level. (Figure 17).

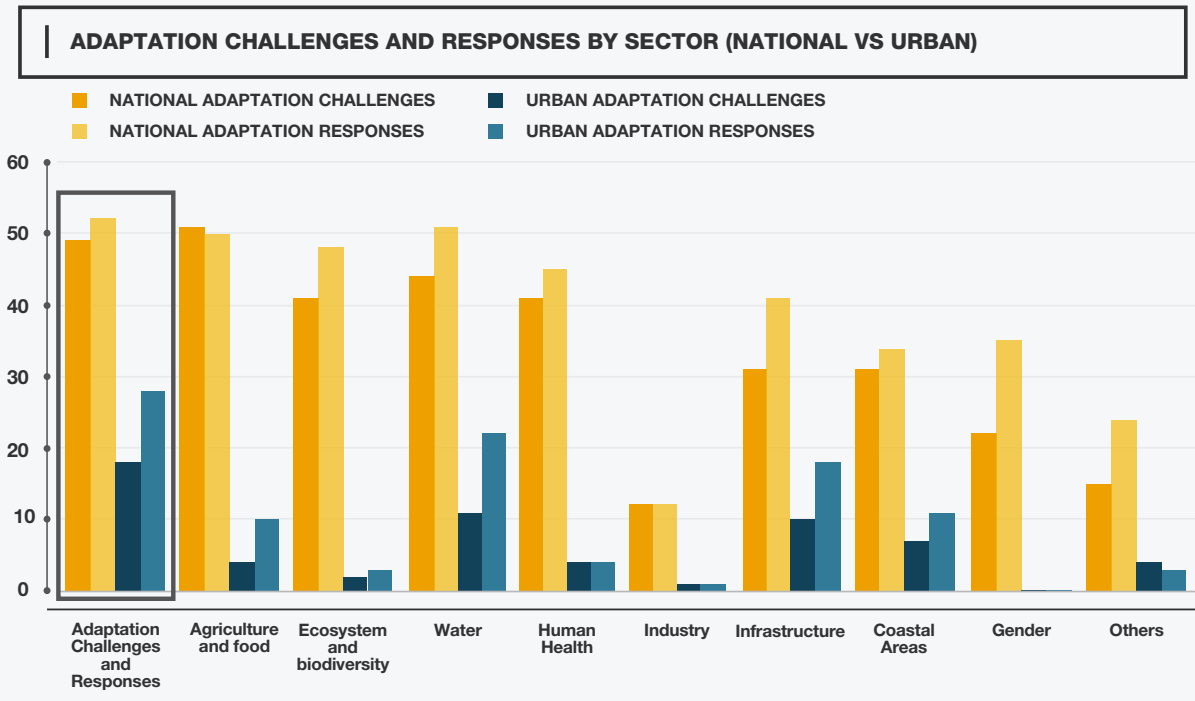


Figure 17. African NDCs urban content analysis 2022: Adaptation challenges and responses by sector (national vs urban).

Urban adaptation hazards (national vs urban)

The analysis comparing the national and urban hazards shows that climate adaptation hazards are not as frequently mentioned at the urban level as at the national level. Looking at specific adaptation hazards at national level, the most mentioned ones are: floods, 45 NDCs, droughts, 45 NDCs, temperature rise, 41 NDCs; followed by land degradation, 36 NDCs, vector-born diseases, 31 NDCs, sea level rise, 29 NDCs and storm events, 26 NDCs. The most mentioned adaptation hazards at urban level are: floods, 12 NDCs and droughts, 6 NDCs; there are other adaptation hazards mentioned at urban level, but only by a very few NDCs (Figure 18).

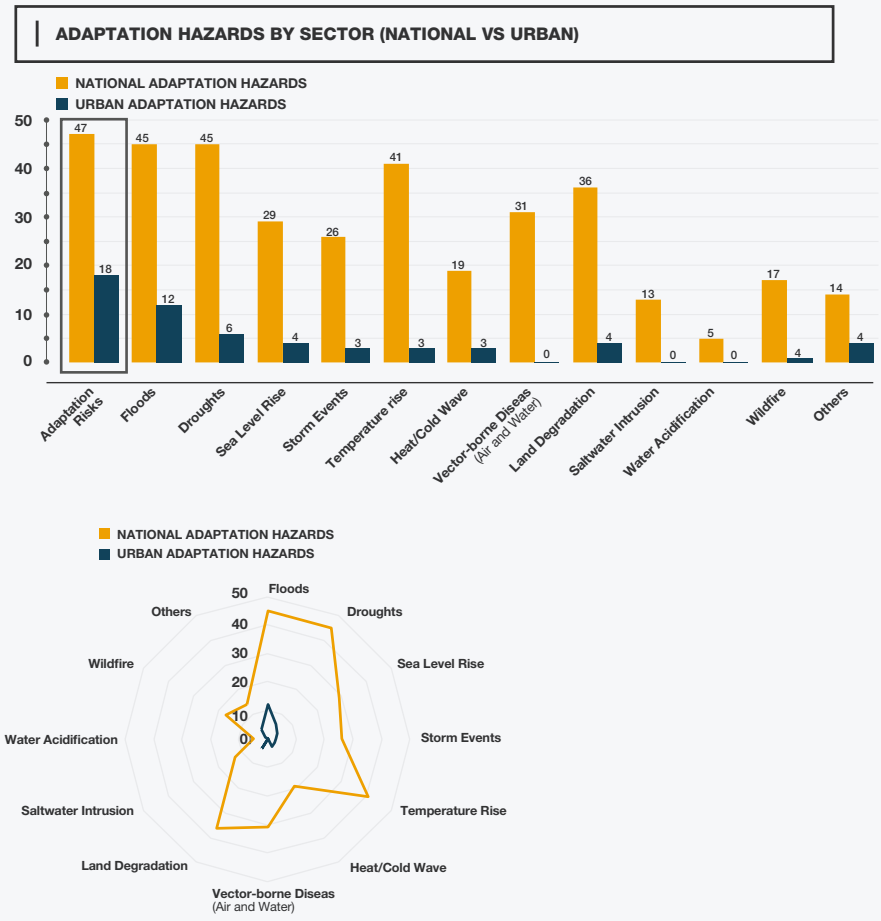


Figure 18. African NDCs urban content analysis 2022: Adaptation hazards (national vs urban).

The identification of urban adaptation hazards should be strengthened, as well as the identification of urban climate challenges, especially considering that almost all NDCs are already defining key adaptation hazards at national level. This is important because it can give fundamental information on how to prioritize urban climate adaptation action and to define clear needs for urban climate finance to prevent and reduce the negative impacts of climate change.

Cross-cutting issues (national vs urban)

The comparison between cross-cutting issues at the national and urban level in the African NDCs shows that, there is not alignment between the most mentioned topics. At the national level, Participation and Gender are the most mentioned issues whereas Multilevel governance and Informal settlements are the least mentioned. At the urban level, Informal settlements and NBS are the most mentioned topics. Moreover, Data availability and usability (mitigation and adaptation), Innovation, and Social Inclusion are not mentioned at the urban level, even though they are frequently mentioned at the national level.

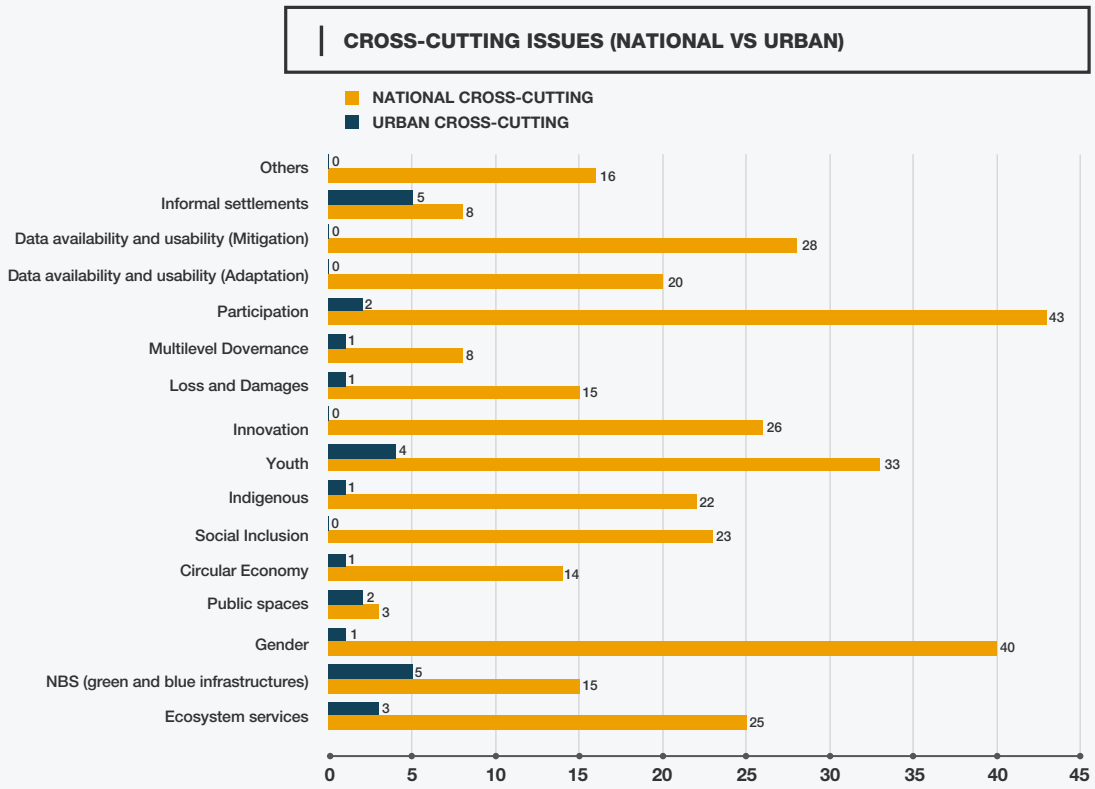


Figure 19. African NDCs urban content analysis 2022: Cross-cutting indicators (national vs urban).

Conditional contributions

The analysis shows that all African submitted NDCs specifically mention that they require international support, to varying degrees, to achieve the NDCs targets. Moreover, 83% of the African NDCs are categorised as both, conditional and unconditional on international support. This implies that they set two target levels: one that can be achieved with domestic support (unconditional) and a more ambitious one that can be achieved only with international support (conditional); This is clearly signalling a significant need to support financial investments, technology transfer and capacity building for achieving the targets set by the NDCs. Only 15% of the African NDCs are completely conditional on international support (Figure 20). This implies that they commit to achieve their targets only if international support is provided.

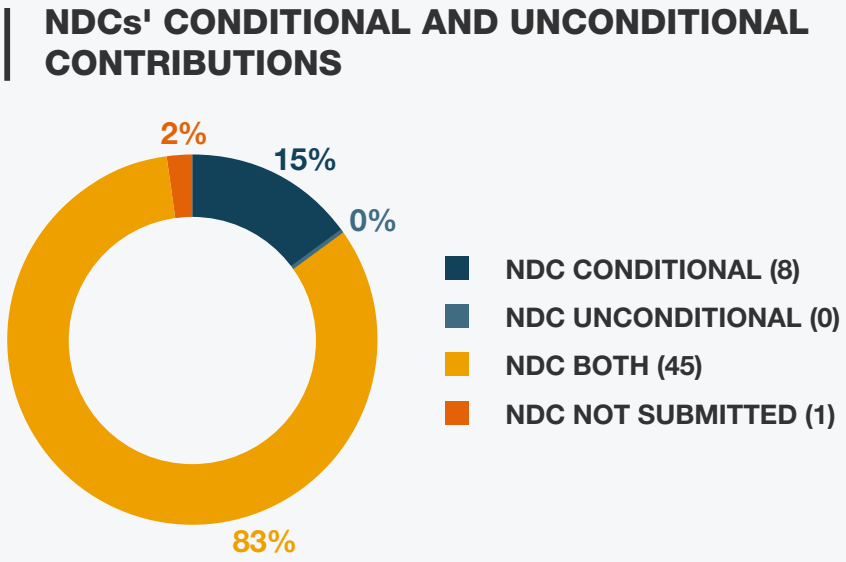
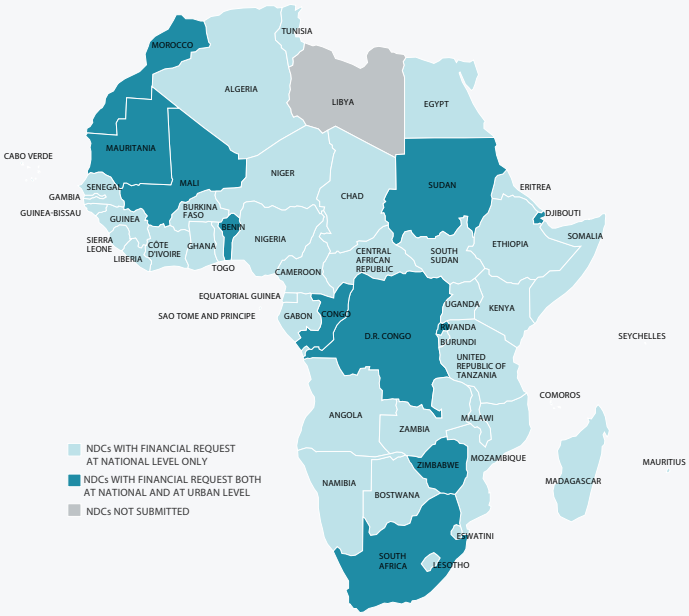


Figure 20. African NDCs' conditional and unconditional contributions.

Finance, technology, and capacity building request (national vs urban)

The analysis shows that all African NDCs specifically included request for international support to achieve their NDCs targets. More in detail, 100% request international financial support, 93% request technology support and 87% request capacity building support (Figure 21). Even though all African NDCs request international support at the national level, only a few of them specifically request it at the urban level, and almost exclusively in relation to finance. Therefore, the gap between international support request at the national and urban level is very large. Considering that financial aid at urban level is currently the most requested for AfDB, it is important to identify more precisely the financial needs at urban level both in relation to mitigation and adaptation.



Map 3: African NDCs request for financial support

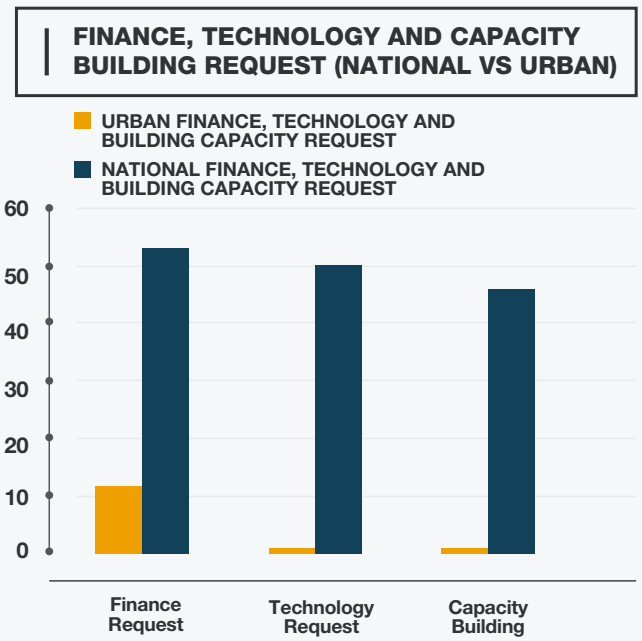


Figure 21. African NDCs urban content analysis 2022: Finance, technology, and capacity building request (national vs urban).

Finance requests and estimation of costs

The analysis shows that 92% of NDCs requesting financial international support, are also providing an estimation of the costs for implementing the necessary climate actions to achieve their targets. More specifically, some NDCs calculate only the total amount, and others present tables with cost breakdown per sector and/or action for mitigation and adaptation; some NDCs also divide the total cost between conditional and unconditional.

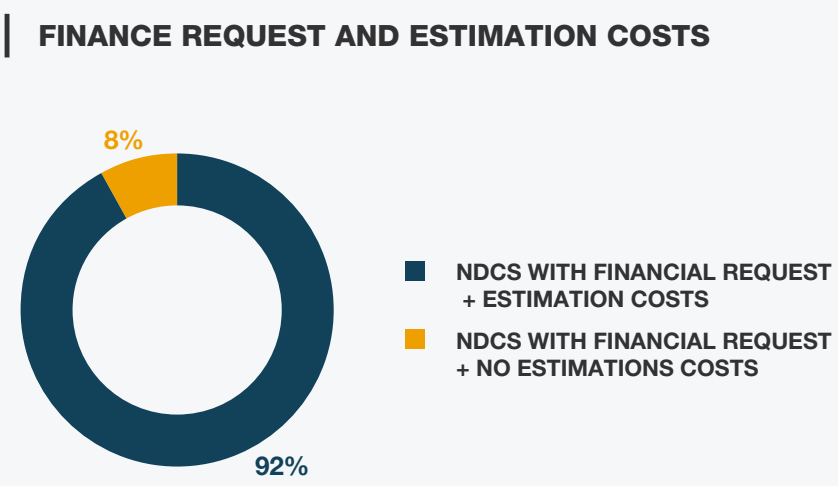


Figure 22. African NDCs urban content analysis 2022: Finance request and estimation costs.

[Goal for 2030] "[…] Support for communities in mobilizing climate finance; […]; Annual financing of sustainable neighborhood projects by 2030 through the programs of the ministerial departments concerned (Habitat, Environment, etc.). (Morocco, p. 26)

[Funding requirements in millions of US dollars] "Cities and climate change: 40 million USD unconditional; 420 USD conditional; 600 USD total" (Congo, p.38).

[Urban projects with budget] « L'amenagement des collecteurs Banconi, Molobalini, Foloni, Dougouradji et Bamafalani dans le district de Bamako pour la protection contre les risques d'inondations (35 millions de $US) ; Programme integre de ramassage et de transformation des dechets plastiques urbains au niveau industriel par les techniques developpees par Mamaplastico a Bamako (0,5 milliard de $US).(Mali, p.72)

« [CIBLE] D'ici 2030, les villes de Bujumbura, Gitega, Ngozi et Rumonge seront dotées des sites de transit et décharges finales des déchets solides ainsi que des centres de tri et de recyclage. [ACTIVITE] Aménager les sites de transit et décharges finales des déchets solides ; Mettre en place des centres de tri et de recyclage pour les villes ciblées. [INDICATEURS]Nombre des sites de transit et décharges finales des déchets solides ainsi que nombre des centres de tri et de recyclage par ville. [USD COUT] 68 320 000» (Burundi, p.93).

[7] English translation: "Development of the Banconi, Molobalini, Foloni, Dougouradji and Bamafalani collectors in the district of Bamako for protection against flood risks (US$ 35 million); Integrated programme for the collection and transformation of urban plastic waste at the industrial level using techniques developed by Mamaplastico in Bamako (US$ 0.5 billion)".

[9] English translation "[PRIORITY ACTIONS] Manage solid waste in Bujumbura and other major cities. [TARGET] By 2030, the cities of Bujumbura, Gitega, Ngozi and Rumonge will be equipped with transit sites and final dumps for solid waste as well as sorting and recycling centres. [ACTIVITY] Develop transit sites and final solid waste dumps; Set up sorting and recycling centres for the targeted cities. [INDICATORS] Number of transit sites and final solid waste dumps as well as number of sorting and recycling centres per city. [USD COST] 68 320 000." (Burundi, p.193)

3.

Conclu-sions

Conclusions

The global response to climate change under the Paris Agreement is carefully negotiated between all 198 UNFCCC member parties. African countries are at the forefront, all countries have ratified the Paris Agreement and provided clear commitments which they are implementing presently to varying degrees. With a minimal share of global historic GHG emissions, and profound threats from climate change to socio-economic development, Countries are part of the global response to Climate Change. National commitments are complex. With rapid urbanization cross Africa, climate-proof urban development is one piece of the large puzzle to adapt to climate change and assure low-carbon development.

The very high number of NDCs with urban content, shows that AfDB's regional members have a high interest in urban sector in relation to climate mitigation and adaptation, also in comparison with other regions. Thus, implicitly acknowledging the importance that African nations gives to cities for the operationalization of their national commitments for the Paris Agreement. Although there is space of improvement for further enhancing the prioritization of urban sector in NDCs with moderate urban content.

Moreover, the majority of African NDCs are combining urban mitigation and adaptation content, which is important because cities are both responsible for GHG emissions and exposed to climate impacts, and also because the integration of urban mitigation and adaptation can increase an efficient use of resources.

African NDCs more often identify urban mitigation and adaptation responses than challenges. Moreover, there is a considerable gap between the high number of NDCs defining mitigation challenge and actions, as well as adaptation hazards, at national level compared to the ones identifying it at urban level. Thus, there is space for improvement in the explicit identification of key urban mitigation and adaptation challenges and responses, as well of adaptation risks; this is instrumental for the definition and justification of urban climate mitigation and adaptation responses.

African NDCs focus for mitigation challenges and responses is on waste, energy and transport sectors, although water, built environment and LULUCF are very important, despite they are currently mentioned in fewer NDCs.

African NDCs focus for adaptation challenges and responses is on water, infrastructure and coastal areas, are the most mentioned sectors in urban adaptation responses. Flooding is the hazard most mentioned at the urban level, although it is mentioned by a limited number of NDCs, followed by droughts.

Mitigation and adaptation challenges are much more frequently identified at national level than at urban level, and this gap between national and urban level is even more evident for adaptation hazards. Moreover, mitigation and adaptation responses are also much more frequently identified at national level than at urban level. This shows that there is ample space to increase the identification of challenges and responses, for mitigation and adaptation, at urban level as a mean to contribute effectively to national climate policies and priorities.

All African NDCs are identifying climate targets that are in full or in part conditional to the provision of international support, at national level virtually all NDCs request for financial support, technology transfer and capacity building. Most of the NDCs support the request for financial resources by an estimation of cost for implementing climate action, although with differences regarding the level of details provided. It is important to note that only very few NDCs include specific requests for financial support at urban level.

Recommendations

Countries choice to include urban content as part of the multiple issues addressed in NDCs is encouraging for urban development stakeholders across the African continent, highlighting the role of sustainable urban development to support climate action. Analysing the NDCs almost always shows entry points for urban climate action based on national climate commitments. While the entry points seem clear, more analysis is needed to support identification of the main climate change mitigation challenges and define accurate urban mitigation responses. Climate Change mitigation has the potential to mobilize significant global investments and mobilizing these investments in turn have a high potential to aid low-carbon development, infrastructure and service provision for green and equitable growth. The key adaptation challenges in NDCs seem more defined, and the task must be to now define, develop and finance the locally appropriate adaptation actions.

African NDCs by and large focus urban content on adaptation action. The nature of their conditional NDCs is a call to support the development of financial, technical and institutional capacity for urban adaptation and resilience. We also see the clear alignment in key sectors between the national and local (urban) level, strengthening the vertical and horizontal integration of climate action. African countries also need access to finance, prepare bankable projects, prioritize investment and increase the ability to manage finance and strengthen the Monitoring, Reporting and Validation (MRV) process. The third aspect is technology, technology development, technology transfer and technology management.

African countries' NDCs that are detailing urban (and national) adaptation and mitigation actions is relevant for everyone to know where the priority investments are, often with great granularity in terms of specific investment priorities, sectors and locations. With continuously increasing global pledges and commitments to investment in climate action, the African NDCs are one critical element where climate finance can be investment in support of the National Commitments under the Paris Agreement. Finance is also needed in support of data generation on low-carbon options and adaptation, such data will help identifying adequate responses. Further work (and finance) is needed for more detailed cost quantifications of all urban adaptation and mitigation measures to prioritize investments.

The analysis of the urban content of African NDCs allow to present the following recommendation to strengthen urban climate action.

Recommendation 1: Support further analysis on the urban investment priorities, based on NDC content.

Recommendation 2: Inclusion of relevant climate mitigation and adaptation commitments into urban development strategies and plans.

Recommendation 3: Identification of high-emission pathways and climate risks and vulnerabilities at urban level, in order to strengthen and expand the planning and implementation of urban low-carbon development and adaptation actions.

Recommendation 4: Support further identification and preparation of low carbon development actions in nationally prioritized urban sectors, regionally these sectors waste, energy and transport have been identified by many countries. Enhance support in the medium term in urban sectors that may increase their relevance (water, built environment and LULUCF).

Recommendation 5: Support further identification and preparation of adaptation actions in identified key urban sector, like water, infrastructure and coastal areas, based on local risk assessments.

Recommendation 6: support the planning and development of actions at urban level that can contribute to the key mitigation and adaptation actions defined at national level.

Recommendation 7: identify specific financial, technological, and institutional needs for the implementation of urban climate actions.

The way forward

This analysis of the urban content of the NDCs provide a useful baseline for a preliminary identification of key urban low-carbon and adaptation actions in African cities, in the wider frame of identified national climate priorities. This information can be of help in prioritizing climate investment at urban level for a low carbon and resilient transition. Although, this analysis also highlights some knowledge gaps that require further analysis in order to inform appropriately decision making for supporting urban climate action.
The present report shows a quick overview and baseline, further analysis of the urban content of the NDCs should carried out in order to better understand specific national context, circumstances and priorities, that can be used for developing appropriate investment plans, also taking into account other key national climate policies, strategies and plans. Such a potential country level analysis should be strengthened through a more detailed identification of Long-Term-Strategies, National Adaptation Plan, the merging discussions on just transition and loss and damages. The combined regional and country level analysis of NDCs, LT-LEDS and NAPS, could prove extremely useful to inform the mobilization of finance for urban climate action, both for the preparation of concrete projects based on NDCs, and the financing of NDC implementation. Moreover, it is important to explore the development of capacity building activities, focused aimed at strengthening the preparation of urban adaptation and mitigation plans and projects, with specific focus on their bankability.

4.

Annexes

A1. List of indicators used for the NDCs' urban content analysis 2022

N.	Indicator	Source
1	Geographic Indicators	External
1.1	Country ISO code	External
1.2	Country Name	External
1.3	Region name	External
1.4	Sub-region name	External
1.5	Capital name	External
2	National context indicators	
2.1	Total Population (2020)	External
2.2	Total population in (2011)	External
2.3	Population density	External
2.4	GDP Country (US$)	External
2.5	GDP per capita (US$)	External
2.6	GINI index	External
2.7	Human Development Index (2019)	External
2.8	Human Development Index - category	Calculate
2.9	Income categorization	External
2.10	Type of party (Annex I / Non-Annex I)	External
3	Urban context indicators	
3.1	Urban population (2021)	External
3.2	Percentage urban population (2021)	External
3.3	Urbanization rate (percentage)	External
3.4	Urbanization rate (ranked)	External
3.5	Percentage of people living in urban areas, 2050	External
3.6	Urban land area (2010) [sq. Km]	External
4	Emissions indicators	
4.1	CO2e: TOTAL per country	External
4.1.2001	CO2e sectors: Agriculture	External
4.1.2002	CO2e sectors: Bunker fuels	External
4.1.2003	CO2e sectors: Building	External
4.1.2004	CO2e sectors: Electricity/heat	External
4.1.2005	CO2e sectors: Energy	External
4.1.2006	CO2e sectors: Fugitive emissions	External
4.1.2007	CO2e sectors: Industrial Processes	External
4.1.2008	CO2e sectors: Land-Use Change and Forestry	External
4.1.2009	CO2e sectors: Manufacturing/constructions	External
4.1.10	CO2e sectors: Other fuel combustion	External
4.1.11	CO2e sectors: Total excluding LUCF	External

4.1.12	CO2e sectors: Total including LUCF	External
4.1.13	CO2e sectors: Transportation	External
4.1.14	CO2e sectors: Waste	External
4.2	CO2e: per capita	External
4.3	CO2e: per GDP	External
4.4	Compatibility of climate targets with a 2° C scenario	External
5	Key hazards	
5.1	Droughts	External
5.2	Earthquakes	External
5.3	Epidemics	External
5.4	Extreme temperatures	External
5.5	Floods	External
5.6	Insect infestations	External
5.7	Landslides	External
5.8	Storms	External
5.9	Volcanic activities	External
5.10	Wildfires	External
6	NDC National Indicators (not urban) - General	
6.1	Latest submission date	External
6.2	Title	NDC
6.3	Language	External
6.4	Mitigation Contribution Type	External
6.5	GHG Target type	External
6.6	GHG target year	External
6.7	GHG target - sector covered	External
6.8	Target quantity	NDC
6.9	Base year	NDC
6.10	NDC conditional/unconditional	NDC
6,11	Share of Global GHG emissions	External
6.12	Finance request	NDC
6.13	Technology request	NDC
6.14	Capacity building	NDC
7	NDC National Indicators - Challenges	
7.1	Mitigation challenges	NDC
7.1.2001	Energy	NDC
7.1.2002	Transport and mobility	NDC
7.1.2003	LULUCF	NDC
7.1.2004	Built environment	NDC
7.1.2005	Waste	NDC
7.1.2006	Water	NDC
7.1.2007	Industry	NDC
7.1.2008	Others	NDC

7.2	Adaptation challenges	NDC
7.2.2001	Agriculture and food	NDC
7.2.2002	Ecosystem and biodiversity	NDC
7.2.2003	Water	NDC
7.2.2004	Human Health	NDC
7.2.2005	Industry	NDC
7.2.2006	Infrastructure	NDC
7.2.2007	Coastal areas	NDC
7.2.2008	Others	NDC
7.3	Adaptation risks	NDC
7.3.2001	Floods	NDC
7.3.2002	Droughts	NDC
7.3.2003	Sea level rise	NDC
7.3.2004	Storm events	NDC
7.3.2005	Temperature rise	NDC
7.3.2006	Heat wave	NDC
7.3.2007	Vector-borne diseases (air and water)	NDC
7.3.2008	Land degradation	NDC
7.3.2009	Saltwater intrusion	NDC
7.3.10	Water acidification	NDC
7.3.11	Wildfire	NDC
7.3.12	Others	NDC
8	NDC National Indicators - Responses	
8.1	Mitigation responses	NDC
8.1.2001	Energy	NDC
8.1.2002	Transport and mobility	NDC
8.1.2003	LULUCF	NDC
8.1.2004	Built environment	NDC
8.1.2005	Waste	NDC
8.1.2006	Water	NDC
8.1.2007	Industry	NDC
8.1.2008	Others	NDC
8.2	Adaptation responses	NDC
8.2.2001	Agriculture and food	NDC
8.2.2002	Ecosystem and biodiversity	NDC
8.2.2003	Water	NDC
8.2.2004	Human Health	NDC
8.2.2005	Industry	NDC
8.2.2006	Infrastructure	NDC
8.2.2007	Coastal areas	NDC
8.2.2008	Others	NDC
9	NDC urban indicators - General	
9.1	Urban content - Preliminary analysis White Paper (UN-Habitat and SDU, 2021)	External

9.2	Urban content - in-depth analysis (2022)	NDC
9.3	Finance request	NDC
9.4	Technology request	NDC
9.5	Capacity building	NDC
10	NDC Urban Indicators - Challenges	
10.1	Urban mitigation challenges	NDC
10.1.2001	Energy	NDC
10.1.2002	Transport and mobility	NDC
10.1.2003	LULUCF	NDC
10.1.2004	Built environment	NDC
10.1.2005	Waste	NDC
10.1.2006	Water	NDC
10.1.2007	Industry	NDC
10.1.2008	Others	NDC
10.2	Urban adaptation challenges	NDC
10.2.2001	Agriculture and food	NDC
10.2.2002	Ecosystem and biodiversity	NDC
10.2.2003	Water	NDC
10.2.2004	Human Health	NDC
10.2.2005	Industry	NDC
10.2.2006	Infrastructure	NDC
10.2.2007	Coastal areas	NDC
10.2.2008	Others	NDC
10.3	Urban adaptation risks	
10.3.2001	Floods	NDC
10.3.2002	Droughts	NDC
10.3.2003	Sea level rise	NDC
10.3.2004	Storm events	NDC
10.3.2005	Temperature rise	NDC
10.3.2006	Heat wave	NDC
10.3.2007	Vector-borne diseases (air and water)	NDC
10.3.2008	Land degradation	NDC
10.3.2009	Saltwater intrusion	NDC
10.3.10	Water acidification	NDC
10.3.11	Wildfire	NDC
10.3.12	Others	NDC
11	NDC Urban Indicators - Responses	
11.1	Urban mitigation responses	NDC
11.1.2001	Energy	NDC
11.1.2002	Transport and mobility	NDC
11.1.2003	LULUCF	NDC
11.1.2004	Built environment	NDC
11.1.2005	Waste	NDC

11.1.2006	Water	NDC
11.1.2007	Industry	NDC
11.1.2008	Others	NDC
11.2	Urban adaptation responses	NDC
11.2.2001	Agriculture and food	NDC
11.2.2002	Ecosystem and biodiversity	NDC
11.2.2003	Water	NDC
11.2.2004	Human Health	NDC
11.2.2005	Industry	NDC
11.2.2006	Infrastructure	NDC
11.2.2007	Coastal areas	NDC
11.2.2008	Others	NDC
12	Other national climate-related agendas, policies, plans, and strategies (out of the NDC)	
12.1	NAP National Adaptation plans	External
12.2	NDC-SDG linkages	External
12.2.2001	1. No poverty	External
12.2.2002	2. Zero hunger	External
12.2.2003	3. Good health and well-being	External
12.2.2004	4. Quality education	External
12.2.2005	5. Gender equality	External
12.2.2006	6. Clean water and sanitation	External
12.2.2007	7. Affordable and clean energy	External
12.2.2008	8. Decent work and economic growth	External
12.2.2009	9. Industry, innovation and infrastructure	External
12.2.10	10. Reduced inequalities	External
12.2.11	11. Sustainable cities and communities	External
12.2.12	12. Responsible consumption and production	External
12.2.13	13. Climate action	External
12.2.14	14. Life below water	External
12.2.15	15. Life on land	External
12.2.16	16. Peace, justice and strong institutions	External
12.2.17	17. Partnerships for the goals	External
12.3	National Long-term Strategies (LTS)	External
12.4	Adaptation: Long-term Goal and Outcomes for Climate Adaptation and Resiliency	External
13	National cross-cutting indicators	
13.1	Ecosystem services	NDC
13.2	NBS (green and blue infrastructures)	NDC
13.3	Gender	NDC
13.4	Public spaces	NDC
13.5	Circular economy	NDC
13.6	Social inclusion	NDC
13.7	Indigenous	NDC

13.8	Youth	NDC
13.9	Innovation	NDC
13.10	Loss and damages	NDC
13.11	Multilevel governance	NDC
13.12	Participation	NDC
13.13	Data availability and usability (Adaptation)	NDC
13.14	Data availability and usability (Mitigation)	NDC
13.15	Informal settlements	NDC
13.16	Others	NDC
14	Urban cross-cutting indicators	
14.1	Ecosystem services	NDC
14.2	NBS (green and blue infrastructures)	NDC
14.3	Gender	NDC
14.4	Public spaces	NDC
14.5	Circular economy	NDC
14.6	Social inclusion	NDC
14.7	Indigenous	NDC
14.8	Youth	NDC
14.9	Innovation	NDC
14.10	Loss and damages	NDC
14.11	Multilevel governance	NDC
14.12	Participation	NDC
14.13	Data availability and usability (Adaptation)	NDC
14.14	Data availability and usability (Mitigation)	NDC
14.15	Informal settlements	NDC
14.16	Others	NDC

A2. List of countries whose NDCs' urban content was analysed

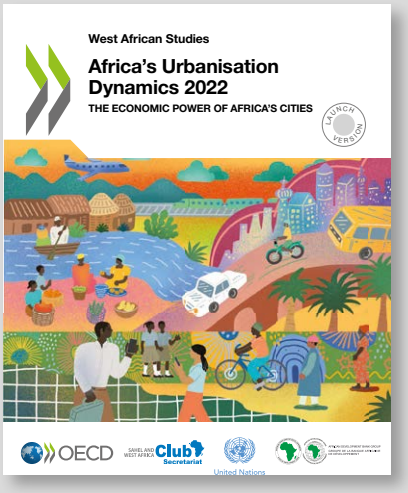
ID	Country Name	Cluster of urban content (2022)
1	Algeria	B
2	Angola	B
3	Benin	A
4	Botswana	C
5	Burkina Faso	B
6	Burundi	B
7	Cabo Verde	A
8	Cameroon	B
9	Central African Republic	B
10	Chad	B
11	Comoros	C
12	Congo	A
13	Côte d'Ivoire	B
14	Democratic Republic of the Congo	B
15	Djibouti	B
16	Egypt	B
17	Equatorial Guinea	B
18	Eritrea	B
19	Eswatini	B
20	Ethiopia	A
21	Gabon	B
22	Gambia	A
23	Ghana	B
24	Guinea	B
25	Guinea-Bissau	B
26	Kenya	A

27	Lesotho	B
28	Liberia	A
29	Libya	
30	Madagascar	B
31	Malawi	B
32	Mali	B
33	Mauritania	A
34	Mauritius	B
35	Morocco	A
36	Mozambique	A
37	Namibia	B
38	Niger	B
39	Nigeria	B
40	Rwanda	A
41	Sao Tome and Principe	C
42	Senegal	B
43	Seychelles	B
44	Sierra Leone	A
45	Somalia	B
46	South Africa	A
47	South Sudan	B
48	Sudan	B
49	Togo	A
50	Tunisia	A
51	Uganda	B
52	United Republic of Tanzania	B
53	Zambia	C
54	Zimbabwe	B

A3. Afdb activities/publications

The African Development Bank has put climate change adaptation at the forefront of its investment agenda and will support bankable adaptation and green growth projects.
According to the Climate Change and Green Growth Strategic Framework (October 2021), the Bank will seek to 'climate-proof' all infrastructure and service interventions that it supports.
The Bank is passing from sector-based infrastructure projects, to an integrated approach for improved urban governance, planning and financing.

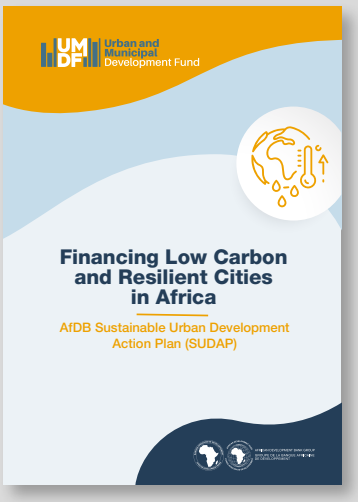
Founded in 2020, Urban and Municipal Development Fund (UMDF) is a trust fund created by the AfDB to ensure that partner cities develop sustainably in a climate-optimized manner.
The UMDF works upstream with African municipalities and local and national authorities by consolidating investment action plans, accelerating project identification and preparation (pre-investment activities), and offering capacity-building and mentoring programs.



Africa's Urbanisation Dynamics 2022 - The economic power of Africa's cities

This report presents compelling evidence - from 2 600 cities across 34 countries - that urbanization in Africa contributes to better economic outcomes and higher standards of living. It shows that in most socio-economic dimensions, Africa's cities significantly outperform the countries in which they are located, and that the gap between the performance of African cities and the national averages is larger than in many other parts of the world.

https://www.afdb.org/en/documents/africas-urbanisation-dynamics-2022-economic-power-africas-cities



Financing Low Carbon and Resilient Cities in Africa - AfDB 2022

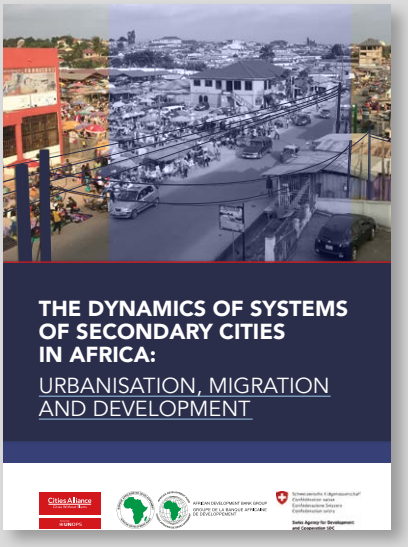
This paper examines ways of building urban resilience in African cities, particularly in response to natural disasters and the need to adapt to accelerating climate change. The paper describes how African cities are building urban resilience as part of their evolving urban governance and management efforts and investigates whether the resilience philosophy provides a pathway for achieving sustainable development in African cities. The paper concludes with an outline of actions that the African Development Bank (AfDB) can take to strengthen efforts that can be taken by cities to build urban resilience in the face of the on-going climate emergency.

https://www.afdb.org/sites/default/files/2022/11/08/financing_low_carbon_and_resilient_cities_in_africa_-_sudap_paper_-_afdb_umdf_2022.pdf

Climate Change and Green Growth Strategy of the African Development Bank Group (AfDB) 2021–2030

The Bank has long recognized that climate action is a core component of sustainable development that it seeks to promote. The Strategic Framework originates from the Bank's established position on climate change and green growth and its recently strengthened commitments under the Fifteenth Replenishment of the African Development Fund (ADF-15) and the Seventh General Capital Increase (GCI-7) processes. It guides the Bank's investments and interventions in aligning development finance with climate action principles and sets out a vision for how the Bank will contribute to the actualization of the objectives of the Paris Agreement while achieving sustainable, decarbonized development and prosperity in Africa, in line with the Bank's ten-year strategy and the African Union's Agenda 2063 "The Africa We Want."

https://www.afdb.org/en/documents/climate-and-green-growth-strategic-framework-projecting-africas-voice-strategy-2021-2030



The Dynamics of systems of secondary cities in Africa: urbanisation, migration and development (2022)

In recent years, the African Development Bank and Cities Alliance have supported various projects and programs for developing secondary cities across the continent. This common interest has brought the two organisations together on publishing this book. The book provide comprehensive insights into the dynamics of the system of secondary cities in Africa and how secondary cities are developing, performing and managing the challenges of urbanisation. It calls for a new urban age agenda for supporting the development of secondary cities and outlines how governments and international development agencies and organisations can play a role in this.

https://www.afdb.org/sites/default/files/2022/05/16/the_dynamics_of_systems_of_secondary_cities_in_africa_urbanisation_migration_and_development_-_2022.pdf

A4. Detailed methodology

This analysis is based on the revision of all the latest NDCs, of the Regional member countries of the African Development Bank, submitted to the Secretariat of the UN Framework Convention on Climate Change (UNFCCC) before 19th June 2022.

A total of 54 NDCs were analysed in their original languages, French and English. Only the latest version of all updated NDCs submitted before the 19th of June 2022 were analysed.

The analysis aims to provide a general overview of the urban content of the NDCs, considering both climate mitigation and adaptation and analysing knowledge gaps between challenges and responses at the national and urban levels.

To analyse NDCs' urban content, the methodology was structured in four phases:

(i) Database architecture and indicators. This phase aimed at defining the set of indicators, using as a starting point the indicators used for the analysis of the urban content of the NDCs in 2016-2017, and structuring the database.

(ii) Data collection. This phase aimed at populating the database by analysing the 54 NDCs and including data from external datasets.

(iii) Data analysis. This phase aimed at analysing the data collected within the NDCs, also using external data as benchmarks.

Database architecture and indicators

Starting from the list of indicators used in the 2016-17 review, and after research on similar analyses and databases (e.g., UN databases, ClimateWatch and the World Bank), a set of indicators was defined and structured into fourteen groups; these indicators were first tested with a small number of NDCs before being finalised and used for the data collection. The database was designed using Microsoft Access to include data collected through the analysis of the NDCs in combination with data from external sources. The database was designed to allow the replication of the data analysis using other national climate policies (e.g., National Adaptation Plans) and to develop more in-depth and/or thematic analyses in future phases of the work.

The indicators are grouped as follows:

01. Geographic indicators | 5 indicators - External data
Including indicators: Country ISO code, Country name, Region name, Sub-region name, and Capital Name.

02. National context indicators| 10 indicators, External data
Including indicators: Total population (2020), Total population (2011), Population density, GDP country (US$), GDP per capita (US$), GINI index, Human Development Index, Income categorisation, and Type of party (Annex I or Non-Annex I).**03. Urban context indicators** | 6 indicators, External data
Including indicators: Urban population (2021), Percentage urban population (2021), Urbanisation rate (percentage), Urbanisation rate (ranked), Percentage of people living in urban areas in 2050, and Urban land area.

04. Emissions indicators | 18 indicators, External data
Including indicators: CO2e Total per country, CO2e by sector (agriculture, bunker fuels, building, electricity/ heat, fugitive emissions, industrial processes, land-use change and forestry, manufacturing/constructions, other fuel combustion, total excluding LULUCF, total including LULUCF, transportation, waste), CO2e per capita, and CO2e per GDP.

05. Key hazards | 10 indicators, External data
Including indicators: Droughts, Earthquakes, Epidemics, Extreme temperatures, Floods, Insect infestations, Landslides, Storms, Volcanic activities, and Wildfires.

06. NDC national indicators – General | 14 indicators, NDCs
Including indicators: 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, and Capacity building.

07. NDC national indicators – Challenges | 30 indicators, NDCs
Including indicators:
Mitigation challenges by sector: Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, and Others;
Adaptation challenges by sector: Agriculture and food, Ecosystem and biodiversity, Water, Human Health, Industry, Infrastructure, Coastal areas, and Others;
Climate hazards: Floods, Droughts, Sea level rise, Storm events, Temperature rise, Storm events, Temperature rise, Heat/cold wave, Vector-borne diseases (air and water), Land degradation, Saltwater intrusion, Water acidification, Wildfire, and Others.

08. NDC national indicators – Responses | 18 indicators, NDCs
Including indicators:
Mitigation responses by sector: Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, and Others.
Adaptation responses by sector: Agriculture and food, Ecosystem and biodiversity, Water, Human Health, Industry, Infrastructure, Coastal areas, and Others.

09. NDC urban indicators – General | 5 indicators, NDCsIncluding indicators: NDCs urban content 2021 (White paper 2021), Urban content 2022 (current report), Finance request, Technology transfer request, and Capacity building needs.

10. NDC urban indicators – Challenges | 30 indicators, NDCs
Including indicators:
Urban mitigation challenges by sector: Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, and Others;
Urban adaptation challenges by sector: Agriculture and food, Ecosystems and biodiversity, Water, Human Health, Industry, Infrastructures, Coastal areas, and Others;
Urban climate hazards: Floods, Droughts, Sea level rise, Storm events, Temperature rise, Temperature rise, Heat/cold wave, Vector-borne diseases (air and water), Land degradation, Saltwater intrusion, Water acidification, Wildfire, and Others.

11. NDC urban indicators – Responses | 18 indicators, NDCs
Including indicators:
Urban mitigation responses by sector: Energy, Transport and mobility, LULUCF, Built environment, Waste, Water, Industry, and Others;
Urban adaptation responses by sector: Agriculture and food, Ecosystem and biodiversity, Water, Human Health, Industry, Infrastructure, Coastal areas, and Others.

12. Other national climate-related policies, strategies and plans | 19 indicators, External data
Including indicators: NAP National Adaptation Plans, NDC-SDG linkages (including 17 individual goals), National Long-term Strategies (LTS), and Long-term Goal and Outcomes for Climate Adaptation.

13. Cross-cutting national level indicators | 16 indicators, NDCs and External data
Including indicators: Ecosystem services, Nature-based solutions (green and blue infrastructure), Gender, Public spaces, Circular economy, Social inclusion, Indigenous people, Youth, Innovation, Loss and damages, Multilevel governance, Participation, Data availability and usability (adaptation), Data availability and usability (mitigation), Informal settlements, and Others.

14. Cross-cutting urban level indicators | 16 indicators, NDCs and External data
Including indicators: Ecosystem services, Nature-based solutions (green and blue infrastructure), Gender, Public spaces, Circular economy, Social inclusion, Indigenous, Youth, Innovation, Loss and damages, Multilevel governance, Participation, Data availability and usability (adaptation), Data availability and usability (mitigation), Informal settlements, and Others.

Groups one to five and twelve include data collected from external sources; groups six to eleven include data from the NDCs; groups thirteen and fourteen include both data from the NDCs and external data. Groups six to eight and thirteen include indicators on the national content of the NDC (e.g., national mitigation challenges), and groups nine to eleven and fourteen include indicators on the urban content of the NDCs (e.g., urban adaptation challenges).

[10] https://unstats.un.org/UNSDWebsite/

[11] Climate Data for Action | Climate Watch | Emissions and Policies (climatewatchdata.org)

[12] World Bank Open Data | Data

[13] External data means data collected outside the NDCs, such as ClimateWatch and the World Bank databases (e.g., the Human Development Index, percentage of urban population and income categorisation).

[14] https://unstats.un.org/UNSDWebsite/

[15] Climate Data for Action | Climate Watch | Emissions and Policies (climatewatchdata.org)

[16] World Bank Open Data | Data

Data collection

The data collection phase was structured in four stages: NDCs data collection protocol; NDCs data collection (54 NDCs); NDCs data validation; and external data collection. Firstly, a protocol for the data collection was prepared to guarantee consistency in the NDCs data collection when performed by different persons. The protocol included a clear definition and description of each indicator, with examples and specific instructions to insert the collected data in the Microsoft Access database. The 54 NDCs were thoroughly reviewed using the NDCs' indicators listed in Section 1.1 by a team of researchers at the UNESCO Chair on Urban Resilience at the University of Southern Denmark. The review team had regular meetings to jointly address any issue through the review process and improve the protocol and the review procedure. Final quality control was realised through a series of queries on the filled database to check any issues regarding the coherence of the review process.

In parallel to the NDCs data collection explained above, external data was also collected from external sources such as UN databases, ClimateWatch and the World Bank. These data served to frame national contexts and enrich the information found within the NDCs, enabling future in-depth and/or thematic analyses.

Data analysis

This phase started with the overall analysis of the explicit urban content of the NDCs, to allow a global overview, which were clustered as follows:

- **Strong urban content (Cluster A)**: NDCs with specific urban sections and/or NDCs in which urban areas are identified as priority sectors, excluding NDCs that are not backing the prioritization with A
- **Moderate urban content (Cluster B)**: NDCs with urban mentions within the body of text.
- **Low or no urban content (Cluster C)**: NDCs with low or no explicit urban mention within the text.

The methodology considers only "explicit" urban mentions NDCs containing at least one of the three urban keywords (singular and/or plural): urban, town and city. The analysis and clustering were qualitative, thereby NDCs mentioning generically municipal and/or local issues, but without clear differentiation between urban and rural context, and NDCs only generically stating an urban prioritisation, but without a clear identification of specific urban challenges and/or responses were included in cluster B or C.

The data analysis focuses on identifying alignment and misalignment between climate challenges and responses (see Figures 2 and 3), using the following working definitions:

- **Mitigation challenges** are defined as a high-level of GHG emissions by sector (e.g., Transport and Energy);
- **Adaptation challenges** are defined as specific climate threats/impacts by sector (e.g., Human health and Infrastructures) and by climate hazard (e.g., Floods and Droughts);
- **Mitigation responses** are defined as policies, strategies and actions to reduce GHG emissions by sector;
- **Adaptation responses** are defined as policies, strategies and actions to limit the negative effects of climate change by sector and by climate hazard.

An example of alignment is to find mitigation challenges in the transport sector both in urban and national analyses. If the mitigation challenge is mentioned only at the national level, it is necessary to highlight the misalignment.

The data analysis also focuses on identifying alignments and misalignments of challenges and responses between the general national and specific urban levels (Figure 2) to provide recommendations for further strengthening the urban content of the NDCs and the operationalisation of urban climate actions.

The data analysis also focused on understanding the request for 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., Nature-based solutions and Informal settlements).

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