GAP ANALYSIS REPORT:

African Nationally Determined Contributions (NDCs)

African Development Bank

GROUPE DE LA BANQUE AFRICAINE DE DEVELOPPEMENT
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AFRICA NDC HUB

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Contents

Chapter		Pages
Executive summary		i
1.	Introduction	1
1.1.	Background to the Paris Agreement and Nationally Determined Contributions (NDC)	1
1.2.	Background to the Africa NDC Hub	2
1.3.	Report Structure	3
2.	Promoting Climate Action and Achieving NDC Targets	5
2.1.	Introduction	7
2.2.	The Climate Mitigation Gap	8
2.3.	The Climate Adaptation Gap	17
2.4.	Financial Interventions for Climate Action in Africa	21
2.5.	Non-financial Interventions for Climate Action in Africa	25
3.	Gap Analysis	31
3.1.	Overview	33
3.2.	Findings	34
3.3.	Identification of Key Gaps	38
4.	Conclusion and Next Steps	53

Tables

Table 1-1	Summary of identified Africa NDC related gaps	iii
Table 3-1	Summary of review findings	34
Table 3-2	Overview of identified Africa NDC related gaps	39
Table 3-3	Climate finance needs expressed in NDCs broken down by category	42
Table 3-4	Summary on financial requirements for NDC implementation*	43
Table 3-5	References to costed private sector climate finance requirements	44

Figures

Figure 1-1	Signature and ratification of the Paris Agreement	2
Figure 1-2	Africa NDC Hub pillars and focus areas	2
Figure 2-1	The 2030 emissions gap	9
Figure 2-2	Sources and sinks in the agriculture and LULUCF sectors in Africa	12
Figure 2-3	Total technical mitigation potentials of agriculture for each region by 2030	13
Figure 2-4	Quantified conditional and unconditional GHG emissions reductions in African INDCs	14
Figure 2-5	Distribution of identified renewable energy potential in Africa	16
Figure 2-6	The global adaptation finance gap	20
Figure 3-1	Overview of African NDC target types: Mitigation	32
Figure 3-2	Overview of African NDC target types: Adaptation	32
Figure 3-3	Overview of NDCs and associated investment plans	45
Figure 3-4	Adaptation priority by sector in Africa NDCs	46
Figure 3-5	Mitigation priority by sector in Africa NDCs	46
Figure 3-6	Climate finance resource mobilisation for NDCs at national level since 2016 (US$)	47
Figure 3-7	Private sector investment mobilised at national level for NDCs since 2016	48
Figure 3-8	Africa NDC Focal Points perspectives on achieving unconditional NDC targets	50
Figure 3-9	Africa NDC Focal Points perspectives on achieving conditional NDC targets	51

Box

Box A	Mauritania – Solar energy for water in peri-urban and rural areas study	28
Box B	The Tassa Technique	29

AS PART OF THE INTERNATIONAL GLOBAL COMMUNITY, AFRICAN COUNTRIES ARE COMMITTED TO MEETING THE LONG-TERM GOALS OF THE PARIS AGREEMENT.

Executive Summary

Introduction

The implementation of successful Nationally Determined Contributions (NDCs) that achieve their set targets are central to the success of the landmark Paris Agreement. The Agreement which was reached by the international community at the twenty-first Conference of Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, in December 2015, came into force on 4th November 2016, and has the following long-term goals:

- **The goal on mitigation** - keeping a global temperature rise well below 2 degrees Celsius (°C) above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 °C
- **The goal on adaptation** - to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal

From an African perspective, the Paris Agreement is particularly important due to the high risks of climate change the continent faces on the one hand, and its huge potential for renewable energy on the other hand. Africa is one of the most vulnerable regions to the impacts of climate change. A record number of 7 out of the 10 countries in the world that are deemed to be most threatened by climate change are African countries. These are the Central African Republic, Chad, Eritrea, Ethiopia, Nigeria, Sierra Leone and South Sudan.[1]

Furthermore, although the continent emits less than 4% of total global greenhouse gas (GHG) emissions, it has a lot to contribute to the achievement of the long-term goal on mitigation through its great renewable energy potential. For example, the estimated potential of hydro-power on the continent is 1,750TWh and that of geo-thermal energy is estimated at 9,000MW.[2] In this vein, African leaders launched two flagship initiatives on climate change during COP 21.

- **The Africa Adaptation Initiative (AAI)** – to enhance action on adaptation, with the aim of addressing the adaptation financing gap, and implementing measures to address loss and damage in Africa
- **The Africa Renewable Energy Initiative** – to scale up the harnessing of Africa's huge renewable energy potential

To complement these initiatives and in response to the direct call by African countries for support in implementing their NDCs and meeting their commitments, the Africa NDC Hub was launched during the Africa Day at the twenty-third Conference of Parties (COP 23) to the UNFCCC by the African Development Bank (AfDB) in partnership with regional and international development partners.[3] The Africa NDC Hub aims to support African countries with the effective delivery on their Paris Agreement commitments in accordance with their own development priorities in a coordinated manner.

This gap analysis report examines the gaps that exist within the context of implementing NDCs in Africa. It aims to identify key elements for success as well as barriers and opportunities to the achievement of NDC targets.

1. AfDB COP 23 Overview https://www.afdb.org/en/cop23/cop23-%e2%80%93-overview/ Renewable Energy in Africa
2. https://www.afdb.org/en/cop23/cop23-%e2%80%93-overview/
3. Section 1.2 has the full list of Africa NDC Hub Partners as at 9th February 2018

Approach and findings

The approach for identifying the gaps entailed:

- **A literature review on climate action** – has focused on identifying the key elements required for enhancing climate action in Africa with the view to achieving NDC targets. Special emphasis was placed on the three key pillars of the Africa NDC Hub, (1) to foster long term climate action, (2) to mobilise means of implementation and (3) to promote coordination, advocacy and partnerships; and its two focus areas of adaptation and private sector engagement. It also considers the status quo of climate action in Africa.
- **Review of submitted NDCs by African Countries** – this entailed a review of all 44 submitted NDCs[4] against the findings of the literature review. The country NDCs include those of Algeria, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Cote d'Ivoire, Djibouti, Egypt, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, Zambia and Zimbabwe.
- **Review of Online Survey Responses by African NDC Focal Points** – an online survey was shared with NDC Focal Points of African countries in January 2018. The survey invited the respondents to evaluate and comment on the various elements either supporting or hindering NDC implementation in their respective countries from 2016 till date. Feedback was received from 18 respondents representing 15 countries – Benin, Burkina Faso, Burundi, Cabo Verde, Chad, Guinea, Guinea-Bissau, Kenya, Madagascar, Nigeria, Somalia, Sudan, Swaziland, Tunisia, Zimbabwe (all but one of these countries, Guinea-Bissau, have submitted their NDCs).

The findings show mobilisation of finance, access to technology and requisite capacity as the top three needs or constraints to the successful implementation of NDCs. The other constraints are related to institutional capacity, the socio-economic situation, existing legal frameworks and legislation, availability of climate data, technical assistance and the political situation.

Identified Gaps

The gap analysis recognises that countries are at different stages of addressing climate change and that submitted NDCs have varying levels of details and different structures. Therefore, the analysis presents common NDC related gaps, capturing both what countries have started doing well and areas where additional effort is required. These gaps are classified under the two broad categories of NDC development and implementation. They are described in detail in section 3 and summarised in Table 1-1 opposite.

Conclusion

As part of the international global community, African countries are committed to meeting the long-term goals of the Paris Agreement. The effective, efficient and timely delivery of NDCs play a determining role in this regard, hence the concerted effort by countries to achieve set targets on both mitigation and adaptation.

The Africa NDC Hub partners are determined to support these efforts and have outlined specific activities they would be providing according to the three key pillars and two focus areas of the Hub. To complement these, specific activities to respond to the identified gaps in this report have been drawn up to constitute the Africa NDC Hub Work Programme for the period of 2018-2020, during Phase Two of this assignment. An accompanying road map has also been developed.

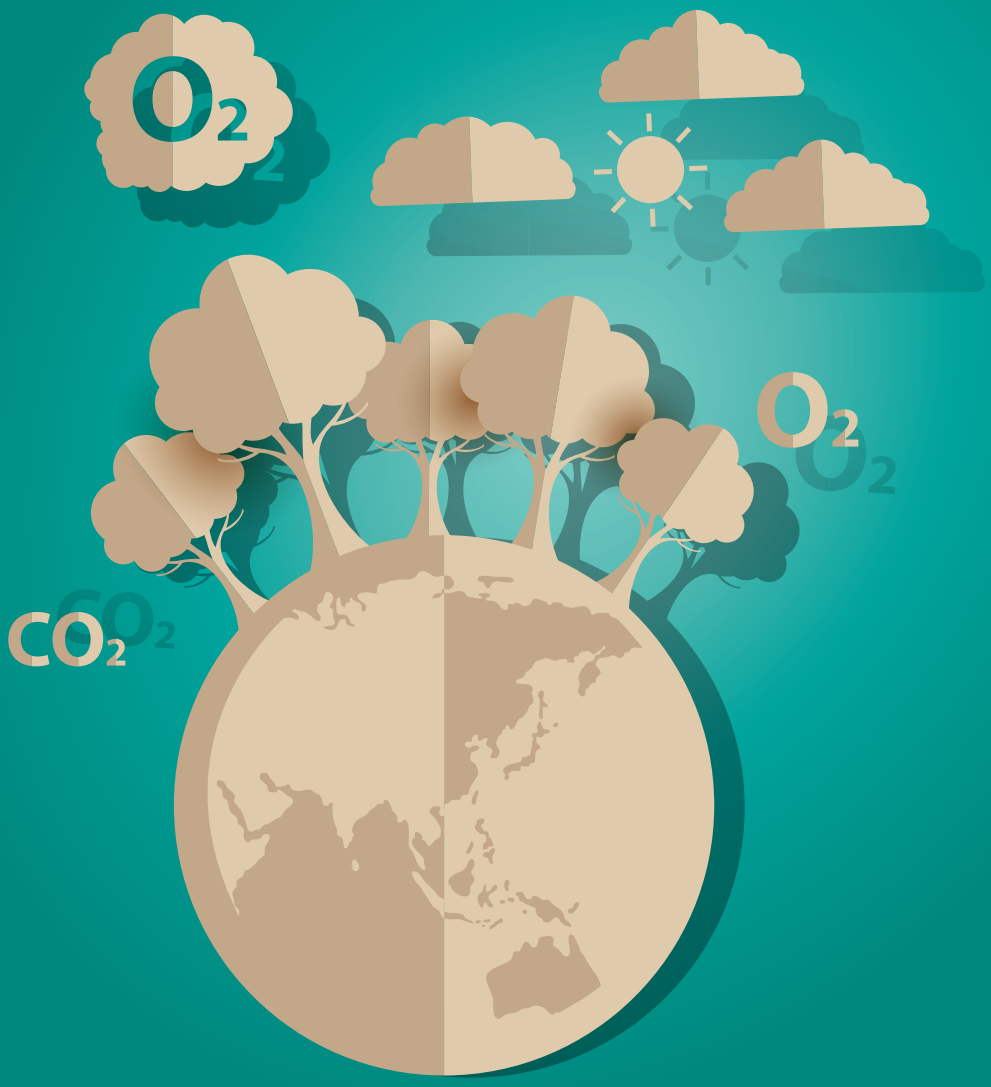
4. As at 9th February, 2018
5. Green Climate Fund Portfolio Dashboard as of 9th March 2018 https://www.greenclimate.fund/what-we-do/portfolio-dashboard

Table 1-1: Summary of identified Africa NDC related gaps

Theme	Progress being made towards NDC Implementation	Areas requiring additional effort
NDC Development		
Participation in UNFCCC processes	Signature and ratification of the Paris Agreement	
	• All 54 African countries have signed the Paris Agreement and 45 have ratified it	• 9 countries are yet to ratify the Paris Agreement
	NDC submission	
	• 44 African Countries have submitted their NDCs to the UNFCCC	• 10 countries are yet to submit their NDCs to the UNFCCC
Composition of NDCs	• Despite the limited guidance on structure by the UNFCCC and limited time for development, many African countries have submitted their NDCs	Important thematic issues not fully covered by all NDCs reviewed include: • Strategic alignment with national development plans and wider sustainable development goals • Identification of opportunities for maximising co-benefits from the implementation of well-coordinated economy wide activities • Description of monitoring, review and reporting processes of climate action
NDC Implementation		
Resource mobilisation	• African countries are making some progress with respect to accessing climate finance – although accessed funds are not yet commensurate to the needs, there has been an increase in the awareness and successful proposal submission to international and regional climate funds (e.g. the Green Climate Fund with Africa having 22 projects in the portfolio, followed by Asia Pacific 21, Latin America and Caribbean 11 and Eastern Europe 4[5]; and Africa Climate Change Fund with an increase in proposal submissions from 362 in the first call to more than a thousand in the second call for proposals), an earmarking of resources for climate action in national budgets (e.g. Ethiopia and Ghana), as well as the establishment of national climate funds (e.g. South Africa's Green Fund and Rwanda's Green Fund – FONERWA)	The full potential of NDCs as resource mobilisation tools are yet to be realised, and the following themes have been identified in this regard: • Level of financial considerations and investment plans • Reliable data sources and comprehensive sector analysis • Targeted approach: having a good understanding of the functions of different actors, especially the private sector, in the climate finance landscape and the timing processes of climate change funds and national budgets
Governance structures and processes	• Climate change is being recognised as an important national issue with the development of climate change strategies and action plans, including nomination of line ministries for development and implementation of climate related policies and regulations	• Continued strengthening of institutional frameworks including: » Appropriate delegation of authority with sufficient coordination and collaboration platforms for inter-ministerial engagement » Robust systems and processes for monitoring, reporting and verification (MRV) of emissions and monitoring and evaluation (M&E) of adaptation, climate finance and technical support outcomes, as well as open data and information sharing platforms which promote accountability and transparency • Improvements in associated policies and legislation

Source: Atkins – Review of African country NDCs submitted to the UNFCCC and Online Survey of African NDC Focal Points

THE GOAL ON MITIGATION - KEEPING A GLOBAL TEMPERATURE RISE WELL BELOW 2 DEGREES CELSIUS (^{o}C) ABOVE PRE-INDUSTRIAL LEVELS, AND TO PURSUE EFFORTS TO LIMIT THE TEMPERATURE INCREASE EVEN FURTHER TO 1.5 ^{o}C



THE GOAL ON ADAPTATION - TO ENHANCE ADAPTIVE CAPACITY, STRENGTHEN RESILIENCE AND REDUCE VULNERABILITY TO CLIMATE CHANGE, WITH A VIEW TO CONTRIBUTING TO SUSTAINABLE DEVELOPMENT AND ENSURING AN ADEQUATE ADAPTATION RESPONSE IN THE CONTEXT OF THE TEMPERATURE GOAL

1.0 Introduction

1.1. Background to the Paris Agreement and Nationally Determined Contributions (NDC)

At the core of attaining the long-term goals of the landmark Paris Agreement which came into force on the 4th of November 2016, lie the Nationally Determined Contributions (NDCs). The Paris Agreement to combat climate change was reached by the international community at the twenty-first Conference of Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, in December 2015.

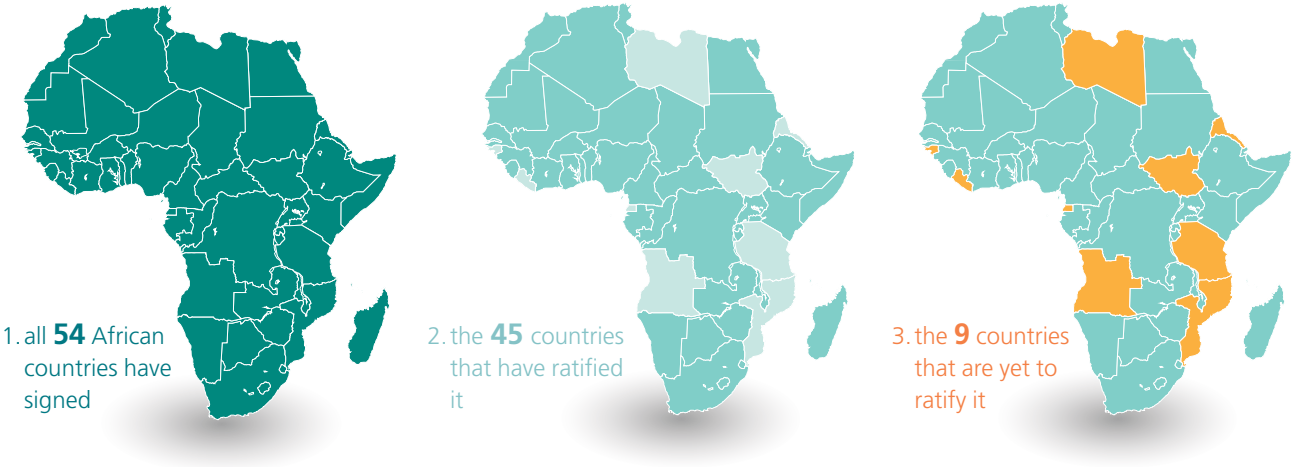
The long-term goal of the Agreement on mitigation is to reinforce the global response to the threat of climate change by keeping a global temperature rise well below 2 degrees Celsius (°C) above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 °C.[6] The Paris Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change and established the long-term global goal for adaptation – *"to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal"*.[7]

In anticipation of COP 21, member countries were invited to submit their proposed post-2020 climate action plans known as Intended Nationally Determined Contributions (INDCs). Including an adaptation component as part of an INDC was voluntary but notwithstanding, a record number of 137 countries (accounting for 83 percent of INDCs) included this in their INDCs.[8] This reflects the importance accorded by countries to the matters of adaptation. Most of the countries that included adaptation in their INDCs were developing countries, which reflects the negative impacts of climate variability and climate change already experienced. It is worthy of note that adaptation as well as loss and damage were top priorities of the Africa Group who played a critical role at the negotiations for the inclusion of both in the Paris Agreement. In addition to mitigation, all the African countries that submitted their INDCs included an adaptation component as well.

The steps through which a country formally joins the Paris Agreement is by signing and ratifying the treaty, as well as submitting their Nationally Determined Contributions (NDC) which represents the country's official climate plan and is no longer just perceived as "intended". All 54 African countries have signed the Paris Agreement and 45 have ratified it (see Figure 1-1).[9] Under the provisions of the Paris Agreement, countries are expected to report on their progress and submit an updated NDC every five years. The updated NDC is supposed to reflect a higher level of climate ambition compared to the previous submission. All countries are requested to submit the next round of NDCs (new NDCs or updated NDCs) by 2020 and every five years thereafter.[10]

6. The Paris Agreement http://unfccc.int/paris_agreement/items/9485.php
7. UNFCCC (2015), Paris Agreement, (Article 7), Meetings, https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf
8. Updated synthesis report on the aggregate effect of INDCs http://unfccc.int/resource/docs/2016/cop22/eng/02.pdf
9. As at 9th February, 2018
10. Nationally Determined Contributions (NDCs) http://unfccc.int/focus/items/10240.php

Figure 1-1 Signature and ratification of the Paris Agreement



1.2. Background to the Africa NDC Hub

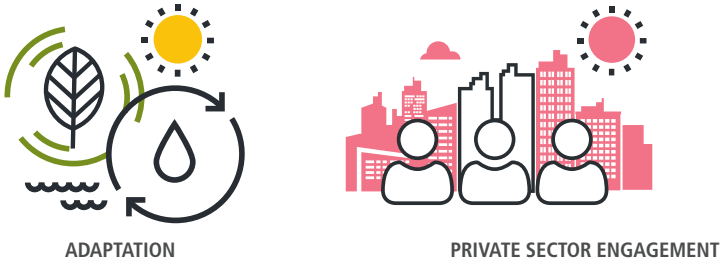
The establishment of the Africa NDC Hub is a direct response to the request made by African countries for the provision of support for the further development and implementation of their NDCs. The Africa NDC Hub was launched by the AfDB with development partners during the Africa Day at the twenty-third United Nations Climate Change Conference (COP23) in Bonn, in November 2017.

The Hub has been set up with a main objective of supporting African countries with the effective delivery on their Paris Agreement commitments in a coordinated manner and in accordance with their own respective development priorities. The Africa NDC Hub serves as a collaborative platform and resource pool, and is founded on three key pillars and two focus areas (see Figure 1-2 below);

Figure 1-2 Africa NDC Hub pillars and focus areas

Three key pillars:

Focus areas[11]:



11. The Hub's activities will also cover mitigation

Presently, the Hub has 14 regional and international partners,[12] including the African Development Bank which hosts the Secretariat within its Climate Change and Green Growth Department:

- African Union Commission (AUC)
- Economic Community of West African States (ECOWAS)
- Food and Agriculture Organisation of the United Nations (FAO)
- International Institute for Environment and Development (IIED)
- International Trade Centre (ITC)
- Islamic Development Bank (IsDB)
- New Partnership for Africa's Development (NEPAD)
- United Nations Development Programme (UNDP)
- United Nations Economic Commission for Africa (UNECA)
- United Nations Environment Programme (UN Environment)
- United Nations Framework Convention on Climate Change (UNFCCC)
- World Wildlife Fund (WWF)
- Centre de Compétences Changement Climatique du Maroc (4C Maroc)

The African NDC Hub is in the process of developing its Work Programme for the period 2018 to 2020 and has commissioned WS Atkins International Ltd to undertake this assignment. The proposed Work Programme will take into account the support activities given by the Africa NDC Hub partners[13] along with the collaboration opportunities of the NDC Partnership of which several members of the Hub are members.

The assignment is being carried out in two phases and will entail:

- **Phase One: A Gap Analysis** – This will be a desk review of Africa NDCs and implementation progress, to identify the key gaps to be filled for the achievement of NDC targets within given timescales
- **Phase Two: Work Programme Development** – The design of intervention packages including activities, which will be based on the outcome of the gap analysis.

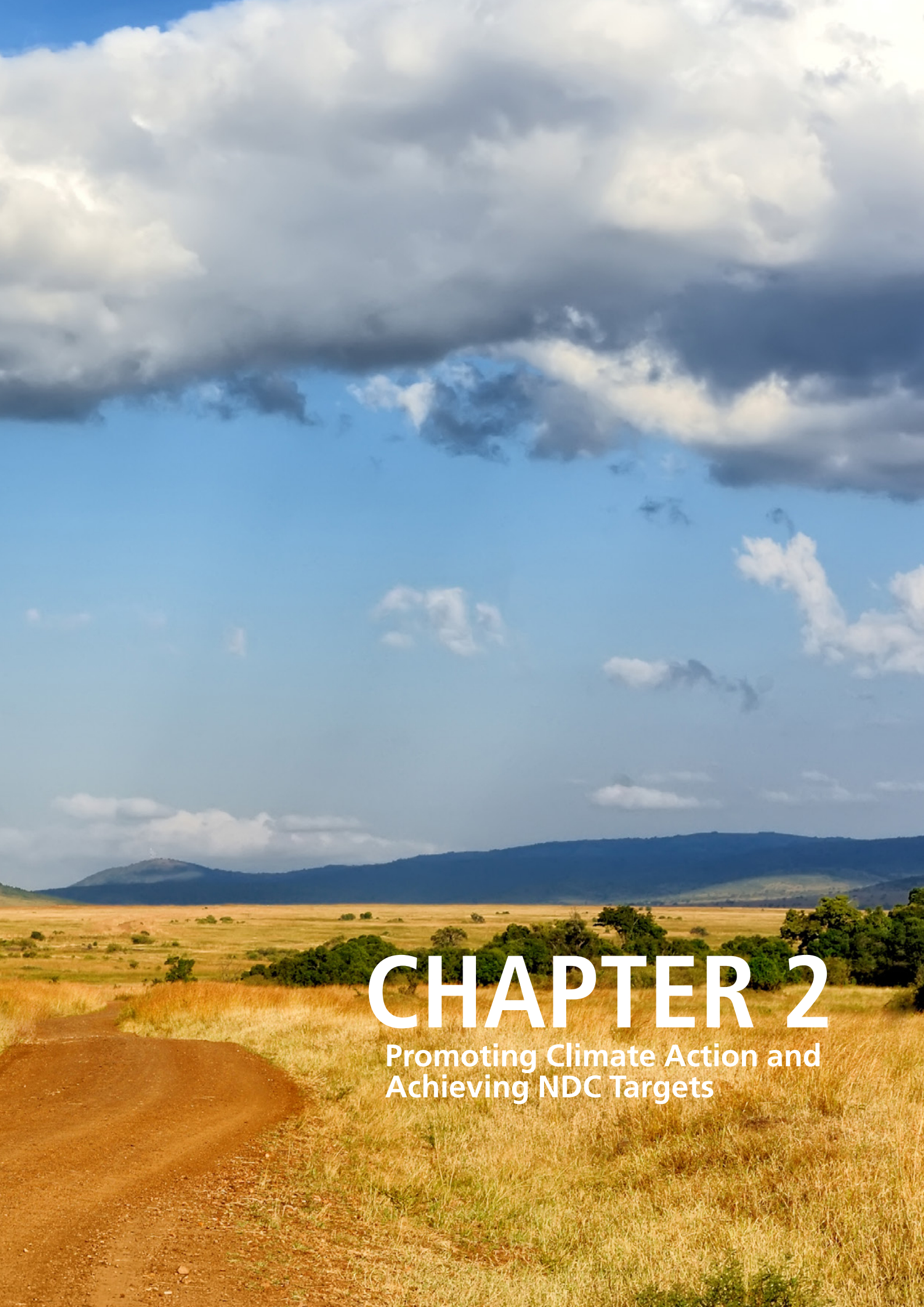
Governing arrangements for the activities of the Hub will be through a Technical Advisory Committee.

1.3. Report Structure

The purpose of this report is to serve as the Phase One deliverable – A Gap Analysis. It presents our overall approach and gap analysis findings with respect to the review of African NDCs and online survey responses by Africa NDC Focal Points. The remainder of this report is structured as follows:

- Chapter 2 sets out the essential elements for promoting climate action and for achieving NDC targets
- Chapter 3 describes the gap analysis approach, presents the findings and the identified Africa NDC related gaps, as well as perspectives on achieving NDC targets by the Africa NDC Focal points
- Chapter 4 presents the conclusions and highlights the next steps

12. The Hub partnership is expected to grow in line with the existing gaps to be addressed and potential opportunities to be realised for the efficient and effective implementation of African NDCs.
13. Africa NDC Hub Partner support activities outlined to the Hub Secretariat as at January 2018



CHAPTER 2

Promoting Climate Action and Achieving NDC Targets

Mushrooms
Photo courtsey of African Development Bank Group Projects

2.0 Promoting Climate Action and Achieving NDC Targets

2.1. Introduction

Addressing climate change issues in a meaningful way is a complex process requiring long-term planning and coordination across global, national and local levels. Impactful climate policy aims to limit and reduce the emission of greenhouse gases as well as increase resilience to climate change, through the complementary strategies of mitigation and adaptation. Integrating climate change into the policy mix requires an understanding of the mitigation potential and adaptation needs and co-benefits of economic activities and sectors, followed by the identification, prioritisation and costing of the requisite measures. Considering the bottom-up and country driven approach for the development of NDCs, they serve as very useful frameworks in this regard.

Several actors are directing climate finance to Africa and include, Multilateral Development Banks (MDBs), international climate funds such as the Global Environment Facility (GEF), the Climate Investment Funds (CIFs) and the Green Climate Fund (GCF), the private sector and African countries themselves. Global climate finance flows in 2015 and 2016 were US$ 437 billion and US$ 383 billion respectively.[14] [15] Climate finance flows to Sub-Saharan Africa on average for 2015/2016 was US$ 12 billion while it was US$ 8 billion for the Middle East and North Africa (ibid). Given that current levels of climate finance are insufficient to meet the region's climate mitigation and adaptation finance needs,[16] the NDCs can facilitate the improvement of this as resource mobilisation tools, and it is important for attention to be given on ensuring parity between mitigation and adaptation interventions.

While it is important to assist developing countries in integrating climate mitigation into their development strategies, climate change adaptation is a higher funding priority for African countries. Nevertheless, it is important to note that for climate action to be effective and achieve maximum impact, mitigation and adaptation activities need to be carried out in tandem, and not in isolation, such that synergies and dual benefits are capitalised upon including those of sustainable development.

This chapter provides an overview of the important factors to be considered within the context of implementing climate action and achieving NDC targets. The climate change mitigation and adaptation gaps are presented, together with the financial and non-financial interventions for bridging these gaps.

14. The decrease in 2016 was due to a combination of both falling technology costs and lower capacity additions in some countries
15. CPI 2017, 'Global Landscape of Climate Finance 2017' https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf
16. https://www.odi.org/sites/odi.org.uk/files/resource-documents/11036.pdf

2.2. The Climate Mitigation Gap

2.2.1. Overview

The 2030 emissions gap is defined as the difference between global total greenhouse gas (GHG) emissions from least-cost scenarios and the expected global total GHG emissions, if NDCs are fully implemented. The emissions gap in 2030, compared with least-cost pathways limiting global warming to below 2°C, ranges from 11-13.5 $GtCO_2e$ for the full implementation of the conditional and the unconditional NDCs respectively. This gap increases to 16-19 GtCO2e to limit global warming to 1.5°C.[17]

Figure 2-1 presents the 2030 emissions gap. Global GHG emissions in 2020 are likely to be at the high end of the range of the scenarios consistent with the 2°C and 1.5°C goals respectively. This will make it difficult to meet the 2030 emission goals if action is not taken urgently. In other words, both the 2°C and 1.5°C scenarios require emissions to begin a sharp downward trajectory in 2020. To realise the full emission reduction potential, countries urgently need to implement ambitious policies, to enable and speed up the implementation of the full socio-economic potential of available measures and technologies.[18]

There is a significant void to be filled between the current collective global NDC commitments and what is required to meet the Paris Agreement temperature goals. Opportunities for strengthening NDCs and for closing the emissions gap include:

Maximising the mitigation potential of sector actions

The global emissions reduction potential of the agriculture, energy, transport, forestry, buildings and industry sectors by 2030, at a cost of under USD100/tCO2e, compared to the current policy trajectory is sufficient to close the emissions gap. The sectors with the most potential are the energy and agriculture sectors with 12.5 and 6.7 GtCO2e on average respectively. Standardised categories comprising 40 percent (15 – 22 $GtCO_2e$) of the total potential comprise solar energy, wind energy, efficient appliances, efficient passenger cars, afforestation and halting deforestation.[19]

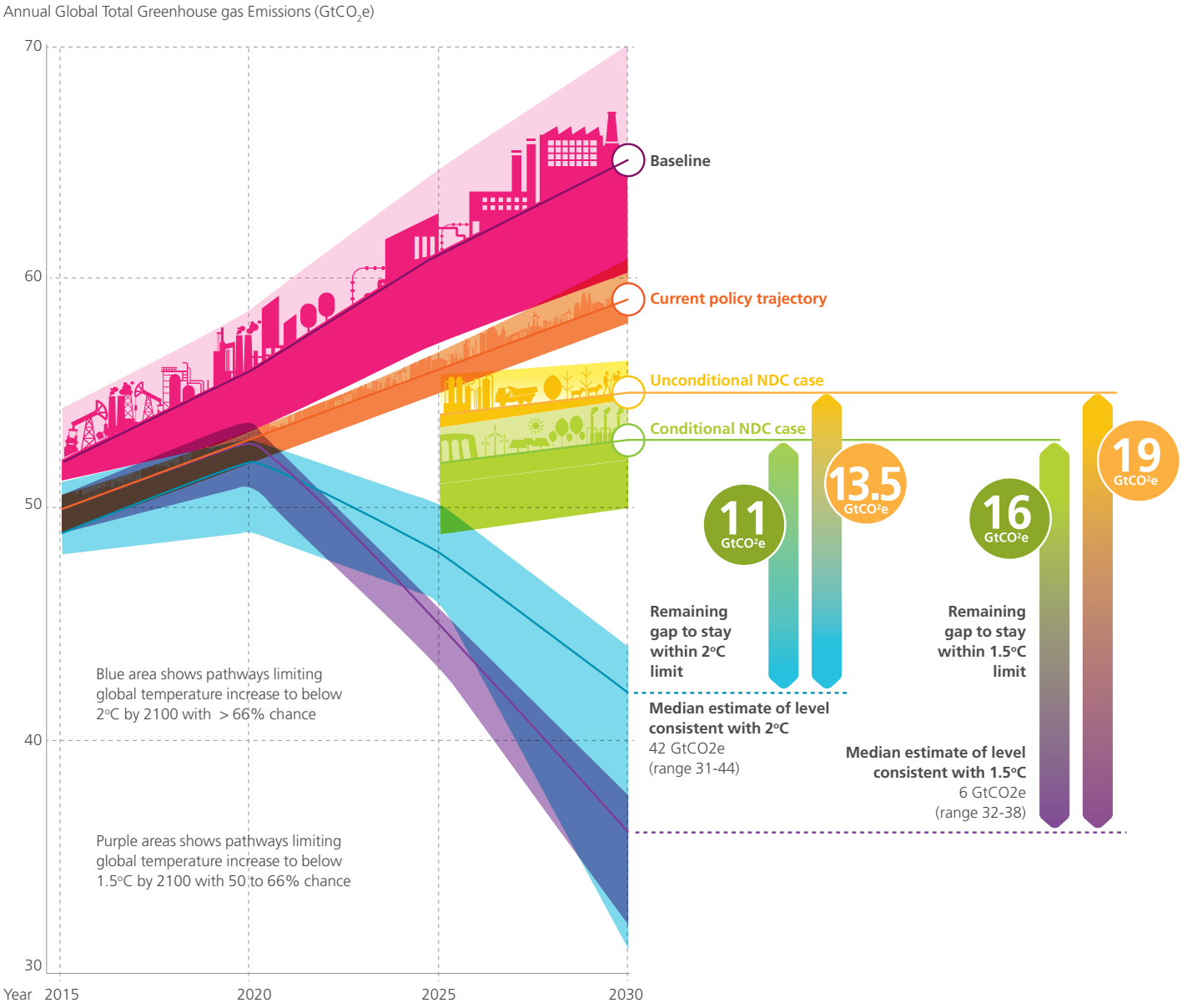
Promoting the gradual phase-out of coal

Success in closing the emissions gap is hinged on the phasing out of existing coal-fired power plants and the avoidance of building new plants. Ten countries make up approximately 85 percent of the entire coal pipeline, with 700 GW being built or planned in China, India, Turkey, Indonesia, Vietnam, Japan, Egypt, Bangladesh, Pakistan and the Republic of Korea. Closing the emissions gap requires that these plants run with lower capacity rates, and are phased out before the end of their lifetime, and/or retrofitted with Carbon Capture and Storage (CCS) facilities.[20]

It is recognised that several developed and developing countries including African countries, would still depend on coal-fired power plants until at least 2030, hence the recommendation for a gradual phase-out. Nevertheless, it is worthy of note that renewable power generation costs continue to fall and are already very competitive to meet needs for new capacity.[21] A carefully

17. UNEP (2017). The Emissions Gap Report 2017. United Nations Environment Programme (UNEP), Nairobi
18. Many of the studies that were used for the bottom-up assessment of sectoral emission reduction potentials assume that execution of measures starts immediately, thus emphasising the urgency of pre-2020 mitigation action.
19. UNEP (2017). The Emissions Gap Report 2017
20. UNEP (2017). The Emissions Gap Report 2017
21. IRENA (2018) Renewable Power Generation Costs 2017 http://www.irena.org/-/media/Files/IRENA/

Figure 2-1: The 2030 emissions gap



Note: The emissions range for 1.5°C is smaller than for 2°C, as a smaller number of studies for 1.5°C are available. For current policy, the minimum-maximum across all assessed studies are provided.

Source: Adapted from UNEP (2017). The Emissions Gap Report 2017

managed transition incorporating a mix of market and non-market based policy instruments, as well as strong stakeholder engagement is required to incentivise the transition away from coal. For example, a recent study on energy price reforms, found that the absence of an effective communication strategy was decisive in unsuccessful past reforms.[22]

Limiting emissions of short-lived climate pollutants

Short-lived climate pollutants (SLCPs) include methane, black carbon and hydrofluorocarbon (HFC) emissions. Major contributions to SLCP emissions are combustion of coal and firewood in traditional cooking stoves, the use of kerosene for lighting, the use of fossil fuels in transportation and industrial activity and the open burning of biomass and waste. Limiting the emission of SLPs would contribute immensely to climate change mitigation as well as the achievement of many Sustainable Development Goals (SDGs), because of their impact on both climate change and air pollution.[23]

The provision of clean energy and use of modern technology for meeting basic household cooking and lighting requirements will help close the emissions gap and achieve SDGs on good health and well-being, quality education, gender equality, and life on land – in particular forests[24]. Enhancing fuel efficiency and technology choices in the transport sector, economy wide energy efficiency and the ban on open air burning of biomass and waste will all contribute to achieving climate mitigation and the SDGs on sustainable agriculture, good health and well-being, affordable and clean energy, sustainable cities and communities and responsible consumption and production.[25]

Enhancing carbon dioxide removal

Carbon budgets are already tight and being depleted at an accelerated rate, carbon dioxide removal options are therefore important for meeting the Paris Agreement. They are a common feature in climate change mitigation scenarios that are consistent with the Paris Agreement goals, and current NDCs present pathways that are heavily dependent on the large-scale availability of negative emissions technologies.

Carbon dioxide removal options could be natural (e.g. afforestation, soil carbon sequestration, biochar), technological (e.g. accelerated weathering, direct air capture, ocean alkalinity enhancement) or combined (e.g. bioenergy with carbon capture and storage). Although extensive experience has been gathered for natural options, realising the full potential of the wider carbon dioxide removal options still requires substantial research to reduce uncertainties, development and deployment incentives to reduce costs and policy considerations to remove barriers.[26] In addition to climate mitigation, ancillary commercial and trade benefits such as improved crop yields could be tapped from implementing carbon dioxide removal options.

Agency/Publication/2018/Jan/IRENA_2017_Power_Costs_2018.pdf

22. Coady, D., Parry, I. and Shang, B. (2017). 'Energy Price Reform: A Guide for Policymakers.' CESifo Working Paper Series No. 6342
23. WHO (2016) Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children http://apps.who.int/iris/bitstream/10665/204717/1/9789241565233_eng.pdf?ua=1
24. These represent SDGs 3, 4, 5 and 15 respectively
25. These represent SDGs 2, 3, 7, 11 and 12 respectively
26. Peters, G.P., O. Geden, 2017: Catalysing a political shift from low to negative carbon. Nat. Clim. Chang., 7, 619–621, doi:10.1038/nclimate3369

SHORT-LIVED CLIMATE POLLUTANTS (SLCPS) INCLUDE METHANE (CH_4), BLACK CARBON AND HYDROFLUOROCARBON (HFC) EMISSIONS.

2.2.2. The African context

Curbing emissions from agriculture, land-use and land-use change, and forestry:

Africa is subject to substantial GHG emissions associated with agriculture,[27] land-use and land-use change[28] and forestry (LULUCF). Its ability and means for mitigating climate change predominantly lies in agricultural and terrestrial carbon. Therefore, it is not surprising that agriculture and LULUCF are among the most frequently included sectors for mitigation in African country INDCs at 84% and 98% respectively, and acknowledged at all levels of socio-economic development.[29,30] According to the Food and Agriculture Organisation of the United Nations (FAO), the distribution of GHG outputs related to agriculture in 2011 was 44 percent in Asia, followed by the Americas (25%), Africa (15%), Europe (12%), and Oceania (4%) (this regional distribution was fairly constant over the last decade).[31]

Over the ten-year period from 2001 to 2010, total removals by sinks from agriculture and LULUCF in Africa were 83 MtCO2e, while total emissions by sources from agriculture and LULUCF in Africa were more than 1,870 MtCO2e – emissions from agriculture (crop and livestock) account for the largest share. To put this in context, regional emissions from agriculture in 2012 alone were 798 MtCO2e, and this is expected to continue rising in the future if greater efforts to reduce these are not made.[32] Figure 2-2 presents the breakdown of sources and sinks in the agriculture and LULUCF sectors in Africa.

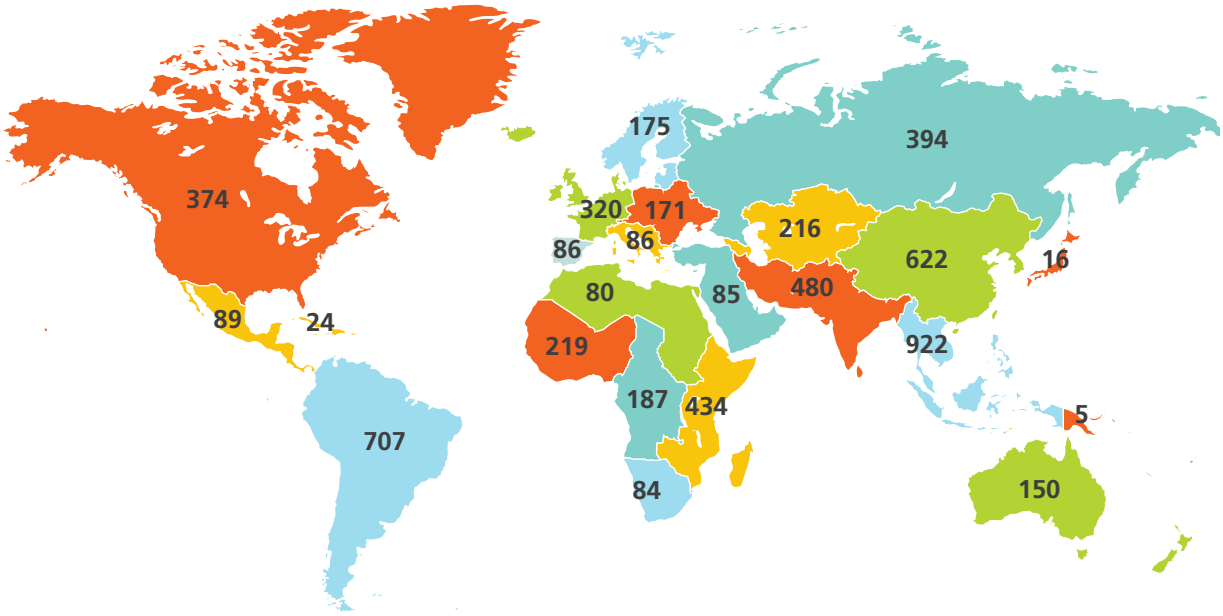
African farmers have the potential to both reduce GHG emissions and increase agricultural yields. According to the IPCC, the technical mitigation potential of agriculture[33] by 2030 in Africa is estimated at 1,004 MtCO2e/year. This amount is around 18% of the global estimate of technical mitigation potential of agriculture at 5,500 to 6,000 $MtCO_2e$/year.[34] Figure 2-3 presents the total technical mitigation potentials of agriculture for each region, including Africa, by 2030. The figures show mean estimates and include all GHGs and practices.

Figure 2-2: Sources and sinks in the agriculture and LULUCF sectors in Africa

Source: Atkins - Adapted from the Food and Agriculture Organisation of the United Nations (FAO) 2014

27. According to the IPCC, mitigation in the agriculture context includes emissions from enteric fermentation, manure management, rice cultivation, prescribed burning of savannas and grassland, and from soils (i.e. agricultural emissions)
28. According to the IPCC, six possible broad land-use categories include forest land, cropland, grassland, wetlands, settlements, and other; Conversion of cropland to grassland is an example of change in land-use
29. FAO 2016, The Agriculture Sectors in the Intended Nationally Determined Contributions http://www.fao.org/3/a-i5687e.pdf
30. Forsell et al. Carbon Balance Management (2016) 11:26 https://cbmjournal.springeropen.com/track/pdf/10.1186/s13021-016-0068-3?site=cbmjournal.springeropen.com
31. Agriculture's greenhouse gas emissions on the rise http://www.fao.org/news/story/en/item/216137/icode/
32. FAO 2014, 'Greenhouse Gas Emissions from Agriculture, Forestry and other Land Use in Africa', http://www.fao.org/resources/infographics/infographics-details/en/c/271720/
33. Considering all gases, excluding fossil fuel offsets from biomass and if economic or other barriers are not considered
34. IPCC. 2007. Agriculture. In Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom and New York, NY, USA, Cambridge University Press https://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf

Figure 2-3: Total technical mitigation potentials of agriculture for each region by 2030



Source: Intergovernmental Panel on Climate Change (IPCC) 2007

Improved regional and national data on emissions from farming, livestock-raising, fisheries and forestry can help African countries identify opportunities for reducing emissions while addressing their food security, resilience and rural development goals, which in turn will support efforts in gaining access to climate funds for achieving them. Emissions linked to agriculture and LULUCF activities can be curbed through appropriate policies and measures such as, cropland management, livestock management, grazing land management, forest management and restoration, afforestation/reforestation and reducing deforestation.

Promoting renewable energy:

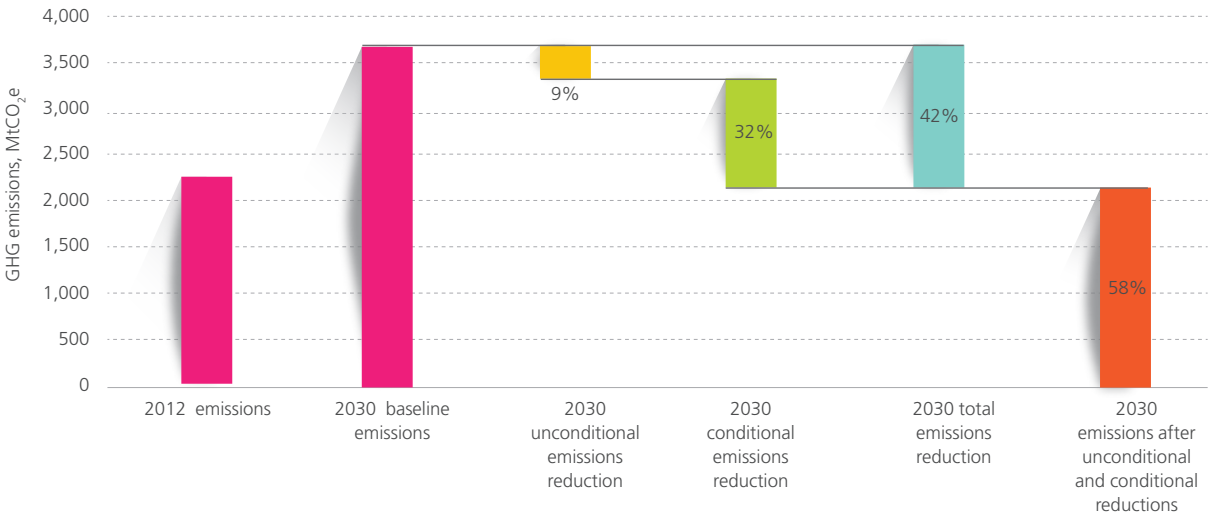
Increased greenhouse gas emissions are usually associated with economic growth but research shows that this trend can be altered. In 2015, the International Energy Agency (IEA) reported that global emissions of carbon dioxide from the energy sector stalled in 2014, making this the first time in 40 years where emissions reduction was not tied to an economic downturn but a situation where the global economy expanded by 3%.[35] The biggest factor behind this was the reduced cost of renewable energy, especially solar power.

Africa is undergoing a period of sustained economic and demographic growth which is expected to continue in the future. Population projections predict that the region's population will more than double in size and reach over two billion people by 2050, while economic growth is expected to hit 7% per year on average until 2030.[36] Although Africa has low GHG emissions in both absolute and per capita terms, without low-carbon development, this economic and demographic trend will be associated with a strong increase in GHG emissions and exacerbate the continent's climate mitigation efforts.

35. IEA 2015 Global energy-related emissions of carbon dioxide stalled in 2014 http://www.iea.org/newsroom/news/2015/march/global-energy-related-emissions-of-carbon-dioxide-stalled-in-2014.html
36. http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/IRENA_Africa_2030_REmap_2015_low-res.pdf

The global world average emissions in 2006 was 26,583 $MtCO_2$ and in 2016 it reduced to 21,381 $MtCO_2$; while for Africa it was 814 $MtCO_2$ in 2006 and then increased to 1,105 $MtCO_2$ in 2016 thus, showing an increase in the share of global CO_2 emissions from 3% to 5% in the ten-year period.[37] A recent report by the AfDB in collaboration with Vivid Economics and based on INDC submissions by African countries, highlights how Africa's 2030 baseline emissions could be around 3,700 $MtCO_2e$, with this coming down to around 2,100 $MtCO_2e$ after the implementation of both unconditional and conditional 2030 targets (just under 2012 emissions of around 2,250 $MtCO_2e$).[38] In summary, unconditional commitments represent 23 per cent of the overall reductions, while 77 per cent of reductions is conditional on receipt of international support. Figure 2-4 presents the quantified conditional and unconditional GHG emissions reductions in African INDCs.[39]

Figure 2-4: Quantified conditional and unconditional GHG emissions reductions in African INDCs



Note: This analysis includes data for 36 countries for which a quantified 2030 business as usual baseline and quantified emissions reductions are available in their INDSs: Angola, Benin, Burkina Faso, Cameroon, Central African Republic, Comoros, Congo, Cote d'Ivoire, Democratic Republic of Congo. Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Liberia, Madagascar, Mail, Mauritania, Mauritius, Morocco, Namibia, Niger, Nigeria, São Tomé and Príncipe, Senegal, Seychelles, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe.

Source: Adapted from AfDB / Vivid Economics

37. OECD/IEA, "Key world Energy Statistics.", 2006, [62] and OECD/IEA, "Key world energy statistics.", 2016, [63].
38. African INDCS: Investment needs and emissions reductions in the energy sector http://www.vivideconomics.com/wp-content/uploads/2016/11/AfDB-Report-2016.pdf
39. A notable exception in this analysis is South Africa, which does not quantify either emissions or a baseline and accounts for 12 per cent of African emissions, the second largest share of emissions after Nigeria.

In light of the above and given Africa's economic and demographic forecasts, it is important for the continent to exploit its abundant renewable energy resources (such as solar, hydro, wind along with geothermal and biomass) and work towards decoupling emissions increase from its economic growth. The International Renewable Energy Agency (IRENA) estimates that renewable technology could supply 22% of Africa's total final energy consumption by 2030 compared to 5% in 2013. The Agency also estimates that renewable energy in Africa could account for 50% of the power sector by 2030 which would equate to an emission abatement potential of 310 MtCO2 for a 2030 baseline scenario.[40]

Presently, bioenergy – primarily fuelwood and charcoal – remains the dominant source of energy for Africa being utilised by around 80% of the population. Beyond the release of greenhouse gas emissions, this source of energy is detrimental to human health and affects several thousand people annually. The World Health Organisation (WHO) estimates that over 4 million people die prematurely because of illnesses attributable to the household air pollution from cooking with solid fuels. In Africa this figure is around 600,000 and half of the casualties are children under the age of five.[41]

The Africa Renewable Energy Initiative (AREI) established under the mandate of the African Union, and endorsed by the African Heads of State and Government in Climate Change (CAHOSCC) was launched during COP 21 with the aim of scaling up the use of clean and modern renewables for energy generation in Africa. AREI's aspirational target is for Africa to achieve at least 10GW of new and additional renewable energy generation capacity by 2020, and mobilise the continent's potential to generate at least 300GW by 2030.[42] Figure 2-5 overleaf shows Africa's renewable energy potential. Overall AREI aims to support African countries achieve sustainable development including enhanced well-being as well as leapfrog the use of carbon intensive energy sources to reliable, clean and affordable renewable energy systems for low-carbon development while enhancing economic and energy security.

In summary, although Africa contributes only around 5% of global carbon dioxide emissions on average, it is important that it maximises opportunities and dual benefits presented by climate change mitigation through sustainable development. Governments are required to use suitable policy tools, mechanisms and regulations to incentivise the uptake of renewable energy, climate smart agriculture and sustainable forest and land management practices across the continent. Furthermore, countries should promote the mitigation of air-pollution impacts (thereby improving health and well-being), energy-supply security (by increased energy diversity), technological innovation, employment and reducing urban migration, employment and industrial development.[43]

40. http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/IRENA_Africa_2030_REmap_2015_low-res.pdf
41. Africa Progress Report 2015, 'Power People Planet: Seizing Africa's Energy and Climate Opportunities' http://www.africaprogresspanel.org/wp-content/uploads/2015/06/APP_REPORT_2015_FINAL_low1.pdf
42. Africa Renewable Energy Initiative (AREI) http://www.arei.org/
43. IPCC Fourth Assessment Report: Climate Change 2007; Co-benefits of mitigation policies https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch4s4-5-3.html

Figure 2-5: Distribution of identified renewable energy potential in Africa

Source: Adapted from the International Renewable Energy Agency (IRENA)

2.3.
The Climate Adaptation Gap

Society has been subject to changes in climate for millennia. The impact of these changes can however be considerably reduced by pro-active or planned adaptation. This will work to enhance societies resilience to changes in climate variability and extremes, although risks cannot be fully eliminated. The key regional risks from climate change in Africa include;[44]

Biodiversity - Shifts in biome distribution, severe impacts on wildlife and species extinction

Water scarcity - Compounded stress on water resources, with drought stress exacerbated in drought prone regions

Marine environment - Degradation of coral reefs with resulting loss of protective ecosystems and fishery stocks

Food security - Reduced crop productivity impacting on food security, adverse effects on livestock impacting pastoral livelihoods and undernutrition resulting from changing crop yields and migration

Disease - Changes in the incidence and geographic range of vector and water-borne diseases

Migration - Increased migration leading to conflict

Extreme events - Disruption of infrastructure, public services and production systems

Most of these risks are considered either medium or high under current adaptation levels, reflecting both their severity and Africa's existing adaptation deficit. By the end of the century, under the 2°C scenario, high levels of adaptation are required to achieve the continent's adaptation potential and reduce the level of risk. Given the nature and severity of these risks, coupled with the continent's negligible contribution to current and/or historic emissions, adaptation needs in Africa are quite significant. Climate adaptation action is therefore a long-term priority for Africa.[45]
In light of this, it is unsurprising that the report by UN Secretary General's High Level Advisory Group on Climate Change Finance concluded that adaptation spending was a priority in Africa.[46]

Governments and institutions across Africa are working to develop climate change adaptation governance systems, including mainstreaming the consideration of climate risk into national and subnational policies, strategies and plans. These evolving institutional frameworks are however typically incomplete, under-resourced, and fragmented. The overall level of capacity to effectively coordinate adaptation, especially at a local government level, is therefore low. As

44. Niang, I et al 2014: Africa. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1199-1265
45. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Cost%20of%20Adaptation%20in%20Africa.pdf
46. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Cost%20of%20Adaptation%20in%20Africa.pdf

a result, adaptation is mostly autonomous and reactive to short-term motivations or isolated donor driven initiatives. Several African countries have however allocated or have committed to allocate part of their national budgets to climate adaptation action. For example, a strategic outcome of South Africa's National Climate Change Adaptation Strategy is to achieve 80% resourcing of national adaptation needs by 2025, primarily from national fiscus.[47]

Developing countries also already face an adaptation finance gap. International public finance for adaptation in 2015/16 was around US$22 billion,[48] while current global adaptation costs have been estimated to be at least 2 to 3 times higher (see Figure 2-6 on page 20). These are global estimates of climate adaptation finance and adaptation costs but they provide an indication of the scale of the adaptation finance gap facing Africa. Sub-Saharan Africa for example was allocated 16% (US$4 billion) of the international public adaptation finance but is expected to bear the highest adaptation costs per unit of gross domestic product (GDP). Estimated adaptation costs represent less than 1% of African GDP in a below 2˚C world or as much as 6% of African GDP for an over 4˚C world by the end of the century.[49]

These costs are expected to substantially grow over the coming decades extending the adaptation finance gap, with adaptation costs by 2030 estimated to be in the range of US$140-300 billion per annum.[50] Figure 2-6 also highlights the adaptation finance gap for Africa. Estimated adaptation costs, depending on the climate change mitigation scenario, are expected to rise steeply to between $50 and 95 billion/year by 2050. It is however worth noting that even if all cost-effective adaptation is realised, the residual damage (due to the reversal of development gains for example) is still estimated to double the cost of adaptation in the period 2030-2050.[51]

Globally the majority of public climate adaptation finance is focused on the water and wastewater sector ($11bn) and the agriculture, forestry, land-use and natural resource sector ($4bn). Infrastructure, energy and other built environment ($1bn) and coastal protection (<$1bn) received a relatively small proportion of public climate adaptation finance. This is despite estimates of the global annual investment and maintenance costs of protecting coasts up until 2100, for example, ranges from between $13-36 billion to $28-76 billion.[52] Estimates of the required cost of adaptation for coastal cities which often require engineered protection, are on average US$350 million per city, or approximately US$50 billion annually in total. These are all considered priorities for Africa but not something that is well reflected in NDCs (although may be better reflected in national climate strategies and action plans). Sector consideration and priority setting in NDCs are covered in section 3.3.3.

The adaptation finance gap is well reflected in the adaptation components of NDCs in general. They highlight the need for domestic budgets and greater mobilisation of private finance (both domestic and international), but international public finance is still perceived as a key source of finance for adaptation.[53] Several NDC plans have been elaborated to give clarity to potential investment opportunities,[54] however many African NDCs currently lack investment information or fail to provide the specific adaptation proportion. This is further discussed in Chapter 3.

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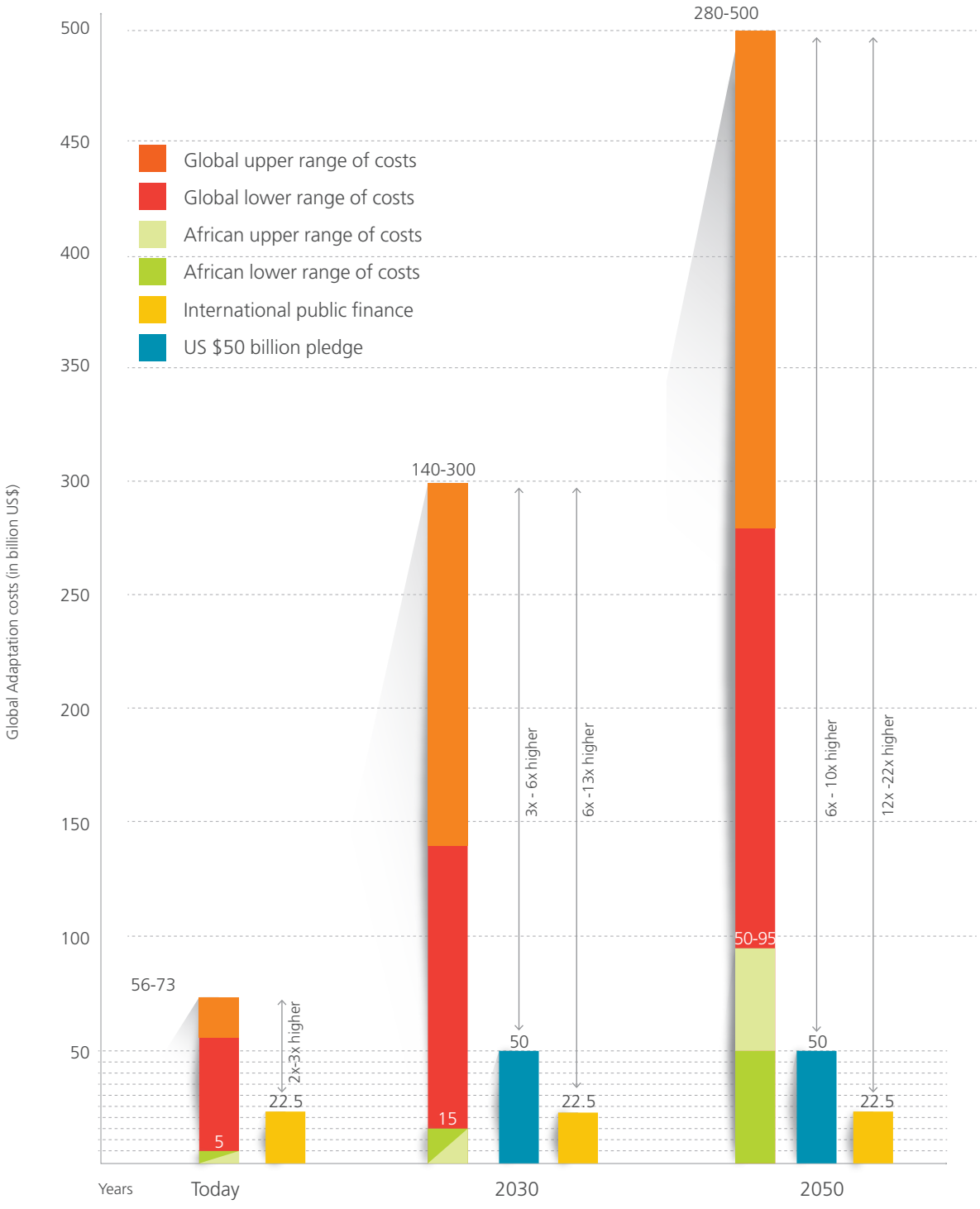
47. Department of Environmental Affairs (2017) South Africa's National Climate Change Adaptation Strategy
48. CPI Global Landscape of Climate Finance 2017 https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf
49. UNEP (2015) Africa's Adaptation Gap 2 Technical Report http://africanclimatefinancehub.net/wp-content/uploads/2017/09/Africas_adaptation_gap_2_Bridging_the_gap_mobilising_sources_2015.pdf
50. UNEP's Adaptation Gap Report 2016 http://web.unep.org/adaptationgapreport/sites/unep.org.adaptationgapreport/files/documents/agr2016.pdf
51. UNEP (2015) Africa's Adaptation Gap 2 Technical Report http://africanclimatefinancehub.net/wp-content/uploads/2017/09/Africas_adaptation_gap_2_Bridging_the_gap_mobilising_sources_2015.pdf
52. For the low and high-warming scenarios receptively, including the additional adaptation costs associated with coastal erosion (beach and shore nourishment) These estimates assume modest protection levels, use an impact-assessment framework, and omit several risks related to the coastal and marine environment.
53. UNEP's Adaptation Gap Report 2016 http://web.unep.org/adaptationgapreport/sites/unep.org.adaptationgapreport/files/documents/agr2016.pdf
54. CPI Global Landscape of Climate Finance 2017 https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf

To address the adaptation gap action is required to:[55]

- **Scale up the level of finance flowing to adaptation** - significant progress is required in securing new and additional finance to address this gap from public and private sources of finance (discussed in section 2.4). While it is widely acknowledged that there is a need to bring all types of finance into play, it is also clear that adaptation in African countries will continue to require concessional finance. Funding requirements for adaptation are likely to run to several tens of billions of dollars annually. Development assistance is currently insufficient to cover adaptation needs, with the funding gap becoming clear when looking at current available funding for adaptation. Several steps for consideration are highlighted below:
  - » Implementation of adaptation action needs to be brought forward in policy agendas
  - » Among other developing countries, African countries will need to receive increased and sustained assistance to adapt to the impacts of climate change
  - » Sustained and sufficient funding for the implementation of large-scale adaptation initiatives is needed in order to prevent funding being largely limited to 'reactive' funding
  - » Appropriate enabling environments need to be fostered to ensure effective and efficient provision of capacity-building, technology and funding.
- **Enhance the impact of adaptation finance** – bridging the adaptation finance gap is not only a question of mobilising more resources. Public and private sector finance needs to be tied to the priorities and needs of recipient countries and communities. Adaptation finance is a crucial element to both (1) helping countries and regions adapt to climate change, and (2) making all investments resilient to climate change. Defining and focusing adaptation finance in high-impact areas (co-benefits, smaller projects, projects mobilising private finance) may further enhance the impact of adaptation finance.
- **Mainstreaming the consideration of climate risk** – integrating climate change within policy, planning, appraisal, monitoring as well as the project and programme development cycle from an early stage. Early stage integration of climate risk considerations is a crucial step in appropriately adapting project designs and fully informing feasibility studies of relevant climate risk considerations.
- **Strengthening institutional capacities and governance mechanisms** – this will enhance the ability of national governments and scientific institutions in Africa to absorb and effectively manage large amounts of funds allocated for adaptation and will help to ensure the effectiveness of adaptation initiatives. Capacity building will ensure that the project's positive impacts will also continue after project implementation. Technical assistance supporting the preparation of projects and helping their implementation is instrumental for building long-term capacity to effectively manage climate action projects
- **Enhance climate change mitigation ambition** – climate change mitigation ambition linked to the Paris Agreement has direct implications for adaptation needs and costs post 2030 (see section 2.2). The medium- to long-term cost of adaptation is linked to the current level of global mitigation ambition. Mitigation efforts will be realised in terms of atmospheric and temperature changes and associated changes in risks and impacts. Adaptation costs rise steeply over time in the higher emission scenario and could be around twice as high in the 4°C world scenario than in the 2°C scenario by 2050.[56] Avoiding an unmanageable adaptation finance gap will therefore depend on effective mitigation efforts.

55. UNEP's Adaptation Gap Report 2016
56. http://unfccc.int/press/fact_sheets/items/4985.php

Figure 2-6: The global adaptation finance gap



Source : Adapted from UNEP Adaptation Gap Report 2016 and Africa's Adaptation Gap 2 Technical Report 2017

2.4. Financial Interventions for Climate Action in Africa

One of the outcomes of the Paris Agreement was for developed countries to renew their commitment to mobilising US$100 billion per year of climate finance by 2020 for climate action in developing countries. Since the negotiation of the Paris Agreement, governments are focused on financing the implementation of their NDCs. Also, a wide range of public and private finance actors are aiming to take advantage of the strong political signal delivered by the Paris Agreement and the investment opportunities presented by the NDCs.

2015/2016 annual climate finance flows across Sub-Saharan Africa, for example, have remained static at 12 US$ billion.[57] Current levels of climate finance in Sub-Saharan Africa are likely to be insufficient to meet the region's adaptation needs.[58] Additionally, a large share of climate finance for the region has been directed to South Africa amounting to over 20% of total approved funding within the region since 2003. Significant challenges therefore remain in mobilising the investment required to limit global warming to 2°C and to adapt to climate impacts. This section presents a range of financial interventions for enhancing climate action.

2.4.1. Scaling up and enhancing the impact of public finance

Ensuring Effectiveness and Efficiency of Resource Use

Effectiveness and efficiency implies that available funds are targeted where they are most needed and used optimally to ensure they have the greatest possible impact. Maximising the number of beneficiaries, prioritising the most vulnerable, or delivering the highest value for money, will be of the utmost importance. Increasing the transparency of reporting by finance providers in general is also central to document and enhance the effectiveness and efficiency of climate finance.

Climate Funds

There is evidence that dedicated climate funds are helping break down barriers to investment in climate action in Africa and play an important role in catalysing a wide range of investments. They do this by strengthening the capacities of local stakeholders, creating incentives for institutions and investors (for example, by offering concessional terms) and, ultimately, by taking on risks from which commercial financiers would typically shy away.

In 2016 multilateral climate funds approved $2.45 billion of climate finance grants and loans. The Green Climate Fund (GCF) accounted for 54% of the total flows from climate funds. The GCF will play a significant role in financing climate action, importantly also seeking to reach an equal split between adaptation and mitigation. Some of the poorest countries in Africa have been the main recipients of funding for adaptation from dedicated climate funds. For example, according to the 2016 program evaluation report of the Least Developed Countries Fund (LDCF)[59] a majority of its project portfolio was in Africa. This is in terms of both number of projects (149 or 67% of the total number of projects) or funding share ($660 million on average or 64% of total funding). However, it is important to note that the GCF is concerned by the low level of Direct Access accreditation by African countries.

In addition to international funds, regional and national climate change funds such as the Africa Climate Change Fund and Rwanda's Green Fund – FONERWA, play an important role in the climate financing architecture. They complement and strengthen the global collective action on climate change through addressing key region/nation-specific climate needs, especially those related to adaptation which is usually expressed locally.

57. https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf
58. https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10058.pdf
59. The LDCF was established as one of the climate change adaptation financing mechanisms of the UNFCCC in response to guidance from COP 7 in Marrakech in 2001

Climate/Green Bonds

Over the last decade interest has grown in using bonds to raise capital for either private or public expenditure specifically for climate change such as climate/green bonds. Climate change mitigation is currently the predominant focus of climate/green bonds. It is however estimated that 4.3% of the US$ 65.9 billion outstanding climate/green bonds is linked to adaptation projects, while a larger percentage are in sectors that may be relevant for adaptation[60]. The AfDB Green Bond Programme promotes green growth by financing eligible climate change adaptation and mitigation projects.[61]

At present, there are no international standards for delineating climate/green bonds from other bonds. Questions have therefore been raised as to whether the apparent rapid growth in climate/green bond finance generates new capital for green investments, or instead reflects a re-labelling of traditional bonds and investments. Further analysis is therefore needed to properly explore the potential of the bond market to substantially contribute new capital to climate action investment flows in African countries. It is however worth noting that the ISO standard for Green Bonds (14030) is currently in development[62] and the MDBs developed a framework document on a harmonized approach on green bonds allocation and reporting.[63]

Public lending to support private expenditure

In 2016, only 3% (US$197 million) of MDB climate adaptation finance (US$6,224 million) was provided directly to private sector recipients.[64] To scale up private sector lending, finance needs to better align with investors' financing needs given the high upfront investment and long, uncertain returns of projects. For example, the European Investment Bank (EIB) has enabled private investment by providing access to longer-term debt finance, presently in short supply in European Union (EU) countries.[65] Public finance can also help reduce investment risk through the following instruments:[66]

- Credit guarantees
- Export credits
- Hedging products such as currency and interest swaps
- Political risk insurance
- Public catastrophe and weather risk insurance as well as the associated research, pilot projects, and the data collection that underpins local index-based insurance

An example can be seen in the Kenyan Menengai geothermal energy project, where the AfDB partial risk guarantee (PRG) risk mitigation instrument covers private lenders and investors against the risk of a possible government failure to meet contractual obligations to a project. By covering the state-owned Geothermal Development Company's steam supply obligations and the Kenya Power and Lighting Company's power purchase obligations associated with non-payment, the PRG is providing credit enhancement to the overall project structure, securing cash flows for repayment purposes for debt providers. This mitigation of perceived political risks promotes foreign direct investment in Kenya and "crowds in" private financing for power generation.[67]

A more systematic and explicit approach is required to both understand the extent to which private sector financing complements public sector budgets, and the ways in which private sector engagement can be bolstered.

Public lending to support private expenditure has typically focused on large projects, often involving foreign corporations, with limited reach to micro and small-enterprises and the informal economy which are important economic actors in developing countries. The Sustainable Energy Fund for Africa (SEFA) is an example of a regional initiative set up to support small and medium scale projects in Africa in the energy sector. SEFA provides initial development costs that often prevent smaller clean and renewable energy projects that are potentially viable from a commercial perspective to ensure they are taken forward.[68]

60. http://web.unep.org/adaptationgapreport/sites/unep.org.adaptationgapreport/files/documents/agr2016.pdf
61. https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/green-bond-program/
62. https://www.iso.org/standard/43254.html
63. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Green_Bonds_-_Working_Towards_a_Harmonized_Framework_for_Impact_Reporting_-_March_2015.pdf
64. 2016 Joint Report on Multilateral Development Banks' Climate Finance
65. https://climatepolicyinitiative.org/wp-content/uploads/2015/06/Finance-for-Climate-Resilience.pdf
66. UNEP's Adaptation Gap Report 2016
67. https://www.afdb.org/en/news-and-events/afdb-eases-investor-risk-in-large-african-geothermal-project-13652/
68. https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa/

For remote and vulnerable areas, remittances are a source of finance that are effective in reaching households directly. Officially recorded remittances to developing countries in Africa, for example, amounted to $34 billion in 2017. Globally, remittances are larger than Official Development Assistance (ODA) and more stable than private capital flows.[69] An example includes the Nigeria's first Diaspora Bond which raised $300 million on the London Stock Exchange in 2017.[70]

Private domestic investment and remittances are an increasingly relevant area of climate adaptation finance, particularly in an agricultural or extreme weather event and natural disaster context. For African countries, which are dependent upon resources that are vulnerable to climate change, an emphasis on strengthening the domestic private sector may be required.[71]

International public finance can help mobilise domestic private investment in African countries, provided that the right incentives and policies are introduced. This could include direct or intermediated finance for climate-smart agriculture, social entrepreneurship, ecotourism and improved water management for example.[72] Local banks are in a privileged position to engage businesses to scale up investment because they understand local barriers to investment. Intermediated finance can therefore be used to address the debt funding gaps preventing micro-enterprises/small and medium-sized enterprise's from investing in climate action. It's also worth noting that the AfDB is developing the Adaptation Benefit Mechanism (ABM) to provide a price signal to private sector investors to develop adaptation projects.[73]

PRIVATE SECTOR ENGAGEMENT

2.4.2. Mobilising private finance

Foreign direct investment, private debt, remittances and official development assistance make-up the largest components of financial inflows to developing countries. Least-developed countries and small- and medium-sized enterprises, in particular, struggle to attract significant volumes of private debt or equity outside natural resource sectors.

The recent report by the International Finance Corporation (IFC), 'Creating Markets for Climate Business' identifies seven industry sectors that can make a crucial difference in catalysing private investment namely: renewable energy, off-grid solar and energy storage, agribusiness, green buildings, urban transportation, water, and urban waste management. The report states that more than $1 trillion in investments are already flowing into climate-related projects globally in these areas. However, it also indicates that trillions more can be triggered by creating the right business conditions in emerging markets.[74]

Private sector financing for adaptation faces many of the barriers that private sector investment in developing countries typically experience, as well as specific barriers to mobilising private sector investment for climate change adaptation, including:[75]

Typical barriers

- Currency exchange risks
- Immature financial markets
- Poor legal, economic and regulatory frameworks
- Social and cultural barriers

Specific barriers

- Adaptation is often a measure to reduce future costs, while businesses are inclined to invest in actions that promote expansion and increase revenue
- Awareness of the issue of climate change adaptation
- Investment in infrastructure projects may offer limited autonomous earning power for the investor
- The cost-saving nature of adaptation contrasts the revenue-creation motivation of the private sector
- The inherent long time-scales and uncertainties are at odds with the much shorter time horizons in which business often make investment decisions
- Lack of institutional capacity[76]

69. http://www.worldbank.org/en/news/infographic/2017/04/21/trends-in-migration-and-remittances-2017
70. https://www.lseg.com/resources/media-centre/press-releases/nigerias-first-diaspora-bond-starts-trading-london-stock-exchange
71. UNEP's Adaptation Gap Report 2016
72. https://www.die-gdi.de/uploads/media/BP_22.2016.pdf
73. Adaptation Benefit Mechanism https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/adaptation-benefit-mechanism-abm/
74. IFC (2017) http://www.ifc.org/wps/wcm/connect/974eedcb-f3d9-4806-b32e-73720e6f4ca7/IFC-Climate_Investment_Opportunity_Creating_Markets.pdf?MOD=AJPERES
75. UNEP's Adaptation Gap Report 2016
76. Adenle (2017), Mitigating Climate Change in Africa: Barriers to Financing Low-Carbon Development, https://www.sciencedirect.com/science/article/pii/S0305750X17302620

Project developers account for the largest share of private finance with an estimated US$ 125 billion and have only been recently followed by Commercial Financial Institutions.[77] Mitigation activities overwhelmingly account for the largest share of private climate finance, of which renewable energy generation seems to take the largest proportion. In fact, sectoral estimates show that renewable energy and energy efficiency account for the large proportions of private finance[78]. 2015 was the year that saw a surge in global private renewable finance and investments. This is partly attributed to falling renewable energy costs and adequate policies.

While renewable energy investments issued from public finance have decreased[79], private investments for renewables has increased. This suggests that renewable energy investments are increasingly becoming an attractive commercial investment choice for the markets and the private sector.[80] However, barriers[81] to low-carbon private investments specific to Africa remain, and include:

- **Political and/or regulatory risk** – this is also associated with insecurity over property rights, unstable governments, fragile policy environment or legal systems. Investors would require robust rule of law and political stability to overcome these barriers. Public-private-partnerships (PPPs) can be an instrument for municipalities to attract private finance while assuring investors predictable regulation, permits and incentives. Strong institutions are required to minimise the negative impacts that may come with political or regulatory changes.
- **Project risk** – this includes risks associated with capital expenditure and operational expenditure (CAPEX & OPEX) estimates, high up-front costs, revenue volatility and as well as technology and resource risk. Investors can use existing due diligence practices and robust feasibility studies to assess commercial viability. For developing countries, foreign exchange fluctuations and exchange rate stability may also be a non-negligible factor to be considered and prepared for. The practice of foreign exchange hedging and using the swap market are existing instruments that would protect against such risk, though this activity may be less accessible for investors with limited experience.
- **Economic and financial risks** – an important tool to attract private finance is levelling the playing field between low-carbon and traditional energy sources by reforming or eliminating fossil fuel subsidies for example. Weak creditworthiness is also an element that can impede the ability of countries and even cities to attract long-term financial resources in capital markets and invest accordingly.

Private finance (in terms of debt, equity, insurance products) can be used to bridge the climate finance gap. For example, in index-based insurance where pay-outs are made immediately after an index has been triggered by exceeding a predefined threshold. Rainfall levels, drought intensity and length, or wind speeds can be the triggers.[82] However, it is important to understand how private finance can be effectively utilised in a mitigation and adaptation context. A combination of policies, regulations, and longer-term debt can also help trigger private investments in climate action. There is therefore a role for the Africa NDC Hub partners to break down the barriers to private sector climate finance described above by undertaking targeted financial and non-financial interventions.

77. Bloomberg New Energy Finance (BNEFa). 2017. "Projects and assets database: Renewable energy projects and asset finance"
78. Estimates for Transport, Land Use and Adaptation are not tracked in the case of private finance and can thus not be directly compared
79. Concessional finance is still required to support domestic baseload renewable energy including battery technology and storage as these remain expensive
80. https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf
81. These barriers can be interrelated.
82. Druce, L., Moslener, U., Grüning, C., Pauw, P. and Connell, R. (2016). Demystifying Adaptation Finance for the Private Sector. Retrieved from: http://fs-unepcentre.org/sites/default/files/publications/demysitifying-adaptation-finance-private-sectoraw-full-report.pdf in February 2018

PUBLIC-PRIVATE SECTOR

2.4.3. Promoting public-private partnerships

Climate change in addition to ageing of the existing asset base, population growth and urbanisation are challenges that require increasing the levels of investments in infrastructure. Governments need to consider all possible financing options to close the infrastructure financing gap, such as Private Participation in Infrastructure (PPI) and infrastructure asset recycling.

PPI investment in Africa is significant.[83] Over the last 5 years (2012 to 2017), activity has been concentrated in the electricity, ICT and ports sectors, and the countries with major projects include Nigeria, South Africa, Ghana and Kenya.[84] Some of these projects received MDB support predominantly in the form of direct loans.[85] Many countries are however still developing the institutional frameworks to support such partnerships and the cost-effectiveness and climate action outcomes of such measures need to be clear.[86]

AfDB financed public-private partnerships (PPP) can be used to draw private sector investment by distributing risk for climate change mitigation and adaptation projects in Africa. For example, the Bank is supporting the first regional power project in East Africa to be established as a PPP – the Ruzizi III Hydropower Plant Project.[87] This project is part of the Programme for Infrastructure Development in Africa (PIDA) and involves Burundi, the Democratic Republic of Congo (DRC) and Rwanda. AfDB PPP enhancing tools and initiatives include the African Legal Support Facility (ALSF), African Development Fund Partial Risk Guarantee (PRG), African Development Fund Partial Credit Guarantee (PCG) and the African Financing Partnership (AFP).

In addition, infrastructure asset recycling[88] has the potential to mobilize increased amounts of private capital through better alignment with pension funds and other long-term investors, which is the most immediate solution to closing the global infrastructure investment gap. Even without facing fiscal constraints, asset recycling can provide benefits to governments, such as more prudent public balance sheet management. Asset recycling enables governments to redirect capital towards their most critical infrastructure needs, using several innovative mechanisms including temporary-partial ownership to make it more attractive, incentives to align different levels of government and setting up infrastructure funds to protect the transfer of capital and make the process more transparent. It also helps with targeting opportunities for efficiency gains in existing infrastructure and more private-public knowledge transfer.[89]

2.5. Non-financial Interventions for Climate Action in Africa

Non-financial interventions focused on policies and regulations that influence both investment conditions and incentivise specific investments, as well as those that build capacity to implement effective and efficient climate action include:[90]

2.5.1 Targeted technical assistance

In particular, there is a need for technical assistance and advisory services in low-income developing countries to create the preconditions for private, as well as public investment.[91] For example, the establishment of a Climate Risk and Vulnerability Assessment (CRVA) technical assistance grant fund could be used to underpin a mandatory requirement for CRVA to be carried out and inform the appraisal of all projects identified as significantly at risk to climate change. EIB and the Asian Development Bank (ADB) have established similar funds and are implementing this practice.

Identifying viable investment opportunities and developing project pipelines is the top priority for promoting private investment in low carbon

83. http://ppi.worldbank.org/~/media/GIAWB/PPI/Documents/Data-Notes/AFR-Update-2015.pdf
84. https://ppi.worldbank.org/snapshots/region/sub-saharan-africa
85. 5 out of 23 projects in 2015worth a total of US$3.2 billion received US$363 million (nine loans) from MDBs.
86. UNEP's Adaptation Gap Report 2016
87. AfDB Press Release https://www.afdb.org/en/news-and-events/afdb-approves-ruzizi-iii-hydropower-plant-project-bringing-green-energy-to-burundi-drc-and-rwanda-15275/
88. An asset recycling strategy involves divesting existing assets to a private consortium and investing in a new infrastructure asset. This process recycles previous taxpayer's funds that have been locked up in older assets to pay for new or renewed assets to meet the demand of future generations.
89. WEF in collaboration with Atkins (2017) Recycling our Infrastructure for Future Generations http://www3.weforum.org/docs/WEF_Recycling_our_Infrastructure_for_Future_Generations_report_2017.pdf
90. UNEP's Adaptation Gap Report 2016
91. https://climatepolicyinitiative.org/wp-content/uploads/2015/06/Finance-for-Climate-Resilience.pdf

and climate resilient interventions. Technical assistance can be used to stimulate demand for private investment by addressing knowledge gaps. For example, the Africa Legal Support Facility (ALSF) hosted by the AfDB, is supporting African governments in the negotiation of complex commercial transactions for the development of transformational infrastructure projects. The ALSF supported the Government of Senegal in its negotiations of a Power Purchase Agreement, and related agreements, to develop a wind farm, the first in the country and the largest in West Africa.[92]

The International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD) have supported water-dependent businesses in upper-middle-income countries to identify opportunities for climate resilient investments, and engaged local banks in the financing of water-efficient technologies. This often included engaging in consultations, and carrying out studies, business-tailored audits or other advisory services to show the business case for investment.

There are also many examples of how Development Finance Institutions (DIFs) are engaging agribusinesses in better managing climate risks, where addressing knowledge gaps was essential to stimulating demand for investments and designing suitable financing and climate change adaptation responses.

2.5.2 Improved institutional arrangements and conducive policies

A key action area for facilitating the climate change response is the improvement of institutional and coordination arrangements for climate change issues. It is important for countries to understand where and how climate change decisions are to be made, and who the main actors are. The creation and clear delineation of roles and responsibilities for climate change mitigation and adaptation at all levels, from national to local, and across all key sectoral line ministries is crucial in this regard. For spurring the effective and efficient mainstreaming of climate change, it is also important to identify cross-sectoral links to existing development priorities and activities.

Governments need to establish and adjust regulatory frameworks to create stronger incentives for climate action. This should include mainstreaming the consideration of climate change into polices, strategies and action plans, as well as the establishment of core climate change polices, strategies and action plans. Policy dialogue is therefore required to stimulate action, for example through the revision of technical standards or planning regulations or resource (water and energy) pricing. Experience and best practice should be used to inform the process.

2.5.3 Enhanced awareness raising and systemic capacity building

More robust awareness raising and information dissemination on climate change mitigation and adaptation needs, costs, and finance is required to guide and inform the successful implementation of the Paris Agreement. Engaging the private sector on climate change needs to be a much higher priority in developing countries. Successful engagement can catalyse greater investment in low carbon and climate-resilient infrastructure, technologies and services in core development sectors.[93]

Improved estimates of the costs of national sectoral adaptation and mitigation interventions require more and better-designed studies to be conducted. There is a lack of studies focused on costs of climate change, especially adaptation, in many sectors or the consideration is only partial. In general, the private sector is unlikely to invest in climate and hydrological data, or in decision-support tools for climate change-related risks, as these are often perceived as public goods. The limited availability of accessible, reliable and

92. Africa Legal Support Facility https://www.aflsf.org/sites/default/files/resources/BROCHURE%20ENGL_WEB_FINAL%20APRIL_26.pdf

93. Biaginia, B & Miller, A (2013) Engaging the Private Sector in Adaptation to Climate Change in Developing Countries: Importance, Status, and Challenges. Climate and Development, Vol. 5, Issue 3, 242-252.

relevant weather and climate information is a barrier to addressing climate risk in Africa.[94] There are however growing examples of partnerships with the private sector, such as insurers and telecommunications companies, to provide weather and climate information services in Africa.[95] An example is the ClimDev Special Fund (CDSF), a demand-led Fund that pools resources to finance investment activities on the ground across Africa for the generation and use of climate information for climate-resilient development.[96]

2.5.4 Integrated monitoring, reporting, evaluation and verification of climate action

One of the key elements of the Paris Agreement is the Enhanced Transparency Framework (ETF), which requires countries to provide national inventory reports of their GHG emissions and information on the progress made in implementing their NDCs. Considering adaptation is very context specific and has no universal metric, the Paris Agreement emphasizes adaptation as a country-driven process with less need for verification.[97] The monitoring and evaluation of climate adaptation which focuses on the processes as well as outcomes, supports the assessment of effectiveness on adaptation plans and actions (ibid). These reporting measures are important, as they will show whether countries are meeting their climate change mitigation and adaptation commitments.

In addition, the measurement, tracking and reporting of investments in climate change is essential to ensure that climate finance is used efficiently and targeted where it is needed the most. This process adds another layer of confidence and can serve as an important tool to attract additional finance – both international and domestic. The improved definition of the OECD Rio Marker for tracking bilateral official development assistance, the MDB and the International Development Finance Club (IDFC) common principles for tracking climate finance, and the MDB Climate Finance Tracking Working Group on climate resilience metrics provide a strong foundation for this. To the extent possible, the synergies for the monitoring, reporting and verification of mitigation and the monitoring and evaluation of adaptation should be maximised. The sectors with the highest synergy include the agriculture and LULUCF sectors. Similarly, the processes for defining the levels of indicators and improving data collection should be strengthened.

2.5.5 Innovative technology development and transfer

Technologies that help people cope with a changing climate such as water harvesting plants as well as renewable and energy efficient technologies play a critical role in the global response to the challenges of climate change. The UNFCCC understands this and has taken important work on facilitating the development and transfer of climate technologies forward through the consultative process, technology transfer framework, technology needs assessments and climate technology financing.[98]

The Technology Mechanism of the UNFCCC through its implementation arm, the Climate Technology Centre and Network (CTCN) is an important player for meeting the goals of the Paris Agreement. It had responded to more than 100 requests covering both adaptation and mitigation, from developing countries on climate change technology issues as at middle of 2016.[99] The financing mechanisms of the Convention will also continue to play a critical role. For example, the GEF has allocated over $2.5 billion to support more than 30 climate-friendly technologies in more than 50 developing countries.[100]

94. Singh, C et al (2017): The utility of weather and climate information for adaptation decision-making: current uses and future prospects in Africa and India, Climate and Development. http://www.tandfonline.com/doi/pdf/10.1080/17565529.2017.1318744?needAccess=true
95. https://www.thegef.org/sites/default/files/publications/WeatherAndClimateServicesAfrica.pdf
96. http://www.climdev-africa.org/The-ClimDev-Special-Fund
97. http://ledslac.org/wp-content/uploads/2016/10/lisa_hermann_synergies_and_challenges_of_integrating_mrv_and_m_e.pdf
98. http://unfccc.int/ttclear/negotiations
99. http://newsroom.unfccc.int/climate-action/technology-and-the-unfccc/
100. https://www.thegef.org/sites/default/files/publications/TechTransfer-FS-June2009_2.pdf

The AfDB hosts the African Climate Technology Centre (ACTC) financed by the GEF with US$ 14.3 million. The objective of the Centre is to support Sub-Saharan African countries in scaling-up the deployment of low-carbon and climate resilient technologies for climate change mitigation and adaptation by:

1. Enhancing networking and knowledge dissemination with respect to climate technology transfer and financing
2. Enabling the scaling-up of technology transfer through policy, institutional and organisational reforms of country and regional enabling environments
3. Integrating climate change technologies into investment programs and projects

Since its inception in 2014, the ACTC has provided technical assistance to more than ten Sub-Saharan African countries. Adaptation projects cover the adoption of pro-climate policies and regulations

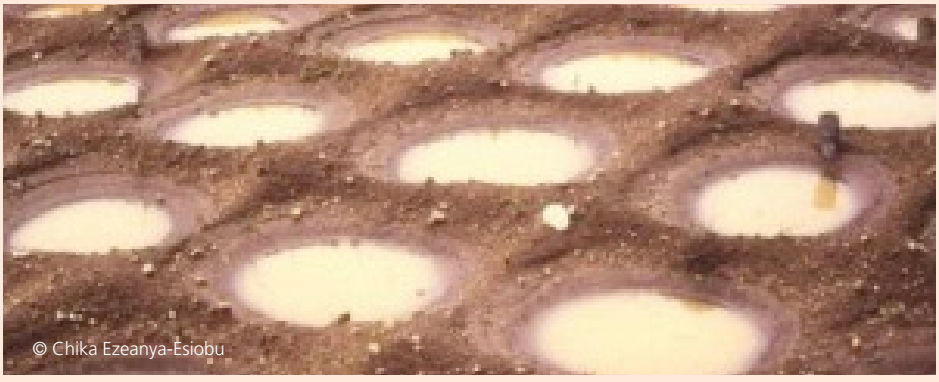
Box A: Mauritania – Solar energy for water in peri-urban and rural areas study

Lead	**African Development Bank, Mauritanian Ministries of Water and Sanitation as well as Petroleum and Energy**
Overview	The Government of Mauritania has a strategic vision to enhance the role of renewable energy and implement sustainable decentralised solutions in remote and isolated areas. In line with this vision the Ministry of Water and Sanitation has mandated the use of solar energy for water supply facilities serving areas with over 2500 inhabitants. To this effect, numerous programs are in progress to replace heat pumps with solar pumps. However, for long term sustainability and nation-wide implementation, there is a need for a comprehensive national level strategy that will encompass all technical, economic, institutional, social and climatic/ environmental factors and lead to the successful implementation of solar pumping projects across Mauritania. This study aims to: • Explore the feasibility of and define a strategy for the expanded use of solar power as a viable alternative source of clean energy to supply drinking water to rural and semi-urban areas. • Undertake a status review of groundwater resources to identify appropriate adaptation approaches to mitigate groundwater resource vulnerability to climatic and non-climatic factors. The outcome of this study led to the formulation of a comprehensive strategy for the expanded use of solar energy for water pumping systems in rural and semi-urban populations across Mauritania. © Atkins

and the mainstreaming of appropriate adaptation technologies in water sector investments and projects; while mitigation projects support policies and projects in the energy sector and are aligned with the objective of the Sustainable Energy for All Initiative (SE4ALL). Box A (opposite) showcases the solar energy for water in peri-urban and rural areas study in Mauritania. This project was implemented by WS Atkins International, Global Climate Adaptation Partnership and ECA International.

Direction of flows for technology transfer include north-south, south-south, and south-north for example, and it is important for Africa to have relevant and applicable technology flows. It is also imperative that indigenous technologies are not overlooked but enhanced to address climate change related needs. A case study in this regard is the revival of the Tassa technique. This is presented in Box B .

Box B: The Tassa Technique

Lead	**The International Fund for Agricultural Development (IFAD)**
Overview	Tohoua in Niger, West Africa is a typical drought-prone area. Since the 1960s, numerous projects had been implemented to protect the valley slopes and plateaux, but these were not successful. Farmers here need good strategies for capturing, conserving and making the best use of unreliable and limited rainfall. To meet this need, and as part of IFAD's first major natural resources management programme for addressing land-degradation within the context of poverty and drought, the Tassa technique was revived. Tassa is a traditional soil and water conservation practice which entails farmers hand-digging small pits uniformly across a field to collect rainwater and placing manure at the bottom of each pit to increase soil fertility. Seeds are planted along the ridges of each pit and when rain falls, the pits fill up with water and provide a nutrient-rich source of water to support growing plants. This simple and inexpensive traditional technique has resulted in major increases in crop yield and helped farmers build resilience against drought. In surveys, farmer cited the following reasons for the rapid uptake in reapplying their own traditional planting pits used in the past – doubling of yields, rehabilitation of barren land, easy maintenance and easy weeding and thinning. Three key factors that have contributed to the success of Tassa are: • It is an action-research approach that identified and assessed local practices, facilitated cross-regional learning, encouraged farmers to watch what their neighbours were doing, let farmers choose without added incentives and supported them in finetuning their preferred options • It is a simple, cheap, traditional technology that produced immediate results, could be integrated into existing cropping systems, and was easily replicated using local labour • It is a technology that could be adapted to suit the changing local context Tassa has contributed immensely to mitigating agricultural risks and improving household food security for many impoverished families in Niger.  © Chika Ezeanya-Esiobu

Climate-smart soil protection and rehabilitation
Photo by Georgina Smith/CIAT

CHAPTER 3

GAP Analysis

Figure 3.1: Overview of African NDC target types: Mitigation

Source: Atkins – Review of African Country NDCs submitted to the UNFCCC

Figure 3.2: Overview of African NDC target types: Adaptation

Source: Atkins – Review of African Country NDCs submitted to the UNFCCC

3.0 Gap Analysis

3.1. Overview

The purpose of this section is to identify the gaps that exist within the context of implementing NDCs in Africa. It looks at the factors that promote key elements for success as well as those that remove barriers to the achievement of NDC targets. Figures 3-1 and 3-2 give an overview on the different types of NDC targets for both mitigation and adaptation made by African countries. A clear understanding of these NDC targets including the tracking of progress being made at respective country levels is important for determining their adequacy and if collective action is on track to achieving the goals of the Paris Agreement. Furthermore, it will also support the processes of comparability and aggregation of NDC objectives and outcomes with the view of enhancing higher levels of climate ambition with each periodic NDC submission to the UNFCCC.

The gap analysis process entailed a review of the NDCs submitted by African countries to the UNFCCC and the output from the online survey sent to Africa NDC Focal Points;

- **Review of NDCs by African Countries:** Since early 2016, countries have submitted their NDCs to the UNFCCC and these are accessible online, via the UNFCCC interim registry.[101] The analysis involved a review of all 44 African countries[102] that have submitted an NDC, either as a new submission separate of the original INDC or as a re-submission of the original INDC. The country NDCs reviewed include those of Algeria, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Cote d'Ivoire, Djibouti, Egypt, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, Zambia and Zimbabwe.
- **Review of Online Survey responses:** An online survey was shared with NDC Focal Points of African countries in January 2018. The survey invited the respondents to evaluate and comment on various elements either supporting or hindering NDC implementation in their respective countries from 2016 till date. Feedback was received from 18 respondents representing 15 countries – Benin, Burkina Faso, Burundi, Cabo Verde, Chad, Guinea, Guinea-Bissau, Kenya, Madagascar, Nigeria, Somalia, Sudan, Swaziland, Tunisia, Zimbabwe (all but one of these countries, Guinea-Bissau, have submitted their NDCs).

For the findings below, countries are only mentioned as examples based on the content of their NDCs submitted to the UNFCCC and publicly available online on the UNFCCC NDC interim registry. The findings from the online survey results are not attributed to any specific country but give a general overview of regional experiences and perspectives.

101. UNFCCC NDC Interim Registry http://www4.unfccc.int/ndcregistry/Pages/Home.aspx
102. As at 9th February 2018

3.2. Findings

The review process described above identified several recurring themes that were explicitly expressed as a need or a constraint to the successful implementation of NDCs. External finance, technology and capacity were the top three needs identified. These themes along with all the others identified have been described below. Table 3-1 provides the summary of the review findings. It gives an indication of the share of NDCs that specifically mention each theme in the context of a barrier or need. The table also shows to what extent countries consider each theme to be important and urgent with respect to successful NDC implementation. The degree of importance and level of urgency is an assessment based on the blend between the survey responses and the interpretation of the content in the individual NDC submissions.

Financial resources

Financial support is a predominant requirement featuring in NDCs. The lack of sufficient financial resources is almost universally expressed as a barrier to implementing a country's NDC. In fact, the requirement for external financial support is often explicitly expressed as a necessary condition for successful NDC implementation such as in the case of Burkina Faso that clearly described this as a "constraining determinant", while Comoros explicitly states that adaptation efforts should be exclusively financed with international support.

The review showed that countries asked for financial support for both mitigation and adaptation efforts, with some countries making the distinction between financial support required for conditional and unconditional targets. The finding from the review shows that on average 30% of the financing requirements are unconditional while 70% are conditional upon receipt of international support (see Table 3-4 on page 43 for details).

While some NDCs acknowledge the potential of attracting private sector finance, a lot of emphasis and expectation is set on bilateral and multilateral donor finance. It is worth noting that Côte d'Ivoire explicitly mentions the role of private investments

Table 3-1: Summary of review findings

Theme	Share of NDCs with Theme Explicitly Mentioned	Degree of Importance	Level of Urgency
Financial resources	100%	Extremely important	**Extremely Urgent**
Technology	69%	Extremely important	**Very Urgent**
Capacity building needs	58%	Extremely important	**Extremely Urgent**
Institutions	54%	Very important	**Very urgent**
Socio-economic situation	35%	Extremely important	**N/A**
Legal framework and legislation	31%	Extremely important	**Extremely Urgent**
Availability of climate data	23%	Very important	**Very Urgent**
Technical Assistance	23%	Extremely important	**Extremely Urgent**
Political situation	12%	Extremely important	**N/A**

Source: Atkins – Review of African Country NDCs submitted to the UNFCCC and Online Survey

to co-finance climate projects and mentions high-level domestic measures such as strengthening of their domestic financial market system to facilitate private finance participation. Many countries also mention their support for market-based mechanisms such as the Clean Development Mechanism (CDM), though some stress the need for a proper GHG accounting system in line with UNFCCC guidelines and technical specifications (e.g. Cameroon and Cape Verde).

Most countries mention private climate finance as a required resource to implement NDC targets and plans as part of their wider financial requirements. However, there is rarely an explicit break down of the volume of private finance that countries require to be raised to implement their plans. In fact, only five countries (Burkina Faso, Ghana, Morocco, Niger and South Africa) have included an explicit financial figure (often against a specific project) to be mobilized through private finance. The fact that countries generally do not express an estimate for the level of private climate finance needed represents a gap in itself.

Technology

Technology-related needs range from soft to hard solutions and are often linked to capacity building gaps and requirements. Similar to financial needs, most African countries also state technology development, transfer and support needs as central and integral elements for successful implementation of their NDCs. Despite an overwhelming majority of countries expressing technology as integral to supporting their NDC implementation, the level of detail around the technological gap and requirement varies a lot. For instance, the Central African Republic's NDC has a list of targeted technologies broken down by sector whereas Kenya's mention of technology requirements is limited to two high level statements.

Capacity building needs

Capacity building-related needs constitute another major barrier that countries are facing in order to implement their NDCs successfully. Capacity building needs can relate to tools and methodologies required, for instance capacity related to the development and management of GHG emissions inventories, but also relate to the knowledge and training required for applying for external climate finance.

Burundi for instance explains how their national experts have insufficient knowledge to produce climate risk and vulnerability assessments (CRVAs) or mitigation studies, as well as not having *"acquired a solid proficiency in the procedures used to compile financing applications for the available funding mechanisms"*. Guinea echoes this same point by expressing that capacity building is essential to undertaking climate readiness programme activities, specifically to *"appoint and seek accreditation of a national implementing entity, thereby gaining direct access to the Green Climate Fund"*. Guinea also makes the point that capacity building is required in relation to contributing to the process for the validation of its CDM projects.

An in-depth analysis on the impacts of capacity building carried out over time for related climate change mechanisms such as Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Programme of Actions (NAPAs) for example, needs to be carried out and lessons learned built upon and applied during NDC implementation.

Institutions

Strong institutions facilitating well-coordinated climate action on an economy wide scale also play an important role in promoting successful NDC implementation. Alongside the financial

requirements, weak institutions and inadequate coordination and collaboration amongst sectoral line ministries are often cited as an impediment to NDC implementation. Somalia for instance states that despite rich and extensive renewable energy potential in solar, hydro, wind, and geothermal energy, these resources remain untapped due to institutional obstacles.

In addition, the level of designated authority for the lead or coordinating line ministry needs to be commensurate to the task at hand. As NDC implementation usually requires the ministry of environment to have an oversight and strategic leadership role[103], it is important for their scope of action and authority to be made appropriate for this task of coordinating climate change interventions at the national level with a myriad of actors in both the public and private sectors. Previous research has shown that a lack of authority or the limited scope of action to implement nation-wide plans for certain institutions can present a barrier for countries to implement NDCs successfully[104]. For example, the Sao Tome and Principe NDC mentions the *"Instability of the Climate Change Committee"* as an institutional barrier. The role of the ministry of planning in aligning sustainable development goals and NDC planning should also be strengthened.

Socio-economic situation

Socio-economic considerations have on occasion been described as an influencing challenge to implementing NDC plans successfully. For instance, a high illiteracy rate has been mentioned in the Central African Republic NDC as a constraint since it limits access to information and skills, leading to a limitation of *"the level of the citizen's contribution to carrying out public policies and meeting the government's international commitments"*. Similarly, extreme poverty and low Human Development Index (HDI) levels have also been identified as challenges to sustainable development, as highlighted in the Democratic Republic of Congo's NDC. The low HDI levels and poverty were also coupled with challenges around high population growth and high youth unemployment. Though these socio-economic characteristics may not be the determinant factors in successful NDC implementation, they certainly add to the challenge of making significant NDC progress and maintaining climate action at the top of the policy agenda.

Food security has also sometimes been indicated to be a sensitive issue in the context of NDCs considering agriculture is an important sector targeted for climate action in Africa for both mitigation and adaptation. In this sense, it has been suggested by The Gambia that climate mitigation action in this sector should not go against the efforts required to preserve and maintain food security (*ibid*).

Legal framework and legislation

Climate policy and related legislative frameworks and laws have also been identified as determinant factors influencing successful NDC implementation and climate action. In the case of Guinea's NDC, one of the four main barriers to meet adaptation needs is related to the *"obsolescence of, and failure to comply with, spatial planning schemes"*. In the case of mitigation, the same country highlights how mining regulation has been partially applied in the past and can be expanded to include risks related to climate change and reducing carbon footprint throughout the value chain for major mining companies. Guinea also suggests that given the high growth of the sector, any levied taxes may be used to fund climate action initiatives.

Research further points out that outdated legislation can constitute a serious barrier to implementing NDC plans and measures, as was found to be the case for Namibia.[105] The Sao Tome and Principe NDC also mentions that the *"absence*

103. 83% of country respondents in the online survey listed the ministry of environment as their lead institution for NDC implementation
104. African Development Bank CIF Knowledge Series "Transitioning from INDC to NDCs in Africa" November 2016
105. AfDB NDC Policy Brief, 2017

of policies and regulatory activity for key sectors" which include energy, water and forests are huge impediments to successful implementation.

Availability of climate data

Often linked to capacity building, availability of climate data also constitutes a barrier to deploying effective and targeted climate action. This was recognised by several countries in their NDCs including Guinea, which explicitly qualifies "*gaps in terms of reliable, robust climate data as well as all statistical data relating to natural resource management"* as a distinct barrier to climate adaptation efforts. In the case of Lesotho, it describes capturing data as a *"critical component"* of overcoming technology/capacity barriers in its climate adaptation efforts.

Technical Assistance

The need for technical assistance (TA) has also been a recurring theme throughout the review of the African NDCs. Often it is mentioned as a requirement alongside financial assistance, technology considerations and linked to capacity building efforts. Well targeted and effectively delivered TA will support countries in the implementation of their NDCs and spur greater ambition.

Examples of areas for which TA could be considered span across assessment of national developments plans for determining priority sectors for NDC implementation, identification of key market and policy drivers hindering implementation of NDCs especially that of private sector investment in climate action, undertaking key stakeholder mapping within the key economic sectors to identify the different actors and their roles (for driving action) within government and relevant institutions.

Political situation

The political situation and stability will have an influence on a country's ability to implement their climate commitments. In the context of obstacles to attract climate finance, for example, the Central African Republic's NDC reveals that military and political crisis in the past few decades have contributed to weakening the country's institutions, increasing insecurity and exacerbating extreme poverty levels while the conflict of 2012-2013 *"destroyed the productive fabric and dismantled the administrative machinery"*.

3.3. Identification of Key Gaps

Following the review of African Country NDCs and the online survey responses related to the factors promoting climate action as highlighted in Section 2, several key gaps that need to be filled for successful NDC implementation and achievement of targets have been identified. In this sense, gaps can be viewed as opportunities or areas for intervention, and these will be taken into account during Phase Two of this assignment – the Africa NDC Hub Work Programme development.

The summary of our review findings is presented in Table 3-2 opposite and classified under two broad categories of NDC development and implementation. It is important to recognise that countries are at different stages of addressing climate change and that submitted NDCs have varying levels of details and different structures. Nevertheless, the review has tried to present common threads identified by **capturing both what countries have started doing well and areas where additional effort is required.**

3.3.1. Gaps related to participation in UNFCCC processes

Signature and ratification of the Paris Agreement

All 54 African countries have signed the Paris Agreement and 45 have ratified it i.e. 9 countries are yet to ratify the Agreement. The reasons behind countries not yet ratifying the Paris Agreement would need to be analysed on a case by case basis, though it is possible that certain issues may be common across several of them. In the case of Uganda (which has now ratified the agreement) for example, the following were cited as obstacles that impeded its earlier ratification of the agreement:

- **Coordination of ministries and stakeholders** – climate policy and the Paris Agreement ratification requires the consultation and collaboration of various ministries as well as legislative and planning representatives
- **Understanding of climate change terminology** – understanding and interpreting climate change terminology is an essential step for policy makers and legal experts to appreciate the conditions and implications of the Agreement. This requires capacity building and time.[106]

Signature and ratification demonstrates the highest level of political will and commitment towards achieving the goals of the Paris Agreement. These actions across the wider international community would help ensure national efforts were supported by global participation. They also send a strong signal and boosts investor confidence towards supporting low-carbon and climate resilient development. By ratifying the agreement, African countries will promote the establishment of partnerships and mobilisation of support (finance, technology and technical-know-how) from both public and private actors across the globe in a way that will bolster sustainable economic growth.

NDC Submission

The Paris Agreement requires all countries to communicate their NDCs which present their best efforts towards meeting the long-term goals of the Agreement. Submitted NDCs to the UNFCCC are hosted on the UNFCCC online interim registry and as at February 2018, a fair amount of African countries 82% (44 out of 54) had submitted their NDCs. A universal submission by the continent will further buttress a strong voice on pertinent issues that are of interest to Africa.

Typical examples are depicted through the inclusion of adaptation components in all submitted African NDCs,[107] demonstrating that adaptation remains a high priority for Africa;

106. AfDB and CIF (2016), Transitioning from INDCs to NDCs in Africa
107. This was the same case for the submission of INDCs where all 54 African countries had included adaptation components, even though inclusion of this was on a voluntary basis.

Table 3-2: Overview of Identified Africa NDC related gaps

Theme	Progress being made towards NDC Implementation	Areas requiring additional effort
NDC Development		
Participation in UNFCCC processes	Signature and ratification of the Paris Agreement	
	All 54 African countries have signed the Paris Agreement and 45 have ratified it	9 countries are yet to ratify the Paris Agreement
	NDC submission	
	44 African Countries have submitted their NDCs to the UNFCCC	10 countries are yet to submit their NDCs to the UNFCCC
Composition of NDCs	• Despite the limited guidance on structure by the UNFCCC and limited time for development, many African countries have submitted their NDCs	Important thematic issues not fully covered by all NDCs reviewed include: • Strategic alignment with national development plans and wider sustainable development goals • Identification of opportunities for maximising co-benefits from the implementation of well-coordinated economy wide activities • Description of monitoring, review and reporting processes of climate action
NDC Implementation		
Resource mobilisation	• African countries are making some progress with respect to accessing climate finance – although accessed funds are not yet commensurate to the needs, there has been an increase in the awareness and successful proposal submission to international and regional climate funds (e.g. the Green Climate Fund with Africa having 22 projects in the portfolio, followed by Asia Pacific 21, Latin America and Caribbean 11 and Eastern Europe 4;[108] and Africa Climate Change Fund with an increase in proposal submissions from 362 in the first call to more than a thousand in the second call for proposals), an earmarking of resources for climate action in national budgets (e.g. Ethiopia and Ghana), as well as the establishment of national climate funds (e.g. South Africa's Green Fund and Rwanda's Green Fund – FONERWA)	The full potential of NDCs as resource mobilisation tools are yet to be realised, and the following themes have been identified in this regard: • Level of financial considerations and investment plans • Reliable data sources and comprehensive sector analysis • Targeted approach: having a good understanding of the functions of different actors, especially the private sector, in the climate finance landscape and the timing processes of climate change funds and national budgets
Governance structures and processes, institutional arrangements	• Climate change is being recognised as an important national issue with the development of climate change strategies and action plans, including nomination of line ministries for development and implementation of climate related policies and regulations	• Continued strengthening of institutional frameworks including: » Appropriate delegation of authority with sufficient coordination and collaboration platforms for inter-ministerial engagement » Robust systems and processes for monitoring, reporting and verification (MRV) of emissions and monitoring and evaluation (M&E) of adaptation, climate finance and technical support outcomes, as well as open data and information sharing platforms which promote accountability and transparency • Improvements in associated policies and legislation

Source: Atkins – Review of African Country NDCs submitted to the UNFCCC and Online Survey

108. Green Climate Fund Portfolio Dashboard as of 9th March 2018 https://www.greenclimate.fund/what-we-do/portfolio- dashboard

as well as the importance attached to issues of fairness and equity in a majority of Africa country NDCs. Future development and submissions of NDCs by African countries should be viewed within the light of them serving as tools for communicating Africa's perspectives as well as its commitment towards supporting the global climate change agenda.

3.3.2. Gaps related to the composition of NDCs

It is important to acknowledge that the NDCs under review are the first set developed by countries, and that these were produced under two major constrains of limited guidance on structure and time for development:

- **Limited guidance on structure:** for this reason, NDCs are heterogeneous in format with varying levels of detail. Some NDCs are as short as 7 pages while others extend over 40 pages. This poses issues for comparison especially with respect to the requirement on increasing the levels of ambition.
- **Limited time for development:** relative to the level of details required for a robust NDC document and when comparing to the time frame for the development of other frameworks under the UNFCCC process such as NAMAs and NAPAs for example, countries have had limited time on average to develop their NDCs. They did not have adequate time for; the level of planning required (economy wide) including technical analysis, comprehensive stakeholder consultations which in turn contribute to strengthened country ownership and peer review (domestic and international).

Some broad themes which are not fully covered by all the NDCs reviewed include:

- **Strategic alignment with national development plans and wider sustainable development goals:** the strength of the link between NDCs and national development plans as well as sustainable development goals need to be explicitly recognised and acted upon in the planning and implementation process of NDCs. Although 95% of respondents in the online survey acknowledge this as extremely or very important (68% and 26% respectively)[109], not all the NDCs mention links to national development plans. Mainstreaming or embedding climate strategies with wider sustainable development plans may provide the benefit of maximising coordination and planning efforts which increases efficiency and may save on transactional and implementation costs. In addition, it is important for countries to build on the experience and progress made in developing and implementing their respective NAMAs and NAPs. Recognising and utilising NDCs as enablers towards achieving sustainable development goals is also important.
- **Identification of opportunities for maximising co-benefits from the implementation of well-coordinated economy wide activities:** Several NDCs mention that while their countries are committed to climate action that they also need to balance their wider economic priorities. For instance, the South Africa NDC states that although climate action is important, priorities related to poverty eradication, unemployment, economic growth and affordable energy are also considered. It highlights that the low carbon energy transition may threaten unskilled and carbon-intensive jobs while including nuclear energy in the energy mix is not an attractive option due to consultation implications, technological investments and timescales. It is important for countries to view addressing climate change within the lens of sustainable economic growth and not in spite of this.
- **Description of monitoring, review and reporting processes of climate action:** to keep track on if NDC targets are being met, it is important for countries to have sound monitoring, review and reporting processes and systems that cover mitigation, adaptation and climate finance. Given that climate change is a crosscutting issue, a good understanding of what this entails vis-à-vis needs is to be clearly outlined in NDCs. Being on top of these aspects

109. One respondent skipped the question

will ensure that proactive and or corrective steps can be taken as and when needed such that intended targets can be met. The Sao Tome and Principe NDC highlights its Monitoring and Progress Report System proposal which covers both adaptation and mitigation, and was developed for compliance with international requirements.

Based on the above, it is therefore crucial that African countries engage in the UNFCCC Facilitative Dialogue also known as the Talanoa Dialogue, in 2018, as this aims to address the needs and opportunities for significantly enhanced climate action pre-2030. The Dialogue will achieve this by assisting and informing countries in urgently strengthening their NDCs. It will take stock of the collective efforts of countries in relation to progress towards achieving the long-term goals of the Paris Agreement and will also inform the preparation of the next round of NDCs.[110]

3.3.3. Gaps related to the resource mobilisation

The full potential of NDCs as resource mobilisation tools are yet to be realised. Consideration for this should be approached via the following topics:

Level of financial considerations and inclusion of investment plans

As mentioned in section 3.2, all NDCs recognise finance as a predominant requirement for successful implementation, however not all the NDCs have outlined their finance requirements (14% of country NDCs reviewed did not include this). For those countries that have outlined their finance resources, some have clearly delineated the financial requirements between mitigation and adaptation and where this is conditional or unconditional. In some cases, information has not been complete with countries providing information for only either mitigation or adaptation.

Reviewing all 44 NDCs revealed how financial needs expressed in NDCs have been conveyed in different ways. Financial requirements have sometimes been expressed in terms of mitigation and adaptation needs but they have also sometimes been expressed in terms of finance mobilised through internal/domestic channels and/or external/international ones. While internal/domestic channels would include the country's own public financial resources, occasionally countries accounted for finance that could be raised through the domestic private sector in their figures. On the other hand, references to external/international finance was heavily linked to finance coming from international donors and development organisations.

Not all NDC provided the same level of climate finance details and there was a wide range of different climate finance figures expressed, depending on whether these related to mitigation, adaptation, internal or external requirements. The review shows that on one end of the spectrum, some countries have not expressed any climate finance figure that needs mobilising at all, while on the other end of the spectrum some countries provided information on climate finance figures for internal versus domestic needs as well as adaptation versus mitigation finance needs. The findings are visually summarised in Table 3-3, where a coloured cell indicates that this country has provided information for the respective column corresponding to a specific climate finance figure.

It is important to note that the review of South Africa's NDC revealed that it had expressed financial requirements that were orders of magnitude higher than most other countries. Therefore, in calculating the splits between domestic versus external finance as well as mitigation verses adaptation needs, South Africa's figures have been taken out of the statistics presented in Table 3-3 and Table 3-4, given that these would distort the picture and not support the pattern observed for most of the other African countries.

110. Nationally Determined Contributions https://unfccc.int/focus/items/10240.php

Table 3-3: Climate finance needs expressed in NDCs broken down by category

Country	Total [A]	Total Mitigation [B]	Total Adaptation [C]	Total External [D]	Total Internal [E]	Mitigation External [F]	Adaptation External [G]	Mitigation Internal [H]	Adaptation Internal [I]
Mauritania, Ghana, Chad, Benin, Niger, Central African Republic									
South Africa									
Zimbabwe									
Burkina Faso									
Congo (DRC), Comoros									
Lesotho									
Morocco									
Tunisia									
Zambia, Mali, Madagascar, Namibia, Cameroon, Cote d'Ivoire, Sudan, Guinea, Djibouti, Uganda, Mauritius, Togo, Burundi, Seychelles									
Congo (République du Congo)									
Ethiopia, Botswana, Cabo Verde, Sao Tome Principe									
Egypt, Kenya, Rwanda, Sierra Leone, Somalia									
Algeria, Gabon, Malawi, Nigeria, Swaziland, The Gambia									
Total (millions of USD)	**$2,350,570**	**$1,912,037**	**$291,960**	**$152,771**	**$1,475,319**	**$78,525**	**$73,793**	**$1,397,309**	**$77,897**
Total (millions of USD) excluding South Africa	**$919,526**	**$531,587**	**$241,365**	**$152,758**	**$44,288**	**$78,525**	**$73,780**	**$16,859**	**$27,316**

Source: Atkins - Review of African country NDCs submitted to the UNFCCC

Some NDCs have expressed their financial requirements in terms of finance needed to meet their conditional and unconditional climate targets. Based on the level of detail available, such cases were handled by approximating financial needs linked to meeting unconditional targets as equivalent to internal/domestic finance requirements. Conversely, financial needs linked to meeting conditional targets were counted towards the external/international category. Table 3-4 below provides the summary on financial requirements for the NDCs reviewed.

Table 3-4: Summary on financial requirements for NDC implementation*

*The references to columns in the table below link back to the columns of Table 3-3 opposite

Item	Amount (million US$)		Comment
Total finance identified (based on information from all 44 NDCs reviewed including South Africa)	**$ 2,350,570** [column A]		• *The figures do not total 100% because certain climate finance figures have been expressed as a lump sum without specifying whether this is aimed at mitigation or adaptation because some climate finance needs expressed in NDCs were not classified as either mitigation or adaptation • This amount does not cover the total financing need that has been estimated to address climate change in Africa, however, it helps demonstrate the resource mobilisation gap in general, as well as the issue of balance related to adaptation finance in particular (i.e. although not reflected here, adaptation is a priority for Africa but issues of definition, costing and willingness to invest especially from the private sector still remain see section 2.4.2)
	Mitigation [column B] $ 1,912,037 (81%)*	**Adaptation** [column C] $ 291,960 (12%)*	
	↓ Excluding South Africa, the split drops to 69%	31%	
Break down of mitigation finance identified Based on the NDCs (excluding South Africa) that clearly expressed either external and internal mitigation finance needs or both – Benin, Burkina Faso, Central African Republic, Chad, Comoros, Congo DRC, Ghana, Lesotho, Mauritania, Morocco and Niger	**$ 95,384** [columns F + H]		• Climate finance needs were often expressed as finance needed to be raised internally (domestic) or externally (international). Sometimes the split has been instead made between finance to meet unconditional (internal/domestic) and conditional (external/international) targets. • "Domestic" finance needs may include government resources but also finance raised through the domestic private sector.
	External [column F] $ 78,525 (82%)	**Internal** [column H] $ 16,859 (18%)	
Break down of adaptation finance identified Based on the NDCs (excluding South Africa) that clearly expressed a break down between external and internal adaptation finance needs – Benin, Central African Republic, Chad, Comoros, Congo DRC, Ghana, Mauritania, Niger, Tunisia and Zimbabwe	**$ 101,096** [column G + I]		• Only three countries have not provided any figure for their domestic/internal financial needs (Comoros, Congo DRC and Tunisia) but have provided a figure for external resources needed
	External [column G] $ 73,780 (73%)	**Internal** [column I] $ 27,316 (27%)	
Overall split identified between external and domestic finance Based on the NDCs (excluding South Africa) that clearly expressed a break down between total external and internal financial needs	**$ 148,833** [column D+E only when data available in both columns		• In this case, only data for countries that had expressed financial figures against both domestic and external financial requirements have been considered. Some countries had only included figures for either one or the other and can therefore not form part of an insightful breakdown analysis.
	External [column D for which there is also data in column in E] $ 104,545 (70%)	**Internal** [column E for which there is also data in column in D] $ 44,288 (30%)	

Source: Atkins – Review of African country NDCs submitted to the UNFCCC

Findings of financial resource requirements review:

1. Figures related to financial requirements for climate action have been expressed under a variety of headings which include mitigation, adaptation, unconditional (internal/domestic) or unconditional (external/international) finance. The lack of a uniform standard for expressing financial requirements made the analysis and review challenging
2. Overall, financial requirements are much larger for mitigation (81%) than adaptation (12%). Excluding South Africa, the split drops to 69% for mitigation and 31% for adaptation
3. Some countries have costed activities outside of the mitigation and adaptation classification. This includes Togo and Madagascar who have counted resources related to capacity building and technology transfer separate from adaptation and mitigation finance
4. The majority of both the climate mitigation and adaptation activities to be implemented are conditional based upon international support received
5. A concerted effort will need to be made to greatly enhance the ability of African countries to access climate finance – the continent currently has less than 3% of financial flows

Only five countries have expressed a costed expectation or figure on finance coming from the private sector (Burkina Faso, Ghana, Morocco, Niger and South Africa). This represents a gap. Costed references to private climate investment for these five countries are summarised in Table 3-5 below.

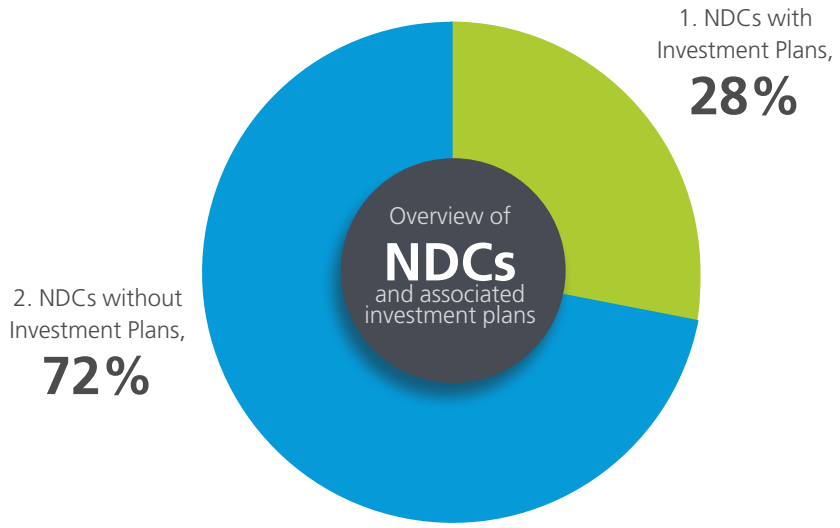
Table 3-5 References to costed private sector climate finance requirements

Country	Wording/Reference in NDC referring to private sector climate finance requirements	Comment
Burkina Faso	"The Burkina Faso private sector will contribute a large part (almost 50% of the financing) on condition that the commercial banks are made aware of these types of financing"	What this amount translates to is not explicitly described
Ghana	Private Capital Investment - USD 3.8 billion	NA
Morocco	Implementation of privately operated wind farms - USD 195 million	There is an assumption that the privately-operated wind farms are financed by the private sector
Niger	Private forestry – USD 75 million	NA
South Africa	As part of a Renewable Energy Independent Power Producer Procurement Programme (REI4P) has approved 79 renewable energy IPP projects, total 5 243MW, with private investment totalling ZAR 192 billion (approx. US$ 16 billion).	This is more of an indication of how much private investment was required in the past rather than how much private investment will be required in the future.

Source: Atkins – Review of African country NDCs submitted to the UNFCCC

A well-developed NDC that has an associated investment plan with costed actions will boost investor confidence and can serve as a good resource mobilisation tool. Only 28% of the countries that participated in the online survey had investment plans. Figure 3-3 below gives the overview of African NDCs and associated investment plans based on the online survey. In general, costed interventions could provide much needed information to attract climate finance. The more detailed the costs associated with interventions, the more it suggests that a country has carefully considered their climate action interventions and helps investors to engage effectively.

Figure 3-3 Overview of NDCs and associated investment plans



Source: Atkins - Online survey of African NDC Focal Points

Reliable data sources and comprehensive sector analysis

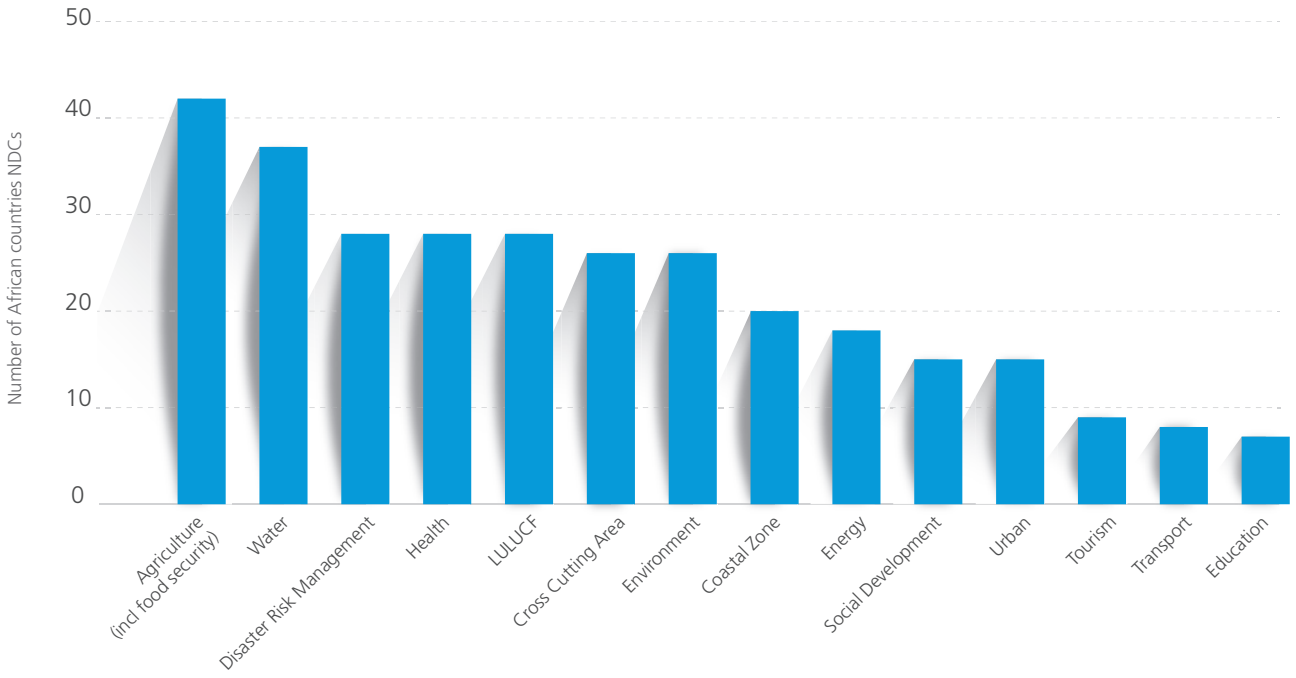
Reliable data and information sources underpinned by both qualitative and quantitative analysis are important for determining resource needs at the sector level and consequently the mobilisation of resources to address these. Countries need to provide details on the range of sector interventions that have been identified in their NDCs including the data sources for the analysis. Linked to this is the level of climate data available. While there is continued investment in Earth System Modelling and the growing provision of climate services across Africa, there remains a gap between the information available for informing local, on-the-ground, decision-making using robust climate data.[111]

NDCs do not always explicitly specify their priority sectors for either climate mitigation or adaptation. In the case of mitigation, some NDCs listed their targeted sectors in relation to the methodology applied for calculating abatement scenarios and potentials rather than in an explicit context of priority sectors needing urgent climate action. This is not to say that countries are not aware of their most vulnerable sectors requiring adaptation or the sectors in which they have the most mitigation potential but they don't always explicitly mention them as such. This information is useful for donors who usually have special areas of interest. Furthermore, specific attention relating to the cost of adaptation in coastal cities needs to be made.

Figure 3-4 and Figure 3-5 present the highlighted adaptation and mitigation priorities by sector respectively, in the African NDCs.

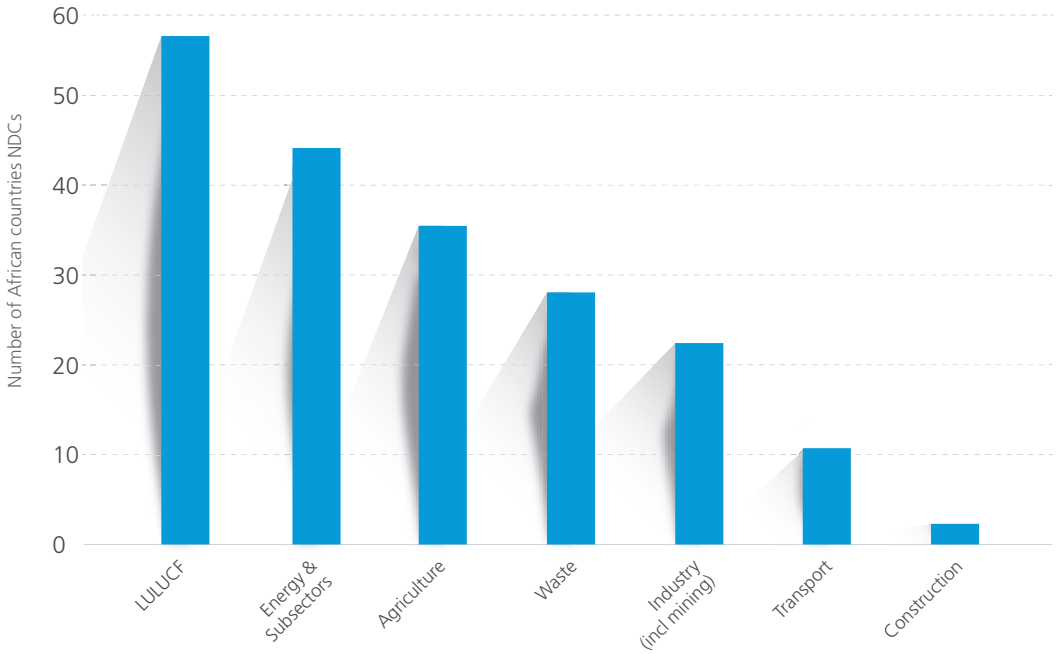
111. Singh, C et al (2017): The utility of weather and climate information for adaptation decision-making: current uses and future prospects in Africa and India, Climate and Development. http://www.tandfonline.com/doi/pdf/10.1080/17565529.2017.1318744?needAccess=true

Figure 3-4 Adaptation priority by sector in Africa NDCs



Source: Atkins – Review of African Country NDCs submitted to the UNFCCC

Figure 3-5 Mitigation priority by sector in Africa NDCs



Source: Atkins – Review of African Country NDCs submitted to the UNFCCC

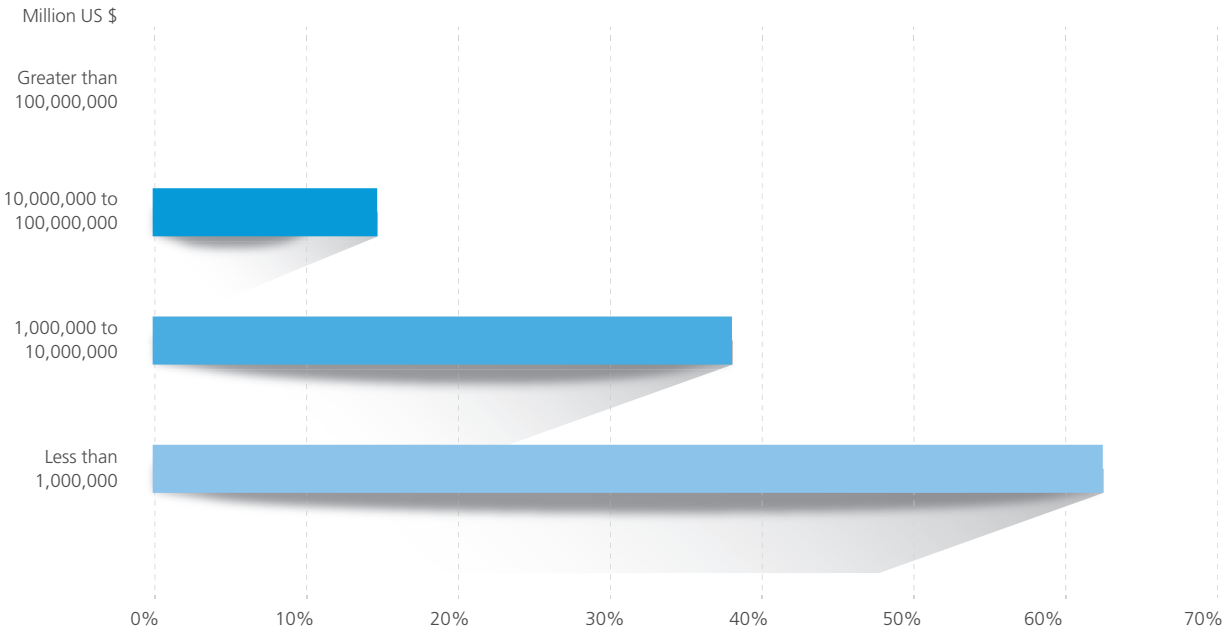
Targeted approach

While a majority of NDCs express a general requirement for financial assistance, a few countries have differentiated between types of climate finance sources (external, domestic, public, private) that may be available to them or drawn upon. For example, many NDCs express a support for market based mechanisms to help access climate finance. However, Gabon has expressed concerns around basing their climate action strategy exclusively on the conservation of forests through international market based mechanisms without a link to the "real economy".

Having a methodological and targeted approach to resource mobilisation further enhances the prospects for securing new and additional resources for climate action. Comprehensive resource mobilisation also involves making better use of, and maximizing, existing resources in the interim, as new and additional finance flows are expected. Understanding the functions of the different actors in the climate finance landscape and the timing of processes e.g. national budgets and climate instruments funding cycles and the delivery mechanisms is a prerequisite for increased access.

Feedback from the online survey shows that only 15% of the countries that responded have been able to access between US$ 10 to 100 million of climate finance at the national level towards NDC implementation from climate funds such as, the Africa Climate Change Fund (ACCF), Green Climate Fund (GCF) and Global Environment Facility (GEF) for example, since 2016. Figure 3-6 below provides an overview. This feedback from the online survey of African NDC Focal Points clearly shows there is a big need with respect to assisting countries increase the rate of their climate finance resource mobilisation if they are to achieve the given targets in their NDCs. This need is further buttressed by the identified finance required for both climate change mitigation and adaptation by African countries as per Table 3-5 pposite.

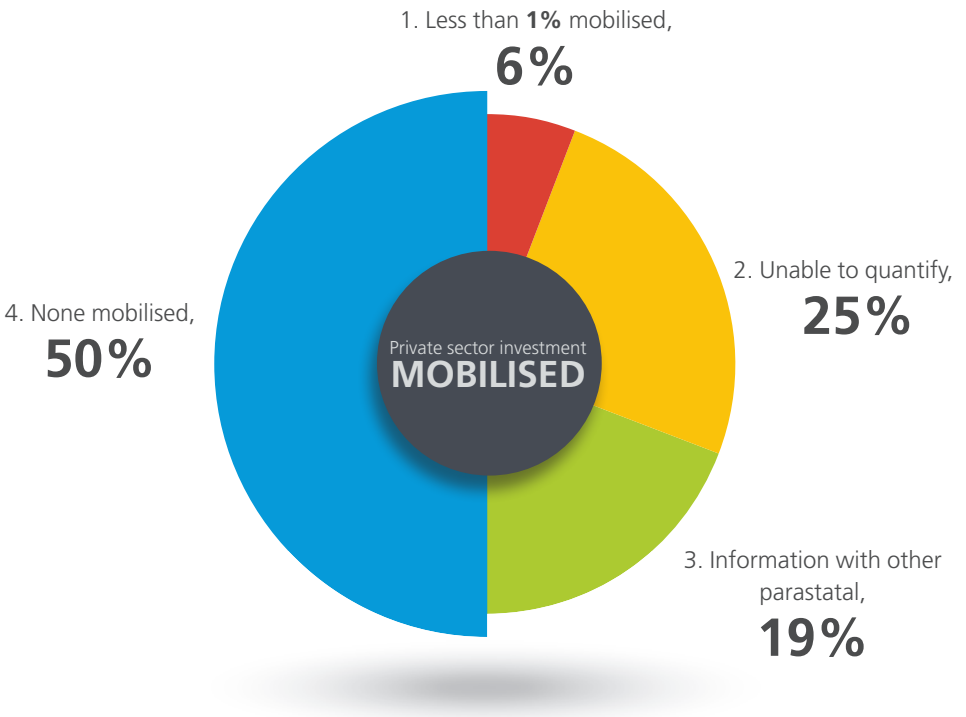
Figure 3-6 Climate finance resource mobilisation for NDCs at national level since 2016 (US$)



Source: Atkins - Online survey of African NDC Focal Points

Furthermore, the survey respondents also indicated that support is required with respect to attracting private sector investment for climate change including the process for tracking this. Figure 3-7 provides the feedback summary from the online survey on the amount of private sector investment mobilised at the national level towards the implementation of NDCs since 2016. Given recent research by the Climate Policy Initiative (CPI) has shown that the majority of climate finance is from the private sector, especially the domestic private sector,[112] requisite measures need to be put in place by countries to create the enabling environment for the private sector to thrive and support climate action interventions.

Figure 3-7 Private sector investment mobilised at national level for NDCs since 2016



Source: Atkins - Online survey of African NDC Focal Points

3.3.4. Gaps related to governance structures and processes

For the NDC development process to produce ambitious, transparent and equitable NDCs it needs to be underpinned by good governance structures at both the national and sub-national levels, including strong coordination and collaboration between sectoral line ministries as well as adequate communication with all stakeholders, including those at the international level. Good governance also facilitates the access and effective delivery of climate finance.

African NDCs mention stakeholder engagement as part of the planning and consultation process for developing their NDCs, with 43% mentioning the specific stakeholders. For example, the Nigerian NDC highlights that its implementation is under the auspices of the Nigeria Climate Change

112. According to CPI's Global Landscape of Climate Finance 2017, 79% of climate finance was raised domestically over 2015/2016. This was an increase from 74% over 2013/2014.

Policy Response and Strategy (NCCPRS), with coordination being managed by the Department of Climate Change. It goes on to mention that appropriate line ministries and agencies will carry out specific implementation activities and highlights information on awareness raising of key stakeholders including the mobilisation of the civil society.

Nevertheless, in general, the governance structures and process for Africa NDCs need to be enhanced. Weak institutions and regulatory frameworks need to be strengthened. The key line ministries leading and working on climate change issues need to have an adequate headcount of qualified, well-equipped and motivated staff available to translate NDCs into action. Again, lead line ministries need to have appropriate delegation of authority with sufficient coordination and collaboration platforms for inter-ministerial engagement.

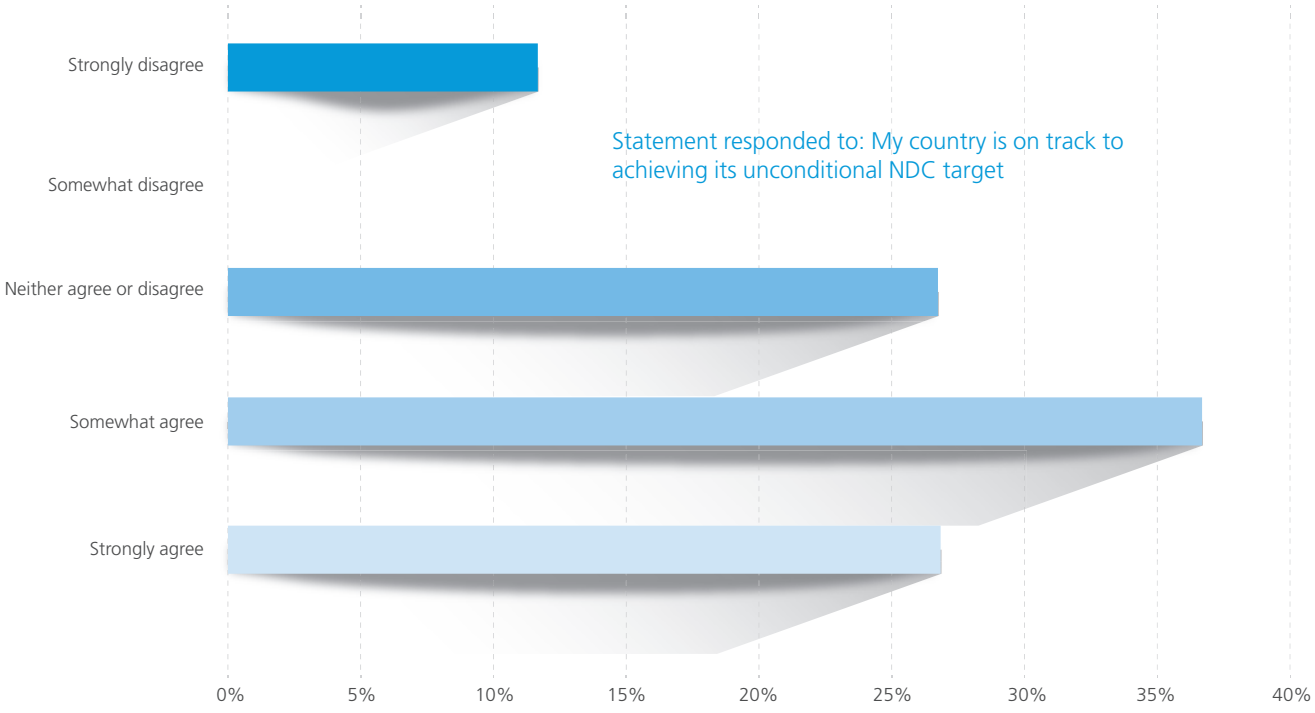
Furthermore, robust systems and processes for monitoring, reporting and verification (MRV) of emissions and monitoring and evaluation (M&E) of adaptation, climate finance and technological support outcomes need to be established and maintained at the national level with associated open data and information sharing platforms. These systems and processes will promote accountability and transparency and hence donor/investor confidence in the realisation of set climate action objectives. This in turn will help attract and increase climate finance flows as results are determined and presented in a credible manner. The systems and processes will also serve as reliable planning tools given continuous assessment of projects right from inception to closure.

Barrage Massingir Massingir Dam, Mozambique
Photo courtesy of AfDB Projects

3.3.5. Perspectives from Africa NDC Focal Points in achieving NDC Targets

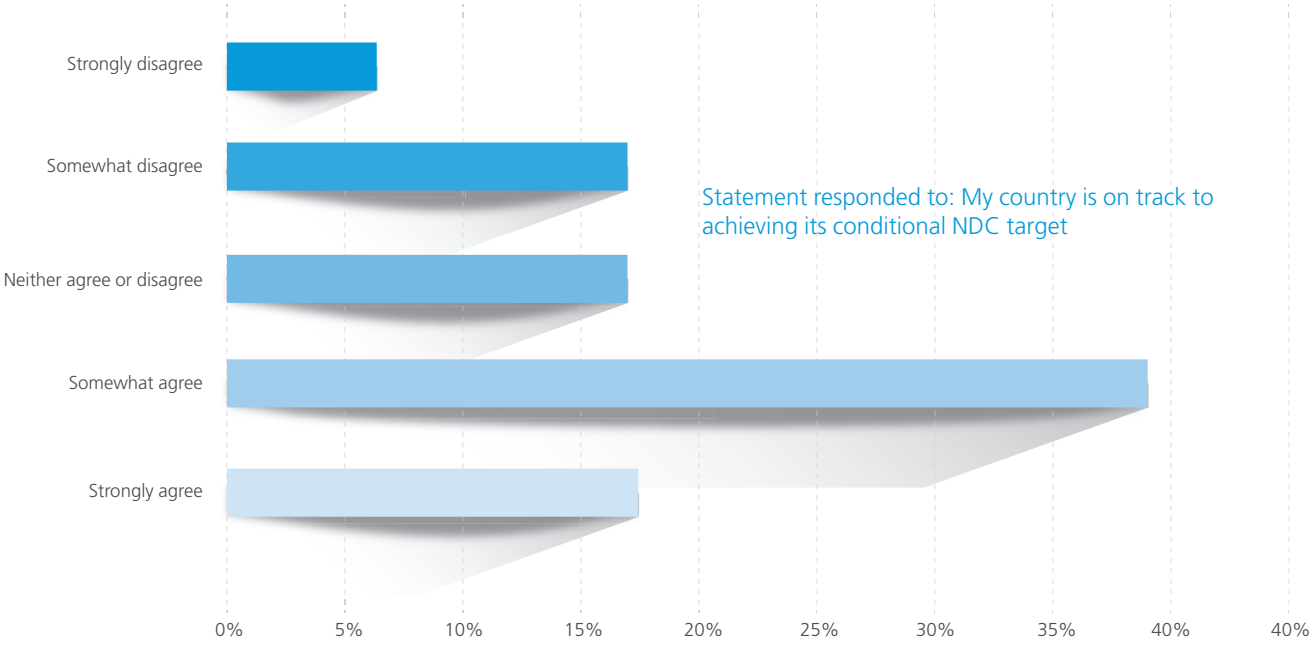
Despite the identified gaps described above, many of the Africa NDC Focal points who responded to the online survey believe they are on track to achieving both their unconditional and conditional NDC targets. However, a number of Focal Points felt their countries were not on track while others could not give a definitive response. Figure 3-8 below and 3-9 opposite provide the overview on the NDC Focal Points perspectives on their countries achieving their unconditional and conditional NDC targets respectively.

Figure 3-8 Africa NDC Focal Points perspectives on achieving unconditional NDC targets



Source: Atkins - Online survey of African NDC Focal Points

Figure 3-9 Africa NDC Focal Points perspectives on achieving conditional NDC targets



Source: Atkins - Online survey of African NDC Focal Points

Notwithstanding these views, what is of utmost importance is the forward outlook. Henceforth, it is vital for the identified needs and constraints for implementing successful NDCs to be addressed effectively and efficiently. The Africa NDC Hub alongside African countries and other key development partners, can work together to ensure that the aspirations and expectations in achieving Africa NDC targets are met.

CHAPTER 4

Conclusions and Next Steps

Ain-Beni-Mathar
Photo by Philippe Roos

4.0 Conclusion and Next Steps

As part of the international global community, African countries are committed to meeting the long-term goals of the Paris Agreement. The effective, efficient and timely delivery of NDCs play a determining role in this regard, hence the concerted effort by countries to achieve set targets on both mitigation and adaptation.

The present set of NDCs are the first that have been developed and consequently have some limitations that need to be addressed. Furthermore, the call for successive NDCs to improve on ambition also means that considerable effort on both planning and implementation need to be made. As described in section 3.3. above, the gaps that have been identified and the concerted efforts that need to be made to address these, can be viewed as opportunities or areas for intervention. The implementation of these will spur on action for achieving set NDC targets.

In light of the above, the Africa NDC Hub has been established to support African countries with the effective delivery of their Paris Agreement commitments in a coordinated manner. Africa NDC Hub partners have outlined the specific activities they would be providing support on, according to the three key pillars of the Hub, (1) to foster long term climate action, (2) to mobilise means of implementation and (3) to promote coordination, advocacy and partnerships.

In addition to these, specific activities to respond to the gaps identified in section 3.3. will be drawn up to constitute the Africa NDC 2018-2020 Work Programme during Phase Two of this assignment. An estimation of the resource requirements for the designed intervention packages of the Work Programme will be carried out as well.

Furthermore, in addition to the Work Programme, Phase Two will also entail the development of a Road map document. Here, high level narratives considering how NDC targets might be achieved by 2030 will be outlined, taking account of multiple drivers; and a plan of action mapped against timeframes will be designed, including an indication of assigned roles and responsibilities between the Hub Secretariat and partners.

A young boy completes his homework by solar-powered lamp-light, Zambia.
Photo by Patrick Bentley

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