



# Africa's Adaptation Gap

## TECHNICAL REPORT



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**Climate-change impacts, adaptation challenges  
and costs for Africa**

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#### **Authors:**

**Michiel Schaeffer**, Climate Analytics, Germany

**Florent Baarsch**, Climate Analytics, Germany

**Sophie Adams**, Climate Analytics, Germany

**Kelly de Bruin**, Centre for Environmental and Resource Economics (CERE), Umeå University, Sweden

**Laetitia De Marez**, Climate Analytics, USA

**Sandra Freitas**, Climate Analytics, Togo

**Andries Hof**, Netherlands Environmental Assessment Agency (PBL), The Netherlands

**Bill Hare**, Climate Analytics, Germany

#### **Editorial Team:**

**Michiel Schaeffer**, Climate Analytics

**Richard Munang**, UNEP, Regional Office for Africa (ROA)

**Jesica Andrews**, UNEP, Regional Office for Africa (ROA)

**Sophie Adams**, Climate Analytics

**Cindy Baxter**, Climate Analytics

#### **Additional data and assessments:**

**Felix Fallasch**, Climate Analytics (funding mechanisms)

**Dim Coumou**, Potsdam Institute for Climate Impacts Research (PIK) (data on warming, aridity)

**Mahé Perrette**, Potsdam Institute for Climate Impacts Research (PIK) (data on sea-level rise)

**Alex Robinson**, Potsdam Institute for Climate Impacts Research (PIK) (data on warming, aridity)

#### **Reviewers:**

**Joe Alcamo**, Chief Scientist, UNEP

**Keith Alverson**, Head of Climate change Adaptation, UNEP

**Dorothy A. Amwata**, South Eastern Kenya University

**Moses Chimbari**, University of Kwazulu-Natal

**Ngonzo Cush**, Kenyatta University, Kenya

**Seybatou Diop**, Institut des Sciences de la Terre, Université Cheikh Anta Diop de Dakar, Senegal

**Cliff Dlamini**, Stellenbosch University, South Africa

**El Houssine El Mzouri**, Head of Research & Development Unit, INRA Morocco

**Bubu Jallow**, Senior Climate Change Advisor, Gambia

**Toyin Kolawole**, University of Botswana

**Emma T. Liwenga**, University of Dar es Salaam,

**Paul Mapfumo**, University of Zimbabwe, Harare, Zimbabwe

**Semu Ayalew Moges**, Institute of Technology, Addis Ababa University, Ethiopia

**Godwell Nhamo**, Institute for Corporate Citizenship, University of South Africa

**Maggie Opondo**, Institute for Climate Change and Adaptation, University of Nairobi, Kenya

**Chris Shisanya**, Kenyatta University, Kenya

**Shem Wandiga**, University of Nairobi, Kenya

**Rebecca Zengeni**, University of KwaZulu Natal, South Africa

#### **Production Team:**

**Richard Munang**, UNEP, Regional Office for Africa (ROA)

**David Ombisi**, UNEP, Regional Office for Africa (ROA)

**Jesica Andrews**, UNEP, Regional Office for Africa (ROA)

**Moses Ako**, UNEP, Regional Office for Africa (ROA)

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# Foreword

Africa's Adaptation Gap Report is a stark analysis of where Africa stands in relation to its adaptation goals and is a cautionary indicator of what may happen should the emissions gap remain - necessitating additional adaptation.

The Africa Adaptation Gap Report was accomplished to inform policymakers of the shortcomings and opportunities for adaptation to Climate Change in Africa. The results demonstrate how delaying action now will assuredly result in exponential costs down the road.

Adaptation costs due to past emissions are revealed to be between USD 7-15 billion annually by 2020. The report's conclusions demonstrate that - even where the emissions gap is closed and we get onto a pathway to hold warming below 2°C - by 2050 adaptation costs could hover around USD 35 billion per year. Analyses of present policies put the world on track to 3.5-4°C warming by 2100 are even more dispiriting and reveal that the cost of adaptation for Africa could reach USD 50 billion per year by 2050, still only halfway to the warming by 2100. This is hardly encouraging news for some of the world's least developed countries.

The difference in these estimates is directly linked to the commitment and ability of countries to preserve a below-2°C world. With emissions-curbing efforts an uncertain reality, adaptation may become the only option for many countries. The report illustrates that the magnitude of adaptation requirements could destabilize sectors at the heart of economic progress. In sub-Saharan Africa essential sectors like water supply, infrastructure, and agriculture will constitute the highest level of adaptation costs while in North Africa, the focus will be on infrastructure, coastal zone protection, and adapting to extreme weather events.

What are realistic options for African countries? The report sketches the technical scenarios for adaptation including the development of more drought-resistant crops, early-warning systems for floods, droughts or fires, and urban infrastructure protection measures such as seawalls, dykes, and wave breaks. The challenge will be securing the political will, technical know-how, and adequate funding.

The Report advances a number of strategies already voiced by ambitious African countries such as Sudan, Sierra Leone, Cape Verde, Chad and Gambia in their National Adaptation Programme of Actions (NAPAs). The impacts of these plans will extend from rainwater catchment, diversification of agriculture, development of aquaculture to promoting wind, solar and biogas energy.

Rising to the challenges posed by climate change will inevitably require adaptation, but the intensity of the needed adaptation measures and the scale of damages will be tightly linked subsequent to the achievements or inadequacies of efforts made to curb emissions. The Africa Adaptation Gap Technical Report is a pioneering effort, foreseen to be a stepping stone towards more comprehensive assessments, culminating in a global Adaptation Gap Report series. The Africa Report underscores the imperative of committing to adaptation aims and ensuring their realization by emphasizing the seemingly insurmountable consequences of failing to do so.

**Mr. Mounkaila Goumandakoye**

Director and Regional Representative

Regional Office for Africa

United Nations Environment Programme (UNEP)

**Hon. Dr. Terezya Huvisa,**

President

AMCEN

# Key Messages

## **Africa faces a significant challenge in adapting to climate change with costs and damages rising rapidly with warming**

Africa is a “vulnerability hot spot” for the impacts of climate change. Its adaptation challenge will grow substantially, even if the 2020 “Emissions Gap” is closed and global-mean warming held below a 2°C increase above pre-industrial temperatures.

The adaptation challenge for Africa will be much larger if the emissions gap is not closed and mitigation beyond 2020 falls short, which likely implies a 4°C warmer world at the end of the century. The level of residual damages grows substantially with increasing warming levels.

## **Warming limited to below 2°C still implies major adaptation costs for Africa: 4°C of warming by 2100 globally will hit the continent very hard.**

On the African continent, the impacts of projected warming are relatively extreme compared to the historical climate conditions under which human and natural systems have evolved.

- Extreme weather events including droughts, floods and heat waves are likely to become both more frequent and more severe.
- With 4°C warming by 2100, sea-level rise along most African coasts could approach or exceed one metre. This will threaten communities and economic activity along some of Africa’s coastlines.
- Agricultural and fishery productivity will be diminished by changing climatic conditions.
- Human health will be undermined by the risks associated with extreme weather events and an increased incidence of transmittable diseases and under-nutrition.
- At warming exceeding 3°C globally, virtually all of the present maize, millet, and sorghum cropping areas across Africa could become unviable. However, even a warming approaching 2°C will lead to a substantial increase in the proportion of under-nourished people in sub-Saharan Africa.
- Those African populations that are already most vulnerable to climatic variability, such as the poor inhabitants of informal settlements, will become even more vulnerable.

## **How well Africa deals with these climate impacts, now and in the future, will be co-determined by the funding it receives.**

Adaptation measures such as early warning systems and coastal zone management to counter sea-level rise offer a possibility of minimising these impacts, but Africa’s capacity to adapt depends critically on access to funding.

## **Developed countries have committed to provide funds rising to USD 100 billion annually by 2020 for mitigation and adaptation in developing countries.**

The Cancun Agreements decided that a significant share of new multilateral funding for adaptation should flow through the Green Climate Fund (GCF). The governing instrument of the GCF and the COP requested the board to balance allocation between adaptation and mitigation. Whilst the resource allocation framework of the GCF is currently being developed, the allocation criteria will probably not be based on geographical distribution. It has been agreed that special consideration be given to the Least Developed Countries (LDCs) and Small Island Developing States (SIDS), the first being composed by many countries in Africa. Hence it is not possible at this time to assign a share of the US\$ 100 billion annual commitment by 2020 to adaptation in Africa.

**Due to present and committed climate change caused by past emissions Africa is already committed to adaptation costs in the range of USD 7-15bn per year by 2020. These costs will rise rapidly after 2020, with higher levels of warming resulting in higher costs and damages**

Even if adaptation funding for Africa meets adaptation costs by 2020, annual funding channelled to adaptation in Africa would need to increase further by 7% each year after 2020 to meet the adaptation challenge implied by further warming in the mid- to long-term, even if that further warming is limited to below 2°C. Estimated adaptation costs reach USD 35 billion by 2050 and USD 200 billion by the 2070s, although uncertainties are large.

**With the present emission trends and policies projected to lead to warming of 3.5-4°C by 2100 funding for adaptation in Africa would need to be scaled up by as much as 10% each year from 2020 onwards.**

Estimated adaptation costs reach USD 50 billion by 2050 and USD 350 billion by the 2070s. Adaptation helps to reduce damages, but does not eliminate these. Under full adaptation effort, total estimated adaptation costs plus “residual damages” reach 4% of African GDP by 2100 in a 4°C world (1% in a 2°C world), compared to an estimated 7% of African GDP in damages without adaptation to a 4°C world.

**To increase confidence in meeting adaptation needs in Africa, rapid and verifiable scaling up of adaptation funding for Africa is urgent**

There is currently no comprehensive database reporting finance flows from donor countries or agencies through multilateral and bilateral channels. Transparency is a prerequisite to know with any certainty whether existing and pledged funding is adequate to bridge the adaptation gap in Africa and other low-income regions.

**Unless the Emissions Gap is closed, and warming limited below 2°C, rapidly rising damages, even after full adaptation, and threats to development prospects at least regionally are likely**

Making up the difference between the resources required to adapt and those currently available promises a more resilient and hopeful future for Africa. Limiting warming to 1.5°C, as called for by the least developed countries and small island developing states, would further limit and reduce the adaptation costs and damages. Nevertheless, significant impacts could still be expected.

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