

# **ADF-12 and Climate Change: Supporting Low-Carbon and Climate-Resilient Growth**

## **Background Note**

ADF-12 Replenishment, Third Meeting  
May 2010  
Abidjan, Côte d'Ivoire



**AFRICAN DEVELOPMENT FUND**

## **Executive Summary**

### **Context**

Of all the world's regions, Africa is undoubtedly one of the most vulnerable to the adverse impacts of climate change. These impacts are already evident in the frequent occurrence of climate extremes such as floods, droughts, and heat waves. While Africa may wish to take action to address these adverse impacts in the short term—and build a climate-resilient economy in the long term—the continent also has the opportunity to follow a low-carbon development path. Prospects for mitigation in land use, forestry, and energy exist. The African Development Bank has substantially enhanced its capacity and repositioned itself to address the significant demands of climate change. Management recently proposed that a department for energy, the environment, and climate change be created: if approved, this department would enable the Bank to tackle the twin challenges of climate change and renewable energy in the continent.

### **ADF-12 in the Post-Copenhagen Environment**

Adaptation and mitigation come at a cost. The resources required for Africa to adapt to climate change and adopt a low-carbon growth path have been estimated at \$22 to \$31 billion per year by 2015. Africa went to Copenhagen expecting a comprehensive global agreement on climate change. That did not happen. The Bank is receiving numerous requests from regional member countries for climate change financing. Considering the possibility that climate change could reverse the modest gains that the continent has achieved towards meeting the Millennium Development Goals, the African Development Bank is committed to meeting these requests from its Regional Member Countries to address their climate change challenges.

### **Strategic Focus for ADF-12**

Under ADF-11, the Bank supported several adaptation and mitigation initiatives in the agriculture, water, transport, and energy sectors. Based on lessons learned in implementing climate change initiatives under ADF-11, the Bank has developed a Climate Change Action Plan that it will present to the Board in the second quarter of 2010. In ADF-12, the Bank will concentrate on mainstreaming climate change adaptation and mitigation measures into all its development activities. In partnership with regional member countries, the Bank is designing programs and initiatives to enable countries to address climate change risks while developing a low-carbon economy. Emphasis will be placed on infrastructure and regional integration.

The Action Plan also places significant emphasis on supporting upstream activities by developing knowledge and enhancing capacity, both within the Bank and in regional member countries.

### **Partnerships**

The Bank recognizes the enormous synergies inherent in the work on climate change and will deepen its engagement with its partners with a view to financing, coordinating, and harmonizing climate change initiatives in the continent. Considering Africa's historically poor access to global funds, the Bank will also take steps to considerably increase regional member countries' access to global funds.

## Table of Contents

<b>Abbreviations .....</b>	<b>iii</b>
<b>1. Context .....</b>	<b>1</b>
<b>2. The Challenges of Climate Change in Africa .....</b>	<b>1</b>
<b>3. The Bank's Approach to Climate Change and Areas of Strategic Focus under ADF-12 .....</b>	<b>3</b>
<i>Organizational, Strategic, and Policy Frameworks for Climate Change.....</i>	<i>3</i>
<i>Mainstreaming Climate Change into ADF-12 Strategic Priorities.....</i>	<i>4</i>
<i>Adaptation: The Importance of Knowledge and a Proactive Approach.....</i>	<i>5</i>
<i>Mitigation: Supporting Africa's Low-Carbon Growth.....</i>	<i>6</i>
<i>Partnerships: The Imperative to Collaborate.....</i>	<i>8</i>
<b>4. Financing Climate Change in Africa .....</b>	<b>9</b>
<b>5. Conclusion.....</b>	<b>10</b>
<b>Annex I: The Clean Technology Fund in Africa: Country Investment Plans and Allocated Funds..</b>	<b>11</b>
<b>Annex II: Indicative List of Climate Change Related Projects in the Pipeline – 2010-2014.....</b>	<b>12</b>

### Figures

Figure 1: Projected Economic Costs of Climate Change in Africa.....	10
---	----

### Boxes

Box 1: The Water Business Plan .....	3
Box 2: A Multinational Initiative: The Climate for Development in Africa Project.....	5
Box 3: Climate-Proofing the Ndali-Nikki-Chicandou-Nigerian Border Road Project in Benin.....	5
Box 4: The Participatory Integrated Watershed Management Project in the Gambia.....	6
Box 5: The Lake Chad Sustainable Development Support Program .....	6
Box 6: The Lake Turkana Wind Power Project in Kenya.....	7
Box 7: The Congo Basin Forest Fund.....	8

## Abbreviations

ACMAD	African Centre of Meteorological Applications for Development
ADB	African Development Bank
ADF	African Development Fund
ADF-11	Eleventh General Replenishment of the African Development Fund
ADF-12	Twelfth General Replenishment of the African Development Fund
AWM	Agricultural Water Management
CBFF	Congo Basin Forest Fund
CDM	Clean Development Mechanism
CDSF	ClimDev-Africa Special Fund
ClimDev Africa	Climate for Development in Africa
CRMA	Climate Risk Management and Adaptation Strategy
CTF	Clean Technology Fund
GHG	Greenhouse Gas
MDG	Millennium Development Goal
MW	Megawatt
NAMA	Nationally Appropriate Mitigation Action
NMHS	National Meteorological and Hydrological Services
REDD+	Reducing Emissions from Deforestation and Forest Degradation and sustainable land use scheme
RMC	Regional Member Country
UA	Unit of Account

## **ADF-12 AND CLIMATE CHANGE: SUPPORTING LOW-CARBON AND CLIMATE-RESILIENT GROWTH**

---

### **1. Context**

- 1.1 For Africa, climate change is both an environmental concern and a major threat to sustainable development, poverty reduction, and achievement of the Millennium Development Goals (MDGs).<sup>1</sup> Africa bears an unduly large portion of the adverse impacts of global climate change, impacts that have already manifested as more frequent extreme climate events such as floods, droughts, and heat waves. Even more extreme events are projected. Africa must not only adapt<sup>2</sup> to these impacts in the short term, but must embark upon a climate-resilient economic development pathway that can withstand the adverse impacts of climate change in the medium to long term. In recognition of this imperative, the African Development Bank (AfDB or Bank) Group's Medium-Term Strategy for 2008-2012 emphasizes the importance of integrating climate change concerns into all Bank-supported projects and investments.
- 1.2 At the second meeting of the Twelfth General Replenishment of the African Development Fund (ADF-12) held in February 2010 in Cape Town, South Africa, Deputies endorsed a strategic approach under ADF-12 whereby the African Development Fund (ADF or Fund) would integrate climate change adaptation and mitigation into its operations. In this context, Management volunteered to produce this brief background paper summarizing the Bank Group's proposed approach to climate change and outlining some of the concerns and challenges related to financing Africa's significant climate change-related needs.
- 1.3 Section 1 of this paper discusses context. Section 2 summarizes the principal climate change issues facing Africa. Section 3 presents main areas of strategic focus under ADF-12 to help regional member countries (RMCs) develop policies, programs, and projects to mainstream climate change measures. Section 4 briefly examines the financial requirements associated with Africa's climate change needs, and Section 5 concludes.

### **2. The Challenges of Climate Change in Africa**

- 2.1 Under current growth scenarios for greenhouse gas (GHG) emissions, most climate models predict global warming of about 3°C in this century. Without concerted international measures to reduce GHG emissions, the world will experience an increase in the already numerous long-term climate changes observed so far: rising Arctic temperatures; melting ice; widespread changes in precipitation, ocean salinity, and wind patterns; and extreme weather events such as droughts, heavy precipitation, heat waves, and intense tropical cyclones. The effects of climate change on ecosystems, hydrology and water resources, food production, coastal systems, human settlements, and human health will be felt with varying intensity in all regions of the Earth, but for Africa, those effects will be especially—and disproportionately—onerous. With negative economic and social consequences sure to result, climate change seriously threatens Africa's hard-won development gains.
- 2.2 Africa presently contributes about 4 percent of global GHGs. If industrial and economic development continues along a "business as usual" course, Africa's emissions could increase significantly. For that reason, concrete actions to chart a low-carbon development pathway are needed immediately. Numerous opportunities for mitigation<sup>3</sup> exist in the energy, land use, and forestry sectors. Africa's deforestation rate is about twice the world rate, and the

---

<sup>1</sup> United Nations Economic Commission for Africa, African Union, African Development Bank. 2009. *Assessing Progress in Africa toward the Millennium Development Goals, 2009*. Also, United Nations. 2009. *The Millennium Development Goals Report*. Available at <http://www.un.org/millenniumgoals/pdf/MDG%20Report%202009%20ENG.pdf> (accessed April 21, 2010).

<sup>2</sup> Adaptation to climate change refers to reducing the vulnerability of people and the environment to climate change impacts. Adaptation measures are typically classified as "soft" (e.g., policies) or "hard" (e.g., hurricane-proofing homes). Climate change impacts are already affecting developing countries, particularly the poor and the most vulnerable countries with the least social, technological, and financial resources for adaptation.

<sup>3</sup> Climate change mitigation refers to the reduction of GHG emissions from sources, such as burning fossil fuels, and the enhancement of sinks and reservoirs that can store carbon dioxide (such as forests).

continent is losing more than 4 million hectares (9.9 million acres) of forest cover every year.<sup>4</sup> With deforestation and poor agricultural practices accounting for some 65 percent of Africa's emissions, mitigating the effects of climate change requires reversing deforestation in the continent. The Bank has invested substantially in preserving Africa's forests and has made a considerable contribution to reducing GHG emissions, particularly in the Congo Basin. Protecting an additional 1 percent of forests in the Congo Basin would preserve about 230 million tons of carbon per annum, the equivalent of one-third of the United Kingdom's annual GHG emissions.

2.3 The adverse impacts of climate change projected for Africa will be exacerbated by the following factors:

- *Natural fragility:* Two-thirds of Sub-Saharan Africa's surface area is arid or semi-arid. The climate change-related impacts predicted for Africa are consistently greater than the global average. Anticipated changes in rainfall patterns will likely be accompanied by an increase in droughts and floods. The projected rise in the sea level threatens communities in the continent's low-lying coastal areas, particularly the small island developing states.
- *High dependence on rain-fed agriculture:* Rain-fed agriculture accounts for around 30 percent of Africa's gross domestic product and employs about 70 percent of its population. Without adaptation, Africa's agriculture will suffer the largest decline in productivity of any continent. Recent estimates project agricultural productivity falling by 16.7 percent by 2080 for Africa versus 7.7 percent for developing countries. Productivity in Europe is expected to increase by 4.1 percent over the same period.
- *Poorly developed infrastructure for energy, water, and transport:* Africa's inadequate infrastructure is a major constraint to its development of a more diversified and climate-resilient economy. Only 7 percent of Africa's agriculture is irrigated. Investments in efficient irrigation schemes are needed to wean Africa from dependence on rain-fed agriculture. Only 8 percent of Africa's hydroelectric power has been developed. No more than 26 percent of Africans have access to electricity and where power exists, it is often unreliable. Many Africans live long distances from all-weather roads, and the regional road networks so central to trade are poorly developed.
- *Rapid pace of urbanization:* Africa is the most rapidly urbanizing region in the world. By 2020, half of Africans will live in cities. While cities are a key driver of economic growth, over 70 percent of Africa's urban population lives in slums. With poorly developed drainage, sanitation, and solid waste management systems, Africa's cities will be highly vulnerable to increased flooding, especially when located on the coast.
- *Vulnerability to tropical disease:* The geographic reach of several diseases is changing as temperatures rise. Malaria, for example, already the biggest killer in Sub-Saharan Africa, is spreading to higher, previously safe, altitudes. Climate change is expected to expose 90 million more Africans to malaria by 2030.
- *Risk of further fragility:* Those most affected by climate change and who will find it hardest to adapt are people living in poverty, particularly in weak or unstable states. For these people, climate change only promises more suffering and a greater risk of mass migration, violent conflict, and worse fragility.

2.4 Without focused, timely, and coordinated engagement to reduce the adverse impacts of climate change, Africa's development is in jeopardy. This instability could have global consequences.

---

<sup>4</sup> United Nations Environment Programme. 2009. *Africa: Atlas of Our Changing Environment*.

### 3. The Bank's Approach to Climate Change and Areas of Strategic Focus under ADF-12

#### *Organizational, Strategic, and Policy Frameworks for Climate Change*

- 3.1 The implementation of several climate change-related initiatives under ADF-11 has provided useful guidance for actions under ADF-12. Under ADF-11, the Bank steadily increased its capacity and reorganized itself to use ADF resources more effectively to address clean energy access and climate change risks in Africa. The Bank is currently reorganizing its structures and has proposed to create the Energy, Environment and Climate Change Department to enhance its interventions in this area. Measures are being taken to build the skills mix of Bank Group staff to ensure that the Bank can deliver on its agenda. As more projects and programs are developed, Bank capacity will be expanded commensurately.
- 3.2 Under ADF-12, the Fund will build upon ongoing international innovations and lessons learned under ADF-11 to further integrate climate change adaptation and mitigation measures into its strategic priority areas, particularly infrastructure and regional operations. The Bank's RMCs, in partnership with the Bank Group, have already started to mainstream climate change adaptation measures into their operations, preparing crisis prevention and mitigation plans and investing in clean technologies.
- 3.3 The Bank has successfully integrated climate change into recent AfDB sector policies, including the Agriculture Sector Strategy and the Water Business Plan (Box 1), and will continue this process in future. The Integrated Urban Development Strategy, which is with the Board for consideration, also gives climate change impacts due consideration. This strategy promotes sustainable waste management and low-carbon transport as major interventions. The Bank's Clean Energy Investment Framework, approved in 2008, is a guide to increasing Africa's supply of clean energy. The Bank Group aims to be the lead financier for clean energy in Africa, in ways that support low-carbon development on the continent. The Bank will directly contribute to expanding access to clean energy in Africa, particularly for the poor. Climate change considerations will also be at the center of the Bank Group's planned strategy for the energy sector.

#### **Box 1: The Water Business Plan**

Insofar as climate variability and climate change are concerned, agriculture is one of Africa's most vulnerable sectors. Sub-Saharan Africa has the world's smallest irrigated area relative to area under cultivation, with only 3 percent of all farmed area equipped for agricultural water management (AWM). The region has only added 4 million hectares of irrigated land in the last 40 years. Making Africa's agriculture more resilient requires substantial investments in efficient irrigation systems to wean the continent from rain-fed subsistence farming. Implementing the Bank's Water Business Plan will bring an additional 500,000 hectares under improved AWM. Real benefits include a projected increase in production of approximately 400,000 tons of rice and 750,000 tons of other cereals per year. Research shows that better AWM could increase average per capita farm income for rice projects in the range of 86 to 220 percent and boost income for non-rice projects between 14 and 600 percent. Improved AWM is also expected to raise both the number of workers employed and the length of their employment, and directly benefit more than 600,000 farm families, most of them the rural poor. Finally, increased food output would reduce local food prices and thus raise the real net income of food purchasers in both rural and urban areas.

- 3.4 In 2009, the Bank Group produced its Climate Risk Management and Adaptation Strategy (CRMA).<sup>5</sup> The CRMA calls for enhanced support for strengthening RMCs' capacity to address the risks associated with climate change. The strategy also ensures that all Bank-supported investments are "climate-proofed": i.e., are designed, located, implemented, and managed in ways that minimize the adverse impacts of climate change as cost-effectively as possible. To help guide the CRMA, the Bank is finalizing its Climate Change Action Plan (completion is targeted for Q2 2010). The Action Plan builds on progress in climate change adaptation and

<sup>5</sup> African Development Bank. 2009. *Bank Group Climate Risk Management and Adaptation Strategy (CRMA)*. ADF/BD/WP/2009/49/Rev. 1.

mitigation and supports institutional reform, policy, advocacy, and knowledge development for projects in climate sensitive sectors such as agriculture, water, energy and transport.

### ***Mainstreaming Climate Change into ADF-12 Strategic Priorities***

- 3.5 As endorsed by Deputies, the adaptation and mitigation measures discussed in this paper will be integrated into Fund operations instead of operating as stand-alone activities. The ADF will accomplish this by (i) incorporating climate change dimensions into country dialogue and policy papers, including Poverty Reduction Strategy Papers, Country Strategy Papers, and Regional Integration Strategy Papers; (ii) integrating climate risk management in sector policy dialogue and using sector operations as the main vehicles for investing in adaptation and mitigation measures; and (iii) supporting the development of low-carbon growth in the continent through environmentally friendly investments. These activities will be supported by knowledge generation and capacity enhancements and economic and sector work.
- 3.6 The key innovation under ADF-12 will be to make allowance for climate change considerations into all Bank investments, including new infrastructure operations. Climate risk management procedures will be used at all stages of the Bank's project cycle to ensure that operations have sufficient climate resilience. Under ADF-12, climate change will be fully integrated into the Bank's Environment and Social Impact Assessment Procedures. Support will be provided to RMCs for a climate information system that helps institute climate risk management and adaptation into development planning. In ADF-12, climate change will be integrated into more sector policies, including policies for infrastructure, the private sector, governance, energy, health, education, and natural resources management.
- 3.7 The Bank Group's planned Climate Change Action Plan emphasizes climate-compatible investments. Options to use policy-based operations as an instrument to promote country-level policy and regulatory reforms in areas crucial to climate change adaptation and mitigation will be explored. This would stimulate public and private investments in climate-compatible options. The Bank recognizes the enormous synergies inherent in work on climate change and as per the Paris Declaration on Aid Effectiveness, will deepen its engagement with partners and various mechanisms in this regard, coordinating and harmonizing financing and other interventions in such a way as to maximize each entity's strengths and comparative advantages. The partners and mechanisms in question—the Global Environment Facility, Climate Investment Funds, United Nations agencies, and various bilateral organizations—are described further. ADF countries' lack of access to several global funds will need to be addressed.
- 3.8 Knowledge and advocacy are fundamental to the Bank's work on climate change. The Bank worked hard to raise the visibility of Africa's climate negotiators in the international arena and develop a coherent African position at the United Nations Climate Change Conference 2009 (known as COP15) in Copenhagen, Denmark. This support will continue under ADF-12 to sustain Africa's engagement in global climate debates. The indicative work program of the Climate Change Action Plan aims at enhancing the capacities of RMCs and raising awareness about country-specific vulnerabilities, climate risks, threats, and opportunities. The most vulnerable countries, small island developing states, and fragile states will be prioritized.
- 3.9 The CRMA underlines that to alleviate expected climate change impacts in Africa, adaptation and disaster risk management strategies must be concurrently analyzed and integrated into planning, budgeting, and operational processes and systems both within the Bank and within RMCs. The Bank is helping governments design and integrate climate risk management strategies into national sector policies and effect institutional reforms. Under ADF-11, with support from Portuguese bilateral funds, the Bank is leading the development of national climate change plans in Cape Verde, Guinea Bissau, and Principe and Sao Tome. Under ADF-12, this support will be extended to more RMCs.

### ***Adaptation: The Importance of Knowledge and a Proactive Approach***

- 3.10 Even if global carbon emissions are reduced, Africa will still face massive climate change challenges, making adaptation imperative. Africa's limited adaptive capacity is linked to a dearth of timely climate-relevant information. To address this problem, the Bank is helping to strengthen four regional climate centers' capacity to generate and widely disseminate pertinent climate information through the Climate for Development in Africa Programme (Box 2).

#### **Box 2: A Multinational Initiative: The Climate for Development in Africa Project**

Jointly implemented by the African Union Commission, the African Development Bank, and the United Nations Economic Commission for Africa, the Climate for Development in Africa (ClimDev Africa) Project is a continental response to global climate change in Africa. ClimDev Africa seeks to engage providers of climate information, such as National Meteorological and Hydrological Services (NMHS), NMHS's subregional counterparts, and development agencies, in bridging the gap between climate services and development priorities. The project aims to strengthen the capacity of Africa's climate institutions to generate and make available climate-relevant information for planning purposes. It also seeks to build key policy makers' capacity to use this information. The Board has endorsed establishment of the ClimDev-Africa Special Fund (CDSF), which will serve as the financing mechanism for the program. The CDSF will be presented to the Board of Governors for approval at the Bank's Annual Meetings in May 2010. Pending activation of the CDSF, the Bank has granted about US\$30 million to enhance the capacities of four African regional climate centers: the African Centre of Meteorological Applications for Development (ACMAD), the AGRHYMET Regional Centre, IGAD Climate Prediction and Applications Centre, and the Drought Monitoring Centre for the Greater Horn of Africa. The grant will also serve to build African scientists' capacity to generate and disseminate important climate-relevant information.

- 3.11 The Bank is developing innovative tools and guidelines for integrating climate change considerations into its projects. Starting in 2009, the Bank has aimed to climate-proof<sup>6</sup> all new Bank projects from the design stage (see Box 3). Bank-wide Key Performance Indicators on climate change record the number of Bank-supported projects that have been climate-proofed. Projects are reviewed by Bank climate change experts to ensure that project design considers climate trends projected for the project location. A beta version of a computer-based, climate-risk screening tool, developed jointly with the World Bank, is being tested and will be deployed to Bank task managers by the third quarter of 2010. This tool will be continually refined and expanded in ADF-12 to measure Bank-supported projects' GHG emissions. The goal is to treat climate change increasingly as a safeguards issue.

#### **Box 3: Climate-Proofing the Ndali-Nikki-Chicandou-Nigerian Border Road Project in Benin**

The Ndali-Nikki-Chicandou-Nigerian Border Road Project entails developing and asphaltting 77 km of border road. The project impact area is characterized by a tropical climate with two seasons: a 7-month dry season with high temperatures (38 to 40°C) and a rainy season of approximately 5 months with annual rainfall of 1100 mm. Threats to the road include intermittent flooding during the rainy season and cracks to the road surface during the dry season. These cracks are aggravated by the rains. The project design includes a number of provisions to compensate for the possible effects of projected increases in rainfall and temperature: for example, constructing systems to drain and evacuate storm water away from property and assets, filling in low-lying areas, restoring vegetation cover on borrow sites, grassing slopes, and developing cut/backfill slopes to increase the road's longevity. To mitigate the increase in carbon dioxide emissions expected to result from asphaltting and more motorized traffic, the project will systematically plant trees and restore the vegetation cover in order to create carbon sinks that absorb carbon dioxide. The project will also reduce fuel consumption by cutting travel times.

<sup>6</sup> Climate-proofing means to design, locate, implement, manage and maintain projects so as to cost-effectively minimize climate change-related risks.

- 3.12 In 2009, the Bank assessed its portfolio of projects from 2007-2008 to identify projects and programs that are threatened by climate change. Of the 66 climate-sensitive projects assessed, 47 were considered to be at risk. Resources are being secured from the Global Environment Facility (GEF) to build resilience into such projects and climate-proof them (Box 4). Under ADF-12, the Bank will seek to leverage more resources from the Global Environment Facility to finance the incremental costs of climate-proofing the Bank's investments, particularly in infrastructure.

**Box 4: The Participatory Integrated Watershed Management Project in the Gambia**

The Bank approved the Participatory Integrated Watershed Management Project in to reduce poverty and enhance household food security in the Gambia by sustainably increasing land productivity and reducing soil erosion. A review of the Bank's agriculture portfolio in 2007 indicated that environmental sustainability and adaptation to climate change needed to be incorporated into the project. In September 2007, the Bank requested US\$ 4.4 million in incremental financing from the Global Environment Facility for this purpose. The project is expected to help improve adaptation and mitigation by (i) reversing declines in the productivity of the country's soil; (ii) restoring vegetation cover and habitat diversity in degraded lowland wetlands and mangroves and upland rangelands and forests/woodlands; (iii) increasing biodiversity (plant and animal species) within crop, livestock, and forest production landscapes; (iii) reducing carbon emissions by using energy-efficient stoves that burn less wood (thereby slowing deforestation); (iv) switching to conservation tillage practices; (v) increasing carbon sequestration by raising soil organic matter levels and increasing the quantity of woody and other forms of biomass; and (v) improving watershed/landscape management so as to reduce soil and water loss in the uplands and sediment deposits in lowland rice-producing areas. The project is a good example of a win-win response: it combines sustainable land management with measures to meet Africa's climate change and food security challenges.

- 3.13 Under ADF-12, the Bank will scale up and sustain its support for adaptation measures identified under ADF-11 and in the Bank's Climate Change Action Plan. It will align these measures with RMCs' need to reduce their vulnerability to climate change and will promote climate resilience in past and future Bank-financed investments. The Bank is already working with RMCs and other development partners to implement climate-resilient projects that bring sustained adaptation benefits to key vulnerable sectors such as agriculture and natural resources (Box 5). Several climate-resilient projects detailed in the Water Business Plan and the Agriculture Sector Strategy will help build the adaptive capacity of Africa's farm households, which account for about 70 percent of Africa's population. The cost of implementing the Water Business Plan is estimated at about Units of Account (UA) 4.97 billion.

**Box 5: The Lake Chad Sustainable Development Support Program**

Lake Chad is drying up. With only 2500 square kilometers left, its surface area is about 10 percent of what it was in the 1960s. Nearly 30 million people living in the Lake Chad Basin, mainly farmers, grazers, and fishermen, depend on the basin's ecosystem and natural resources. These have been heavily depleted, partly as the result of climate change. In response, the African Development Bank is supporting the US\$ 90 million Lake Chad Sustainable Development Support Program. This program is designed to increase the volume of water flowing into the lake, re-establish the productivity of the lake's ecosystems by restoring 8000 hectares of sand dunes and combating erosion on 27,000 hectares, and halt the proliferation of the vegetation choking the lake. Judicious, integrated management of the basin's natural resources is expected to increase the incomes of the project's target populations, particularly women, by two-thirds and improve food security as well.

***Mitigation: Supporting Africa's Low-Carbon Growth***

- 3.14 With regard to mitigation, the objective of the actions proposed under ADF-12 is to put RMCs on the path to low-carbon economies. Efforts will focus on developing renewable energy sources and energy efficiency practices, promoting sustainable land use and forestry management, implementing sustainable transport initiatives, and developing Nationally Appropriate Mitigation Actions (NAMAs). NAMAs consist of voluntary actions to which developing countries commit to contribute towards global efforts of mitigating the adverse impacts of climate change while working toward their development objectives. The ADB will

help African countries develop NAMAs during ADF-12. The AfDB's first action will be to organize regional consultations designed to harmonize RMCs' approaches to the NAMA process and framework. The Bank will also assist RMCs in developing a pipeline of NAMAs for quick implementation post-2012. These actions can produce major economic gains and alleviate poverty.

- 3.15 The development of renewable energy is indispensable to alleviating the continent's energy poverty, especially in rural areas. Working through its public and private sector departments, the Bank Group has substantially increased its investments in renewable energy in Africa. Under ADF-12, the Bank will promote energy efficiency projects and facilities that increase RMCs' access to low-carbon technologies. Inter alia, the Bank will help Africa tap its high hydroelectricity potential (13 percent of the world's potential), of which only 7 percent has been exploited. The Lake Turkana Wind Power project described in Box 6 is an example of the Bank's work in this area. Several clean energy projects and programs have been implemented in low-income countries (e.g., small hydro projects in Madagascar and Uganda). ADF-12 presents an exceptional opportunity to increase the access to modern and affordable energy of the large number of Africans (almost 80 percent of Africans in rural areas and 60 percent in urban areas) presently without access.

**Box 6: The Lake Turkana Wind Power Project in Kenya**

Kenya's electricity sector services only an estimated 14 percent of the population. The generation of more electricity is necessary for energy to reach more people and support economic growth. The situation is aggravated by Kenya's over-reliance on hydropower (hydropower supplies approximately 50 percent of the country's energy), which is often unreliable, especially in the dry seasons. To meet its energy needs, the country will have to import nearly half of its energy by 2020. The Government of Kenya is seeking to reduce its reliance on imported energy and fossil fuels while ensuring a reliable supply of electricity, particularly clean, low-cost energy. The Lake Turkana Wind Power project will build 365 wind turbines, reinforce 200 km of roads and bridges to transport the turbines from the port of Mombasa to northeastern Kenya, and add an estimated 426 km of transmission lines to supply power to the national electric grid. The reliable, continuous, clean power thus produced will provide the country with 300 MW of relatively cheap energy and increase Kenya's power by 30 percent. The project is forecast to reduce carbon emissions by 16 million tons during its 20-year lifespan. Costs are projected at approximately €459 million. The African Development Bank (ADB), which is the lead broker, will facilitate the entire debt tranche through the African Financing Partnership. The ADB has also committed to a loan of up to €100 million.

- 3.16 Among those Bank Group projects identified as increasing energy efficiency are grid interconnections, notably in East and South Africa. Grid interconnections ensure that electricity reaches users. Energy projects account for 31 percent of the ADF-12 prospective pipeline of infrastructure projects. Also important is targeted support for improvements in policies and regulations. These improvements are necessary to drive energy efficiency actions and increase the uptake of renewable energy in RMCs. Capacity-building campaigns will be launched to facilitate Africa's participation in international carbon credit markets and help RMCs benefit from technology transfers under the United Nations Framework Convention on Climate Change.
- 3.17 Globally, deforestation is the second largest source of emissions after the energy sector and contributes to about 30 percent of GHG emissions. Consequently, reducing emissions from deforestation and land degradation would generate substantial benefits at low cost. Several projects and programs, including the Congo Basin Forest Fund (Box 7), are currently being implemented to benefit from the Reducing Emissions from Deforestation and Forest Degradation and sustainable land use scheme (REDD+). These operations will be substantially scaled up under ADF-12. The Bank will engage with its RMCs to develop strategies and regulatory frameworks to enable RMCs to benefit from opportunities available through the REDD+ mechanism. Fund-supported interventions are expected to reduce Africa's deforestation and land degradation rate by 2 percent by 2014.

### Box 7: The Congo Basin Forest Fund

The Congo Basin Forest Fund (CBFF) is a multidonor financial mechanism hosted by the African Development Bank's Department of Agriculture and Agro Industry. The CBFF was established in June 2008 and is supported by the United Kingdom and Norway. The CBFF's main goal is to alleviate poverty and address climate change by reducing deforestation. It gives eligible entities grants for activities that slow and will eventually reverse the rate of deforestation in the Congo Basin and supports mechanisms that conserve the forests. Since November 2009, when the CBFF began operations, 15 civil society projects totaling €15 million have been approved disbursements have already begun. In 2010, the CBFF aims to approve larger-scale projects, including REDD+ piloting activities, for an estimated €100 million. The Congo Basin forest is the world's second largest rainforest: it covers some 200 millions hectares and stores an estimated 500 million tons of carbon dioxide per year. Around 80 million inhabitants of the Congo Basin, particularly vulnerable groups (women and indigenous communities), are the CBFF's main beneficiaries. The CBFF also benefits institutions, including central and local government entities of the African Development Bank's regional member countries.

- 3.18 Transport accounts for about 63 percent of the ADF-12 prospective pipeline of infrastructure projects. ADF-12 resources will support sustainable, low-carbon transport and projects relating to public mass transit and rail transportation. One such project is the proposed Nairobi Metropolitan Transit System (Nairobi Metro), which will help develop a sustainable urban public transit system for the Nairobi Metropolitan Area. Complementing its support for hard infrastructure, ADF-12 will help RMCs develop and implement fiscal and regulatory frameworks that promote sustainable transport.

#### ***Partnerships: The Imperative to Collaborate***

- 3.19 Climate change is a major global challenge and no organization can address it alone. The Bank will strengthen its collaboration with other multilateral development banks, United Nations agencies, and the Global Environment Facility to address this challenge. The Bank's collaboration with these entities will provide opportunities to tap into international expertise on climate change while leveraging resources through cofinancing. The Bank will work with RMCs to enhance their access to global funds.
- 3.20 The Bank collaborates with the African Union Commission and the United Nations Economic Commission for Africa to implement the ClimDev-Africa program. The Bank is financing an institutional support project worth US\$30 million to improve the continent's production of and access to climate information and enhance policy makers' capacity to mainstream this information into development policies and plans. During ADF-12, the Bank will build on these partnerships to promote projects and programs that will enhance climate change resilience in the region.
- 3.21 With several partners, the Bank initiated the Nairobi Framework<sup>7</sup> to increase Africa's participation in the carbon market through the Kyoto Protocol's Clean Development Mechanism (CDM). Through this initiative, the Bank has trained national authorities, African negotiators, and project developers in CDM project development. The Bank will continue working closely with its Nairobi Framework partners to increase support to RMCs, particularly with regard to the CDM. In response to demand from RMCs, the Bank plans to set up an African carbon facility. The facility will use public financing to leverage private sector resources to fill the financing gap for addressing climate change through the CDM and REDD+.
- 3.22 The Bank is jointly implementing the Climate Investment Funds, which consist of the Clean Technology Fund (CTF) and the Strategic Climate Fund. Through the CTF, middle-income RMCs will receive approved funding of US\$1.7 billion (Annex I) in concessional loans. Limited grant funding is possible for technical assistance and project preparation. Equity and subordinated debt are also available for private sector projects whose capital base needs strengthening. CTF investment plans for Egypt and Morocco have started, while efforts to

<sup>7</sup> Partners in the Nairobi Framework include the United Nations Development Programme, the United Nations Environment Programme, the World Bank Group, the African Development Bank, and the Secretariat of the United Nations Framework Convention on Climate Change.

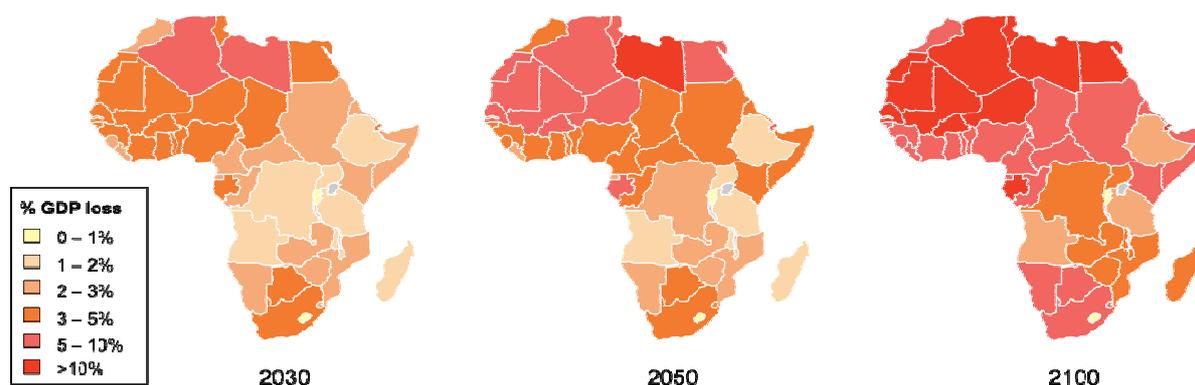
identify projects in South Africa are underway. The North Africa Concentrated Solar Power project will be initiated soon and will provide a basis for further interventions. If the ADF's emerging clean energy and sustainable transport projects are to be supported through Climate Investment Funds, consideration needs to be paid to opening the funds up to regional projects or bundles of projects from ADF countries. Less than one-third of CTF resources to Africa will be channeled through the ADB: the rest will be primarily channeled through the World Bank and the International Finance Corporation. Consideration also needs to be given to the manner in which funds are distributed, so that each multilateral development bank has enough resources to complement its investment programs.

- 3.23 The Strategic Climate Fund has three programs: the Pilot Program for Climate Resilience, the Forest Investment Program, and the Program on Scaling-Up Renewable Energy in Low Income Countries. All three aim to finance new climate change-related pilot projects with scaling-up potential in developing countries. The ADB is collaborating with the World Bank to develop investment programs and projects under the Pilot Program for Climate Resilience in Mozambique, Niger, and Zambia. The Bank will work with other multilateral development banks through the Program on Scaling-Up Renewable Energy in Low Income Countries to support low-income countries' efforts to expand energy access by scaling up their deployment of renewable energy solutions. This will stimulate economic growth and reduce energy poverty in RMCs.
- 3.24 The ADB is also collaborating with the Asian Development Bank and the Inter-American Development Bank on the Partnership on Sustainable, Low Carbon Transport launched in Bangkok, Thailand on 25 September 2009. The partnership aims to contribute options and advice on the development of sustainable transport systems worldwide to inform international climate change negotiations.

#### **4. Financing Climate Change in Africa**

- 4.1 Although Africa is currently a low GHG emitter, its emissions could rise significantly in the absence of concerted mitigation efforts. Africa has the opportunity to grow a low-carbon economy and avoid being locked into the high-carbon growth path experienced by developed nations. However, adaptation and mitigation come at additional cost. Recent climate change adaptation costs and the cost of putting Africa on a low-carbon growth path have been estimated at US\$ 22 to US\$ 31 billion per year between 2010 and 2015 and between US\$ 52 and US\$ 68 billion per year by 2030. These costs could increase significantly if prompt action to curb global warming is not taken.
- 4.2 Recent assessments have shown that the economic costs of climate change in Africa are likely to be much higher in relative terms than in other world regions. Even in the short term, these costs could be significant. In the absence of an international agreement on emissions, the average economic costs of climate change in Africa are estimated at 1.5 to 3 percent of gross domestic product per year by 2030 and more thereafter (Figure 1).
- 4.3 It was with this consciousness of the possibility of a dire future that African and other developing countries went to Copenhagen with hopes of a climate change agreement that would guarantee additional, predictable, and sustainable financing to help them address their climate change concerns. Without a clear agreement on such financing, and given the increasing demand for climate change-related Bank financing, particularly on the part of low-income African countries, the Bank Group is seeking to provide innovative alternative support, including advocacy.

**Figure 1: Projected Economic Costs of Climate Change in Africa**



**Notes:** GDP = gross domestic product

**Source:** Stockholm Environment Institute, 2009

- 4.4 Substantial financial resources under ADF-12 are needed to enable ADF countries to deal with the problems of climate change. The total indicative cost of climate change-related projects and programs for ADB and ADF countries over 2010-2014 is about US\$ 11.5 billion. An indicative list of climate change related projects that will be implemented for ADB and ADF countries is presented in Annex II. To construct a robust, low-carbon growth pathway for Africa, the continent will need significant additional external financing. RMCs and Management are exploring several potential funding sources, including the additional resources pledged under the Copenhagen Green Climate Fund. All will be explored to implement actions complementing those taken under ADF-12 and the sixth General Capital Increase.

## 5. Conclusion

- 5.1 During ADF-11, the Bank developed policies, strategies, and tools to guide its climate change-related activities. The Bank also implemented several projects with adaptation benefits in the agriculture, water, transport, and energy sectors. These actions align with the Bank's Medium-Term Strategy, which calls for mainstreaming climate change into development policies and plans.
- 5.2 Under ADF-12, and within the framework of the ADF's strategic priorities, the Fund will integrate climate change adaptation and mitigation measures into its operations. These actions will be guided by existing and forthcoming Bank Group policies and strategies to help Africa mitigate this global challenge. Deputies are invited to share their views on climate change issues in Africa and the role of the Fund under ADF-12.

## Annex I: The Clean Technology Fund in Africa: Country Investment Plans and Allocated Funds

Country or Region	Total allocated by the CTF (US\$ millions)	Amount allocated to the ADB (US\$ millions)	Sector	Comments
Egypt	300	50*	a. Energy b. Transport	Approved March 2009
Morocco	150	50	a. Transport b. Energy	Approved October 2009
South Africa	500	175	a. Energy	Approved October 2009
Middle East and North Africa region (Algeria, Egypt, Morocco, Tunisia)	750	250**	a. Concentrated solar power	Approved November 2009
Nigeria	200	100	a. Transport b. Energy	To be submitted to the Trust Fund Committee for review in November 2010
<b>Total</b>	<b>1700</b>	<b>525</b>	n.a.	n.a.

**Notes:** ADB = African Development Bank; CTF = Clean Technology Fund; n.a. = not applicable

**Source:** The World Bank ([www.worldbank.org/cif](http://www.worldbank.org/cif))

## Annex II: Indicative List of Climate Change Related Projects in the Pipeline – 2010-2014

Projects	Location	Cost (USD)	Brief
<b>Renewable Energy</b>			
Rusumo Falls Hydroelectricity project	Multinational (Burundi, Rwanda, Tanzania)	250.00 million	The Regional Rusumo Falls Hydroelectric and Multipurpose Project is under joint development by Burundi, Rwanda and Tanzania. The Project will generate up to 75 MW to be shared between the three countries, construct transmission lines connecting the hydroelectric power plant of Rusumo Falls to the national grids of Rwanda, Burundi, and Tanzania, and the related project area development; establish a jointly owned utility / institutional mechanism for the co-management of power generation and distribution to national utilities.
Ruzizi Hydroelectricity Project	Multinational (Rwanda, Burundi, RDC)	366.00 million	Ruzizi I and II are operated by a tri-national company (Burundi, Rwanda and Democratic Republic of the Congo) but electricity production is insufficient to meet the needs of the adjacent areas of these three countries and Ruzizi III is planned about 25 km downstream. A detailed pre feasibility study and draft tender documents for the Ruzizi 3 dam have been prepared.
Interconnection and Hydro power generation - CLSG	Multinational Ivory Coast, Sierra Leone, Liberia, Guinea	462.00 million	The CLSG project involves the construction of a high voltage transmission line approximately 1360 km connecting Côte d'Ivoire, Sierra Leone, Guinea and Liberia. The objective of the interconnection is to facilitate the exchange of power and low-cost energy initially from Côte d'Ivoire to the post conflict countries of Liberia, Sierra Leone and Guinea; and ultimately lead to the development of hydro power sources in the region. Construction is expected to commence in 2011 and commissioning is scheduled for 2013.
Bumbuna Phase II	Multinational Ivory Coast, Sierra Leone, Liberia, Guinea	420.00 million	Bumbuna II is the second phase of Bumbuna I which was funded by the AfDB and was commissioned in 2009. Other co-financiers to the project are DFID, World Bank, Government of Italy, OPEC and the government of Sierra Leone. Bumbuna I has an installed capacity of 50MW and is the major generation source for Sierra Leone. The project is on the Seli River in central. Upstream of the Seli River the country intends to construction another dam which will be the basis of Bumbuna II. Estimated installed capacity is 225-275MW.
Adjarala Power Plant	Togo	346.00 million	The Adjarala Hydropower Project will be situated on the Mono River a hundred kilometers downstream from the existing Nangbéto dam. The hydropower plant will have an installed capacity of 147 MW. The benefit of the project is basically the development of the hydropower potential of river Mono shared by the republic of Togo and the republic of Benin, as well as the improvement of the energy self-sufficiency in both countries.
Itezhi-Tezhi Power PLant	Zambia	390 million	The Itezhi-Tezhi (ITT) project involves the construction of a 120 MW power plant using the existing dam located on the Kafue River, some 300km from the confluence of the Kafue and the Zambezi rivers in Southern Zambia. The project will also require the construction of a 298km transmission line from Itezhi-Tezhi to Lusaka via Mumbwa. The generation component is estimated at US\$ 275 million while the transmission line is estimated at US\$115 million. The feasibility studies for the project are completed.

ESKOM Utility Wind Power	South Africa	300 million	This facility, located 160 km north of Cape Town, will generate about 100 MW of electricity. The project is fully scoped and specified, and an environmental impact assessment (EIA) completed.
Upington Concentrating Solar Power plant	South Africa	875 million	Eskom's first-ever commercial-scale Concentrating Solar Power (CSP) plant in southern Africa, with a rated capacity of 100MW. All feasibility studies have been completed and the project can commence construction within six months following a final design and risk mitigation review.
Gibe III Hydro power	Ethiopia		The Gibe III scheme in Ethiopia will provide a 1,870 MW of electrical power to meet domestic demand and increase exports of electricity to neighboring Kenya.
OMVG Energy Program	Multinational Guinea, Guinea Bissau, Senegal, Gambia	620 million	The OMVG project consists of the installation two hydroelectric power generating stations, one in Sambangalou in Senegal with an installed capacity of 128 MW, and the other in Kaleta in Guinea, with an installed capacity of 240 MW, as well as the construction of an interconnection between the electrical networks of the four countries of the OMVG, consisting of 1677 km of power transmission line in 225 kV, and 15 transforming sub-stations. This will provide renewable energy at a low cost to four countries of West Africa.
<b>Sustainable Transport</b>			
Dar Es Salam- Isaka-Kigali/Keza-Musongati railway project (700Km)	Burundi, Rwanda Tanzania	3.5 billion	The rail line will connect the two landlocked countries Rwanda and Burundi to the Tanzanian railway network and to the Port of Dar –Es-Salaam, Tanzania. Feasibility studies completed in 2008 with funding from the Bank. Phase II of study to be completed by mid 2011 with funding from the Bank
Nairobi Metropolitan Transit System (Nairobi Metro)	Kenya	1.0 billion	The project will contribute to the development of a sustainable urban public transit system for the Nairobi Metropolitan Area. Feasibility study is on going and design will follow based on the outcome of the feasibility report. The feasibility study expected to be completed by mid 2012
Mombasa Railway Corridor (1500km)	Kenya	4.0 billion	The project will enhance the capacity of the transport sector in order to improve its efficiency, cost effectiveness and competitiveness and to facilitate rapid economic growth in the Region. Study will be completed in 2012.
<b>Water and Agriculture</b>			
Irrigation development in the basins of Bani and Selingue' (Phase II)-40,000 ha	Mali	140.00 million	The project aims at improving land management in order to increase agricultural production through improvement of agricultural productivity of irrigated cultures for food security purpose.
Water Recycling and Harvesting for Irrigation	Botswana	21.00 million	The project objective is to increase water availability for irrigation thereby increasing crop production and rural incomes. The project will involve installations of purification plants to purify sewage water being treated by the local council for irrigation purposes, and constructing structures for conveying such water to the irrigation fields; constructing a reservoir and related structures to collect and store water harvested in the drainage system put in place by the council, and convey such water to be used for agricultural purposes; training to staff of the Ministry of Agriculture and farmers on irrigation, water use and management.

Zimbabwe Small Holder Irrigation Projects (3) – Zhove, Dande	Zimbabwe	126.00 million	Project activities would include development of irrigation infrastructure in form of water intake structures, pipelines, main and secondary canals, and drainage canals and rural roads.
Lower Shire Irrigation Project	Malawi	152.00 million	Building gravity-fed irrigation system for the Sire river
Modern Irrigation Infrastructure Project	Morocco	228.00 million	Modernization of 3 hydraulic basins at Moulaya, Loukkos and El Ghjarb
Rehabilitation of Zefta Dam	Egypt	699.00 million	The Zefta Barrage is located on the Damietta branch of the Nile at 1,046km downstream of the Aswan dam. The barrage controls the water level in the upstream reach of Damietta Branch (Zefta reservoir). The Zefta Barrage was initially designed to feed 320,000 ha and after rehabilitation it would provide water for an addition 100,000 ha.
West Delta Irrigation Project	Egypt	380.00 million	The project supports the implementation of conveyance system to an area of 50,000 ha in the West Delta so as to guarantee the provision of adequate water to the existing cultivated areas. This command area is considered highly productive with a current annual income level of USD 300-500m. The main components will consist of pumping stations, siphons and conveyance canals.