

# FOCUS ISSUE 5: CLIMATE CHANGE AND ENVIRONMENTAL SUSTAINABILITY

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## I. Overview of Commitments

### Africa:

- ◆ **The NEPAD Environment Action Plan of 2003** that was adopted by the African Union (AU) provided a comprehensive framework for environmentally sustainable development on the continent. The action plan covers a broad number of objectives including: combating land degradation, drought and desertification; protecting wetlands and marine and coastal resources; fostering and supporting cross-border environmental initiatives including building a network of centres of excellence; and enhancing human and institutional capacity.
- ◆ **The AU in 2005** urged member states to establish genetic resource banks for identification and preservation of indigenous plant species.
- ◆ **The AU in 2007** committed to integrate climate change and climate change adaptation strategies into national and sub-regional development policies, programmes and activities. The AU also undertook targeted awareness-raising amongst policy- and, decision-makers and civil society with a view to ensuring that climate change considerations are taken into account in all sustainable development initiatives. It also requested that the African Ministerial Conference on the Environment (AMCEN<sup>1</sup>), in collaboration with UN Economic Commission for Africa (UNECA) and the African Development Bank (AfDB), follow up on implementation.
- ◆ **Development partners:**
- ◆ **The United Nations Conference on Environment and Development (UNCED) in 1992 in Rio de Janeiro** -- otherwise known as the Earth Summit -- resulted in a set of agreements on environmental issues ranging from climate change to biodiversity and forest preservation. These agreements were also covered under Agenda 21<sup>2</sup>, which is a global plan of action for achieving sustainable development. At the Earth Summit, three major UN agreements were created: a) the Convention on Biodiversity; b) the Convention to Combat Desertification; and c) the United Nations Framework Convention on Climate Change (UNFCCC), an international environmental treaty. The treaty is aimed at stabilizing greenhouse gas concentration in the atmosphere and, in the manner it was originally framed, set no mandatory limits on greenhouse gas emissions. However, the updated version, known as the **Kyoto Protocol**, is a legally binding agreement under which signatories (the industrialised countries) commit to reducing their collective emissions of greenhouse gases by 5.2% on average over the five-year period of 2008-12 compared against 1990 levels.
- ◆ **The World Summit on Sustainable Development (WSSD) held in 2002** agreed on a broad and sweeping range of commitments covering the use and production of chemicals, the restoration of depleted fish stocks and the achievement by 2010 of a significant reduction in the current rate of loss of biological diversity.

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<sup>1</sup> AMCEN, which was established in December 1985, led the process for the development of the NEPAD Environment Initiative and guided its implementation.

<sup>2</sup> Agenda 21 is a UN-run programme covering the social, economic and environmental dimensions of sustainable development that promotes broad adoption of an integrated, cross-sectoral and broadly participatory approach to relevant policy-making. It thus deals with conservation and management of resources for development, as well as social and economic issues, strengthening the role of women, children and youth, indigenous people among others, and implementation efforts.

- ◆ **G8 countries began to discuss the impacts of climate change in Africa at the Evian Summit (2003)** by agreeing to strengthen international co-operation on global earth observations with a view to developing fully operational regional climate centres in Africa through the Global Climate Observing System (GCOS). At Gleneagles (2005), the G8 countries' action plan shifted to a broader approach including: improvements to energy efficiency; harnessing funding for clean technology in developing countries; support for development of markets for clean energy technologies and to increase their availability in developing countries; and helping vulnerable communities adapt to the impact of climate change. At Heligendamm, the G8 reiterated its support for developing countries in their efforts to adapt to climate change and its effects.

## II. What has been done to deliver on these commitments?

### Africa:

- ◆ *Sustainable land management:* Land reforms have been carried out or are under way in several African countries to increase land tenure security and stability in order to encourage investments in sustainable land management. In addition, an initiative is under implementation to develop an Africa-wide land policy framework and guidelines to facilitate and provide further support to scaleup land policy reforms. A land degradation assessment project has developed and has tested effective assessment tools for land degradation in dry lands through pilot projects and studies undertaken in selected countries in the region.
- ◆ *Preventing and combating desertification:* All African countries are parties to the 1994 United Nations Convention to Combat Desertification. Implementation of national action programmes to combat desertification, although slow, has commenced in some countries. Concrete actions include establishing national coordinating bodies in order to ensure cross-sectoral policy integration approaches for combating desertification control programmes. A few countries have begun to mainstream policies to combat desertification by folding other sustainable land management priorities into their Poverty Reduction Strategies.
  - Sub-regional action programmes to combat desertification have been developed for the five sub-regions in Africa. A number of centres charged with the timely monitoring of drought and issuing of early warnings have been established, including the ecological monitoring and observatory network of the Sahel sub-region, the IGAD Climate Prediction and Applications Centre in Nairobi, the SADC Drought Monitoring Centre in Harare and the African Centre of Meteorological Applications for Development. Regional climate outlook forums are convened annually in the Greater Horn of Africa, in South Africa and West Africa.
- ◆ Other regional initiatives include: i) ClimDev-Africa (Climate Information for Africa Development); ii) the Africa Monitoring of the Environment for Sustainable Development Programme (AMESD); and iii) the implementation of the Hyogo Framework for Action for Disaster Reduction adopted in January 2004. In capacity-building, the preparation of sub-regional environment action plans (SREAPs) has been completed and endorsed during ministerial consultations in 2007. With support from Norway, the initiative has moved into its second phase with the launch of pilot projects to develop national environment action plans for Cameroon, Ethiopia, Ghana, Libya and Mozambique.
- ◆ *Chemicals and hazardous waste management:* Many African countries have ratified major chemicals-related and waste-related conventions as well as regional agreements, including the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, adopted in 1991. Many African countries have adopted policies and legislation on hazardous waste. Three sub-regional centres and one regional coordinating centre have been established to address specific sub-regional and regional needs in the area of chemicals and hazardous waste management.

- ◆ *Coastal and marine resources:* Most coastal countries in Africa are signatories to one or more multilateral environmental agreements that deal with marine and coastal management issues. A number of initiatives have been undertaken in the fisheries sector, including the establishment of the South-West Indian Ocean Fisheries Commission and the implementation of the sustainable fisheries livelihood programme, in which 25 countries in West and Central Africa are participating.
- ◆ *Water resources management:* In the water sector, key policy measures include: i) the adoption of the African Water Vision, a shared vision on equitable, sustainable use and management of water resources; and ii) the establishment of collaborative frameworks and agreements to facilitate the management and development of shared/trans-boundary water resources under the leadership of the African Ministers' Council on Water (AMCOW).
- ◆ More than a dozen River and Lake Basin Organizations (RLBOs) have been established in Africa. AMCOW has formalised its relationship with RLBOs through the Bureau of the African Network of Basin Organizations (ANBO).
- ◆ *Sustainable forest management:* Two-thirds of African countries have developed and are at different stages of implementing national forest programmes. Substantial effort has been made, mostly by North African countries, to plant forests. Regional and sub-regional agreements, partnerships and programmes to promote sustainable forestry management have been established. Most noteworthy are the regional eco-certification schemes on timber production .
- ◆ *Biodiversity:* the AU has adopted the African Convention on the Conservation of Nature and Natural Resources. Countries are translating provisions of the Convention on Biological Diversity into action through the development of national biodiversity strategies and action plans. Countries have designated forests to be managed primarily for the conservation of biological diversity.
- ◆ *Climate change:* African countries have ratified the United Nations Framework Convention on Climate Change of 1992 and the Kyoto Protocol. Twenty-two countries have completed their national adaptation programmes of action (NAPA). A number of projects identified in the NAPAs have been submitted for funding. Some countries are being supported to develop projects for funding within the framework of the Clean Development Mechanism (CDM).<sup>3</sup> The Joint ECA Conference of Ministers and the Conference of Ministers of Economy and Finance of the African Union Commission held in April 2008 approved the establishment of the African Climate Policy Centre (ACPC).
- ◆ *Natural disaster risk reduction:* Under the African Regional Strategy for Disaster Risk Reduction and a programme of action for its implementation, national disaster management organizations have been established, legislation is in place, a number of policy statements have been articulated both in disaster and non-disaster periods, and political commitment towards disaster risk reduction have been gradually increasing in sub-Saharan Africa. Arrangements within most North African countries exist for emergency management and are organized and coordinated at the national level.

#### **Development partners:**

- ◆ The Global Environment Facility (GEF) is providing support for programmes and activities to **combat desertification, mitigate drought impacts and facilitate climate adaptation**. Discussions are well advanced for the creation of an African Environmental Facility at the AfDB.

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<sup>3</sup> The Clean Development Mechanism (CDM) is a mechanism whereby an Annex I party may purchase Certified Emission Reductions (CERs) which arise from projects located in non-Annex I countries.

- ◆ TerrAfrica has been initiated as a special catalytic partnership effort that aims to scale-up harmonized support for effective and efficient country-driven sustainable **land management** practices in sub-Saharan Africa.
- ◆ The United Nations **Convention to Combat Desertification** Global Mechanism is carrying out a number of programmes at the national and sub-regional levels to enhance the flow of financial resources for implementing the Convention.
- ◆ The German **G8 Africa Action Plan on Trans-boundary Water Management** focuses on strengthening cooperation among river basin organizations and building trans-boundary water management capacity in Africa. The European Union Water Initiative (EUWI) provides up to €500 million to help countries achieve water and sanitation targets by supporting sustainable delivery of water and sanitation infrastructure and improve water governance in African, Caribbean and Pacific (ACP) countries.
- ◆ The **Congo Basin Forest Fund** was launched in June 2008 with the AfDB as the implementing agency to help promote biodiversity conservation and natural resource management in Central Africa's Congo Basin. The World Bank's funding from the Forest Carbon Partnership Facility (FCPF) will also help six African countries (the Democratic Republic of Congo, Gabon, Ghana, Kenya, Liberia, Madagascar) to set up systems and processes to monitor and credibly govern their forests and to sell emission reductions from forests. In addition to the FCPF, the World Bank Group also has other facilities to promote reforestation.
- ◆ Through the **Clean Energy Investment Framework**, the AfDB and the World Bank are promoting a multi-track approach covering accelerating access to electricity, transmission and energy trade facilitation, and promoting sustainable household fuels.
- ◆ **Resources for adaptation are woefully inadequate.** At the multilateral level, funding for adaptation totalled around US\$50 million per year between 2001 and 2006, most of which was financed through the GEF. The Adaptation Fund was created under the Kyoto Protocol, using a 2% levy on carbon credits generated by the CDM. This fund is currently estimated to be worth around US\$200-300 million. The Adaptation Fund is expected to become operational in the very near future.
- ◆ There has been significant progress in implementing the CDM in the developing world, and most particularly in large emerging economies. But the **CDM has so far by-passed Africa**, and the continent has received less than 3% of CDM credits.<sup>4</sup> Further, most of these projects are in South and North Africa.

### III. What is the current situation?

1. **Slow implementation of environmental sustainability commitments** While commitments taken by Africa on environmental sustainability are very broad, many of them are rather vague and have not yet been implemented. Furthermore, weak institutional capacity of African governments and, even more importantly, woefully inadequate support by external partners have resulted in scant concrete results in most sectors. This is compounded by the very small amount of resources currently available to developing countries for climate adaptation, as was noted above. For instance, the 'Action Plan for Africa on Climate Information for Development Needs (or *ClimDev Africa*), which represents the culmination of

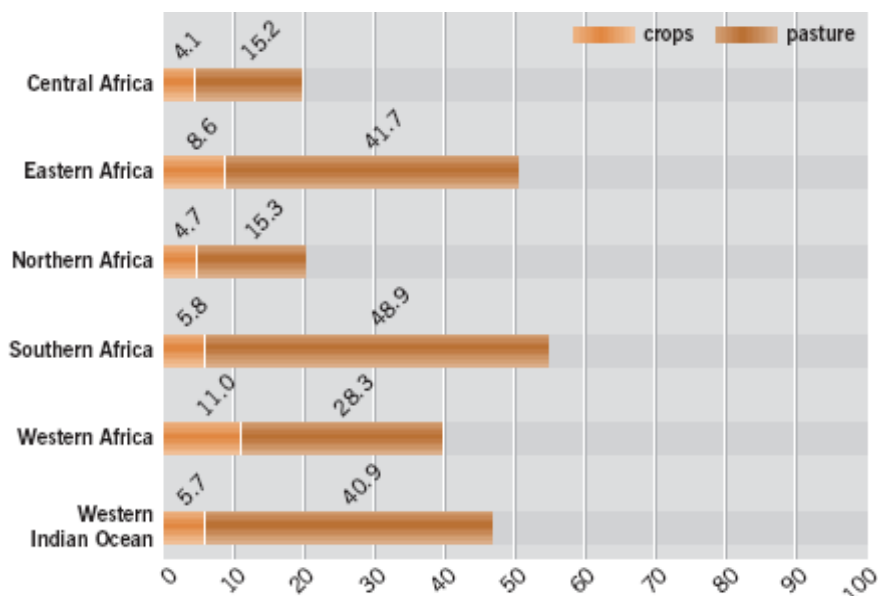
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<sup>4</sup> Carbon finance has the potential to generate tens of billions of dollars per year of investments in developing countries. As of end-2007, proceeds from the sale of emission credits from CDM projects amounted to US\$7.4 billion, a 50% increase in value over 2006.

a multi-year effort by the GCOS-UNECA-Africa Union partnership to address gaps in mainstreaming adaptation into policy has, so far, received minimal firm financial support. Although tools for climate risk management are being developed and this has stimulated co-ordinated efforts between the World Bank, the AfDB and other partners, progress has remained slower than expected.

2. **Land management** Africa’s total land area covers 29.6 million km<sup>2</sup>, of which two-thirds is arid or semi-arid. Land is central to development in Africa since the livelihoods of about 60% of the population are dependent on agriculture (see Figure 1). Core land management issues in Africa include increasing degradation and desertification, together with inappropriate and inequitable land tenure systems -- which has played a major role in exacerbating degradation. Other widespread problems include a decline in soil fertility, soil contamination, weak land management and conservation practices, gender imbalances in land tenure, and conversion of natural habitats to agricultural or urban uses. The expansion of agriculture into marginal areas and the clearance of natural habitats such as forests and wetlands has been a major driving force behind land degradation.

**Figure 1: Land Utilisation (% of total land area)**



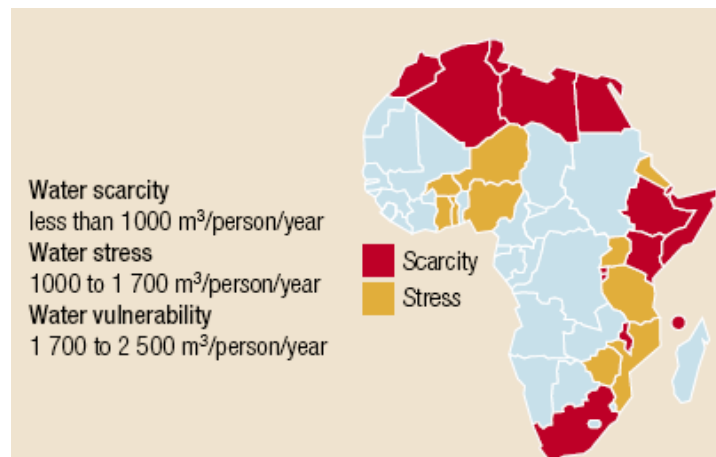
Source: Global Environment Outlook 3

3. **Biodiversity challenges** In the past three decades, **habitat** loss and degradation has been a major issue throughout Africa, particularly in dry land areas. Biodiversity resources are extensively used for subsistence and commercial purposes. The main response to loss of natural habitat has been the establishment and extension of protected areas. Overall, approximately 7% of the land area of Africa has been designated as protected. In total, Africa contains 1 254 protected areas, including 198 marine protected areas, 50 biosphere reserves, 80 wetlands of international importance and 34 World Heritage sites. Protected area coverage differs markedly across Africa; for example, a substantially higher proportion of land area is designated as protected in Southern Africa than in other sub-regions. A lack of financial support and weak law enforcement are common problems in African protected areas, resulting in encroachment by human activities and settlements.

4. **Water scarcity** Increasing **water** stress and scarcity along with , land degradation, is a major environmental issue for African countries. Africa’s renewable water resources provide an average of about

5,000 m<sup>3</sup> per capita/year (data of 2000) — significantly less than the world average of 7,000 m<sup>3</sup> per capita/year and less than one-quarter of the South American average of 23,000 m<sup>3</sup> per capita/year. At least 13 countries suffered water stress or scarcity (less than 1,700 m<sup>3</sup> per capita/year and less than 1,000 m<sup>3</sup> per capita/year respectively) in 1990 and the number is projected to double by 2025. This presents a major challenge to water supply and distribution. Groundwater is an important source of water in the region, contributing 15% of Africa’s resources. Groundwater is used for domestic and agricultural consumption in many areas, particularly the more arid sub-regions where surface water resources are limited.

**Figure 2: Freshwater Stress and Scarcity in 2025**



Source: 4<sup>th</sup> Water Forum - Africa

5. **Coastline habitats** Africa’s 40,000 km of coastline are characterized by a **diversity of ecosystems** and an abundance of natural resources. The ecosystems include mangrove swamps, estuaries, rocky shores, coastal wetlands and coral reefs; they moderate storm impacts and protect coastal features, recycle nutrients, absorb and break down wastes, provide human and wildlife habitat and maintain biodiversity, and present opportunities for recreation, tourism, transport, trade, and employment.

6. **Fisheries and aquaculture** The demand for **fisheries** resources is also increasing. Marine fisheries in Africa have developed significantly over the past 30 years, and most demersal stocks are now thought to be fully exploited. Per capita fish catch has been fairly static since 1972, except in Southern Africa where it has fallen sharply. This has led to calls for the protection of line fish stocks. Today fishery management measures include minimum size limits, bag limits, use of appropriate fishing gear, closed seasons, control agreements with foreign fleets and establishment of marine reserves.

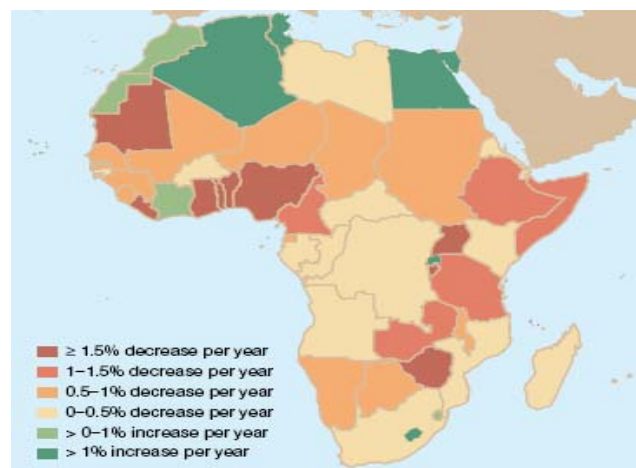
7. **Silviculture** The estimated forest area for Africa in 2005 was 635 million hectares or 16% of the world’s total. Deforestation -- mainly from conversion into agricultural land the use of wood as a cooking fuel -- is very significant in sub-Saharan Africa. The net annual forest loss between 2000 and 2005 was about 4 million hectares of forest land per year, equivalent to over half of the global reduction in forest area (see Table 1). Six of the countries with the largest loss in forest cover, measured by area, are located in sub-Saharan Africa (Democratic Republic of Congo, Nigeria, Sudan, Tanzania, Zambia and Zimbabwe) (see Figure 3).

**Table 1: Extent and change of forest area**

Subregion	Area (1 000 ha)			Annual change (1 000 ha)		Annual change rate (%)	
	1990	2000	2005	1990–2000	2000–2005	1990–2000	2000–2005
Central Africa	248 538	239 433	236 070	-910	-673	-0.37	-0.28
East Africa	88 974	80 965	77 109	-801	-771	-0.94	-0.97
Northern Africa	84 790	79 526	76 805	-526	-544	-0.64	-0.69
Southern Africa	188 402	176 884	171 116	-1 152	-1 154	-0.63	-0.66
West Africa	88 656	78 805	74 312	-985	-899	-1.17	-1.17
<b>Total Africa</b>	<b>699 361</b>	<b>655 613</b>	<b>635 412</b>	<b>-4 375</b>	<b>-4 040</b>	<b>-0.64</b>	<b>-0.62</b>
<b>World</b>	<b>4 077 291</b>	<b>3 988 610</b>	<b>3 952 025</b>	<b>-8 868</b>	<b>-7 317</b>	<b>-0.22</b>	<b>-0.18</b>

Source: FAO (2007)

**Figure 3: Forest change rates by country or area**



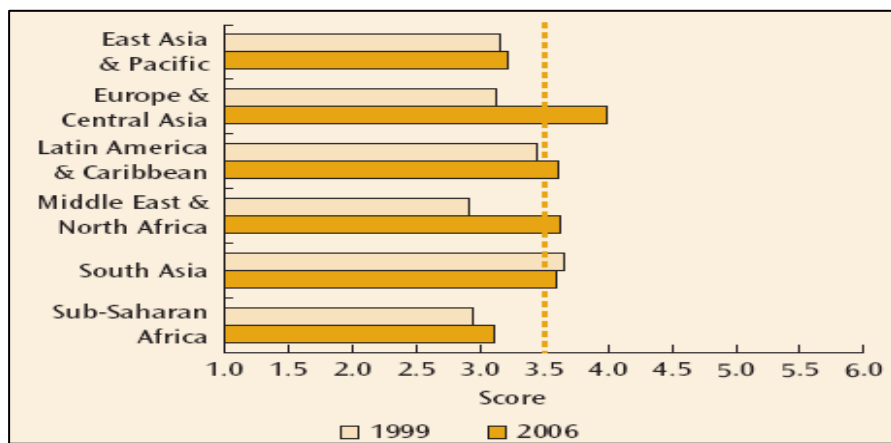
Source: FAO (2007).

8. Two recent efforts to measure environmental sustainability include:

- ◆ UNEP's *Africa Atlas*, which highlights the finite nature of Africa's natural resources: 60% of the continent's arable land is eroded and damaged by chemicals and a third of its pastures are classified as degraded; forests and woodlands are in decline; and many communities face water shortages on a seasonal or permanent basis, and
- ◆ The 2008 **Environmental Performance Index (EPI)**, which ranks 149 countries on 25 indicators tracked across six established policy categories: eEnvironmental health, aAir pollution, wWater resources, bBiodiversity and habitat, pProductive natural resources, and climate change. As a quantitative gauge of pollution control and natural resource management results, the Index provides a powerful tool for improving policymaking and shifting environmental decision-making onto firmer analytic foundations. While there is a clear correlation between the state of the environment and the level of income, sub-Saharan Africa compares negatively with South Asia and other developing regions. Only two countries out of the 38 countries included in the report (Mauritius and Gabon) are rated above the median. Three of the four North African countries are rated above the median.

9. The World Bank’s **Country Policy and Institutional Assessment (CPIA)** ratings, which assess the extent to which environmental policies foster the protection and sustainable use of natural resources and the management of pollution, show improvement between 1999 and 2006 for all regions except for South Asia (see Figure 4). The graph below illustrates the global trend and Africa’s relative performance based on multi-dimensional criteria covering the quality of air, water, waste, conservation management, coastal zones management and natural resources management. A rating of 3.0 in the graph reflects a situation in which, for both pollution and natural resource issues: i) regulations and policies cover some issues but effectiveness is limited; ii) implementation is weak; iii) public information is limited; iv) an environmental assessment system exists, but capacity and quality is low; v) limited data exists, which renders priority setting difficult; and vi) consideration of environmental issues in sector ministries is minimal.

**Figure 4: Changes in Policy and Institutional Assessment**



Source: World Bank, Country Policy and Institutional Assessment

#### **IV. Climate change as an additional challenge to environmental sustainability**

10. Although Africa is the continent least responsible for climate change, it is acutely vulnerable to its adverse effects – on economic growth and sustainable development, on human security, and on the prospects for achieving the Millennium Development Goals (MDGs). The impacts range from energy shortages, reduced agricultural production, worsening food security and growing malnutrition, to spreading disease, more humanitarian emergencies, growing migratory pressures and increased risk of conflict over scarce land and water resources. As shown in Figure 5, African countries are the most affected by all climate-related threats but most particularly by droughts – which take a high toll on Africa’s mostly rain-fed agricultural sector – and by rising sea levels.

11. Africa's high dependence on natural resources can exacerbate vulnerability to climate variability. For example, the Intergovernmental Panel on Climate Change (IPCC) estimates climate change is likely to exacerbate food insecurity especially in the most malnourished world regions, such as sub-Saharan Africa. Also, the number of hydro-meteorological disasters is sharply higher in recent years (see Figure 6). According to the most-recent IPCC report, the cost of adaptation in Africa could be as high as 5 to 10% of the continent's GDP.

12. **Half of Africa will face water stress.** Three-quarters of African countries are in zones where small reductions in rainfall could cause large declines in river water. Climate models show that by 2025 it is expected that 25 African countries will be subject to water scarcity or water stress.<sup>5</sup> Patterns of precipitation and runoff are likely to change substantially with rain arriving in fewer, heavier events that will lead to more floods and dry spells, while ground water recharge will diminish, making it more difficult to improve access to safe water. Recent country-level studies suggest that the impacts of hydrology and rainfall variability on economic development are significant. In Ethiopia, it was estimated that droughts and floods have reduced economic growth by more than one-third. The problem of water scarcity is even more acute in North Africa in view of the very high population growth rates and already-high rates of water resource use.<sup>6</sup> An expansion of arid and semi-arid areas in North Africa, the Sahel region and Southern Africa is projected to take place, with adverse effects on agricultural production and food security.

13. **Growing pressure on scarce land and water resources,** compounded by population pressures and the risk to coastal areas caused by raising sea level, will force increased migration. This trend will bring new challenges to environmental sustainability -- first, directly through a disorderly exploitation of scarce resources and second, indirectly by affecting security and political stability. Sea level rise resulting from global climate change threatens coasts, lagoons and mangrove forests of both eastern and western Africa. More than a quarter of Africa's population live within 100 kilometres of the coast, and projections suggest that the number of people at risk from coastal flooding will increase from 1 million in 1990 to 70 million in 2080. Local food supplies are projected to be negatively affected by decreasing fisheries resources in large lakes due to rising water temperatures, which may be exacerbated by continued over-fishing. Rising sea levels will also jeopardise Africa's coastal urban centres and affect tourism industry.

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<sup>5</sup> IPCC (2007b).

<sup>6</sup> UNECA (2005).

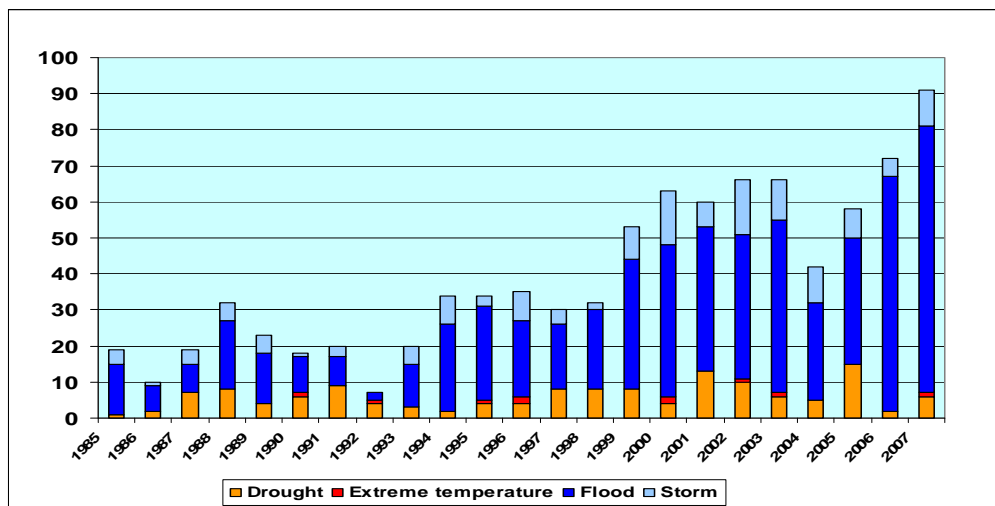
**Figure 5: Most Affected Countries by Climate-Related Threats**

<b>Droughts</b>	<b>Floods</b>	<b>Storms</b>	<b>Sea Level rise (1m)</b>	<b>Agriculture</b>
Malawi	Bangladesh	Philippines	All low-lying Island States	Sudan
Ethiopia	China	Bangladesh	Vietnam	Senegal
Zimbabwe	India	Madagascar	Egypt	Zimbabwe
India	Cambodia	Viet Nam	Tunisia	Mali
Mozambique	Mozambique	Moldova	Indonesia	Zambia
Niger	Laos	Mongolia	Mauritania	Morocco
Mauritania	Pakistan	Haiti	China	Niger
Eritrea	Sri Lanka	Samoa	Mexico	India
Sudan	Thailand	Tonga	Myanmar	Malawi
Chad	Viet Nam	China	Bangladesh	Algeria
Kenya	Benin	Honduras	Senegal	Ethiopia
Iran	Rwanda	Fiji	Libya	Pakistan

Note: The typology is based on both absolute effects (e.g., total number of people affected) and relative effects (e.g., number affected as a share of GDP) –

Source: IDA15 Background Paper.

**Figure 6: Increase in the Number of Reported Disasters  
Hydro-Meteorological Disasters in SSA (1985-2007)**



## V. What are the key priorities?

### Actions by Africa:

- ◆ Mainstream environmental sustainability and climate adaptation issues into economic planning and management, and reflect this in poverty reduction strategies and their equivalents, national budgets and sector plans;
- ◆ Provide more support for developing the data required for environmental assessment and monitoring and make more effective use of existing data sets such as the UNEP's Landsat data;
- ◆ Strengthen regional cooperation both through Regional Economic Communities and through specific initiatives (land management, river basin development etc.); and
- ◆ For AMCEN: cooperate and establish stronger linkages with other relevant institutions such as the African Ministers' Council on Water (AMCOW).

### Actions by development partners:

- ◆ Take a **more active role in improving environmental sustainability and limiting climate change-related risks** by bringing possible opportunities to the attention of developing country policy-makers and seeking entry points for climate change-related dialogue; and
- ◆ Provide substantial additional and predictable **financial support for adaptation** within the framework of national economic strategies and the Paris Declaration;
- ◆ Scale up support and -- in collaboration with private sector -- financing for the development and **sharing of low carbon technology and energy efficiency with Africa**. CDM mechanisms and GEF procedures must also be reviewed to make them more easily accessible to Africa.
- ◆ Send a clear signal that **forest carbon** should be included in a new agreement to be developed after the first commitment period for the Kyoto Protocol ends in 2012.

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