



RIO+20
United Nations Conference
on Sustainable Development



New and Emerging Challenges in Africa Summary Report



Economic Commission
for Africa



RIO+20
United Nations Conference
on Sustainable Development

New and Emerging Challenges in Africa

Summary Report



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First printing May 2012

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Edited, designed and printed by the ECA Publications and Conference Management Section (PCMS).

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Acknowledgments

This report was produced by the African Development Bank (AfDB) in collaboration with the United Economic Commission for Africa (ECA) and the African Union Commission (AUC), as part of the Africa preparatory process for the United Nations Conference on Sustainable Development (Rio+20). Substantive contributions provided by colleagues from a range of national, regional, and international organizations are gratefully acknowledged. They included Paxina Chileshe, Siham Mohamed Ahmed and Yogesh Vyas (AfDB), Isatou Gaye, Charles Akol and Alessandra Sgobbi (ECA), Alex Banda (SADC), Debalkew Berhe (IGAD), Frank Turyatunga (UNEP) and Youcef Ait-Chellouche (UNISDR). Special thanks go to Dr. Mutsa Masiyandima, the consultant who helped in putting this report together. The report was finalized based on comments provided at the Africa Regional Preparatory Conference for Rio+20 (Addis Ababa, Ethiopia, 20-25 October 2011).

Appreciation is extended to the staff of the ECA Publications and Conference Management Section (PCMS) led by Etienne Kabou, in efficiently handling the editing, text processing, design and printing of the report.

Acronyms

AfDB	African Development Bank
AMCEN	African Ministerial Conference on the Environment
AMCOW	African Ministerial Conference on Water
AU	African Union
AWF	African Water Facility
CBD	Convention on Biodiversity
CCAA	Climate Change Adaptation in Africa
CITES	Convention on International Trade in Endangered Species
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
ClimDev	Climate for Development in Africa
EU	European Union
FAO	Food and Agricultural Organization
GEF	Global Environment Facility
GHG	Greenhouse Gas
JPOI	Johannesburg Plan of Implementation
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LDC	Least Developed Country
MDG	Millennium Development Goal
MW	Megawatt
NAP	National Action Plan
NAPA	National Adaptation Programmes of Action
NBSAP	National Biodiversity Strategies and Action Plans
NDP	National Development Plan
NEPAD	New Partnership for Africa's Development
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PRSP	Poverty Reduction Strategy Paper
RMC	Regional Member Country
SSA	Sub-Saharan Africa
UN	United Nations
UNCCD	United Nations Convention on Combating Desertification
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework for the Convention on Climate Change
WEC	World Energy Council
WMO	World Meteorological Organization

Executive Summary

The 2012 United Nations Conference on Sustainable Development (Rio+20) has the objective of securing renewed political commitment to sustainable development, assess the progress and implementation gaps in meeting already agreed commitments, and address new and emerging challenges. With these goals in mind, Rio+20 provides an opportunity for Africa to evaluate progress, and identify what has worked and what has not in the last two decades and how to address new challenges and take advantage of opportunities.

This Africa Report on New and Emerging Challenges aims to inform the deliberations at the Africa Regional Preparatory Conference for the United Nations Conference on Sustainable Development and serve as reference material during the Rio+20 Summit. In the twenty years that have passed since the Rio Conference in 1992, African countries have gained significant experience in the implementation of the sustainable development agenda albeit with mixed results towards achieving the sustainable development goals set.

Africa's challenges include the adverse impact of climate change, increasing water scarcity, biodiversity and ecosystem loss, desertification, low resilience to natural disasters, potential non-achievement of the Millennium Development Goals (MDGs), energy crisis, food crisis, limited benefits from globalization, health security, the global financial crisis, trafficking and piracy, low penetration of ICT services, urbanization, need to develop better disaster response mechanisms, genetically modified crops in relation to food security and technology transfer among others.

Africa is largely dependent on natural resources to achieve growth and development. However, the realization of these goals may be hindered by the impact of climate change. Notwithstanding its low Greenhouse Gas (GHG) emissions, it is the continent that will be most affected by climate change mainly due to low adaptive capacity. Climate change is significantly altering Africa's development pathway.

Persistent loss of biodiversity is also a major problem that countries have to address. Expanding agriculture, clearing of forests for charcoal and firewood, climate change, and desertification are the primary causes of loss of biodiversity. Addressing biodiversity loss requires long-term solutions in the form of development and implementation of appropriate policy guidelines, institutional capacity-building and deployment of adequate resources.

Africa is characterized by highly variable rainfall which results in uneven distribution of water resources. The water resources harnessed and land area developed for irrigation in Africa are still far below the potential, less than 4 per cent. Measures need to be taken to improve water management and storage capacity to ensure continued supply of water for domestic and economic purposes and for ecosystem balance.

Globally, the food crisis has passed. Yet, persistently high food prices remain a problem in many countries in Africa. Food prices increased dramatically as a result of droughts in grain-producing countries, reduced yields, depleting cereal stocks and multiple demands on existing stocks for human and animal consumption as well as for bio-fuels.

Desertification is one of the serious challenges that impact sustainable development in Africa. Most land in Africa is also susceptible to land degradation and bears the greatest impact of drought and desertification with 65 per cent of the population affected.

Of the 1.4 billion people without access to electricity worldwide, 40 per cent are in Africa, and almost entirely in SSA. Access to sustainable energy facilitates development and contributes to meeting several MDGs – halving extreme poverty, reducing hunger, reducing child and maternal mortality, promoting gender equality and reducing deforestation.

These new and emerging challenges also provide opportunities amongst which is potential growth in the context of a green economy particularly with the vast and largely untapped natural resources that are being discovered in many African countries. The paradigm shift in development planning in adapting to and mitigating climate change also presents opportunities with access to additional resources. The regional cooperation required in the management of transboundary water resources provides evidence of what can be achieved when working for a common goal. If well harnessed, the opportunities presented by the new and emerging challenges can reorient Africa on the path of sustainable growth and development.

To maintain the momentum in the implementation of sustainable development programmes, it is necessary for countries to:

- Mobilize and increase the effective use of available financial resources and achieve the national and international economic conditions needed to fulfil internationally agreed development goals;
- Explore ways of generating new public and private innovative sources of finance for development purposes, provided that those sources do not unduly burden developing countries and can provide quick wins;
- Promote, facilitate and finance appropriate access to and the development, transfer and diffusion of environmentally sound technologies;
- Use information and communication technologies, where appropriate, as tools to increase the frequency of communication and the sharing of experience and knowledge;
- Continue to focus on education as critical for promoting sustainable development;
- Enhance and accelerate human, institutional and infrastructure capacity-building initiatives, and promote partnerships in that regard that respond to the specific needs of developing countries in the context of sustainable development;
- Remove resource constraints, enhance inter-departmental coordination, improve the capacity for implementing and monitoring national policies; and
- Complement existing coordination at a high level, with sufficient opportunities for the coordination of implementation mechanisms at a lower, operational level.

The development agenda needs to be more focussed and better harmonized, especially where there are limited resources for implementation. Going forward, commitment on how to accelerate implementation of sustainable development goals including the MDGs and mechanisms to strengthen the institutional framework for sustainable development remains a major objective.

Introduction

In 2009, the United Nations General Assembly adopted a resolution agreeing to hold the United Nations Conference on Sustainable Development (Rio+20) in 2012 in Brazil. The General Assembly called for effective preparations for the Rio+20 Conference at all levels. The Conference seeks to secure renewed political commitment to sustainable development, assess the progress and implementation gaps in meeting already agreed commitments, and address new and emerging challenges.

In response to the call by the United Nations General Assembly and in accordance with its mandate, the United Nations Economic Commission for Africa (UNECA), in collaboration with the African Union Commission (AUC), the African Development Bank (AfDB) and in partnership with the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and other institutions, launched the Africa regional preparations for Rio+20. The aim of the preparations is to facilitate effective coordination and consultations to ensure that Africa adequately prepares for the Conference, to arrive at a consensus on Africa's key sustainable development concerns and priorities, to effectively articulate them and to ensure that they are adequately reflected in the outcomes of Rio+20.

This report aims to provide a synopsis on new and emerging challenges, in the context of Africa's overarching priority of poverty eradication and sustainable development. The report uses data available in literature and outlines key challenges at national and regional levels as well as the progress made towards achieving sustainable development targets in Africa at all levels.

The new and emerging challenges identified are a subset of the issues identified during the preparation process. They include climate change, water scarcity, food crisis, natural disasters and ability to recover from them, biodiversity and ecosystem loss, desertification, energy crisis, youth unemployment, and the financial and economic crisis. The report assesses the implications of these challenges for the achievement of the MDGs in the broader context of sustainable development and poverty eradication as an overarching priority for Africa. The list of challenges presented here is not exhaustive as other challenges such as the rate of urbanization and the continued fight against HIV/AIDS, malaria and other diseases also require attention.

New and Emerging Challenges

Biodiversity and ecosystem loss

Biodiversity loss is occurring at an alarming rate in Africa. The continent has the world's highest endemism rate and is home to a quarter of the internationally recognized biodiversity hotspots. Biological resources sustain the livelihoods of millions of people in Africa. For instance, two-thirds of the sub-Saharan Africa (SSA) population relies on products from its forests. Wild resources and non-timber forest products provide up to 35 per cent of rural household incomes in Zimbabwe, and more than 50 per cent in Senegal (Malloch, 2004). Tourism, based largely on its ecosystems, wildlife and landscapes both terrestrial and marine, earns Kenya some \$700 million a year in foreign exchange (Steiner, 2007). These earnings derivable from biodiversity resources are likely to cease with the threats posed by loss of biodiversity.

Wetlands, some of which are of international importance, cover some 1 per cent of Africa's total surface area (e.g. Lake Chilwa in Malawi, the Lukanga swamp in Zambia and the St. Lucia wetlands in South Africa). Wetlands provide numerous ecosystem goods and services, including water regulation, freshwater supply, and nutrients necessary for agricultural production and food security. They also serve as the habitat for a number of species. Agriculture has encroached on more than 50 per cent of natural wetlands.

Persistent loss of biodiversity is a major problem that countries have to address. Expanding agriculture, clearing of forests for charcoal and firewood, climate change, and desertification are the primary causes of loss of biodiversity. Addressing biodiversity loss requires permanent and long-term solutions in the form of development and implementation of appropriate policy guidelines, institutional capacity-building and deployment of adequate resources to halt and reduce the intensity of biodiversity loss.

Positive actions to reduce biodiversity loss are being taken at national and regional levels. These actions include adoption in 2003 of the African Convention on the Conservation of Nature and Natural Resources; development of the New Partnership for Africa's Development (NEPAD) Environment Initiative; establishment of trans-frontier conservation areas; African nations being Parties to the Convention on International Trade in Endangered Species (CITES); implementation of the Convention on Biological Diversity (CBD); development of National Biodiversity Strategies and Action Plans (NBSAPs); ratification of the Cartagena Protocol on Biosafety and of the Ramsar Convention; and the increased number and extent of protected areas. However, despite these efforts, some ecosystems remain at risk.

Recent research has also shown that biodiversity is intertwined with other aspects of society and nature. The linkage between biodiversity and other ecological issues (impact of climate change and ecosystems; interaction between biodiversity and the water cycle) and the inter-relationship between biodiversity and economics (valuation of ecosystem services; the biodiversity underpinning of economic activities) illustrate the need to integrate the issue of biodiversity into the global ecological and economic agenda.

Water scarcity

Africa is characterized by highly variable rainfall which results in uneven distribution of water resources, with large areas such as the Sahara and Kalahari deserts affected by severe aridity. Conversely, Africa is also home to major large rivers such as the Congo, Nile, Zambezi and Niger and to major lakes such as Lake Victoria. Hence, the continent has abundant water resources. Nevertheless, though water resources are seemingly abundant in the form of groundwater and surface water, many countries in Africa have water-related problems in terms of availability and quality. The number of those without access to clean drinking water is still alarmingly high, over 40 per cent in SSA.

The water resources harnessed and land areas developed for irrigation are still far below the potential, less than 4 per cent (AfDB, 2010). On average, Africa has about 100m³ per capita in terms of water storage compared to the global average of 1,000m³ per capita. The demands exerted by growing industrial development and urban populations continue to put pressure on many governments. More than 80 per cent of Africa's rivers are shared by two or more countries, making regional cooperation imperative in the management of these transboundary water resources. It is projected that many countries in Africa will suffer from water scarcity and water stress by the end of the next decade as a result of population growth, industrial development and the associated increases in water demand (see figure 1).

Figure 1: Water scarcity projections



Several challenges and constraints continue to limit or hamper progress towards sustainable management of fresh water resources in Africa. These include:

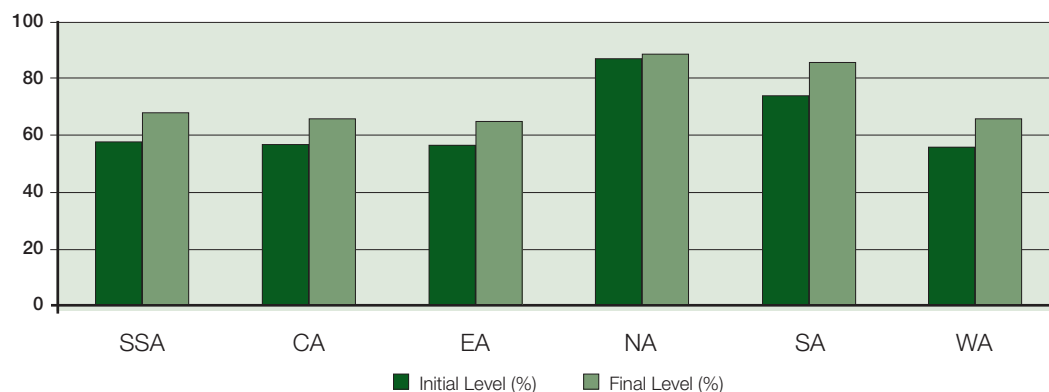
- Weak and fragmented institutions with poor technical and financial capacity;
- Inadequate political and financial support from countries;
- Decline in the networks of hydrological observatory stations and in the quality of data collected resulting in limited water resources assessment and development activities at national and basin levels, and sub-optimal inputs into regional and international programmes;
- Climate change with its projected devastating impacts on water resources; and
- Water quality degradation due to anthropogenic effects and industrial activities such as mining.

In many countries, the water sector is characterized by a tenacious focus on surface water resources and limited development of ground water resources. The utilization of ground waters is limited as a result of several constraints such as:

- Poor hydro-geological knowledge of the extent and capacity of aquifers;
- Lack of high-quality groundwater information systems; and
- Inadequate use of models to simulate development scenarios and predict their medium- and long-term effects in terms of natural outflow, environmental impact, water levels and water quality changes.

Approaches to addressing water scarcity include: establishment of the Africa Ministerial Council on Water (AMCOW) and the Africa Water Task Force; development and launching of the African Water Vision 2025; establishment of the African Water Facility; development of Protocols on Shared Watercourses and Basin Initiatives; development of several trans-boundary river basin programmes; water sector reform programmes; and the development of new policies, strategies and laws for water resource development and management based on the principles of Integrated Water Resources Management (IWRM). Although the measures taken by countries have resulted in some increase in the size of the population with access to clean water, interventions are more concentrated in urban areas.

Figure 2: Access to improved water sources in African regions (1995 – 2008)



Source: ODI, 2010. SSA: Sub-Saharan Africa; CA: Central Africa; EA: East Africa; NA: North Africa; SA: Southern Africa; WA: West Africa.

The water sector is key to economic growth and socio-economic development and needs to further engage with stakeholders in other sectors to facilitate adequate and targeted responses to the challenges that countries face. The sector can benefit from leveraging opportunities presented by other sectors, such as irrigation water supply derived from multi-purpose water resources development that focuses on energy, water supply, and agriculture. Having built a robust water community, dialogue and new partnerships, new engagement with other sectors is vital to unlocking delivery potentials in the water sector. Within this approach, African countries have to accelerate delivery of basic services to urban populations while providing access to clean water to rural populations as well.

Climate change

The impact of climate change poses serious threats to sustained economic growth, poverty reduction and the quality of life. Most parts of the African continent are expected to experience reduced average annual rainfall and increased aridity and droughts. The combination of reduced rainfall and hotter temperatures are expected to result in net drying and increased aridity for a greater proportion of the continent. Currently, Africa contributes the least to greenhouse gases, yet it will be impacted the most.

The primary challenge concerning climate change adaptation, a priority for Africa, remains that of resources. Only about a third of the approved/pledged adaptation funding has been received to date. Substantial efforts are still required to mobilize adequate resources to ensure that vulnerable groups have adequate adaptive capacity.

Deforestation and use of traditional energy forms that contribute 65 per cent of Africa's emissions are likely to increase over time, increasing the continent's overall emissions. Africa thus has to focus on reducing and maintaining low emissions to mitigate the impacts of climate change. At the same time, it has to devote resources to adapt to the impacts of climate change that are becoming evident. The cost of adapting to climate change in Africa has been estimated at \$20 – 30 billion per year over the next 10 to 20 years.

Some of the steps taken to address climate change include development and launching of the Climate for Development in Africa Programme (ClimDev); development of a climate change programme as part of the NEPAD Environment Initiative; research and capacity- building as part of the Climate Change Adaptation in Africa; launching of the Nairobi Framework in 2006; ratification and implementation of the United Nations Framework on Climate Change (UNFCCC) by African countries; preparation of National Adaptation Programmes of Action (NAPAs); and development and deployment of new, innovative and other technologies and measures to deal with challenges brought about by climate variability and changing climate. The introduction of Climate Investment Funds enabled the design of national strategies addressing climate change in key economic sectors in selected African countries.

The capacity within countries to effectively address climate change impacts remains low. It is necessary to build adaptive capacity, particularly for vulnerable people, and ensure that climate resilience is “mainstreamed” into country development programmes and their implementation. Though there are significant efforts channelled towards addressing mitigation of climate change, the funds available to address climate change activities have been largely inaccessible to African countries that need to address both adaptation and mitigation.

Recent scientific studies have confirmed the hypothesis that climate change could alter the frequency of occurrence and intensity of extreme weather events. These studies underline the urgency for adapting to the changing frequency of extreme weather events, and suggest that instituting “medium-term” early warning systems is necessary. There is growing concern that when scaled up, mitigation and adaptation measures may have unintended consequences that need to be anticipated and avoided.

Food crisis

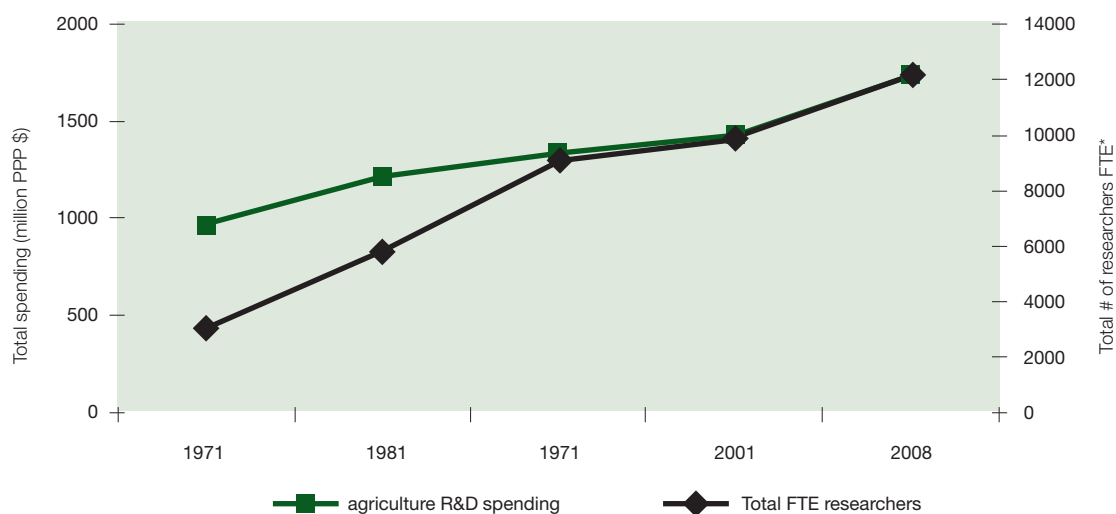
In 2007 and the first half of 2008, food prices increased dramatically as a result of droughts in grain-producing countries, reduced yields, depleting cereal stocks and multiple demands on existing stocks for human and animal consumption as well as for bio-fuels. The increase in oil prices triggered an increase in transport and fertilizer costs which further contributed to increases in food prices. The result was a global food crisis that caused political and economic instability and social unrest in both poor and developed nations. In Africa, the countries that were severely affected included Burkina Faso, Cameroon, Senegal, Mauritania, Cote d'Ivoire, Egypt and Morocco.

Globally, the food crisis has passed; yet, persistently high food prices remain a problem in many countries in Africa. Cereal prices have remained high even after international prices fell. Also, the food markets do not reflect food prices in a timely manner. At the end of the first quarter in 2010, millet prices were still higher than they were in 2009 by 28 per cent, 27 per cent, and 12 per cent in Burkina Faso, Mali and the Niger respectively (AfDB, 2011). The maize prices exhibited the same problem with price levels much higher than the international price in 2011.

While persistently high food prices can be an incentive for food producers, especially small scale holders, the weaknesses in the markets pose a disadvantage to mainly urban populations. Incomes have not changed much and the problem of accessing food will remain for the lower-income groups. The objective of increasing food availability on the markets may have been achieved, yet the food may remain out of reach for many.

Significant strides have been made in the area of food security. These include increases in agricultural yields mainly through increased investments in agricultural research and development during the post-2000 period, which followed a decade of decreased productivity in the 1990s (IFPRI, 2011). Investment in agricultural research (agricultural output and staffing) has steadily increased over the last forty years (see figure 3).

Figure 3: Trends in total public agriculture investment between 1971 and 2008

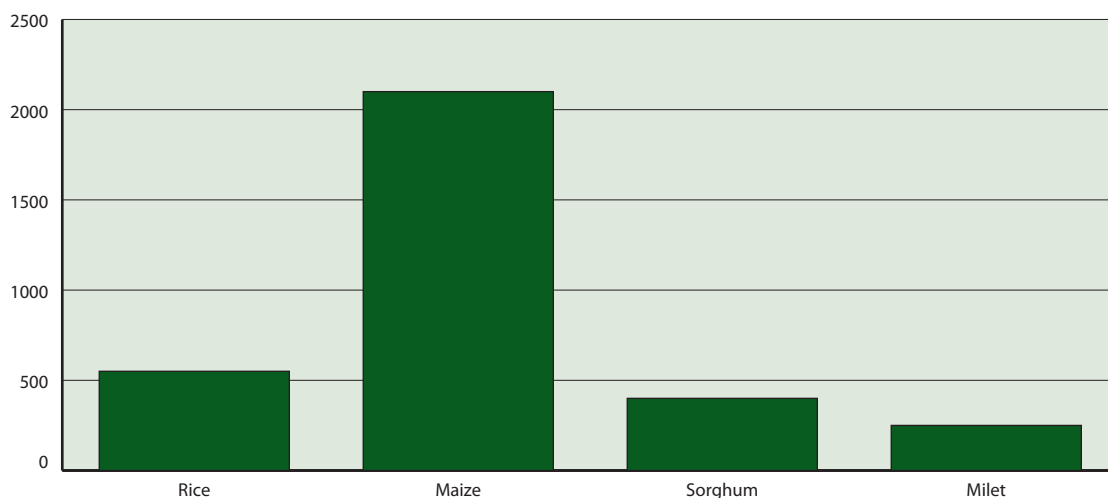


Source: IFPRI, 2011 *FTE is full-time equivalents

Food security is a longstanding issue in Africa. The continent needs to confront a set of new challenges including competition for bio-energy (still limited but likely to grow), diminishing phosphorus supplies, cash and food crops (for export – tea, palm oil, etc) versus local food security trade-offs, addressing the new found interest in forest plantations (to serve a global good) at the expense of local food provision, and increasing water scarcity (water for agriculture). There is urgent need to find ways of ensuring food supply in Africa, improving food processing, increasing investments in agriculture and increasing agricultural efficiency.

Subsidized prices for inputs supported by governments as well as the involvement of local communities in the operations provide incentives for increased use of fertilizers and improved seeds by farmers. As a result of such measures reported crop production indicated substantial increases in 2009/2010 crop season from their 2007/2008 levels (see figure 4).

Figure 4: Increases in crop production from 2007/2008 to 2009/2010



Source: AfDB, 2011.

The issue of “the new rush for land in Africa” driven by factors such as increasing climate variability, rising costs of fossil fuels, and concerns for future energy and food supplies also presents challenges. The rate at which acquisition of land has progressed over the last two years appears to have more than doubled compared to similar periods before. However, the level of transparency seems to be decreasing. The scale of the problem is not yet fully understood, including identification of which countries are most at risk; the level of trade-offs not fully researched, as well as the implications for livelihoods, food security, ecosystem goods and services, and conflicts.

Desertification

Desertification is one of the most serious challenges that impact sustainable development in Africa. It is closely linked to poverty and it impacts health, food security, natural resources and the environment. Two-thirds of the continent is either desert or drylands. These areas are concentrated in the Sahelian/Sahara region, the Horn of Africa and the Kalahari in the south.

Most land in Africa is also susceptible to land degradation and bears the greatest impact of drought and desertification. Land degradation affects at least 485 million people or 65 per cent of the entire African population. The area susceptible to land degradation and desertification is likely to increase as a result of the effects of climate change. Under a range of climate scenarios, it is projected that there will be an increase of 5-8 per cent of arid and semi-arid lands in Africa (see table 1).

Table 1: Area prone to desertification and/or degradation in selected countries

Country	Area prone to desertification (km ²)	% of country area affected
Burkina Faso	82,260	30
Burundi	8,400	30
Ethiopia	1,610,181	70
Ghana	83, 489	35
South Africa	366,311	30
Swaziland	8,508 – 13,544	49 – 78

Source: ECA, 2007.

The actions taken to combat desertification include development of National Action Plans (NAPs) within the context of the implementation of the UNCCD; the support provided through the NEPAD Environment Initiative; the Green Wall for the Sahara Initiative; and the initiative on Land Policy in Africa.

The process of integrating NAPs to combat desertification into National Development Plans (NDPs) and Poverty Reduction Strategy Papers (PRSPs) has been slow and ineffective; only a few countries have managed to do this. The lack of capacity and lack of resources result in failure to integrate desertification control plans into planning and budgetary frameworks at various levels. Furthermore, the poverty in most countries limits the means that communities have to implement local-level measures to address desertification.

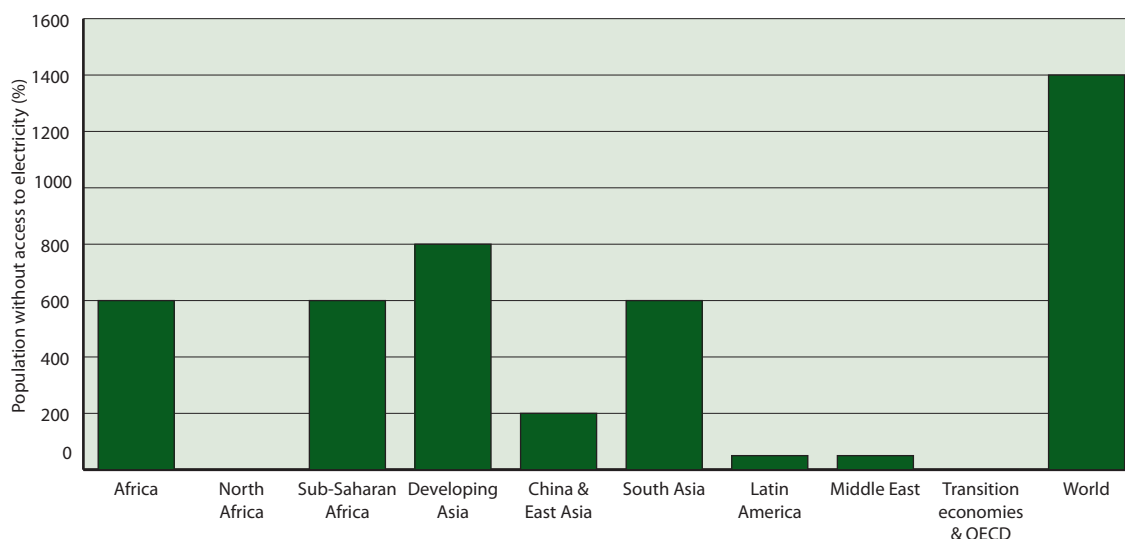
Increasing desertification may seriously influence the current rate of human migration, resulting in huge associated social and economic impacts. First is the loss of livelihoods and access to resources for the migrating populations. Second, the economic costs of moving and settling in new areas place financial burdens on families. Third is loss of access to facilities and services such as education, health care, and other social services. The associated economic cost for individuals is high. Settlement of large groups in new areas or in areas already inhabited exerts extra pressure on resources. New or additional infrastructure (e.g. water, schools, and health facilities) are required in order to cope with the influx of new residents. Apart from social impacts, migration may have negative effects on the environment, for example, changes in land-use patterns as populations settle in new areas.

Energy

Access to energy is essential for development and is critical for improving livelihoods. Energy is used for cooking, for production of goods and services, and for heating, lighting, and transportation. Access to energy also contributes to better public services such as refrigeration of drugs and improved services in schools. Access to sustainable energy facilitates development and contributes to meeting several MDGs – halving extreme poverty, reducing hunger, reducing child and maternal mortality, promoting gender equality and reducing deforestation.

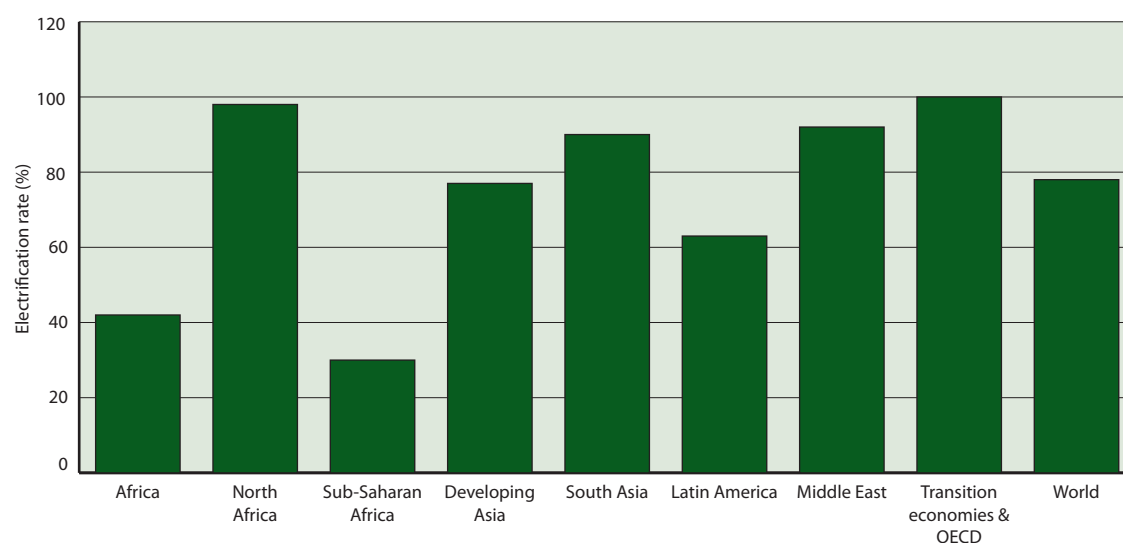
Of the 1.4 billion people without access to electricity worldwide, 40 per cent are in Africa, and almost entirely in SSA (see figure 5). The rate of electrification is lowest in SSA (see figure 1-6). By comparison North Africa, with electrification rates close to that of transition economies and Organization for Economic Cooperation and Development (OECD) countries, far exceeds SSA.

Figure 5: Access to electricity



Source: WEC 2010.

Figure 6: Electrification rate by region



Source: WEC, 2010.

The energy resources across the African continent include hydropower, coal, geothermal, solar, and wind. Only about 10 per cent of Africa's hydropower generating capacity of more than 3,909 TWh is currently realized (World Energy Council, 2010).

Availability of resources to finance energy investments remains a limitation to increasing electrification and reducing the unsustainable dependency on forests for energy in Africa. External support is required for further investment in renewable energy solutions that will help limit the risks of increasing deforestation. Lack of access to sustainable energy resources remains a major challenge for many African countries. Access to appropriate and sustainable energy forms is necessary for the attainment of the MDGs (see table 2).

Table 2: Linking energy and the MDGs, adapted from AfDB, 2008

MDG	Role of Energy
Halve extreme poverty	Facilitating economic development through micro-enterprises and livelihood activities such as locally owned businesses requiring energy. Economic development will create employment.
Reduce hunger and improve access to drinking water	Groundwater-based rural water supply requires energy for pumps. Energy also facilitates preparation of meals.
Reduce child and maternal mortality, and reduce diseases	Energy is a key element of fully functioning health care centres. Vaccines and other drugs requiring refrigeration can be available to more people. Rural centres will be able to use equipment that requires electricity, e.g. operating theatres.
Promote gender equality and empowerment of women and to achieve universal primary education	Time spent by women and girls on energy-related chores will be released for other productive uses. Further, girls can have time to attend school. Energy availability in schools enhances communication and makes it possible to use information and communication technologies.
Ensure environmental sustainability	Use of cleaner energy will reduce emissions from use of traditional energy forms. Reduced use of wood fuel ensures sustainable use of natural resources.

At national level, countries should focus on the adoption of policies conducive to significantly increased use of renewable energies (e.g. facilitation of access to the equipment, support to the private sector, etc.) and the promotion of the use of renewable energy (biogas, wind, solar, thermal energy, micro hydro-electric power stations, etc.) with considerable yet underdeveloped potential.

As the world attempts to mitigate the impacts of climate change through the adoption of renewable energy options, the existing potential has not been realized due to many barriers associated with the transition to these energy sources. There is need to remove the economic, regulatory and institutional disadvantages that make renewable energy less competitive than other sources.

Despite the recent events in Fukushima, Japan, some countries in Africa still believe that nuclear technology is the answer to their (and the region's) long-term energy needs. There are issues of inadequate number of trained professionals in nuclear energy operations, including construction, management and decommissioning of plants. Other potential problems relate to the treatment and storage of radioactive waste. International interventions, procedures, policies and cooperation are needed to minimize the dangers posed by these planned technological adoptions.

Youth unemployment

Youth¹ population in Africa has steadily increased from just over 17 per cent in 1970 to about 20 per cent in 2010. This population group forms a productive part of the labour force. It is also a driver of future economic growth; countries have pursued education and skills development among the youth to equip them to be able to contribute effectively to the labour force.

The labour markets, however, have not been able to absorb the youth, resulting in high youth unemployment. The causes of rising youth unemployment are many. They are a result of many complex social issues. An analysis of youth unemployment in the Maghreb identifies the key causes of unemployment as a 'youth bulge'; skills mismatches between the outputs of the education systems and the needs of business; a shortage of 'decent work' in the subregion; and the global economic crisis.

Africa's increasing youth population is faced with challenges exacerbated by the financial crisis. With companies scaling back and laying off employees, young and possibly inexperienced youth are unlikely to find opportunities to enter the job market. The lack of or limited experience also means the youth are likely to be the first to be laid off when companies downsize.

Governments have invested in primary education over the last decade. This is evident in the positive trends to achieve the global primary education MDG. However, the quality of education in some cases has been reduced as class sizes increase. Also, the emphasis placed on universal

¹ Youth age range is 15 – 24 years.

primary education has not been placed on post-primary and tertiary education. As a result, skills development has been weak.

Global financial and economic crisis

The impact of the global financial crisis of 2009 on Africa is well documented (AfDB, 2009). The economy showed signs of recovery in 2010, with growth of 2.4 per cent and is expected to grow by 5 per cent in 2011 (UNECA, 2010). Impacts have been varied across countries.

Growth slowdown in Africa is a result of declining trade flows. Capital inflows and remittances that had been another driver of economic growth also declined, further contributing to the declining growth rate. Kenya, for example, saw a fall of more than \$20 million in remittances between October 2008 and January 2009. Tourism receipts that contribute to revenues also declined by 13 per cent in the fourth quarter of 2008 compared to 2007, further reducing revenue inflows.

The financial crisis affected all sectors of the economy. As a result, several jobs were lost. In the Democratic Republic of Congo, 100 000 jobs have been lost due to smelter closures. The Central African Republic, reliant on exports of wood and diamonds, has suffered severe loss of jobs as a result of the collapse of exports of these products. Oil-producing countries suffered loss of revenues, resulting in reductions in public expenditure including public infrastructure investment. Countries such as Angola, Botswana, Chad, Gabon, Republic of Congo and Nigeria were most affected by the financial crisis as the national revenues depend on these commodities.

Countries that depend mainly on primary commodities for government revenues will continue to face serious challenges to meet costs of implementing public programmes as well as the costs of basic commodity imports such as food, medical supplies and agricultural inputs. Some of the countries have made plans to curtail their public expenditure plans, including public infrastructure investment due to lower fiscal revenues. This will have negative impacts on their ability to achieve MDGs.

Job losses in non-oil sectors, such as construction, manufacturing and services that are dependent on public sector demand also slowed down, with resultant job losses in many countries. These job losses will affect families' access to food, especially in an environment where food prices have continued to rise.

To effectively adapt to climate change, African countries require financial resources that they are unable to provide for themselves and are depending on financing from richer countries. Commitments have been made by developed countries. However, these are mainly mitigation-related and have not been fully realized as a result of the financial crisis in the donor countries.

Urbanisation

The general trend towards increasing urbanization can be exploited to address poverty reduction and achieve MDGs in an efficient and effective manner with proper infrastructure planning. According to the UN-HABITAT's "State of the World's Cities Report 2008/9: Harmonious Cities", the rate of change of the urban population in Africa is the highest in the world (3.3 per cent

per year) and the continent currently has 17 of the world's 100 fastest growing cities. If current trends continue, by 2050 more than half of Africa's population will be urban and African cities and towns will host nearly a quarter of the world's urban population - 1.2 billion people.

Africa faces enormous development challenges in the urban areas, characterized by a proliferation of unplanned habitat and poor access to essential services among others. Despite these challenges, cities have played a pivotal role in sustaining economic growth in recent years, generating about 55% of the continent's total GDP. If managed properly, African towns and cities can contribute as much to boosting economic output as with other cities in the other regions of the world (AfDB, 2011).

Trafficking and piracy

Some of the underlying factors that result in the increasing trends of trafficking and piracy include the prospect of better living conditions elsewhere, an uneven regulatory framework, poor international cooperation, lack of awareness among both the police and the population and networks becoming more organized and ruthless (UNODC). In addition, the frequency, scope and sophistication of piracy operations indicate the enormous impact on local economies as well as their role in feeding national organized crime networks. UNODC concludes that Government is the only actor which can, on a legitimate basis, address state security, organize the protection of civilians and uphold laws. Thus Governments must have the capacity to be able to address these issues in collaboration at the regional level.

Information and Communication Technology

Information and communication Technology use in Africa, particularly sub-Saharan, continues to be low. ICT contributes to economic growth through: increasing productivity across all sectors; facilitating market expansion beyond borders to harvest economies of scale; lowering costs of and facilitating access to services, notably in administration, education, health and banking; providing access to research; contributing to better governance, through increased participation, accountability and transparency (Gerster Consulting, 2008). ICT use also provides positive externalities, enhancing creativity, learning and problem-solving skills.

However, ICT growth is only weakly correlated with poverty reduction due to the low levels of skills, lack of physical assets and access to financial services that characterizes the poor. Research suggests that the contribution of ICT to pro-poor growth is dependent mainly on the role of ICT in supporting pro-poor initiatives. Effective poverty reduction requires targeted pro-poor policies to provide infrastructure (including ICT), to strengthen physical access to markets and to invest in education and health. The affordability of ICT results in low-income users, new employment, micro-entrepreneurial and social development opportunities emerging (Gerster Consulting, 2008).

Disaster Response Mechanisms

In the context of climate change, extreme events such as droughts, floods and cyclones are expected to increase both in frequency and intensity. The vulnerability of the African continent to extreme events and the lack of capacity to recover from the impacts of such events are evident.

The recent events such as the drought experienced in the Horn of Africa, the populations affected and the extent of the calamity calls for more concerted efforts in Disaster Risk Management and Climate Change adaptation.

Commitment to Disaster Risk Management is elaborated in the Africa Regional Strategy for Disaster Risk Reduction and its Programme of Action (PoA) (2005-2015). The overall goal highlighted in the PoA is to mainstream risk reduction management and climate change adaptation as an integral part of sustainable development. In Africa there is a greater recognition of the relationship between poverty and vulnerability to disasters caused by natural hazards. Therefore disaster risk management is a recognised component of poverty reduction to which resources should be allocated.

Genetically Modified Crops

Genetically modified crops offer opportunities for ensuring food security. However the potential adverse effects of these crops on the environment are not well established and therefore most African countries adopted a precautionary principle in the development of GM crops. The African Centre for Biosafety reports an increasing number of African countries have Genetically Modified Research & Development capacity. The necessary legislation and policy to regulate research and commercialization processes have not evolved at the same pace as the research developments. The reliance on private sector research development results in limited focus on drought tolerance or yield improvements, which is the main thrust of the need for improving food security in Africa.

Means of implementation

The main reason for poor performance in implementing sustainable development initiatives in Africa has been inadequate financial resources. The initial assessment of available financial resources has turned out to be far below the resources required for several reasons, including a compounding of the challenges by emerging cross-cutting issues such as climate change. Climate change has exacerbated the problems, resulting in an urgent need for more financial commitments.

Despite efforts to create a conducive environment for Foreign Direct Investment (FDI), the flows of FDI to Africa have remained low and decreased over time. In some cases, the expected benefits of FDI have not been realized. In Namibia, for example, most FDI investments went into the mining industry, which reduced its workforce from 14,000 to 5,000 between 1991 and 2003.

The challenges facing the institutions established to deal with various aspects of sustainable development issues pertinent to Africa include gross financial difficulties, the rather complex organizational structure adopted by some of the institutions (e.g. African Ministerial Conference on the Environment (AMCEN)) and lack of coordination and harmonization of programmes. Lack of coordination and harmonization has resulted in duplication of efforts as well as spreading the available financial resources thinly across many programmes. The result has been lack of depth in programmes and ineffective actions during implementation.

Capacity-building efforts have been uncoordinated, with various donors implementing capacity-building projects as part of development interventions. Capacity-building elements are often

subject specific and, in some cases, overlook cross-cutting issues. Often, each donor has its own priority concerns and favoured methodology as well. Lack of coordination contributed to duplication and neglect of other key issues and generally to ineffective use of resources.

Insufficient financial resources to put in place initiatives for sustainable development activities and to implement associated action plans crippled the efforts of several countries. While Official Development Assistance (ODA) has been increasing in recent years, only a few countries have benefited. In 2007, Egypt, Mozambique, Ethiopia, the Democratic Republic of Congo and Uganda accounted for 32 per cent of all annual aid flows into Africa. Ten countries received more than 50 per cent of all the aid flowing into Africa. The financing gap for the other half the continent is huge and remains uncovered. Several programmes can be implemented more efficiently with the involvement of the private sector. However, it seems difficult to engage the private sector in some instances.

The availability and quality of human resources for public sector organizations feature in all of the case studies in important ways. In the most basic sense, the level of literacy, educational institution development, and access to university and technical training are important in explaining why public sector organizations generally perform poorly in some countries, for example, the Central African Republic and Tanzania. Beyond the basic importance of investing in human resource development as a means of building capacity more generally in a society, there is much evidence in the cases that link the availability and quality of human resources to organizational performance.

Opportunities presented by new and emerging issues

The challenges outlined in this paper also present opportunities that can be harnessed to deliver positive results and contribute to achieving sustainable development and reduction of poverty.

The UNEP Green Economy report defines a green economy as an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. A green economy that places emphasis on efficient use of natural resources and resource reallocation would benefit rural populations that are dependent on natural resources, through income generation from increased productivity of ecosystems and provision of services. However, as an opportunity for green jobs, a lot more emphasis needs to be placed on training and support to Africa's fledging training institutions if the continent is not to also end up with obsolete industries and skills of yester year.

According to the UNEP green economy report, tested and successful options include changes to fiscal policy, reform and reduction of environmentally harmful subsidies; employing new market-based instruments; targeting public investments to "green" key sectors; greening public procurement; and improving environmental rules and regulations as well as their enforcement. At the international level, there are also opportunities to add to market infrastructure, improve trade and aid flows, and foster greater international cooperation. As countries tackle new and emerging issues, these are some of the options that will need consideration.

With consideration of the strong natural resource base and the current development path of many countries in Africa, opportunities for transitioning towards a green economy could focus on the following sectors:

- ✦ Climate smart and sustainable agriculture;
- ✦ Sustainable land and water management;
- ✦ Use of renewable energy and improved energy efficiency;
- ✦ Fuel efficient and less polluting public transportation; and
- ✦ Maintaining ecosystems and biodiversity protection.

Of importance to developing countries especially in Africa is the policy environment required for integrating the green economy into national planning, including resource allocations, and human and infrastructural capacity for the green economy transition. Equally important is consideration of international financing, trade, environmentally sound technology and investment patterns that have an impact on the development prospects of developing countries.

The food crisis prompted governments, several international agencies, the donor community, and individuals to think innovatively and take the necessary steps to put in place measures that would address both immediate and long-term challenges. The AfDB short-term response to the food crisis showed the extent to which yields can be improved if farmers have access to the necessary inputs. Yields of rice, maize, sorghum, and millet increased by more than 100 per cent in intervention countries from 2007/2008 to 2009/2010 resulting in sufficient food on the markets. The AfDB medium to long-term response addressed some of the key challenges that countries faced, especially capacity-building and improving rural infrastructure. The investments in water management, both new infrastructure and the rehabilitation of existing infrastructure, contribute to increased agricultural output.

Establishment of River Basin Organizations provides a platform for cooperation and joint planning and management of water resources. Both upstream and downstream countries take responsibility for the development of infrastructure. Countries can also use the opportunities for cooperation and joint management of resources to leverage opportunities presented by other sectors.

Access to climate-related funds could provide African countries with other opportunities to access financial resources for addressing challenges including water resources development and management, energy, biodiversity losses and unemployment. In addition, given the water availability focus on the impact of climate change and food security, a new mindset can be promoted amongst policymakers that sets more stringent requirements, such as:

- ✦ Reviewing the economic implications of future water scenarios, using methodologies for assessing the economy's exposure to water risk, and a means of comparing different ways of mitigating the risks;
- ✦ Ensuring that all sectors assess the impact on water of all new budgetary and investment proposals;
- ✦ Requiring all new major investments (public or private), to include a full assessment of their water risk and impact; and

- Requiring sponsors of projects for the development and management of water resources or the provision of water services to include a full economic justification for the projects that they implement.

Implementation challenges and constraints

In the current environment and with the prevailing set of challenges both old and emerging, achieving the agreed development targets remains a major challenge for African countries. The financial crisis continues to affect the continent negatively. As such, resources to implement sustainable development programmes remain scarce. Innovative approaches will be required if the progress made to date is to be maintained.

Climate change and associated impacts compound the problem. Countries need to increase the resources required to tackle key issues such as provision of water, water resources management, and improved agriculture and food security. Substantially, increased efforts on the part of governments in terms of political commitments and implementation commitments will be required for progress to be achieved.

After all the interventions to alleviate the pressure of the food crisis, elevated food prices remain a challenge in many countries. While food prices have decreased globally, in Africa they have remained at relatively much higher levels. Unless other market-based interventions are adopted, the high food prices will remain a major obstacle to reducing hunger.

Charting the way forward

Charting the way forward requires identification of ways to exploit the opportunities presented by climate change, water scarcity, natural disasters, the food crisis, biodiversity and ecosystem loss, desertification, energy crisis, youth unemployment, trafficking and piracy, low penetration of ICT services, urbanization, disaster response mechanisms, genetically modified crops, technology transfer and the financial and economic crisis. In order to address new and emerging challenges and meet their development objectives, countries need to leverage opportunities presented by the wider development agenda and other sectors. With due consideration of the resource constraints posed by the financial crisis, targeted investments could address two or more interrelated challenges. For example, a targeted water infrastructure project can address water, energy, and rural water supply, and alleviate potential health problems that would have occurred as a result of lack of access to safe drinking water.

It has become clear that estimates of financial requirements to meet sustainable development targets fall short of the required resources. New assessments of the financial resources required for countries to meet development targets under the current environment with climate change impacts, the financial crisis, and other challenges are urgently required.

With the focus on climate change mitigation and the green economy, a better understanding of the costs and benefits (of the green economy) is required particularly with regard to creating jobs

and as a vehicle for poverty alleviation. Availability of sustainable energy forms in rural areas has several benefits including reduction of the dependency on forests for charcoal fuel, thus reducing the contribution to CO₂ emissions by rural populations. Availability of energy also makes it possible for rural populations to engage in business and create employment for the rural youth.

Urban areas in Africa will increasingly play a key role in regional and local environmental change. Their demands for consumption and production will increasingly affect land use/land cover, biodiversity, and the hydrological cycle. There is an immediate need to boost their sustainability and resilience and to assist them to make the transition to a greener economy.

Many human interactions with the environment occur at a slow pace (e.g. soil erosion, biodiversity loss, water pollution, mangrove destruction, tropical forest degradation, overfishing, etc.), such that they are often overlooked at the time they are happening. Africa needs to find a way to systematically address these creeping challenges to avoid their reaching a crisis point. In addition, new monitoring strategies, warning and response systems are needed to identify and cope with them.

Africa has a large and growing youth unemployment problem. The challenge is partly due to poor quality education and lack of access to post-primary and post-secondary education. Policies that address these challenges are required to avoid an unskilled future labour force. In addition, an increased role for the private sector in economic growth is required to provide employment for the youth. Furthermore, an enabling environment to foster entrepreneurship is also required.

The food crisis has been addressed by governments, the international community, donors and communities. Food output increased as a result of the interventions yet food prices remain high and volatile in Africa. Interventions are required to ensure that the benefits derived from the efforts made trickle down and contribute positively to reducing hunger and poverty.

Conclusions

Climate change, water scarcity, the food crisis, the energy crisis, and the financial crisis pose serious threat to sustainable development in Africa. However, they also present opportunities to address these issues in a mutually beneficial and efficient way. Additional resources will be required to keep Africa on the path to meeting its development goals but there are ways of increasing efficiencies if coordinated approaches are taken.

Elsewhere, the food crisis has passed but in Africa the challenge of high food prices remains despite positive interventions and outcomes (e.g. increased yields). Additional measures are required to ensure that the poor are not exposed to high food prices unnecessarily.

Mobilizing adequate resources for their adaptation needs relating to the adverse effects of climate change remains the biggest challenge for most African countries. They will need to continue seeking assistance to develop national climate change strategies and mitigation programmes, and continue to take actions to mitigate the adverse effects of climate change in Africa, consistent with the UNFCCC. Going forward, commitment on how to accelerate implementation of sustainable development goals, including the MDGs and mechanisms to strengthen the institutional framework for sustainable development will remain a major objective.

Lack of capacity to address the identified challenges is a major problem in African institutions. Previously identified priorities included partnerships with developing countries and United Nations agencies as well as technical cooperation. Targeted capacity-building activities resulted in large numbers of trained civil servants across sectors with notable increases in trained personnel in the areas of environment, water resources management and agriculture. However, capacity losses as a result of economic and social changes continue to pose serious challenges to governments and their ability to address sustainable development issues.

An effective continental response to the new and emerging challenges needs to include technological advances; organizational change; monitoring and surveillance; goal and target setting; participatory deliberations; and attention to the drivers of these challenges rather than addressing the symptoms.

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