



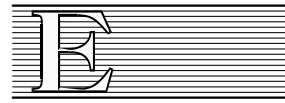
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World Summit on Sustainable Development:**

**Highlights from the fourth issue of the Sustainable  
Development Report on Africa**

**September 2011**



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## Acronyms

A21	Agenda 21
AEO	African Environment Outlook
APRM	African Peer Review Mechanism
AU	African Union
AUC	African Union Commission
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CFSSD	Committee on Food Security and Sustainable Development
DRC	Democratic Republic of Congo
ECA	Economic Commission for Africa
FAO	Food and Agriculture Organization
FPI	Food Production Index
GDP	Gross Domestic Product
GNI	Gross National Income
IPR	Intellectual Property Right
JPOI	Johannesburg Plan of Implementation
MDGs	Millennium Development Goals
NBSAP	National Biodiversity Strategies and Action Plans
NEPAD	New Partnership for Africa's Development
NFP	National Forest Plan
ODA	Official Development Assistance
PFIA21	Programme for Further Implementation of Agenda 21
R&D	Research and Development
REDD	Reducing Emission from Deforestation and Forest Degradation
RIM	Regional Implementation Meeting
SFM	Sustainable Forest Management
SSA	Sub-Saharan Africa
STD	Sustainable Tourism Development
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
WHO	World Health Organization
WSSD	World Summit on Sustainable Development



## **I. Introduction**

1. The World Summit on Sustainable Development (WSSD) reaffirmed sustainable development's central role in the international agenda. The Johannesburg Plan of Implementation (JPOI) adopted at the WSSD contains commitments and targets that member States agreed to pursue in order to foster sustainable development at all levels. The JPOI called upon the Regional Commissions of the United Nations to work with other bodies to organize regional and subregional reviews of the status of implementation of JPOI, Agenda 21 (A21) and the Programme for Further Implementation of Agenda 21 (PFIA21).

2. The United Nations Economic Commission for Africa (ECA), within the context of reform of its intergovernmental machinery, created the Committee on Food Security and Sustainable Development (CFSSD) per Resolution 853 (XL) in April 2007. CFSSD is both a technical and legislative organ and is composed of high-level experts from governments, academia, Research and Development (R&D) institutions, the private sector and the civil society of ECA member States. It meets on a biennial basis and serves as a forum for the promotion of cooperation, exchange of information and sharing of experiences in the areas of sustainable development, with focus on food security, agriculture, human settlements and environment. It advises ECA and member States on ways to strengthen its support to them. It also provides a platform for advocacy and assessment of follow-up activities by African governments, to global plans of action, especially JPOI, A21, the World Food Summit Programme of Action and the Habitat Agenda. In this regard, the CFSSD meetings have provided platforms for the Africa Regional Implementation Meetings (RIMs) to review progress in the implementation of commitments contained in A21, PFIA21 and JPOI.

3. The Seventh Session of the Committee on Food Security and Sustainable Development will build on the achievements of previous Committee meetings. In line with General Assembly resolution A/64/236, it will also provide the platform for the Africa Regional Preparatory Conference for the United Nations Conference on Sustainable Development, referred to as Rio+20, to be held in Brazil in June 2012. The objective of Rio+20 is to secure renewed political commitment for sustainable development, assess progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development and address new and emerging challenges. The Conference will focus on the following themes to be discussed and fine-tuned during the preparatory process: (a) A green economy in the context of sustainable development and poverty eradication; and (b) The institutional framework for sustainable development. In light of the foregoing, the CFSSD constituency will be broadened to bring together all relevant actors/stakeholders and involve the participation of ministers and high-level experts from a cross-section of sustainable development actors, including governments, civil society organizations, academia and the private sector of member States and African regional and subregional organizations and development partners.

### **Scope of this report**

4. This report, on the follow-up of WSSD outcomes, draws from the fourth issue of the Sustainable Development Report on Africa, produced under the theme "Managing Africa's Resource Base for Sustainable Growth and Development".

5. The report provides an integrated assessment of progress and achievements made towards sustainable development in the region, using indicators that capture the most pressing issues for Africa and which cover the social, economic, environmental and institutional dimensions of sustainable development. It also analyzes and showcases the contribution of forests, biodiversity, biotechnology, tourism and mountains to sustainable growth and development.

## **Submission to the Seventh Session of CFSSD**

6. This report is submitted to the Seventh Session of CFSSD to provide a synopsis of progress made by African countries towards sustainable development. It is intended to stimulate discussion and elicit comments and additional inputs for finalization of the Sustainable Development Report on Africa, which will serve as a medium for monitoring and assessing sustainable development in Africa.

## **II. Review of trends and progress towards sustainable development**

7. The challenge of sustainable development in Africa entails eradicating poverty via programmes that engage all sectors, especially those that depend on the natural resource base of the continent. Since the 2002 WSSD, Africa has achieved far-reaching political, economic and social changes, marked by increasing commitment to sustainable development, with poverty eradication at the centre of these efforts. Many governments have put forth planning tools and frameworks to guide the shift of the development path to one of sustainable development that is appropriate and specific to Africa. While these positive steps have been undertaken, a number of challenges and opportunities for broadening sustainable development remain (ECA and AUC, 2010).

8. African countries have continued to achieve and sustain positive real growth rates since 2000, even in the face of the financial and economic crisis that hit the world economy. However, a high growth rate is not enough to achieve sustainable development. As indicated in the ECA Economic Report on Africa 2011 (ECA, 2011), improved economic performance of the last decade has not translate into commensurate unemployment and poverty reduction, nor significant progress towards the Millennium Development Goals (MDGs), in sub-Saharan Africa, in particular. In many countries, the bulk of Foreign Direct Investment flows into the natural resource sector, with little or no value addition, while environmental degradation and erosion of the natural resource base continue unabated and poverty and income inequalities persist. This demonstrates the need for an integrated approach to development that harnesses the strong linkages between economic growth, social development and environmental protection. In this respect, the elaboration and implementation of development strategies, plans and programmes ought to pay particular attention to the balanced integration of the economic, social and environmental pillars.

9. This section of the report assesses the continent's progress towards sustainable development, based on a set of headline indicators that cover some of the most important themes of Africa's development across the three pillars of sustainable development, namely economic, social and environmental.

### **(a) Good governance**

10. Achieving sustainable development depends heavily on good governance at all levels. In this regard, African governments have taken steps to improve governance systems at the regional, subregional and national levels, with the objective to strengthen the governing structures and institutions and their coordination in the economic, social and environmental fields. Experiences from national processes indicate that successful governance transformation requires effective arrangements and mechanisms that integrate the three dimensions of sustainable development, namely economic, social and the environment. Where good governance has yielded improvement in natural resource management, there has been willingness to promote coherence and consistency in policy formulation and implementation. Pursuance of sustainable development has benefited from improved capacity at regional institutions and agencies working with subregional commissions to



promote and undertake inter-disciplinary implementation, assessment and reporting analysis of sustainable development issues within regions.

11. Countries are increasingly promoting integrated planning and use of development frameworks that are consistent with sustainable development. These include national strategies for sustainable development, poverty reduction strategies and implementation and financing frameworks. These efforts have somewhat helped countries to address the challenges of a fragmented approach to national development planning, with significant improvements in the analysis, formulation, review and implementation of social, economic and environmental policies in a more coherent way, while at the same time ensuring full ownership and leadership by the countries.

12. The African Peer Review Mechanism (APRM) offers a platform for encouraging partnerships for rating and supporting each other on socio-political and economic development governance (APRM Secretariat, 2011). Evidence is also available on the outcomes of national-level promotion of policy coherence and coordination with the establishment of national socio-economic development councils. In countries where they have been implemented, these councils have provided a high-level national focus on implementing sustainable development. The African Union (AU) has, over the years, designed several instruments to support democratization, governance and development, which are all at various stages of ratification by member countries.

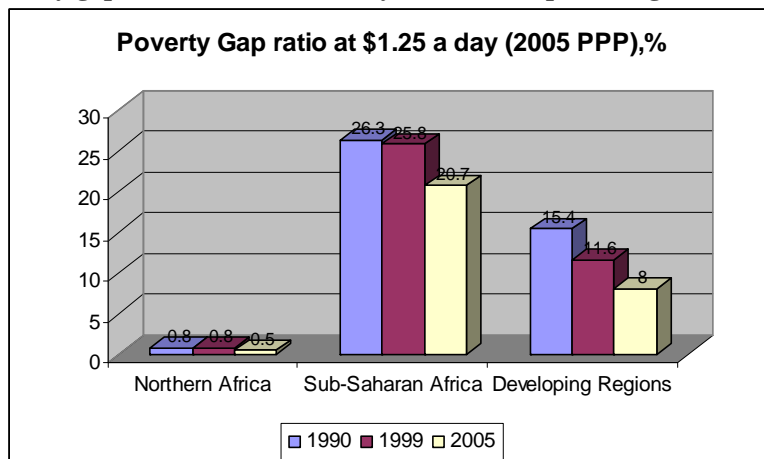
#### **(b) Poverty**

13. The proportion of the population living below the poverty line in Africa (excluding North Africa), rose to 52.5 per cent in 2008, the proportion of Africans (excluding those in North Africa) living on less than US\$ 1.25 a day, marginally decreased from 58 per cent in 1990 to 51 per cent in 2005.<sup>1</sup> However, this with resurgence in growth in Africa, the proportion of Africans (excluding north Africa) living on less than \$US1.25 a day fell from 58 per cent in 1990 to 51 per cent in 2005, but increased to 52.5 per cent in 2008 (ECA, 2011b). The poverty gap ratio also declined in 2005 as compared to 1990, in sub-Saharan and North Africa alike. This is an indication that both the depth and incidence of poverty have been improving since 1990. Despite this progress, the absolute number of people living in extreme poverty rose from 296 million (1990) to 388 million (2005). Africa contributes less than all other developing regions towards the global progress in poverty reduction.

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<sup>1</sup> It is important to acknowledge the controversy surrounding the extent of poverty reduction in Africa prior to the global financial crisis. For instance, Pinkovskiy and Sala-i-Martin (2010) argued that poverty is reducing faster than expected through the distributive impact of rapid economic growth in the region, which could fast-track the achievement of the target before 2015. However, Chen and Ravallion (2008) concluded that Africa's poverty is not declining fast enough to offset the region's high population growth rate. Wodon (2007), while appreciating the role of economic growth in poverty reduction, noted that changes in inequality are limiting the gains from growth for the poor in several African countries. The World Bank and IMF (2010) also explained that the initial conditions in Africa made it difficult for growth to lead to a rapid reduction in poverty; that the pace of progress is inversely related to initial conditions.

**Figure 1: Poverty gap ratio at \$US 1.25 a day (2005 PPP), percentage, 1990, 1999 and 2005**



*Source:* UN Millennium Development Goals report 2011.

Note: High-income economies, as defined by the World Bank, are excluded.

14. Furthermore, significant within-country inequalities continue to exist, and in some cases are worsening. Unequal income distribution is reflected in the percentage shares of income or consumption accruing to portions of the population ranked by income or consumption levels. As a measure of relative poverty, the poorest 20 per cent of selected African countries receive, on average, less than 11 per cent of total consumption. The distribution is more equal in Seychelles, Ethiopia, Egypt and Burundi and less so in Rwanda.

### (c) Demographic changes

15. Africa is home to about one billion people, accounting for 15 per cent of world population. The continent's population growth is billed to remain well above the world average for the next few decades (UNFPA, 2011a, b, c), with the population set to double by 2050. Except in the island States and parts of North Africa, fertility levels remain high with only a few countries (such as Mauritius) able to successfully transition from high to low fertility rates. The consequence of these continuing trends is that Africa will see further increases in its youth dependency ratio and increasing pressure on the fragile natural resource base, infrastructures and social services. Niger, Burkina Faso and Uganda have some of the highest growth rates in the world, while several countries, including Nigeria (with a population of over 100 million) are experiencing a crude birth rate of 50 or more per 1,000. Many countries, including Kenya, are currently set to double their population in 20 years or less.

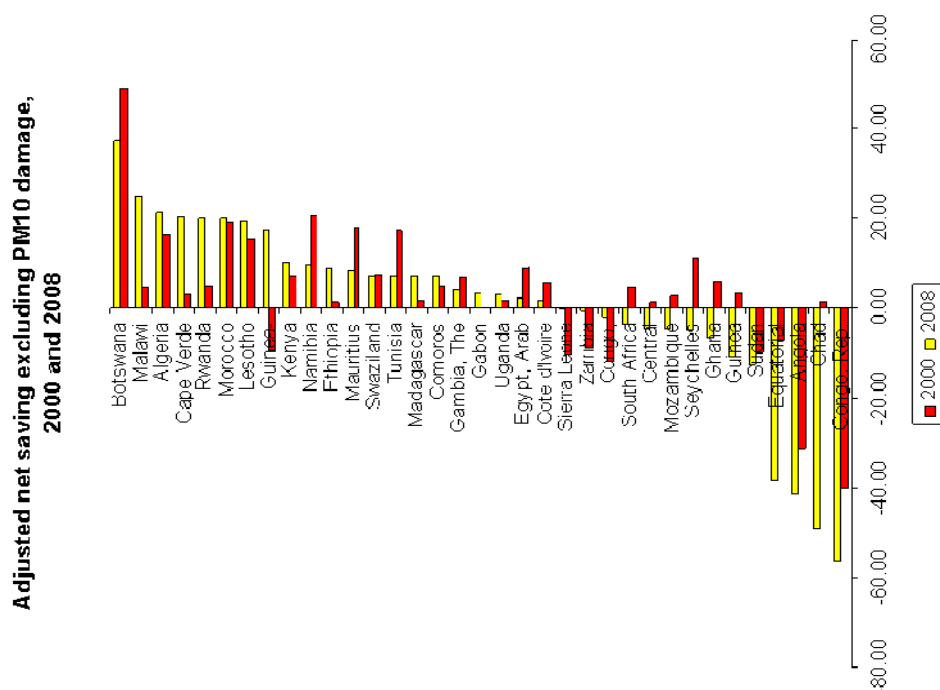
16. The high population growth rate and the net population increase already occurring in the urban areas pose significant challenges to sustainable development. Sustainable development efforts to address this include a supportive development environment that facilitates slower population growth and investments in reproductive health and HIV prevention, education and empowerment of women and the youth. These plans are part of the implementation of the Cairo Programme of Action of the International Conference on Population and Development (ICPD) aimed at achieving universal access to reproductive health information and services by 2015. Indeed, countries that have reduced their fertility and mortality rates (for example, Mauritius) have invested heavily in universal health care, including reproductive health, as well as in education, particularly girls'. According to UNFPA (2011a), lower fertility and slower population growth temporarily increase the relative size of the workforce, opening an historic, one-time only demographic window,

allowing countries to make much needed additional investments that can spur economic growth and help reduce poverty.

#### (d) Economic transformation

17. Aggregate GDP growth in Africa was 4.7 per cent in 2010, and expected to rise to 5.7 per cent in 2011 (ECA, 2011). However, this positive economic performance masks the continued depletion of the natural resource base and increasing pollution level. The indicator for adjusted net savings (the true rate of savings of an economy, after taking into account investments in human capital, depletion of natural resources and damages caused by pollution) for sub-Saharan Africa declined overall from 2004 to 2008. Adjusted net savings was negative for 14 countries in 2008 and dropped from 2000 to 2008 for several countries, indicating a worsening situation. The Central African Republic, Ghana, Guinea, Mozambique, Seychelles and South Africa went from positive adjusted net savings in 2000 to negative ones in 2008. A few countries improved the adjusted net savings over the period, indicating positive policy responses to the challenges of environmental sustainability and building human capital. These countries are Cape Verde, Ethiopia, Lesotho, Madagascar and Rwanda.

Figure 2: Adjusted net savings for selected countries



Source: World Bank.

#### (e) Gender

18. Globally, women's participation in the labour market remained steady at around 52 per cent from 1990 to 2010 (United Nations, 2010). Employment levels in the services sector continue to grow for both women and men, but agriculture still accounts for more than half of the employment of both women and men in sub-Saharan Africa (excluding South Africa). The percentage of women employees in non-agricultural wage employment is increasing in sub-Saharan Africa, but is nearly

constant in northern Africa. Women in Botswana, the Central African Republic, Ethiopia, Namibia and South Africa have the highest share (over 40 per cent) of employment in the non-agricultural sector. Conversely, Liberia, Senegal, Algeria, Libya and Egypt with the least share of women employed in the non-agricultural sector (under 20 per cent) are the worst performers that should make more effort to increase women's share in paid employment in the non-agricultural sector.

**(f) Education, training and culture**

19. Sustainable development in Africa depends, and will continue to depend, on the continent's human resources to build endogenous capacity to respond to challenges and opportunities for wealth creation and social sustenance. The constitutions of several African countries recognize education as a fundamental human right and the most powerful lever for the promotion of welfare and civic and social advancement. Education is a pivotal foundation for sustainable development, economic growth and poverty reduction.

20. Many countries in Africa have achieved good results in this area. Seven (Burkina Faso, Guinea, Morocco, Mozambique, the Niger, Tanzania and Togo) of the 16 countries for which 1991 and 2009 data is available have shown significant improvement in net primary enrolment of over 30 percentage points. Cameroon, the Central Africa Republic, Côte d'Ivoire and Djibouti also succeeded in increasing primary net enrolment by about 10 to 30 percentage points during the same period. By 2009, Algeria, Burundi, Egypt, Sao Tomé and Príncipe, Tanzania, Togo and Tunisia had already achieved the MDG target, while Benin, Cameroon, Malawi, Morocco, Mozambique, Namibia, Seychelles, South Africa, Uganda and Zambia, with less than 5.5 percentage points, were on track. However, 17 countries were more than 11 percentage points away from the target. While African countries are generally performing well on primary enrolment, ensuring excellence and quality of primary education in many African countries remains a major challenge.

21. Adult literacy rate (the percentage of people aged 15 and above who can, with understanding, read and write a short, simple statement on their everyday life) also improved significantly from 1990 to 2008, but remains well below the average of developed countries. Furthermore, the evident male-female divide in the adult literacy rate continues to pose a policy challenge, even though the proportion of female literate adults increased from 34.6 per cent in 1990 to 58.1 per cent in 2008 in Northern Africa and from 43.1 per cent in 1990 to 53.6 per cent in 2008 in sub-Saharan Africa.

**(g) Health and nutrition**

22. Significant improvements have been realized in health and nutrition in Africa. Governments, communities and partners have implemented strategic and local-level action aimed at improved health outcomes. For instance, the maternal mortality ratio has, overall, decreased from 1990, but not fast enough to meet the MDG target of reducing the maternal mortality ratio by 75 per cent by 2015. In all the subregions of Africa, maternal mortality declined by less than 2.3 per cent. On the other hand, the under-five mortality rate dropped by 39 per cent in North Africa, but only by 5 per cent in sub-Saharan Africa. The highest rate of child mortality continues to be in Central Africa, where one child in seven dies before the age of five – nearly 24 times the average for developed regions.

23. Africa is still characterized by weak health systems and the prevalence of communicable and non-communicable diseases, high child and maternal mortality, recurrent epidemics and humanitarian crises, aggravated disasters, climate change and the global financial crisis. Broad-based primary health care focusing on health of mothers and children, continued attention to HIV and AIDS, malaria and tuberculosis as well as intensification of prevention and control of

communicable and non-communicable diseases are some of the key responses witnessed in the last few years (WHO, 2010).

#### **(h) Food security and agriculture**

24. Rapid gains in agricultural productivity are essential to raising overall growth in Africa. The welfare of the majority of the population, in particular, in rural areas, remains intrinsically linked to agriculture. Value added per capita in agriculture has not risen significantly since 1990 – and has actually deteriorated in over half of African countries for which data is available for both 1990 and 2009 (Angola, Botswana, Cape Verde, Congo, Cote d'Ivoire, Egypt, Ethiopia, Equatorial Guinea (the worst performer with a decline of nearly 60 per cent), Gabon, the Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Senegal, Seychelles, the Sudan, Swaziland, Tanzania, Uganda, South Africa and Tunisia).

25. While food production has been increasing in absolute terms, it has not been able to keep pace with growing population and exports. Food security has deteriorated in Africa, due to natural disasters, conflicts, epidemics, and low productivity. While the food production index (FPI) (food production of crops that can be considered edible) increased overall in Africa from 1990 to 2009, it remains low, compared to global standards. Only a few countries (Algeria, Angola, Ethiopia, Ghana, Mali, the Niger and Sierra Leone) can be considered as having a high food production index (above 150). In some African countries (Congo, Democratic Republic of Congo (DRC), Equatorial Guinea, Lesotho, Seychelles and Zimbabwe) the FPI actually decreased during the period under consideration.

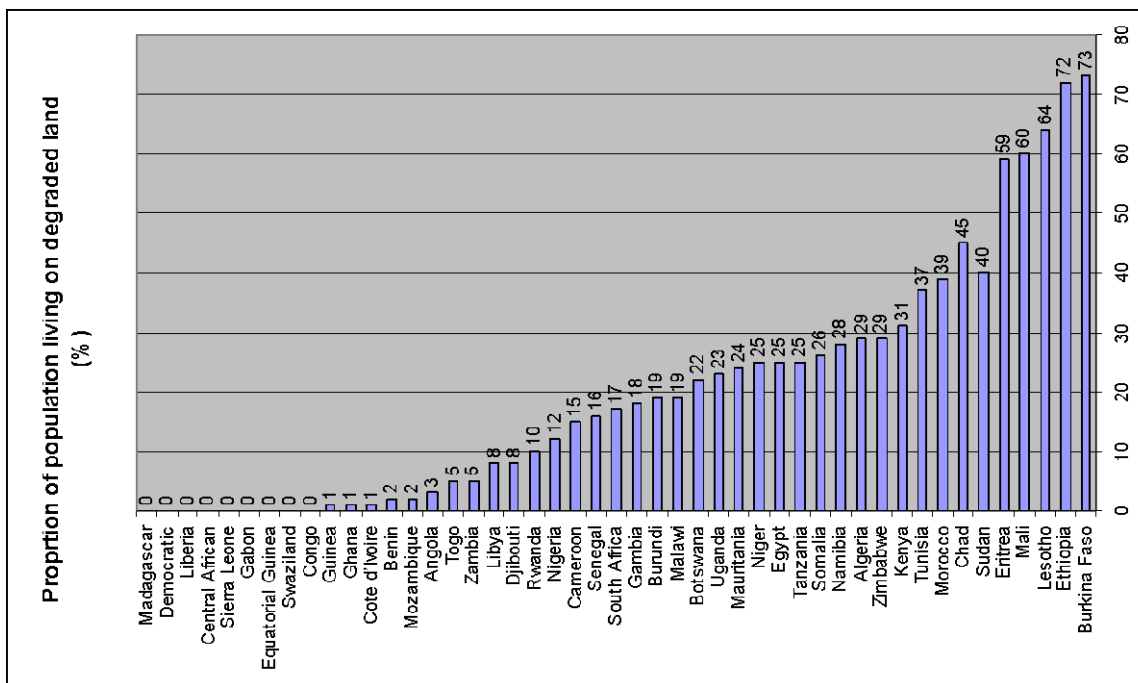
#### **(i) The natural resource base**

26. Africa is endowed with a very rich and diverse natural resource base on which the livelihoods of its people, rural folk especially, depends. There is consensus that natural resources, especially land, soil, water, forest, plant and animal diversity, vegetation, renewable energy sources, climate change and ecosystems services are fundamental for improving livelihoods and achieving sustainable development in Africa (Sanginga, Ochola and Bekalo, 2010).

27. For instance, in overall economic development, forests account for a significant proportion of the GDP in the region. In this regard, while a figure of 6 per cent contribution to GDP is often quoted for the entire sub-Saharan Africa, this figure masks the disparities between tropical and non-tropical countries. For example, trade in round wood, timber products and medicinal plants among others, contribute an average of 5 to 13 per cent of the GDP in forest-rich countries, including Cameroon, the Central African Republic, Congo, the Democratic Republic of Congo, Equatorial Guinea and Gabon (UNEP, 2011).

28. Despite their high economic value, natural resources continue to deteriorate in Africa (see the sections on Biodiversity and Forestry for an account of these two natural resources). Land degradation, for instance, is rampant, with significant soil losses in North and East Africa. In Uganda and Ethiopia for instance, soil erosion accounts for over 80 per cent of the cost of environmental degradation, estimated at 1 to 4 per cent of GDP. Twenty-five per cent of Africa's land is classified as wasteland, 12 per cent as lightly or moderately degraded and 4 per cent as strongly or extremely degraded. Burkina Faso, Burundi, Ethiopia, Lesotho, Madagascar, Morocco and Rwanda are particularly affected. In Burkina Faso, Eritrea, Ethiopia, Lesotho and Mali, more than 50 per cent of the population lives on degraded land.

**Figure 3: Percentage of the population living on degraded land**

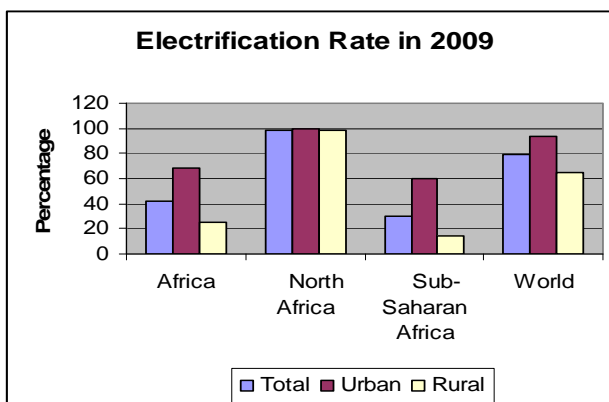


Source: [http://hdr.undp.org/en/media/HDR\\_2010\\_EN\\_table7](http://hdr.undp.org/en/media/HDR_2010_EN_table7).

#### (j) Energy

29. Access to sustainable energy is a critical element of Africa's development. Yet, access to electricity remains inadequate in Africa, in particular, in sub-Saharan Africa, where the rural population is the worst affected. Indeed, only about 30 per cent of people living in sub-Saharan Africa have access to electricity, compared to nearly 100 per cent in North Africa. In Burundi, the Central African Republic, Chad, Liberia, Rwanda and Sierra Leone, less than 15 per cent of the population has access to electricity.

**Figure 4: Electrification rate**



Source: IEA 2010.

30. Forests are also an important source of energy in the region. In some countries, more than 80 per cent of energy needs are met by wood fuel from forests and other combustible renewable resources such as biomass and animal waste. At the regional level, 59 per cent of total energy needs are supplied through such means (ECA, 2011b).

31. While in 2000, the energy intensity of selected African economies (measured as Gross Domestic Product (GDP) per unit of energy use in constant 2005 US\$ Purchasing Power Parity per kilogram of oil equivalent) peaked, in general, it declined significantly from 2000 to 2008. The exceptions are Angola, Botswana, the Congo, Gabon, Egypt, Morocco, Senegal and Tunisia, where energy use intensity increased. While it is clear that Africa needs to increase access to energy use, it is also important that it does so in a climate-constrained world, using the best available technologies and promoting energy efficiency in both household and industrial energy consumption.

#### **(k) Climate change**

32. Climate change impacts are already being felt in Africa's ecosystems, particularly such as those of southern Africa, and at a faster rate than anticipated. It is estimated that, by the 2080s, the proportion of arid and semi-arid lands in Africa would increase by 5 to 8 per cent as a result of climate change (Collier et al., 2008). Climate change impacts on Africa's ecosystems will probably have a negative effect on tourism as 25 to 40 per cent of mammal species in national parks in sub-Saharan Africa will become endangered. Climate change is already affecting biodiversity, with losses of aquatic and terrestrial biodiversity (Mansourina et al., 2009).

33. In terms of contribution to the problem, Africa remains the least emitter of greenhouse gases (GHG), both per capita and in terms of the carbon intensity of its economy. Africa's GHG emissions have remained negligible compared to that of the rest of the world. Trends in carbon dioxide (CO<sub>2</sub>) emissions per capita, based on 1990 and 2008 estimates indicate that they have increased globally, including in Africa, where they grew from 0.9 metric tons in 1990 to 1.2 metric tons in 2007. Yet, sub-Saharan Africa, with 11 per cent of the world's population, accounts for just 3.6 per cent of world emissions of carbon dioxide. CO<sub>2</sub> emissions per \$US1 GDP has decreased globally (from 0.60 kg in 1990 to 0.46 kg in 2008), including in sub-Saharan-Africa, where CO<sub>2</sub> emissions per \$US1 GDP decreased from 0.55 kilogram in 1990 to 0.43 kilogram in 2008.

34. Climate change mitigation offers major opportunities for Africa that should be better harnessed. African projects in the Clean Development Mechanism (CDM) of the Kyoto Protocol accounted for only 3 per cent of CDM projects at the end of 2006 and 5 per cent at the end of 2007. Africa's participation in the global carbon market has been relatively low due to low emission levels of African countries, lack of dedicated financing institutions, perceived high risk, low capacity and lack of awareness about the potential of CDM even in relatively advanced countries like South Africa, Nigeria and Egypt. There are also stiff barriers to carbon trade and investment, which inhibit access to new technologies. By addressing these policy obstacles, Africa could gain a substantial share of the carbon market, resulting in transfer of financial resources and technology, as well as secondary benefits such as biodiversity protection.

#### **(l) Natural and man-made disasters**

35. Natural hazards, such as earthquakes, drought, floods, tsunamis, landslides and volcanoes, threaten, not only human livelihoods, but also the ecosystems and biodiversity. In Africa, such disasters are considered threats in selected areas. Weather-related disasters are increasing in intensity and are expected to rise with climate change (IPCC, 2007). Poor people, who are typically

the worst affected, need more time to recover as they are more likely to live on the most fragile lands, in unsafe structures and have fewer resources with which to protect themselves (Okuyama and Sahin, 2009). Furthermore, African livelihoods greatly depend on climate and disaster-sensitive resources, such as land, water, and biodiversity.

36. The frequency and economic impact of disasters are on the rise in Africa, with a drastic increase in related human and economic losses over the last three decades (World Bank and United Nations, 2010). The overall number of people affected by disasters has grown by 6 per cent yearly since 1960. From 1960 to 2011, all 53 African countries experienced high occurrences of disasters (drought, earthquake/seismic activity, epidemics, extreme temperatures, floods, insect infestation, mass movement dry, mass movement wet, storms, volcanoes and wildfires).

37. DRC was the country most affected, followed by Ethiopia and Nigeria during the 1960-2011 period, while Eritrea, Equatorial Guinea, Libya, Sao Tome and Principe and Seychelles were the least affected. The occurrence of disaster is however not an indication of their severity: the total number of people killed by disaster over the same period was highest in Ethiopia, followed by the Sudan and Mozambique. While data on the number of disasters and number of people killed is relatively robust, that on economic loss and livelihood erosion may not generally be complete or reliable. Based on available data, the damage in \$US terms from 1960 to 2011 in Africa was highest in Algeria, followed by South Africa and Zimbabwe, with earthquakes accounting for the majority of the damage, as indicated in the OFDA/CRED International Disaster Database.

#### **(m) Global partnership for development**

38. While sustainable development is the responsibility of individual governments, it is clear that African countries cannot achieve it without international support. Strategic partnerships accelerate and stabilize a country's range of options for development, build upon experiences and models of development from other countries and increase a country's investment and development assistance options. Official Development Assistance (ODA) is crucial for economic growth and development, and has been supporting African countries in a variety of areas that are significant for sustainable development. These include developing human capital, facilitating international trade, improving governance and the public sector and improving infrastructure and utilities.

39. Considering ODA as a percentage of a country's Gross National Income (GNI), international support increased in 2009 in 10 countries only (including Burkina Faso, Burundi, DRC, Ethiopia, Rwanda, Sierra Leone, Togo and Zimbabwe), compared to the levels of the 1990s, while it decreased in 35 of the 47 countries with data for 1990 and 2009. The most significant drop was experienced by Guinea-Bissau, Cape Verde and Equatorial Guinea. Furthermore, ODA to Small Island Developing States (SIDS) as a proportion of their GNI has generally declined since the 1990s.

### **III. Thematic review of progress towards sustainable development**

40. This section of the report assesses progress, challenges and lessons learnt in managing forests, biodiversity, biotechnology, tourism and mountains in Africa, for sustainable growth and poverty eradication.



**(a) Forests in Africa****(i) Introduction and trend in Africa's forests**

41. Africa's forests are fundamental for reducing poverty and attaining sustainable development in the region. This is particularly so, given that most of Africa's poor live in rural areas where they are dependent on forests for their livelihoods. Forests in the region perform various functions such as production, protection of the soil and water, and biodiversity conservation; all which underpin ecotourism in the region. In 2010, Africa accounted for 21 per cent of the global total of carbon in forest biomass, which plays a vital role in mitigating climate change (FAO 2010). Below are some highlights on the contribution of forests to poverty reduction and sustainable development in the region.

42. Africa's forests cover about 675 million hectares (23 per cent of the land area of the region), accounting for 17 per cent of the world's forests. However, these forests are unevenly distributed. With only 8.6 per cent of its land under forest, North Africa has the least forest area, compared with nearly half of land under forest in West and Central Africa, and 27.8 per cent in East and Southern Africa. The largest forest area is found in the Democratic Republic of Congo, the Sudan, Angola, Zambia and Mozambique, which together, have more than half the forest area of the continent (55 per cent). Countries reporting the highest percentage of their land area covered by forest were Seychelles (88 per cent), Gabon (85 per cent), Guinea-Bissau (72 per cent), the Democratic Republic of the Congo (68 per cent) and Zambia (67 per cent) (FAO, 2010). [Table 1](#) shows the trend in forest cover in Africa over the 20-year period from 1990 to 2010.

**Table 1: Forest area in Africa, 1990–2010**

Subregion	Area (1 000 ha)			Annual change (000 ha)		Annual change rate ( per cent)	
	1990	2000	2010	1990-2000	2000-2010	1990-2000	2000-2010
Central Africa	268 214	261 455	254 854	-676	-660	-0.25	-0.26
East Africa	88 865	81 027	73 197	-784	-783	-0.92	-1.01
North Africa	85 123	79 224	78 814	-590	-41	-0.72	-0.05
Southern Africa	215 447	204 879	194 320	-1 057	-1 056	-0.50	-0.53
West Africa	91 589	81 979	73 234	-961	-875	-1.10	-1.12
Total Africa	749 238	708 564	674 419	-4 067	-3 414	-0.56	-0.49
World	4 168 399	4 085 063	4 032 905	-8 334	-5 216	-0.20	-0.13

Source: FAO (2010).

43. During the last 20 years, Southern Africa had the highest net loss of forests while northern Africa had the least. Overall, net loss of forest area in Africa slowed down from 1990 to 2010. However, the net loss of 3.4 million hectares per year recorded during this period is still high and globally ranked second to Latin America (FAO, 2011).

44. The continued loss of forest cover is due to deforestation and land degradation, attributed to factors such as rapid population growth, poverty, agricultural expansion, uncontrolled timber exploitation, increased collection of fuel-wood, overgrazing, uncontrolled urbanization, surface mining, drought, bushfires and civil wars and conflicts.

45. Forests are important for food security, employment and income generation. For instance, bush meat, consumed in many countries in West and Central Africa is from forests. In Central Africa, hunting provided between 30 and 80 per cent of the overall protein intake of rural households, while the economic value of the bush meat trade in the subregion is estimated to range between \$42 and \$205 million per year. The total harvest of bush meat in Central Africa amounts to more than 1 million tons annually (FAO, 2010).

*(ii) Towards sustainable forest management*

46. Overall, in the last 10 years, Africa made progress towards sustainable forest management (SFM) unlike in the 1990s. Also notable is the sharp increase in the area of forest with a management plan over the last ten years. This progress can be attributed to efforts at national, subregional and regional levels and support from development partners.

47. African countries have benefited from international support for SFM. For example, thirty- five African countries have received support from the National Forestry Programme Facility hosted by FAO. FAO has also been supporting Burkina Faso, Chad, Kenya, the Niger, Senegal, and the Sudan to address food security and desertification by improving agro-silvo-pastoral systems and the sustainable development of the gum and resin sectors.

48. Some African countries in the region, namely DRC, Tanzania and Zambia, are being supported by the United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD). This programme funds forestry projects that reduce emissions and mitigate climate change, thereby generating economic and social benefits. In addition, 14 countries (Cameroon, Central African Republic, Congo, DRC, Equatorial Guinea, Ethiopia, Gabon, Ghana, Kenya, Liberia, Madagascar, Mozambique, Tanzania and Uganda) are participating in the World Bank Forest Carbon Partnership Facility (FCPF), which aims at building the capacity of developing countries with tropical forests to enable them to join in the REDD efforts.

49. Currently, almost 17 per cent of Africa's total forest area has management plans and this has been increasing since 1990 (FAO, 2010). Additionally, over 76,000 square kilometres, or more than one per cent of Africa's forest estate have been given Forest Stewardship Council (FSC) certification<sup>1</sup>. Countries continue to pursue agroforestry as well as plantation forestry programmes. Moreover, community-based forest management is increasing, and in some countries, is taking place in the context of decentralized forest management.

50. Transboundary and partnership programmes and initiatives have been set up or implemented to promote SFM. Examples of these include the Central African Regional Programme for the Environment (CARPE), the Congo Basin Forest Partnership, and the Great Green Wall for the Sahara and Sahel Initiative.

## **(b) Biodiversity in Africa**

### *(i) Overview and trends in biodiversity in Africa*

51. Biological diversity, commonly referred to as biodiversity, is “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (Convention on Biological Diversity (CBD)). Biodiversity includes human beings and the environments they help to shape. No matter how far removed they may seem from the “natural” environment, human beings remain intricately tied to ecosystems and their processes through diets, use of materials, energy, water, recreational activities and much more.

52. Although its importance has often been greatly undervalued, biodiversity plays a vital role in the wellbeing of millions of people throughout the region. As such, loss of biodiversity has profound implications for the achievement of poverty reduction and sustainable development in Africa. In the health sector, biodiversity provides food, a consistent supply of clean drinking water and tools to fight and control diseases. The World Health Organization has estimated that 60 per cent of children suffering from fever in Ghana, Mali, Nigeria and Zambia are treated at home with herbal medicines (WHO, 2002).

53. Africa’s biodiversity abounds in the wide variety of ecosystems found in the 54 countries of the region. These ecosystems are characterized by extremes in temperature and physical features ranging from deserts to tropical rainforests. Six of the 25 internationally recognized biodiversity hotspots are in Africa. According to the 2006 African Environment Outlook (AEO), about 1,000 vertebrate species occur in just four of the 119 eco-regions (covering about eight per cent of Africa’s total area); one-quarter (1,229 species) of the world’s approximately 4,700 mammal species occur in Africa, including about 960 species in sub-Saharan Africa and 137 species in Madagascar; and more than 2,000 bird species, constituting more than one-fifth of the approximately 10,000 bird species in the world. Africa has about 950 amphibian species (UNEP, 2006).

54. However, this biodiversity continues to be lost at high rates through five main direct drivers, namely habitat loss, climate change, unsustainable resource use, invasive alien species and pollution. Due to the continued high rates of biodiversity loss and degradation, African countries have not been able to meet the target set at WSSD “for countries to achieve a significant reduction in the current rate of loss of biological diversity by 2010.”

55. Freshwater ecosystems have undergone dramatic changes throughout Africa due to a combination of human activities including drainage for agriculture, abstraction of water for irrigation, industrial and household use, input of nutrients and other pollutants, introduction of alien species and damming of rivers. More than 75 per cent of river flows in Africa have been diverted in order to provide water for agricultural, industrial and municipal purposes with about 70 per cent of water withdrawals being used for agriculture (UNECA, 2011b).

56. There are currently more than 3,800 species of threatened (vulnerable, endangered and critically endangered) species in Africa according the IUCN Red List of Threatened Species (IUCN, 2011). However, this number is likely to be higher, as there is not adequate information on 1,800 species for an accurate assessment of their conservation status. There are more than 140 extinct species as well as 10 species, which are extinct in the wild.

57. Changing market demands, urbanization and other factors are leading to rapid growth of more intensive animal production systems. This has led to the increased use of non-local breeds, largely from developed countries, often at the expense of local genetic resources. For example, 43 of 649 assessed mammalian breeds in Africa were at risk.

*(ii) Efforts and best practices to conserve and sustainably use biodiversity*

58. Although, just like other countries in the world, African countries could not achieve the 2010 target of significantly reducing biodiversity loss, considerable positive measures and actions have been taken. These have had major impacts on the biodiversity, which would certainly have been worse off otherwise. The following are some of those measures.

59. Fifty-three African countries have completed their national biodiversity strategies and action plans (NBSAP)<sup>ii</sup>. Some of these countries have revised their NBSAP. This revision allows countries to identify and meet new challenges such as climate change and to respond to recent guidance from the Conference of the Parties to the Convention on Biological Diversity (CBD), in particular, to incorporate national targets based on the Strategic Plan for Biodiversity 2011-2020. In many countries, the preparation of strategies has led to the development of additional laws and programmes, and spurred action on a broad range of issues. According to the national reports provided to the CBD, several policies in support of biodiversity were introduced over the last five years throughout Africa. More than 85 per cent of African countries, parties to the convention on biological diversity reported that since the submission of their third national reports in 2005, they had developed new legislation on biodiversity. Nearly all parties reported that they were also undertaking actions on education and public awareness about biodiversity and the environment.

60. There has been continued increase in the coverage of protected areas in the region. It is estimated that by 2010, the size of the protected area estate had increased to 15.7 per cent for terrestrial and 4.9 per cent for marine areas (IUCN and UNEP, 2010). Moreover, there has been growing recognition of the need to involve local people in decisions regarding the location and management of protected areas. The amount of forest area designated specifically for the conservation of biodiversity has been increasing.

**(c) Biotechnology**

*(i) Overview of debate and advances for poverty eradication*

61. The eradication of hunger and poverty is a prerequisite for sustainable development. At the regional level, not only is food shortage a problem of distribution (purchasing power and availability), it is also increasingly becoming an issue linked to production and quantity challenges. In addition to economic and social interventions, measures to increase food production to meet increasing demand from the growing population are needed. Strategies for intensifying food production through technological innovations are being advanced. Sustainable development also requires expansion of existing technological capabilities and instruments for production and using natural resources more efficiently while preserving them at the same time.

62. Poverty eradication and food security have moved to the centre stage of the development agenda as they are the greatest global challenges and their redress is an indispensable requirement for sustainable development in developing countries, particularly in Africa. NEPAD recognizes that science and technology are central to its goals of promoting economic recovery, poverty reduction, better human health and environmental sustainability in Africa.

63. Poor producers in Africa depend directly or indirectly on productivity increases in agriculture to rise above poverty. Early evidence on farm-level impacts confirms that biotechnology applications may help poor farmers increase their productivity (Cohen et al., 2004). The specific needs of the region's poor farmers should be addressed by applying biotechnological interventions for food crop production and poverty reduction. Biotechnology has the potential to provide new opportunities for achieving enhanced crop and livestock productivity in a way that will alleviate poverty, improve food security and nutrition and promote sustainable use of natural resources.

64. Biotechnology encompasses all techniques that aim to regulate and use biological processes (examination, change or optimization of living-processes) for the production of substances and services (Mataruka, 2009; Karembu et al., 2009). The wider applications of biotechnology for sustainable development range from agriculture and nutrition to broader environmental technology as well as medical and industrial areas. In agriculture and nutrition application, the areas include: (a) plant production in order to stabilize and increase current yield potential and improve product quality; (b) animal production in breeding and veterinary practices; and (c) food technology to meet the expectations of consumers and the processing industries. In environmental applications, three areas stand out: bio-energy, plant protection and degradation of toxic agents. Medical applications stem from a better understanding of cause and development of diseases and the production of recombinant human proteins as compounds; for instance, vaccines, for therapeutic purposes.

65. Realization of the full potential of biotechnology in Africa is no longer a question of technology or even capacity, but rather an issue requiring contextualized institutional frame conditions, which will support the technological system, for it to play a role in food production and sustainable development. Many countries are putting in place mechanisms of technology transfer as well as legal regulations covering intellectual property and biosafety before fully adopting biotechnology as a vehicle for food production. This is despite the challenges such as costs, expected profit, and scepticism of potential users associated with poor understanding of health and ecological risks, which hamper its wider adoption.

66. There are indicative trends in the increased application and institutional reorganization to accommodate increased adoption of biotechnologies in Africa. In Africa, the priority in biotechnology R&D is still in the agriculture sector, partly due to the need to ensure food security and increase exports against the backdrop of constant or even degrading natural resource base. The comparative benefits of biotechnology and genetic engineering with respect to sustainable development can be consolidated if application is extended to other areas such as waste disposal and prevention and rehabilitation of damaged ecosystems.

#### ***(ii) Towards biotechnology application for sustainable development***

67. Just like many others in the developing world, African countries must develop the scientific and technological capacity to ensure that innovative technologies, particularly biotechnology, become a key tool that can reverse the poor economic situation and contribute to sustainable development and improved welfare of the people. Indeed, biotechnology is not a panacea for all the problems of food insecurity and poverty. However, it could provide a critical component for the solution, if it is guided by appropriate policies.

68. Just like with the Green Revolution, biotechnology has so far failed to take root in Africa (Juma and Serageldin, 2007) due to constraints such as inadequate human resource and infrastructure capacity, lack of supportive policies and regulatory frameworks, inadequate funding, lack of public and private investments at levels that can make a difference and absence of systems for the delivery of technologies to potential users, as well as inadequate awareness and

understanding leading to misconceptions about the potential of and risks posed by biotechnology. For biotechnology to promote sustainable development in Africa, investment strategies must address the needs of the poor, who depend almost entirely on agriculture. Furthermore, the agenda must be aligned with national development policies, private sector interests and market opportunities

**(d) Tourism**

**(i) *Overview of tourism in Africa***

69. Tourism is one of Africa's most flourishing and emerging industries. International receipts grew by 7 per cent over the last 10 years, while total tourism expenditure amounted to over \$40 billion in 2010 (UNWTO, 2010). Despite its potential of creating many employment opportunities and foreign exchange in economies, it is also a means of enhancing the infrastructural facilities of destination countries as well as promoting cooperation and understanding among people all over the world. Tourism has become a means by which many countries improve their income base and at the same time showcase their traditional heritage (Olorumfemi & Raheem, 2008). Furthermore, most of the tourism in Africa is based on the continent's rich biodiversity and diverse landscape, which provides further incentives for sustainable development.

70. Lake Naivasha, a designated Ramsar site in the Kenyan Rift Valley, is home to more than 300 bird species and is a major tourist destination. Similarly, the Okavango Delta in Southern Africa, which is rich in biodiversity, is estimated to generate more than \$145 million, or some 2.6 per cent of Botswana's Gross National Product (CBD, 2009). The use and sale of the delta's natural resources and income from the tourism industry is estimated to generate \$32 million per year for local households alone.

71. Tourism in Africa has been seen as a means of enhancing economic growth and development as well as launching the image of the continent to the outside world. It received a major boost with the hosting FIFA World Cup by South Africa in 2010.

72. Over the past decade, the contribution of the tourism industry to the GDP and exports of many African countries improved. According to the United Nations World Tourism Organization (UNWTO) (2010), Africa's tourism arrivals grew from 37 million in 2003 to 63 million in 2010 and continued to grow at a higher rate than overall arrivals in the world in 2010. The total contribution of travel and tourism to employment, including jobs indirectly supported by the industry, is forecasted to rise by 2.5 per cent yearly from 2,167,000 jobs (12.6 per cent of total employment) in 2011 to 2,764,000 (13.7 per cent) by 2021 (World Travel and Tourism Council).

73. Africa saw a significant change in the total contribution of travel and tourism to employment from 1990 to 2011. Over that period, the total contribution of travel and tourism to employment rose more in North Africa than in sub-Saharan Africa. The total contribution of travel and tourism to employment increased in 37 of the 41 countries for which data was available. Conversely, the contribution decreased in Nigeria, Congo and Gabon, while it remained constant in Chad. In 2011, the highest share (56.4%) of travel and tourism to employment was observed in Seychelles, followed by Cape Verde (39.5%), Mauritius (29.7%), and Namibia (26.6%) while the lowest was in the Democratic Republic of Congo (1.6%), followed by Congo (1.7%) and Nigeria (1.9%).

**(ii) *Towards sustainable tourism***

74. Sustainable management of tourism entails seeing the sector as an integral component of community development with a need for legal frameworks for pro-poor tourism, sustainable development, poverty alleviation and capacity building. There should be clear strategies on how to ensure that tourism benefits local communities, by developing community infrastructure, skills and training for local residents, ensuring fair trade practices and implementation of good policies (ODI, 2006). The cultural heritage should also be managed efficiently by protecting and promoting culture, developing a guideline for tourists, establishing codes of conduct and preserving historical artifacts and sites. Tourism should be viewed as a vehicle for ensuring environmental sustainability by integrating community-based resource management, greening as a viable option, reducing pollution and protecting the ecosystem. Such measures can address the tourism challenges in Africa's coastal zones, mountains, managed wildlife parks, urban environments, cultural sites, unique ecological sites and small islands.

75. In line with JPOI, various organizations and regional and subregional bodies are implementing mechanisms to support Africa's efforts to attain sustainable tourism that contributes to social, economic and infrastructure development by:

- Assisting host communities in managing their tourism projects for maximum benefit, while limiting negative the impact on their traditions, culture and environment;
- Establishing and supporting national and cross-border conservation areas to promote ecosystem conservation using the ecosystem approach, and sustainable tourism;
- Implementing projects at the local, national and subregional levels, with specific emphasis on marketing African tourism products, such as adventure tourism, ecotourism and cultural tourism;
- Respecting local traditions and cultures and promoting the use of indigenous knowledge in natural resource management and ecotourism;
- Supporting the conservation of Africa's biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits derived from the utilization of genetic resources.

**(e) *Mountains***

**(i) *African mountains and mountain resources***

76. Mountains are important sources of other natural resources and development capital in Africa, namely water, minerals, agricultural products, forests, energy and biological diversity. Despite their significant contribution to sustainable development, African mountains are yet to be fully exploited and conserved. Mountain inhabitants are also among the poorest on the continent. Pressure on the mountain ecosystems degrades local resources and also affects ecosystems and communities downstream. Sustainable management of mountains is therefore of great importance to the natural resource base.

77. Beyond their common characteristics of having high relative relief (or very marked topographic variation) and steep slopes, African mountains are remarkably diverse. This diversity determines their significance to sustainable development. About 15 per cent of the human population in Africa derive their life support from mountains. Mountains are important, not only for their human inhabitants but also for people living far away, through ecosystem services offered by mountains. They also play a critical role in the water cycle, with many rivers generating from mountain areas. Mountains provide good settings for hydroelectric power generation from the rivers

originating from them. They thus promote local renewable energy, which, in addition to wood fuel reserves in mountain forests, is an important catalyst of economic development. Mountain ecosystems are important as centres of biological diversity and tourist attraction sites. Mountains are designated as national parks or other types of protected areas in many countries.

78. For this reason, mountain ecosystems have recently been recognised as important, not only to mountain people, but also to other communities. Many African governments and organizations have implemented policies and earmarked significant financial and other resources for activities that contribute to sustainable mountain management. Achieving sustainable mountain development (SMD) is key to realizing the potential of African mountains.

#### **(f) Sustainable mountain management**

79. A number of thematic initiatives in the region have been launched to address various challenges to mountain habitat. They include initiatives on the following themes:

- Biodiversity conservation and mountain ecosystems
- Climate change
- Desertification
- Watershed management
- Disaster risk management
- Indigenous people's issues
- Gender
- Payment for environmental services
- High-quality mountain products
- Tourism
- Education and awareness

#### **Box 2: Cases of mountain management initiatives in Morocco and Guinea**

##### *Morocco*

Outat watershed project of the High Atlas (Midelt Province) already provides assistance to key stakeholders in combating desertification through watershed management. In a partnership between the Government of Morocco, FAO and the Mountain Partnership Secretariat (MPS), the project has implemented activities aimed at improving the production of saffron in the Anti-Atlas Mountains. Valuable information regarding the technical, social and economic aspects of production and processing, as well as a comprehensive overview of the saffron value chain have been generated.

##### *Guinea*

Implementation of the regional Fouta Djallon Highlands Integrated Natural Resources Management Project, funded by the Global Environmental Facility (GEF). A baseline survey and a watershed management plan have been developed for all pilot sites and interventions related to improving natural resources management and enhancing local livelihoods that are to be initiated in 2011.

## **IV. Conclusions**

80. Africa's efforts to achieve sustainable development have been hindered by conflicts, insufficient investment, limited market access opportunities and supply-side constraints, unsustainable debt burdens, historically declining levels of official development assistance and the impact of HIV/AIDS.



81. Natural resource degradation trends continue to undermine Africa's growth and poverty eradication efforts, with climate change exacerbating the situation. Livelihoods and productivity on the continent rely on climate-sensitive resources such as land, water and forests. Sustainable management of Africa's natural resources is the basis for poverty eradication and sustainable development. Managing natural resources requires an integrated approach.

82. Recent global trends like economic crises have added to the challenges, while economic transformation is constrained by many local and regional global challenges, including rising fiscal expenditures, infrastructure expenditures and the need to balance interventions that expand employment, create assets, build the skills base and contribute to solving social problems. Towards 2010, the economies of African countries faced a major challenge in overcoming economic contraction, which resulted from the global recession, while at the same time striving to achieve the MDGs (ECA, 2011). Africa is on the path to recovery, largely bolstered by stronger global trade and the rebound of commodity prices. However, it remains critical for African economies to grow in a more socially equitable way.

83. There has been progress in some key social areas, including improvements in access to improved water sources and education. However, poverty eradication remains constrained by health challenges such as HIV/AIDS, malaria, tuberculosis and child mortality. The progress, however, remains under threat from pressure from demographic changes, production and consumption patterns and the uncertain regional and global economic environment. Other challenges, which African countries and their institutions must continue to address, are climate change and natural disasters.

84. While significant progress has been made in governance, harmonization of the many incoherent sectoral governance systems remains a priority, together with stronger capacity development strategies. Smart ways of development planning and implementation should be explored, using, for instance, innovative ideas and technologies that promote sustainable exploitation of natural resources and strengthening of governance structures.

85. The challenges of maintaining sustainable development trends revolve around the four dimensions of economy, society, environment and governance. Sustainable development strategies must harness these dimensions in an integrated manner so as to maximize their synergies. More emphasis should be put on good governance, building on successes made in policy and regulatory frameworks and the participatory management of Africa's natural resource base. Sustainable development will depend on how the continent's natural resource base and sectors such as forests, biodiversity, biotechnology, mountains, and tourism are managed in ways that promote social equity, economic prosperity and environmental integrity.

#### **(a) Forestry**

86. SFM considerations should be integrated into comprehensive national development policies, strategies and plans, as well as into sectoral plans, including sustainable land-use and management plans, with a view to promoting coordination and addressing underlying and direct causes of forest loss and degradation, which often fall outside the forest sector.

87. Large-scale commercial logging concessions in most natural forests of Africa should increasingly be managed on the basis of SFM. At the same time, the small and medium size enterprises sub-sector must be supported, as it engages many more people than the formal forestry sector and directly benefits local people. As such, while the various forms of community forestry

are increasingly gaining popularity in Africa, there is a need to develop and enforce appropriate policy and legal frameworks for their successful implementation.

88. African countries should institutionalize regular forest assessment and inventory to acquire comprehensive knowledge of and information on the forestry sector, and to inform policies and plans for SFM. In this regard, governments should improve national capacity to monitor and assess forest resources as well as their contribution to food security and poverty alleviation.

89. African governments should take advantage of opportunities offered by current international climate change response mechanisms such as REDD+ to promote SFM. Countries therefore need to be supported to develop and ensure that their policies and legislation encourage the development and implementation of these mechanisms. It is however important to ensure that, in taking advantage of these mechanisms, the crucial role that forests and trees play in Africa's socio-economic development is recognized and the underlying causes of deforestation and degradation are addressed.

#### **(b) Biodiversity**

90. The overarching challenge for Africa in the coming decades will be finding an appropriate balance between development and conservation and sustainable use of biodiversity. This is particularly relevant in the context of the region's rapidly rising population. This would call for devising the means to meet the needs of the people without eroding the biological systems, which are the very basis of their survival. There is therefore a need to strengthen efforts to mainstream biodiversity in the development and implementation of policies, strategies and programmes in all sectors and at all levels.

91. Direct pressures on the biodiversity must continue to be addressed, and actions to improve the state of the biodiversity maintained on a much larger scale. The greater application of existing tools and guidelines, such as the ecosystem approach, strategic and environmental impact assessment and the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, should scaled up.

92. The adoption of the Strategic Plan for Biodiversity 2011-2020 at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity in Nagoya, Japan offers an opportunity to refocus efforts on biodiversity at all levels. Countries should be provided with technical and financial support to achieve the various targets that they have committed to as part of the implementation of the strategic plan.

#### **(c) Biotechnology**

93. African countries should seek to promote Africa-focused biotechnology R&D in the following areas:

- Application of tissue culture for mass propagation of virus-free planting material of vegetatively propagated and neglected/orphan crops
- Biotechnology for bio-processing and value addition
- Biotechnology to improve human and animal health
- Genetic engineering
- Use of marker technology for livestock and important food crops

94. Human resource, infrastructure and financial capacities should be enhanced, as Africa's ability to effectively use existing and emerging biotechnologies will depend largely on the level of investment in building physical, human, institutional and financial capacities. Other urgent options for ensuring that biotechnology supports poverty reduction and sustainable development include establishing strategic partnerships to promote marketing and commercialization; developing enabling policies for biotechnology promotion and regulation including those to support functional Intellectual Property Rights (IPR) and biosafety.

**(d) Tourism**

95. Sustainable tourism development (STD) in Africa is critical a tourism product that can draw on the continent's natural assets and culture. It may occur in remote and diverse locations and has a higher potential for the economic development of small enterprises. In addition, tourism is labour intensive and offers diverse opportunities through its value chain for job and wealth creation in arts and crafts, transport, cultural activity and accommodation services. Protection of the natural resource base remains a central theme in the STD agenda.

**(e) Mountains**

96. The management of African mountains for sustainable development will continue to require strategies targeting socio-economic, legislative, institutional and technical issues. To enable mountains to contribute to sustainable development, the vulnerabilities of their poor inhabitants and the mountain ecosystems must be considered in general, regional, national and transboundary development plans.

97. Institutional mechanisms and arrangements at the subregional, national and mountain-community levels should be established to promote and coordinate sustainable development initiatives in mountain regions and communities. This should also help to scale up and replicate success stories in collaborative management and other forms of community involvement in ecosystem management in other areas of the mountain regions.

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<sup>ii</sup> A list of countries with National Biodiversity Strategies and Actions Plans is available from: <https://www.cbd.int/doc/nbsap/nbsap-status.doc>