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Strengthening the capacity of West African States on green economy for mitigation of climate change

A STUDY ON THE GREEN ECONOMY IN WEST AFRICA CAPACITY BUILDING OF WEST AFRICAN COUNTRIES AROUND THE GREEN ECONOMY FOR CLIMATE CHANGE MITIGATION

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Table of contents

Table of contents	2
Introduction	4
Chapter 1: Analysis of the potential of, and challenges facing, the Green Economy in Africa, with a focus on West Africa	7
1.1 The importance of the green economy based on specific sectors (i.e. sources of economic growth, income and job creation, food security, etc.)	7
1.1.1 The agriculture sector	7
1.1.2 The energy sector	8
1.1.3 The industry sector	9
1.2 Analysis of the potential of development of the green economy	9
1.2.1 The agricultural sector	9
1.2.2 The Industrial Sector	12
1.2.3 The energy sector	13
1.3 Analysis of major challenges (job creation, natural resource degradation, climate change adaptation, governance)	15
1.3.1 Challenges of persistent poverty	15
1.3.2 Challenges of political and institutional governance	15
1.3.3 Challenges of limited capacity	16
1.3.4 Climate change and degradation of natural resources	16
1.3.5 Access to energy services	16
Chapter 2: Evaluating the impact of the transition towards a green economy in West Africa	17
2.1 Impacts on poverty and employment	17
2.1.1 Impacts of green economy on poverty	17
2.1.2 Impacts of green economy on employment	19
2.2 Impacts or effects of sectoral promotion of the green economy	21
2.2.1 Impacts on agriculture	21
2.2.2 Impacts on industry	23
Chapter 3: Analysis of institutional and financial barriers to a green economy	25
3.1 Analysis of policy and institutional barriers Policy Barriers	25
3.1.1 Policy barriers	25
3.1.2 Institutional barriers	26
3.2 Analysis of financial barriers	28
3.3 Analysis of barriers related to adaptation and mitigation of CC	31
3.3.1 Analysis of barriers related to adaptation to CC	31

3.3.2	Analysis of Barriers related to climate mitigation.....	32
Chapter 4: Promoting the green economy to meet the challenges of climate change adaptation and mitigation.....		35
4.1	Vulnerability of the agricultural sector	35
4.1.1	Vulnerability of the farming sector	35
4.1.2	Vulnerability of the livestock sector	36
4.2	Vulnerability of the industrial sector	37
4.3	Synergies between adaptation, mitigation and green economy in West Africa.....	38
4.4	Opportunities at low carbon emission.....	38
Chapter 5: Initiatives and strategies to promote the green economy in West Africa		40
5.1	Initiatives to promote the green economy in West Africa	40
5.2	Sub-regional and National Strategies for capacity building on green economy for mitigation 41	
5.2.1	Sub-Regional - ECOWAS, WAEMU- and bilateral strategies (policies, training, funding, governance, etc.)	42
5.2.2	National strategies: State, private sectors (policy, training, funding, governance, education, etc.)	44
Conclusion and Recommendations		46
References.....		48

Introduction

1. The green economy, a controversial concept in its definitions, is considered to be a tool for the promotion of sustainable development. It remains at the heart of debates, both at the national and the international levels, in the fight against climate change and the mass creation of environment-friendly jobs. The concept of green growth attracts more and more interest amongst policy-makers and development practitioners to deal with the model of the world economy. The RIO + 20 Summit held in June 2012 was an opportunity for the international community to reinvigorate political commitment towards sustainable development and to address emerging development challenges. The meeting has focused on two specific themes: *green economy in the context of the eradication of poverty and sustainable development*, and *the institutional framework for sustainable development*.

2. The first decades of this new millennium has seen the predominant global economic development model faced with multiple crises simultaneously, the depletion of natural resources and market failures. It has proven ineffective against generating productive employment and decent work. This type of traditional economy, under the auspices of the “brown economy”, exacerbates the impact of climate change, the depletion of natural resources, and various crises around biodiversity, energy, food security, and the financial system most recently in 2008. These effects are characteristic of an exponential increase in greenhouse gas emissions, migration of people, social disparities, underemployment, etc. which constitute the major challenges of development faced by humanity.

3. Concurrently, investments are poorly oriented towards mass job creation and environmentally friendly jobs. The current economic model does not allow for the sufficient creation of decent jobs and has led to an inefficient financial system, whose costs stay high for both businesses and employers in the real economy. These drawbacks were caused by a misallocation of resources. According to United Nations Environment Programme - UNEP, in recent decades, significant capital has been invested in real estate, fossil fuels and financial assets including derivatives. On the other hand, the investments were relatively low in renewable energy, energy efficiency, public transport, sustainable agriculture, the conservation of ecosystems and biodiversity and the protection of soil and water. On the contrary, most strategies around development and economic growth promoted the rapid accumulation of physical, financial and human capital at the cost of exhaustive and excessive degradation of natural resources and, in particular, subsistence agriculture that nearly 1.3 billion people depend on¹.

4. The consequences of the global crisis of development severely affected world economies, particularly vulnerable developing countries, and especially those in sub-Saharan Africa. As natural capital forms the basis of food security and wealth creation in this sub-region, it suffered from a steep deterioration in the face of increasing demands for energy, water, food, and health, as well as, an imperative to reduce poverty and stimulate economic activity that leads to job creation and increases of income levels.

¹ 2011, PNUE : « Vers une économie verte : pour un développement durable et une éradication de la pauvreté-Synthèse à l'intention des décideurs ». www.unep.org/greeneconomy

5. However, Africa has experienced rapid economic growth over the past decade with annual growth rates averaging 5-6% and regularly exceeding that of other regions. Important levers for growth are due to a strong demand and competitive prices for raw materials. At the same time, the macroeconomic reforms associated with greater political stability and increasing urbanization, resulted in a strengthening of the services sector, and the emergence of a “middle class” and pan-African entrepreneurship.

6. Despite these remarkable growth rates, there is a growing inequality between regions, between countries and within countries between rural and urban areas. Poverty, unemployment and food insecurity are persistent problems. The lack of universal access to energy, health, education and infrastructure continue to amplify social vulnerability. Weaknesses in the economy tend to materialize in small and often informal businesses that have low-capacity to investment, with limited skills and very inefficient technologies, corroborating their lack of competitiveness in the global market.

7. The urgency for Africa is to ensure its working-age population, (estimated at about half a billion in 2020 (BAD)), a high and socially-inclusive growth that can create economic opportunities for all in labor-intensive sectors. Given that African economies are deeply dependent on natural capital, green economic growth should permit a more judicious exploitation of natural resources through more effective and productive investments.

8. A transition to a more sustainable and more environmentally-friendly economy is necessary for the reduction of poverty and the development of a means of subsistence for millions of young people and women who essentially depend on natural resources such as fertile land, forests, fisheries and other types of natural capital. The adoption of more sustainable modes of consumption and production should raise African economies in terms of competitiveness, wealth creation, employment, and eradication of poverty.

9. Green economy, which proposes a clear break with the current development model, and a move towards a model of more sustainable development, is simply characterized by low-carbon growth, the rational use of resources and social inclusion. Green growth is aimed at combating climate change, while still using green technologies and industries necessary to drive the engine of national economic growth.

Box 1: Concepts of economy and green economy

To understand green economy, one needs to start from the concept of economy. Economy generally relates to the activities of production, processing, diffusion and distribution of wealth. The green economy, therefore, refers to all activities of production, processing and distribution of goods and services, which do not call into question the sustainability of the environment, and, on the other hand, a process of wealth distribution that ensures a reduction of social inequalities. It is based on three pillars: production, transformation and distribution of goods; social inclusion; and environmental protection. In addition to these three pillars, the green economy has a prominent dimension related to the concept of innovation. Thus, the green economy is accompanied by economic innovations in production, processing and distribution activities, but also innovations in social distribution and environment. This concept of innovation is the novelty that characterizes the green economy. And it is this innovation that, like a paradigm, ushers in a new era where human creative genius is called to meet the challenges facing humanity from economic, social and environmental perspectives.

10. UNEP defines green economy as "an economy that leads to improved human well-being and social equity while significantly reducing environmental risks and the lack of resources". In operational terms, in this type of economy, revenues streams and employment growth must come from public and private investment in low-carbon, low-polluting, efficient resource use, including energy, and towards preserving biodiversity and environmental services.

11. In the West African context, the sectors considered key in substantially transforming the current modes of production towards a green economy are: **agriculture, construction, energy, fisheries, forestry, industry, tourism, transport, cities, waste and water.**

12. **The objective of this study, in accordance with the terms of reference,** is to analyse the potential of a green economy in West Africa, with an emphasis placed on the opportunities and challenges of promoting of green growth in the agriculture and industrial sectors, towards mitigating and adapting to climate change.

13. The study also proposes to review the:

- challenges to green economy governance at regional- and national-levels, related to a gap in competences, public finance and private investment, in the sectors of green growth;
- constraints of implementing policies and national and regional strategies of green economy, and the weakness of financial partnerships that accentuate the economic crisis in underdeveloped countries. The study will also gauge the states of preparedness of African countries in the transition towards a green economy and its socio-economic implications.

Chapter 1: Analysis of the potential of, and challenges facing, the Green Economy in Africa, with a focus on West Africa

14. Green economy is a new paradigm, necessary for the implementation of sustainable development, which remains a vital human development project. Its roll-out necessitates taking into account the strengths and comparative advantages of each African region. In the West African context, a review of the question of green economy, according to experts, shows that natural resource-based sectors such as agriculture, forestry, mining, fisheries resources, energy, transportation, and waste and water management are the most important niches for job creation and green growth. Currently, the sectors of agriculture, forestry, mines and fisheries generate 80 per cent (UNECA 2012) of jobs in Africa. Industry and manufacture sectors, although purveyors of the green economy, are still embryonic and not diversified enough to produce a variety of intermediate and finished products. Within ECOWAS, the manufacturing sector is dominated by agro-industry and represents only 7.36% of GDP in 2006².

1.1 The importance of the green economy based on specific sectors (i.e. sources of economic growth, income and job creation, food security, etc.)

15. The majority of African economies are principally dependant on their inherited natural resources, which, in turn, are highly vulnerable to environmental hazards. Despite the importance of the services sector, activities driving the economy of ECOWAS states are either primary sector or industrial sector focused. The primary sector absorbs more than two-thirds of the labor force and consists of agriculture, fisheries, aquaculture and forestry sub-sectors, and, the industrial sector, mainly consisting of small-to-medium enterprises (SMEs) and small-to-medium industries (SMIs), active in the sub-sectors of mining, manufacturing and agro-industry.

1.1.1 The agriculture sector

16. Agriculture is the largest employer in West Africa with more than 70% of the active population. The sector contributed 33% to GDP in 2009 (AfDB, 2011) and employs a large number of low-paid farm workers and subsistence farmers (mostly women). Revenues of cultivable land occupy a large part of all the riches of the sub region. Agricultural products are mainly for self-consumption and domestic markets. However, the sector is marginally connected to the international market through a number of cash crops (coffee, cotton, cocoa, peanuts, etc.). In terms of food security, agriculture plays a crucial role in sustaining livelihoods at the household level, given its importance in household consumption and in local markets that serve to satisfy local and urban demand. Within ECOWAS, approximately 80% of the food needed by the population is met by regional agricultural production. Over the period 2002-2004, the value of agri-food exports amounting to US\$5.96 billion gave a surplus balance of US\$522 million in agri-food trade. Even though the region imports significant

² Comptes Nationaux de la CEDEAO - 1995 à 2006 - Tableau 9.1, Page 39

quantities of food (worth US\$5.44 billion in 2002-2004), the region remains fairly dependent on imports to meet its food needs³.

17. The livestock sub-sector plays an important role in the economy of the West African sub-region with a contribution of 44% to the agricultural GDP. In 2009, ECOWAS is estimated to have more than 60 million cattle, 160 million small ruminants and 400 million poultry. The sub-sector produces 20.35 million tonnes of meat and 2.05 million tonnes of milk, annually. Thus, animal-related production contributes directly to improving food and nutritional security in West Africa.

18. The forestry sector occupies a vital role in local economies within the sub region, with a capital contribution to sustaining livelihoods and providing wild resources and environmental services. African forests represent 23% of the total land area of the continent and nearly 17% of the world's forests. The sector contributes 6% of Africa's GDP. In 2005, according to the FAO, forestry activities generated jobs for an estimated 571 000 people in Africa (FAO, 2010). Beyond this function of production of goods and sustaining ecosystems, forests play a fundamental role in the development of eco-tourism. However, the tourism sector contributes, both directly and indirectly, 8.3% towards GDP and 5.9% of job creation in Africa.

19. The fisheries sector is capital in the realization of value added production, and remains amongst the sectors demanding high-intensity labor, particularly in the coastal regions of West Africa. This sector is where about 10 million Africans earn an income and it provides a major source of daily food, including animal protein intake, for thousands of African households. In 2006, the fishing industry employed about 7 million people and contributed to 15-17% of West African GDP.

20. Despite the importance of the sector, there are cases of severe malnutrition in certain localities in the sub region. The sector is highly vulnerable to environmental hazards and climate change, attacks from parasites and soil degradation, which explains some of the challenges faced by the sector in ensuring food security and achieving food sovereignty, at the national and regional levels.

1.1.2 The energy sector

21. The sub sector of fossil energy (oil, gas, electricity) remains very important, contributing to over 20% of regional GDP, due to oil production in Nigeria, which on its own accounts for 19.9% of GDP of the West Africa. The contribution of new and renewable energy to the GDP is almost non-existent.

22. Nevertheless, the renewable energy sector presents a large and under-exploited potential, to boost economic development for West Africa. Access to renewable energy, and taking into account energy efficiency, can enhance the profitability of the productive activities for all economic sectors. For households, this will significantly reduce their energy bill and thus contribute to raising their standard of living. Renewable energies also offer important opportunities for job creation, value-added processes and the improvement of national export earnings.

³ FARM : les Potentialités Agricoles de l'Afrique de l'Ouest, CEDEAO, 2008

23. Access to energy, including modern services, constitutes a real vector of economic growth and social development. It contributes to improving core services of basic health, education and water supply. Modern cooking with improved energy sources and tools greatly facilitate the daily lives of women, who painfully spend a lot of time in gathering wood fuel for cooking on highly pollutant traditional stoves.

24. Access to renewable energies and modern energy sources plays an essential role in the protection of the environment, the fight against climate change and to reinforce adaptation efforts. Effective policy options for developing renewable energies and energy efficiency can be an entry point to promoting the transition towards a green economy.

1.1.3 The industry sector

25. The industrial sector of West Africa (including manufacturing, mines, energy and construction) employs only 2-10% of the working population of these countries and contributed significantly, up to 36% of the GDP, in 2009. In 2006, the industrial production of these West African countries placed Nigeria at one end of the spectrum with 40.7% of GDP, and at the other end, The Gambia and Sierra Leone with respectively 8.9% and 8.6% of GDP. This low contribution to GDP reflects the low added value of production activities, which is also confirmed by the contribution of only 7.4% by the manufacturing industry to the regional GDP; demonstrating that the region's natural resources, including agricultural production, are not sufficiently valued.

1.2 Analysis of the potential of development of the green economy

26. As stated earlier, the driving sectors of green growth in West Africa are the following: agriculture, construction, energy, fisheries, forestry, industry, tourism, transport, cities, waste and water. On the other hand, with the rapid pace of urbanization in the sub region, the sectors around sustainable cities, waste management and eco-friendly construction present important opportunities for low carbon development. This section explores the potential for developing the green economy for the agriculture, industry and energy sectors.

27. Natural resources, including energy and mineral resources, are of particular economic value because they are not produced. Consequently, natural resources generate economic profits and annuities if they are properly exploited. These profits can be an important source of development. Countries, such as Botswana and Malaysia, have experienced economic success through the exploitation of natural resources respectively diamond mining, and primary commodities (oil palm, rubber, cocoa, gas, copper, bauxite etc). The economy of Ivory Coast is dominated by the exportation of agricultural products of pensions with cocoa and coffee that places the country among the top ranks across the world.

1.2.1 The agricultural sector

28. In West Africa, the potential of farmland remains very important. According to the FAO, the region has approximately 236 million hectares of cultivable land, equivalent to about 0.9 ha in 2005 and 1.5 ha per rural inhabitant. About 55 million hectares are put to use each year, representing only 24% of the total potential. The sector also has a potential for rearing cattle with some 119 million ha of pasture. The spatial distribution of this available land suggests the significant potential in the forest fringes, particularly in three countries: Nigeria, Côte d'Ivoire and Ghana, which, with some variations, contain no less than 37% of

unexploited land region. These are also the three most populous countries in the region, with more than 64% of the total population⁴.

29. The most effective way of transforming the potential of the agricultural sector into a dynamic green economy requires massive investment in human resources, rural infrastructure, the organization and the formalisation of the sector, in order to enable small farmers to adopt agricultural practices that are more productive and more respectful of the environment.

30. In the Comprehensive Africa Agriculture Development Programme (CAADP), African Governments have already committed themselves to allocating a 10% share of their national budgets to the agricultural sector, towards achieving an agricultural growth rate of 6 per cent per year (OECD & ECA, 2012).

31. Concerning the forestry sector, the development of a green economy must include the optimisation of the ecosystem benefits from forests and the minimization of, and compensation for, ecosystem losses produced by these same forests (IOF).

32. The agricultural sector has an important potential to stimulate green growth:

- Sustainable agriculture allows for an increase in production, processing and commercializing of agricultural produce. It is organized around the activities related to the following systems: organic manure, use of plants as green manure, seed selection based on the characteristics of the different agro-ecological zones, improved fallowing, crop rotation, crop diversification, integration of livestock rearing and forestry with agriculture, water conservation, stone bunds, contour farming, crop recycling – all of which are in line with the intensification of production systems. During the next decade, sustainable agriculture could see a global increase in employment by 4% (UNEP, 2011).

⁴ FARM : les Potentialités Agricoles de l’Afrique de l’Ouest, CEDEAO, 2008

Box 2: Concept of organic farming

Organic farming is an agricultural system which focuses on rational management of natural resources (use, conservation and renewal of soils, waters, forests, biomass, fisheries and animal resources). It seeks to work with nature, instead of trying to dominate. To achieve its objectives, organic farming follows a number of techniques and practices which tend towards a healthy environment and respect natural ecological balances. Maintaining a good quality of the soil, establishing a balance in soil fertility, promoting biodiversity and a healthy ecosystem form the basis for market gardening, farming, fruit growing, floriculture, medicinal and agro-forestry. The plots produce fruit and vegetables. Next to them, farmers can grow organic food for human, as well as, animal consumption. The search for new sources of protein for organic, and even conventional, animal breeding provides an opportunity to develop non-forest NTFP (non-timber forest products), such as straw for protein. Long since reserved to certain consumer groups, i.e. vegetarians and ecologists, organic produce is now more accessible to the general public, and continues to increase its market penetration. The development of this market is due to three reasons: concern for health, a guarantee of safe produce and increased ecological or environmental concerns, especially amongst young people (consumers of tomorrow). This breakthrough of organic produce indicates good commercial prospects for investment in agriculture. Although enticing, the 'organic' market faces an unavoidable constraint: the certification* as countries must present agro-ecological and economic conditions that are compatible with organic farming.

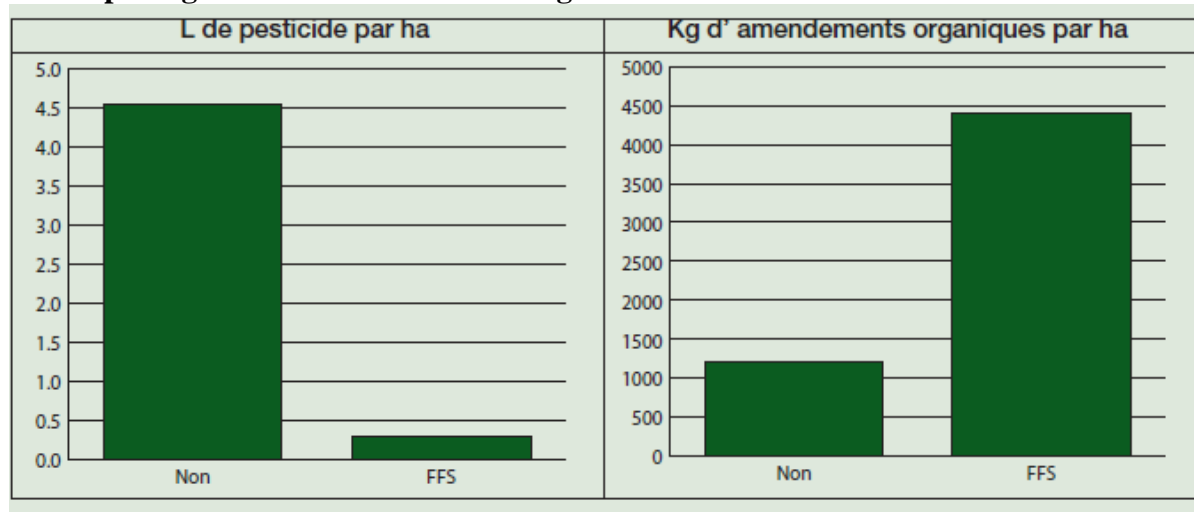
***Certification represents a set of procedures that guarantee the conformity of a product to a technical reference.**

- The development of processing activities that transform agricultural produce into high-value products and support the creation of agricultural enterprises, especially youth and women entrepreneurs, in rural areas, would better secure the local workforce.
- Promotion of cleaner agricultural techniques would lead to sustainable practices in agricultural enterprises, improved productivity of family farms and successful adaptation to change.
- In the forestry sub-sector, guaranteeing security of land rights accompanied by agricultural intensification policies in land already cleared for farming and in agro-forestry or agro-pastoral systems.
- Promoting non-timber forest products and facilitating their distribution in local and international markets. Implementing participatory forest management regimes and disseminating modern improved stoves that consume less energy should address the over-exploitation of forests.
- Regenerating forest ecosystems and favouring low-carbon options allows for the voluntarily enrolment in the dynamic of the Nationally Appropriate Mitigation Actions (NAMAs). Conservation and afforestation could boost formal employment by 20% in the forestry sector by 2020 (UNEP, 2011).

Box 3: Current agricultural practices actually consume more than 70% of the fresh water resources available on the planet, and are responsible for more than 13% of greenhouse gas emissions. They can also be attributed between 3 to 5 million cases of pesticide-related poisoning and more than 40,000 deaths per year.⁵

⁵ Vers une économie verte, Pour un développement durable et une éradication de la pauvreté, PNUE 2011

Low input Agriculture in Mali and Senegal⁶



Programmes supported by FAO on integrated production and pest management in the West African Sahel show that farmers were able to reduce the use of toxic pesticides, increase yields and incomes, and diversify cropping systems. Data from Senegal and Mali show that one to two years after the training of farmers, a 90% reduction in the use of chemical pesticides is noted. The net value of 80 farmers harvest of vegetables in Senegal has increased by 61% in two years, while a 92% reduction of the use of conventional pesticides has led to substantial cost savings as well as rising incomes. In Mali, a survey conducted in 65 villages of cotton farmers showed an increase of 400% due to the use of organic materials such as compost and manure, substances that can reverse the decline in soil fertility.

Source: FAO, 2009.

Reduced use of pesticides and increased use of organic fertilizers in cotton production in Mali⁷

Note: A field survey after the training (FFS) with cotton farmers in 65 villages where farmer training took place in 2007 and 2008. The difference in pesticide use is an average of 4.5 L / ha compared to 0.25 L / ha or 94% less for (FFS) trained farmers. The difference in the use of soil amendments is between 1.2 t / ha as against 4.3 t / ha or nearly four times more than the use of compost by FFS farmers.

33. The agricultural sector presents a potential to mitigate and adapt to climate change. Options for adaptation and mitigation can clearly mobilize different types of funding – National, ODA, private sector, REDD+, Adaptation Fund, NAMAS, CDM, etc.

1.2.2 The Industrial Sector

34. West Africa is estimated to have a market of over 400 million consumers in 2020 in a socio-economic profile defined by considerable cultural and economic diversity. The potential industrial sector of the ECOWAS states is primarily in manufacturing in the form of the agro-food industry. The giants in value-added manufacturing are Nigeria, Côte d'Ivoire, Ghana and

⁶ PNUE, CEA 2012: L'économie verte dans le contexte du développement durable et de l'élimination de la pauvreté: Quelles sont les implications pour l'Afrique?

⁷ PNUE, CEA 2012: L'économie verte dans le contexte du développement durable et de l'élimination de la pauvreté: Quelles sont les implications pour l'Afrique?

Senegal which, in 2006, resulted in 39.7%, 23.4%, 10.0% and 9.3% respectively, in GDP of the manufacturing sector.

35. West Africa also holds an enormous mineral wealth which is under-exploited and poorly processed at the local level. The sub region is home to large global reserves of bauxite (Guinea, Ghana, Guinea Bissau), high-grade gold deposits (Burkina Faso, Ghana, Guinea, Liberia, Sierra Leone, Mali, etc.), uranium (Niger), rich iron deposits (content of 65% in Guinea, Liberia, etc.), diamond (Guinea, Liberia, Sierra Leone, etc.), oil & natural gas (Côte d'Ivoire, Ghana, Niger, Nigeria, etc.), phosphates (Senegal, Togo, etc.) and significant quantities of many other mineral resources (coal, limestone, manganese, marble, platinum, etc.).

36. To facilitate the transition of the industrial sector towards a green economy, it would be useful to reconcile the link between environmental constraint and economic performance of industrial units, arguing for increased revenues and decreased costs. By using techniques that help decision making, such as cost-benefit analyses, cost advantages should encourage companies to adopt sustainable modes of production.

37. The niches of green growth for the industrial sector:

- Energy efficiency and low-carbon use in industries, technologies and industrial processes: Activities carried out by manufacturing industries are the cause of 17% of health problems, related to air pollution, which in turn causes losses equivalent to 1-5% of global GDP (UNEP 2011) and the mining industry that are at the root of conflicts, environmental degradation and air pollution.
- Important niches of green growth, related to the contribution of renewable energies and energy efficiency, are found equally in agro-industries, fisheries, forestry, construction, transport, waste etc.
- The involvement of companies, especially a large number of SMEs and SMIs, in West Africa in the international standardisation processes can positively affect the competitiveness of enterprises.
- These niches are also found in the promotion of recycling agro-industrial waste.

1.2.3 The energy sector

38. The total consumption of primary energy in ECOWAS countries is approximately 155 mega tonnes per year. The main sources of energy are wood and charcoal, representing 77% of primary energy consumption in 2008. Imported in most countries, hydrocarbons occupy the majority of supplies before the biomass in energy balances in the country.

39. The energy sector holds massive potential towards developing a green economy. Important drivers of green growth may be accessible through modern energy services, energy efficiency and renewable energy resources.

40. West Africa possesses significant energy resources able to support green growth. The natural gas reserves in the West African Economic and Monetary Union⁸ countries, like Côte d'Ivoire, Ghana and Niger, are estimated at 23,300 million m³, or 0.23% of the total African

⁸ West African Economic and Monetary Union

reserves, and correspond to an electricity capacity of 0.84 GW. Large oil reserves are located in countries such as Côte d'Ivoire, Ghana, Mali, Niger and Nigeria.

41. Regarding the hydroelectric potential, it should be noted that the Economic Community of Central African States (ECCAS) holds the majority of hydraulic power capacity, with almost 60% of the continent's reserves. The Democratic Republic of Congo (DRC) and Cameroon rank first and second in Africa for hydropower potential. The hydropower potential of the region is estimated at more than 1000 TWh of which only 1% is exploited. Within WAEMU, despite a hydropower potential of about 5860 MW (across Ghana, Guinea, Mali, Niger, Senegal and Sierra Leone), hydroelectric development has focused on large-scale and plants in electricity generation for urban agglomerations and industrial use. The micro and small hydroelectric power stations, which can be exploited to meet the electricity needs in municipalities and small villages, have almost completely ignored in all countries.

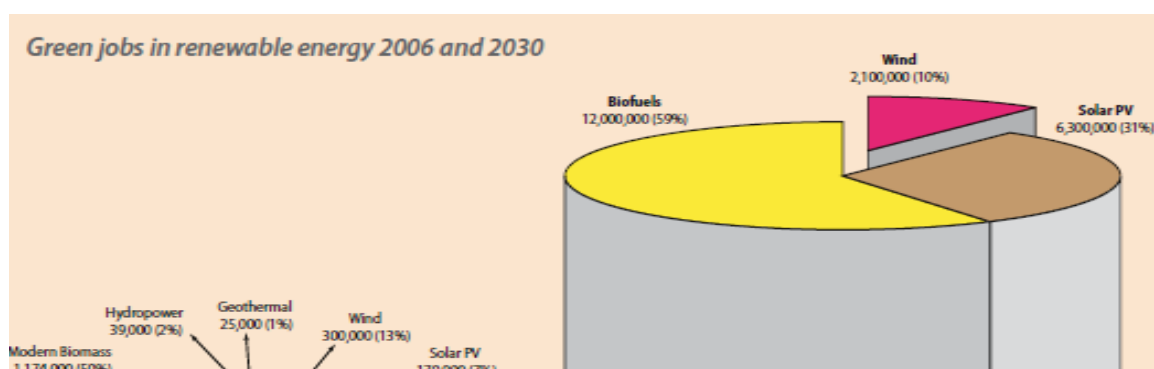
42. For solar energy, the sub region shows enormous potential for developing this sector with levels of radiation between 5 to 7 kWh/m²/day. Encouraging results with photovoltaic (PV) systems have been recorded in countries like Senegal, Mali and Niger. Despite the high costs of photovoltaic panels and batteries, some households, mainly rural, who are not connected to electricity grids, have met a good share of their energy through PV systems. In several countries, rural electrification programmes target rural electrical extension networks at remote, low-income households.

43. *The urgency for Africa is to ensure people's access to modern energy supplies in order to establish a more sustainable development. This urgency cannot be discussed, without pointing out the problems caused by global warming, the effects of which are already known to greatly compromise the continent's development efforts, including its energy infrastructure and, subsequently, any chance of satisfying people's needs and enduring energy insecurity.

44. Niches for Green Growth:

- Renewable energy sector presents a key niche for creating green jobs and for climate change mitigation. It can provide an important qualified labor force in the manufacturing, distribution, installation, maintenance and operation. of materials and equipment, etc.
- Promotion of energy efficiency: the experience of different countries has shown that concerted public effort to promote energy saving can provide improved services with less energy consumption. These measures can have a return on investment in less than 3 years, and generally save up to 30% of energy consumption. The World Energy Council and the ADEME believe that global saving in West Africa could be even higher, going up to 40% of current energy consumption⁹.
- Adaptation options can be found in the promotion of alternatives, like LPG, biogas, and biochar, to wood and charcoal, but also in the sustainable forestry management through effective community forest management regimes.

Box 4: Energy: Opportunities for a green economy



which they are heavily dependent, negative effects of climate change, food insecurity, good governance and transparency.

Challenges of persistent poverty

West Africa is one of the poorest regions in the world, where all forms of poverty are almost endemic. More than one in two people live on less than a dollar a day. The diagnosis of the social and economic situation, according to countries' statistics, shows that poverty affects less than one third of the population in Benin, Ghana and Togo, and more than a third of the population in Cape Verde and Côte d'Ivoire. About half of the population lives below the poverty line in Burkina Faso, Gambia, Guinea, Nigeria and Senegal. Nearly two-thirds of the population were poor in Guinea-Bissau and Niger, and over two-thirds in Mali and Sierra Leone. Overall, the human development index of countries rarely reaches 0.6.

- Promotion of the access of marginal populations to modern energy services for basic needs (cooking and lighting) with a focus on low-carbon options to enroll in the dynamics of voluntary NAMAs.

1.3 Analysis of major challenges (job creation, natural resource degradation, climate change adaptation, governance)

45. The economies of West Africa are facing multiple challenges of extreme poverty, employment of youth and women, the degradation and depletion of natural resources on which they depend strongly negative effects of climate change, food security, good governance and transparency.

1.3.1 Challenges of persistent poverty

46. West Africa is one of the poorest regions in the world where poverty in all its forms is almost endemic. More than one in two people live on less than a dollar a day. The diagnosis of the social and economic situation, according to statistics shows that poverty affects less than one third of the population in Benin, Ghana and Togo, and more than a third of the population in Cape Verde and Côte d'Ivoire. About half of the population lives below the poverty line in Burkina Faso, Gambia, Guinea, Nigeria and Senegal. Nearly two-thirds of the population were poor in Guinea-Bissau and Niger, and over two-thirds in Mali and Sierra Leone. Development index of these countries rarely reaches 0.6.

47. The beginning of 21st century remains marked by an increase in regional disparities of poverty levels between rural and urban areas, exacerbated by: declining agricultural yields; lack of work opportunities, especially in rural areas; low access to finance and energy sources by poor and vulnerable populations; and limited competence of young people and women of the working age.

1.3.2 Challenges of political and institutional governance

48. Many developing countries have worked on a national strategy for poverty reduction (PRSP) to achieve their sustainable development priorities and the MDGs, which have proven

rather ineffective. At the same time, national strategies for sustainable development (NSSD) that were adopted within the framework in the implementation of Agenda 21, have not achieved their ambitious economic, social and environmental objectives around intra- and inter-generational equity from both the national- and local-level perspectives.

49. The promotion of good governance, one of the major development challenges, should focus on a strengthening of public administration, an emergence of strong economies of local authorities and gender equality. Public powers should also seek to overcome the challenges of ineffective involvement of the private sector in the implementation of sustainable development, in particular through the deployment of Corporate Social Responsibility (CSR).

1.3.3 Challenges of limited capacity

50. Lack of qualified human resources is one of the major challenges to the implementation of sustainable development. Economic sectors suffer from, among other things, bad governance, low quality labor (low training and qualification of human resources) and lack of managerial skills.

1.3.4. Climate change and degradation of natural resources

51. The prospects for the coming decades show that a large number of mineral resources will be exhausted and that the stock of natural resources is likely to be severely depleted, due to population pressure and the adverse effects of climate change. The economic activities of the region of West Africa are highly dependent on agriculture, fishing and forestry which are all vulnerable to the effects of climate change.

1.3.5 Access to energy services

52. The final energy consumption per capita (0.45 toe) within ECOWAS is relatively low compared to the average for Africa (0.50 pet) and world (1.14 pet)¹⁰. West Africa remains the sub region which has the lowest access to electricity rates, not only in Africa but in the world. National averages are at 20%, with large disparities, both between and within countries:

- Firstly, some countries have a electrification rate of over 50% (Ghana, Senegal, Ivory Coast, Nigeria, Benin) compared to less than 15% for most countries and less than 10% in countries such as Sierra Leone, the Republic of Guinea, Guinea Bissau and Niger.
- Secondly, the differences noted between rural and urban areas are between 8% and 20% on average. This has resulted in low electricity consumption per capita. For example, the consumption per capita of electricity in Sierra Leone is only 24 kWh (Energy Policy of Sierra Leone, 2009) and 76 KWH in Benin against 176 KWH in Côte d'Ivoire.

¹⁰ SIE-Senegal 2010

Chapter 2: Evaluating the impact of the transition towards a green economy in West Africa

2.1 Impacts on poverty and employment

2.1.1 Impacts of green economy on poverty

53. Similar to the rest of the African continent, poverty in all its forms remains a scourge in West Africa. According to statistics, the average per capita income is between 305 and 340 U.S\$. Extreme poverty affects approximately 40-45% of the population of West Africa, with fairly significant variations depending on the country, as indicated in the previous chapter. Thus, if we look at the absolute number of poor people, in Africa between 1990 and 2008, in terms of annual average, poverty rates fell by only 0.5%, in comparison to 2.3% in East Asia and the Pacific, and about 1% in South Asia¹¹. One must note that there remains a great disparity between urban poverty and rural poverty. In effect, poverty in West Africa is known to affect rural areas more than urban areas, where 70% of poor people live in extreme poverty.

54. Faced with this situation, the West African states have, in recent years, deliberately promoted national and regional-level policies that strive to reduce poverty with a view to achieving the Millennium Development Goals (MDGs) of which poverty reduction constitutes the first objective. A Regional Poverty Reduction Strategy Paper (RPRSP) that aims to better focus the regional programs and increase the benefits for the poor has been produced to coordinate and improve the effectiveness of the various actions being implemented to reduce poverty.

55. It is from this perspective that, since the emergence of the concept of "green economy", many states are directing their efforts in the fight against poverty and achieving the MDGs around the promotion of the green economy.

56. This is evidenced by the numerous declarations and resolutions ratified by African leaders for adoption which place the green economy as a vehicle for growth. These include the third African Ministerial Conference on Financing for Development (May 2009), the 13th session of the African Ministerial Conference on the Environment (AMCEN) in June 2010, the first Pan-African Conference on Biodiversity (September 2010), the Seventh Forum for Africa's Development (October 2010) and more recently, the 18th Ordinary Session of the Executive Council of the African Union (January 2011).

57. Through this, the green economy presents an opportunity for the West African countries to design national strategies and regional programs that reinforce various sectors and aim to accelerate growth and substantially reduce poverty. It is therefore important for states to develop green activities through targeted policies around key sectors that represent the base of the country's economy, and also the sole means of subsistence of its population.

¹¹ Rapport OMD 2012, Évaluation des progrès accomplis en Afrique dans la réalisation des objectifs du Millénaire pour le développement

58. To sustainably impact poverty, activities implemented within a green economy must respond to specific objectives and their impact should be measured in a timely fashion. They may be in different sectors which are of great importance to the poor, including:

- **In the context of food security**, through the development of the agricultural sector which remains the sector that most of the poor in West Africa depend directly. Developing activities within the green economy around this area would significantly reduce poverty in rural areas, but also could ensure food security which is essential to development and poverty reduction. This should go through the support of small farmers through the promotion and dissemination of sustainable practices. According to UNEP, a study of 286 projects on “best practices” gathered from 12.6 million farms across 57 developing countries found that adopting resource protection approaches (such as integrated pest management, integrated nutrient management, minimum tillage, agro-forestry, aquaculture, integrated water resource and livestock management) resulted in an increase of yield by 79% on average and improved the supply of essential environmental services.
- **In the context of access to social services and basic infrastructure such as access to drinking water and sanitation.** In West Africa, the poorest populations have very limited access to safe drinking water and an overwhelming majority of rural populations have inadequate sanitation services. Therefore, it appears that the development of green businesses around access to both safe drinking water and adequate sanitation would significantly influence poverty reduction and would also contribute to the achievement of MDGs on access to water by 2015. A major program of boreholes with hand pumps has also been established at the level of WAEMU countries since 2008 to improve access to drinking water and develop income-generating activities such as gardening. Other activities promoting sanitation have also been initiated and should be developed. The direct impact of these activities would be on the health of populations with improved living conditions and ensuring a satisfactory level of health.
- **In the context of access to energy services**, which even in 2012, remains a real challenge for many countries in West Africa. The transition to a green economy in the energy sector must be made through the developing strategies that allow for access to modern energy services to a larger population, in order to help improve the lives of people and also promote business development and local economic structures leading to a real impact on poverty. Local materials, such as agricultural residues and other unused biomass, can be used to supply clean electricity to homes, schools, health centers, street lighting, telephones, Internet connections and small businesses. Systems and power generation units can be adapted to meet the needs of both small villages and peri-urban areas. There are several successful applications of these systems found in many developing countries, but investments are sorely lacking. More appropriate regulatory systems, innovative financing mechanisms and private sector involvement are all needed to effectively develop decentralized electricity production.
- **In the context of building human resources.** West Africa is characterized by its youthful population (60% of the population of the region has less than 35 years and nearly 40% of the workforce is considered young); however, there is also a real lack of professionally qualified young people, especially in rural areas. Training young people and developing their skills around green jobs will improve their level of training and prepare a skilled workforce that will help to significantly reduce poverty as well as reduce the unemployment rate among young people. For example, in management training, one can introduce corporate social responsibility; in tourism training, the effects of climate change; in engineering, the life cycle analysis and waste management and for construction and public works training, eco-construction. Focusing on training and skills that match the demands of new jobs in the green economy remains a major challenge for West African

countries in this transition to a green economy that aims to substantially reduce the level of poverty in the medium and long term. This transition cannot be done unless workers possess the right training and qualifications.

2.1.2 Impacts of green economy on employment

59. In West Africa, job creation remains a major challenge for all countries, despite the slight economic growth recorded in recent years. Unemployment rate remains high, especially among youth and women. Nevertheless, the sectors based on natural resources such as agriculture, forestry, fisheries remain the main providers of jobs.

60. The transition to a green economy also has the ambition of scaling up the number of employment opportunities by creating new jobs in the medium and long term.

Box 5: Green Jobs

Green jobs, as they are defined as decent jobs that contribute to preserving or restoring environmental quality, can make the link with the social dimension of development, whilst reconciling economic growth (in a sustainable and low carbon economy) with environmental sustainability and social equity. Green jobs effectively contribute to the achievement of the Millennium Development Goals, which are also threatened by climate change and environmental issues.

61. Several sectors of the economy have been identified as "green jobs" providers, in that many activities within the green economy can be developed, including:

- **From agriculture, environment and agri-food:** promoting activities around natural heritage protectionist, eco-consultant for agriculture, eco-energy agent in the food industry, or even an environmental lawyer are identified as potential roles.
- **Waste management:** the development of businesses related to the collection, transportation, processing and recycling offer the potential for very important jobs. This is a first step for the government to restructure the entire chain from collection to recycling; generating a whole range of jobs that could be recouped by the production of value-added recycling. Thus, the structure of the sector, in addition to the significant contribution it could make in safety, health and environment, could also generate new profitable trades and innovators of a new economy.
- **Water and sanitation:** activities related to the provision of water and sanitation services such as production, control, distribution and management, as well as maintenance works, are among the activities that have a high impact on employment.
- **Building construction:** The building trade, from design to realisation, has many potential uses within the green economy, especially around encouraging the development of business architecture of high environmental quality, use of sustainable materials, setting establishment of ecological sanitation...
- **Transport:** some states have affirmed their commitment to develop modes of transport with low CO₂ emissions, but also innovative projects modes of urban transport should result in a whole range of innovative jobs around these new technologies.

- **Energy:** Different sectors around developing renewable energies, such as solar, wind and biomass, both in providing solutions as a consultant, and in the supply and maintenance of equipment are a major reservoir of jobs.

62. According to the UNDP in its study on "Opportunities for green jobs in renewable energy in Côte d'Ivoire, September 2012", the biomass sector is one that offers the greatest opportunity for creation of green jobs in West African countries and the following three examples were proposed:

- **Processing briquettes from raw biomass to cooking fuel:** This production is part of a strategy of substitution of fuel wood by raw biomass pellets or briquettes (biomass is dried but not burnt) from agricultural residues and wood waste. The local production capacity can target an audience using traditional rural and suburban firewood. If the volumes of available biomass are significant, raw or processed biomass may be destined for steam or electricity production in industrial systems connected to a national or local grid. It then becomes part of the industrial cycle and can lead to the production of several megawatts. Jobs directly created by this type of project is firstly in the purchase, collection and transport of raw biomass, secondly, feeding, maintenance and operation of the pelletizing unit, thirdly in bagging, handling and transport of the pellets, and finally in their marketing.
- **Charcoal substitutes** can come from carbonised agricultural residues sold as charcoal briquette. The goal is the same, adding value to wood residue stocks to reduce deforestation and produce improved coal with better performance.
- **Local biofuel production** for electrification and mechanization of agriculture is a strong creation of employment: the agricultural production is integrated into the technical aspect of its transformation.

Box 6: Local biofuel production for electrification and mechanization of agriculture is a strong source of job creation: agricultural production is integrated into the technical aspect of its transformation

The example of the village community Garalo, in southern Mali, shows the development of three value chains. The agricultural sector integrates improved seeds and nurseries; planting and harvesting crop combinations or hedgerows (bocage growing and/or erosion control); and adding value to jatropha meal as biofertilizer and jatropha oil as bio-pesticide. The mechanised part of this sector is limited to pressing, extracting and filtering of pure jatropha vegetable oil, modification and maintenance of diesel engines and kerosene lamps to burn this pure oil. Related activities are also observed for the recovery of oil for the production of local soap (in combination with other oils and local plant species), the use of multifunctional platforms of tools (saw, welding, chargers batteries, etc..) supplied by a generator, or services of agricultural mechanization and processing of local products.¹²

63. Nonetheless, there are potential threats in the competition over the use of land (land grabbing) and water, especially for industrial production.

64. For this transition to really impact on job creation, it must be framed within a strategy, benefit from a strong political will of decision makers at both national and local governments, and be of interest to the private sector investors who need to be convinced of its profitability.

¹² PNUD, les opportunités d'emplois verts dans les énergies renouvelables en Côtes d'Ivoire, Septembre 2012

65. Young people, who constitute the majority of unemployed people in West Africa, also present an opportunity for countries looking to capitalize on the experiences implemented in other countries including Kenya, Tanzania and Uganda or engaging with the ILO in a partnership around the promotion of a "green" entrepreneurship for the youth. The first initiatives undertaken have yielded significant results including an establishment of a network of entrepreneurs that helps young companies and supports entrepreneurship in the green economy, the implementation of training around "green" entrepreneurship and also a prize awarding innovative companies in the field of green economy.

66. Development activities and employment in these sectors may be interesting only within a favourable environment where certain prerequisites, including access to energy, are met. In addition, developing access to renewable energy remains a priority for the transition to a green economy and is also a potential source of jobs. An analysis of profits and feasibility through target populations rests a major challenge to its development, particularly in the rural areas of West Africa.

67. Even so, it should be noted that a transition to the green economy will carry a cost especially around the loss of some existing jobs: if this is the case, it will be necessary to ensure that those that will be otherwise unemployed, receive training and opportunities to enable them to adapt to new jobs within the green economy. It will be imperative to put in place policies that protect those who may be adversely affected by these developments, for example, through resource guarantees, opportunities for retraining and resettlement assistance.

Box 7: Possible evolution paths for businesses today due to the green revolution¹³
Some jobs will be created, especially due to the development of new equipment;
Some jobs will be replaced, for example, in changing from fossil fuels to renewable energy;
Some jobs will cease to exist when the production of certain goods is strictly prohibited;
Many technical jobs (labourers, electricians, plumbers etc.) can be transformed and adapted to the new requirements of green markets.

2.2 Impacts or effects of sectoral promotion of the green economy

2.2.1 Impacts on agriculture

68. The agricultural sector of the ECOWAS countries plays a crucial role – it contributes 35% to the region's GDP. In all countries, it represents about US\$6 billion, or 16.3% of total produce exports. In terms of employment, the agricultural sector holds the largest labour force. More than 60% of the workforce in the ECOWAS region works in this sector, despite the low pay, compared to other sectors of the economy.

69. Despite its importance in the regional economy, the agricultural sector in West Africa is characterized by low productivity and faces strong environmental constraints. It faces the risk of a decline in productivity as a result of climate change and ecosystem degradation.

¹³ Les Emplois Verts Une nouvelle opportunité d'inclusion sociale en Europe, Asbl Pour la Solidarité, mai 2012

70. To promote a real green economy that impacts this sector will require several important changes in practices, especially around abandonment of unsustainable practices by farmers (such as the use of large quantities of water polluted by pesticides, deforestation activities, and activities that contribute to biodiversity loss). This change in approach will result in a substantial increase in the productivity of farmers and, in turn, improve their income. Rainfall scarcity has led to the development of irrigated agriculture and the transition to a green economy should encourage the development and application of appropriate technologies such as efficient irrigation systems and mechanization, which could improve livelihoods.

71. By appealing to people in rural areas to restore and protect their natural environment more jobs could also be generated in the promotion of a sustainable and rational agriculture.

72. In West Africa, livestock and forestry are two areas strongly linked to agriculture and is an important part of the GDP and export earnings of Africa. Livestock plays an important role in West Africa with a significant contribution to agricultural GDP, and both are amongst the main economic activities that the poorest populations depend on for food and cash income. Taking the example of forests, managing them in an environmentally sustainable manner (sustainable extraction of timber and other forest products) and raising awareness around their vital contribution can lead to poverty reduction and to significant economic benefits for the countries of the region. On the other hand forests provide ecosystem services such as climate regulation, carbon sequestration and watershed protection.

73. Facing constant constraints in the development of the agricultural sector in various countries of West Africa, which is particularly hampered by the isolation of different ministries (agriculture, livestock, fisheries, environment), and because of the lack of coordination between different structures, ECOWAS and the African Union, in collaboration with development partners, have established the National System of Strategic Analysis and Knowledge Management (SAKSS) whose objective is to inform and guide the implementation process of the National Agricultural Investment Programme (NAIP). This also includes questions around the sustainability of the sector and the different actions relevant to the green economy.

74. In addition, ECOWAS states have widely recognised that in order to meet the future growth in demand in a sustainable manner, and still accelerate the reduction of poverty and hunger; it will need other additional investments from farmers and public sector. The analyses of sustainable production systems often bring forth advantages, which will have the effect of increasing farmers' incomes and improving the environment. It may take several years before a system of sustainable agricultural production ceases to produce benefits, especially if it restores degraded ecosystems, as is the case in most West African countries. To do this, there must be heavy investments in social capital.

75. In some African countries, several governments have begun to help farmers make the transition to more sustainable production methods. For example, the Zambian Government has made conservation agriculture one of its priorities, towards the end of 1999, to improve the productivity and sustainability of agriculture. It created a department for conservation agriculture, which now provides extension services to 170,000 farmers scattered in 17 districts, in order to support the adoption of conservation agriculture. Related technologies have been particularly successful in the semi-arid regions, because they reduce the effects of

drought on agricultural productivity, without compromising performance. These experiences seem interesting towards capitalising this transition in West Africa.

76. Finally, public systems of research, development and extension, combined with capacity building, can reduce transaction costs and increase incentives to invest in sustainable production methods. To make the transition to sustainable production systems, there will be the need to change the allocation of current investments, public and private, towards projects with greater sustainability. Similarly, agricultural research will play a key role in providing support to sustainable agricultural production methods.

Box 8: The Great Green Wall Project for the promotion of green economy in the Sahel¹⁴

The transcontinental project of the “Great Green Wall” fully responds to the challenges set out in the development of the green economy. Its main goals of reduction of soil erosion, restructuration of degraded soils, control of water resources and increase of the rate of reforestation, provide an ideal setting for the development of green economy, which without this platform, could not be developed in such good conditions.

The set of actions programmed for achieving its goals can promote a series of economic activities within the scope of the green economy: the recovery, development and diversification of agriculture and livestock activities, the improvement of viable production systems and sustainable development activities and reasoned holdings of forest resources, the development of eco-tourism...

2.2.2 Impacts on industry

77. Agriculture is no longer the main source of monetary income in many rural areas of West Africa. Therefore, in order to better withstand shocks and build productive capacities that allow a strong and sustainable economic growth, the creation of jobs and a significant reduction of poverty, West African countries were strongly committed to industrialization. However, it should be noted that the industrial sector in West Africa is still in its infancy and not diverse enough to produce a variety of intermediate and finished products.

78. Despite industrialization being neither greatly developed nor sufficiently diverse and representing a relatively small proportion of total employment, the greening of this sector could help create more jobs. Investment in a “clean” development can enable West African industries to create decent jobs, with an economy that both respects the environment and increases the availability of industrial products, and help to improve competitiveness while protecting or creating employment.

79. This is particularly the case of the agro-food industries which can contribute to food security and the sustainability of the economy. It faces many challenges given the global economic situation. Actually, there are ways and means of boosting the sector; including putting in place effective instruments to earn a share in the economy. The different activities to be developed according to ecological standards and to be sold in the regional and international market, could comprise processing of agricultural products, market gardening, arboriculture, fisheries and livestock rearing.

¹⁴ ENDA/PNUE : Etude sur la situation socio-économique dans les pays de la GMV et leur capacité d’adaptation aux changements climatiques, Octobre 2011

80. Agribusinesses in Africa, for example, encounter several difficulties in managing its waste. The promotion of recycling in the food industry would significantly reduce waste and pollution as well as to promote a more competitive and employment generating industry in West Africa.

81. On the other hand, it has also been proved that the mining industry is one of the main avenues of industrial development in West Africa. Emerging industries are increasingly around mining activities. These could directly achieve greener investments, using environmentally friendly technologies and drawing on innovations that are currently available.

82. So as to facilitate the transition to the green economy of these fledgling companies, governments should support them especially since they will not only have a high potential for growth and employment, also because they could produce goods and services with high environmental benefit that will enable the better use of resources (water management, recycling, etc.), a reduction of energy consumption (buildings, low-carbon transport, ...) or an energy production that emits less greenhouse gas emissions. The state, for example, will be the key driver by providing or facilitating funding for SMEs and SMIs to consolidate or use clean technology, depending on their maturity.

Chapter 3: Analysis of institutional and financial barriers to a green economy

3.1 Analysis of policy and institutional barriers Policy Barriers

3.1.1 Policy barriers

83. To achieve the objectives of the green economy, energy, economic and social transition is needed. Governments have, in this respect, an important role to play in removing policy barriers and putting in place an enabling environment for the private sector. These barriers are of different kind and at various levels in the West African countries.

84. First of all, there is the *lack of a coherent and strategic policy framework* that could allow the various actors to evolve in a strategic framework. The Summit on Sustainable Development held in Johannesburg, South Africa, in September 2002 called on governments to develop a National Strategy for Sustainable Development (NSSD) by 2005. West African Countries have also engaged to implement this policy and strategy framework. However, a review of the national sustainable development framework reveals that not all countries have developed their NSSD. Some countries such as Senegal, have developed their NSSD but did not validate them, others such as Burkina Faso (2001) and Cote d'Ivoire have been slow to develop their strategies, and others are in the process of developing it. With regard to the status of national green economy strategies specifically in Africa, only South Africa and Ethiopia have developed innovative and ambitious plans to embark on this path.

85. It must be recognized however that countries have adopted various policies, strategies and plans to deal with issues relating to sustainable development. These include long-term national visions, national and regional development plans, Poverty Reduction Strategy Papers (PRSPs) and sectoral strategies in the areas of agriculture, environment, natural resources, etc. This indicates that a range of planning tools does exist, thus making ownership and mobilization of resources difficult. Policy complexity becomes therefore the first obstacle to deal with.

86. For a long time, *Political instability and conflicts* have long compromise peace and security in the region. The high number of armed conflicts in the 90s resulted in the displacement and destruction of the socio-economic fabric and resources of the countries. In addition to that, during the past few years, terrorist threats in some countries put further risk on these countries. The uncertainty created by such situations can only alienate investors whether domestic or foreign.

87. Despite efforts, political and economic *integration* is still a wish since the integration process of these countries remains a challenge. This is closely linked to the *political instability and poor governance* mentioned above, but also to the non-involvement of people in the process. Integration mechanisms are not suitable.

88. ***Bad governance and economic policy*** are the enemies of wealth creation. Although lot of efforts have been made both at national and regional levels, business environment remains a major obstacle to domestic and foreign investment because of bureaucracy, complexity and opacity of judgments, etc. that increase transaction costs and discourage investors in a context of global economic crisis¹⁵. Revitalization of the economies of West African countries and especially the industrial sector cannot be done without a strong regional focus. Thus, ***simplification and harmonization of procedures as well as the fulfillment of commitments and multilateral control are the first steps towards regaining investors' trust.***

89. At the end of the 14th session of the Conference of African Ministers of Environment, AMCEN, they have decided to initiate a partnership to embark on the path of the green economy. This commitment to a greener development requires overcoming all the barriers that have traditionally hampered real development in the sub-region.

90. This decision demonstrates the political will of African leaders to proactively engage on the green economy pathway. In the current context of globalization, it is normal that these leaders begin with the needed coordination of their actions in the framework of this economic transition period. The transition to this new paradigm of development requires a regional and continental vision, with the establishment of a supportive framework and enabling environment at national, regional and continental level.

91. However, this commitment still needs to be translated into reality in order to concretely demonstrate the political will to embark resolutely into the new world of economic, social and environmental change that the green economy is expected to bring.

3.1.2 Institutional barriers

92. To ensure its sustainability, the green economy must rely on institutions at different levels. This requires addressing many institutional challenges including coordination problems among actors, coordination of actions at different levels, and problems of governance of implementation mechanisms. The transition to a green economy must therefore remove all institutional barriers that exist to ensure success in the long term, and reconcile the legitimate objectives of socio-economic development of people and the protection of environment. The intervention of public authorities for the implementation of a coherent and inclusive institutional system is necessary.

93. A review of national reports related to the Rio + 20 summit shows that in most countries of West Africa, an institutional mechanism has been put in place in the context of sustainable development. This includes laws and regulations, agencies, commissions, etc. A number of countries (Côte d'Ivoire, Senegal) have also created ministries of environment and sustainable development. This institutional mechanism is completed by local community bodies with their transferred power.

94. However, the multiplicity of these structures raises a number of issues and the most common is the lack of coordination, even if, as in the case of Cote d'Ivoire for example, functions are clear. In addition to that, the scope of some ministries and bodies indirectly

¹⁵ ECOWAS (2010).- West African Industrial Common Policy. July 2010, 74 p.

covers environment and sustainable development, hence the need for coherence in an inclusive manner.

95. Thus, the following institutional barriers can be listed for West African countries:

- Lack of coordination between ministries and institutions in charge of environmental issues and sustainable development; at different levels and to varying degrees, this usually leads to overlaps, conflicts of jurisdiction and confusion with respect to mandates and responsibilities,
- Not taking into account the principles of sustainable development into national planning frameworks,
- Lack of awareness of the importance and the need to integrate all three pillars of sustainable development from the design phase, a limited understanding of the links between these three pillars,
- And finally institutional instability with skills and powers that can change at the whim of reshuffles, preventing effective action and monitoring.

96. As an example of these problems, we can mention the case of Senegal who was among the first countries to develop in 2002 the National Strategy for Sustainable Development (NSSD). However, for reasons of institutional change, it was not until 2012 that this strategy has been subject to peer review¹⁶.

97. In Côte d'Ivoire¹⁷, a technical assessment of control and environmental monitoring agencies has revealed the ineffectiveness of these institutions due to lack of material and human resources.

98. At sub-regional and regional levels, institutions have been put in place since the 70s especially to cope with environmental vulnerability and economic development. Sustainable development frameworks have also been developed, including within the RECs, regional economic communities, regional centers. However, these institutions have not been very active even until recently¹⁸. This is explained by the fact that initially the mandates of some of these institutions were limited (e.g. CILSS, AGRHYMET regional center, etc.). It was so difficult for regional institutions to position themselves for leadership in an area that was beyond their competence.

99. In fact, some of the institutional frameworks have been established to meet the needs of implementing some of the environmental agreements, and not to satisfy the needs of the country.

100. Thus, to meet the objectives of sustainable development and green economy in the West African countries, and try to overcome various institutional barriers identified here, the following recommendations can be suggested:

¹⁶ See presentations and the report on the workshop of the peer review organized in November 2012 with the support of IEPF.

¹⁷ Ministry of environment and sustainable development (2012).- Rapport national de développement durable dans la perspective de Rio+20.- 45p.

¹⁸ NANASTA, Djimingue (2009).- African Leadership on Climate Change: Challenges and Solutions for African Regional Institutions. Discussion Paper for Lead Africa Workshop, Tunis, 2009, 20 p.

- Providing consistency and institutionalization of the institutions, skills and actions by adopting a framework law, taking into account all of the concerns related to sustainable development,
- Institutionalization of the integration of sustainable development into national and regional programs and activities
- Dissemination of texts and rules for awareness raising and effective involvement of all stakeholders and sectors
- The provision of material and human resources, through capacity building
- The establishment of a framework for cooperation and consultation.

101. The regional and sub-regional institutions can play an important role in the promotion and implementation of the green economy in West Africa. To fulfill this role fully and effectively, it is necessary to integrate the principles of sustainable development and the green economy in their respective mandates and strengthen partnerships. Indeed, the aim will be to seek to integrate green growth in the government action and not just to develop new policies or to create new institutions.

3.2 Analysis of financial barriers

102. The green economy requires funding in the short, medium and long-term depending on the areas at stake. This funding should mainly originate from the private sector but also from the public sector. For the West African countries, the necessary financial resources for the implementation of sustainable development are limited and apart from the state budget, often mechanisms for mobilizing additional resources put in place under the various multilateral environmental agreements (MEAs) (such as the Clean Development Mechanism (CDM), the national environmental fund, the Global Environment Facility (GEF) at a certain time, etc.) are often ineffective, inefficient and not accessible enough. In addition, the financial support from developed countries for the implementation of projects and programs is still weak and poorly operated. In fact, the financial framework is not yet defined and barriers to financing the green economy are numerous. To implement such a framework, many questions need to be raised, namely, for example, what kind of investments is necessary for the sectors of the green economy? What kind of investors, what sources of investment and on what scale, and for which activities at local, national and regional level, etc. ?

103. Depending on the areas and the scope of action, two levels and types of funding would need to be distinguished. Basically:

- public support is needed to build capacity and establish an enabling environment for to attract private investment;
- and private investment is needed to cover important funding needs. In this regard, it will be important to lay the ground and attract long-term investors.

Barriers related to investment: need for two levels of funding

Public sector investments

104. Funding strategies for green growth require a high level of investment and long term. This is all the more true that it is a question of putting in place the foundations for changing the patterns of production and consumption, wealth creation and through innovation, behavior

change, and the creation of well-being for the people. This therefore implies that we must deal with a number of externalities with the support of government. At local and national level, the public sector could direct its intervention towards the following areas:

- Building and strengthening the capacity of national actors and institutions
- Strengthening the national economy
- Harmonize sectoral policies and take clear options for renewable energies and energy efficiency
- The introduction of incentives to mobilize significant investments for SMEs and VSEs
- Promoting greater involvement of local financial institutions
- The implementation of a strategy for information and communication for the general public and private sector, etc.

105. The contribution of public funding thus appears as a prerequisite to private investments. Indeed, private investment can be attracted only if an enabling business environment has been in place. From this point of view, the green economy could be used by public authorities not only as a pretext to harmonize sectoral policies, but also to establish trust with private investors. Public intervention in terms of investment decisions and risk taking therefore remain essential to stimulate the involvement of the private sector. Thus public investment should be focused on capacity building and the strengthening and stimulation of small family businesses that form the basis for large-scale and long term investments.

Private sector investments

106. Entry windows or investment scenarios for the private sector are numerous and cover various areas including climate, energy, biodiversity, waste management, agriculture, industry, infrastructure, transport, research, etc. and objectives to move towards a green economy are truly ambitious. To achieve these objectives of sustainable development in the long term, these sectors require important investments that require long-term projection, beyond the short-term often sought by private investors to maximize profit. But given the pressure on scarce public finances, private sector involvement is necessary. For instance, for the fight against climate change only, studies and evaluations conducted in recent years to try to determine the amount of funding needed by developing countries reveal that the cost amounts to several billion dollars¹⁹.

107. For the West African countries, financing the transition to green growth will be hampered by their very limited financial resources especially as the needed investments are often long-term investments. There are virtually no effective instruments for the mobilization of domestic resources at country level for the environment. The polluter pays principle adopted in the context of codes of environment is generally not applied or encounters malfunctions. This is the case in Côte d'Ivoire and Senegal. Given this structural barrier, a division of roles between the public and private actors is essential according to the comparative advantages of each other. Unfortunately, for the moment, apart from the energy sector where there is a kind of bubbling particularly in Senegal with the arrival of a photovoltaic panel company and the announcement of the establishment in Ghana by 2015 of a solar power station anticipated to be one of the largest of the world, the local private sector still invests only very little in environment and sustainable development.

¹⁹ World Bank, UNFCCC, PNUD, OXFAM, Christian Aid, etc.

108. This is why long-term investors such as insurance companies, pension funds and sovereign wealth funds, the only funds capable to look beyond the immediate financial returns have a vital role to play²⁰. They can fill the substantial funding gap for green growth in the sub-region of West Africa. The ClimDev programme set up by the AfDB, ECA and the AU Commission and the African Green Fund should be used to support the implementation of schemes for resource and funding mobilization that would go beyond climate change for which they were created. It is only by aligning interventions and funding in a long term social and environmental profitability perspective that the countries could hope to achieve the ambitious goal of green growth.

109. However, to achieve this, support measures at regional and international levels should be taken to overcome obstacles to attracting foreign investment: access to markets that are limited, recovery or improvement of the business climate and governance, risk sharing through public-private partnerships, and strengthening the capacity of local businesses to enable them to build partnerships. Banking institutions in continental or regional organizations such as the African Development Bank (AfDB) and the Banque Ouest Africaine de Développement (BOAD) who have invested so far in the oil could help countries to engage in green growth expanding their range of green products and services and helping countries to create long-term investment leverage.

Barriers to disbursement modalities

110. One of the reasons to the low or inefficient use of the financial resources made available for the implementation of the Rio conventions relate to the delays in the disbursement of funds. This has been one of the major critics to the Global Environment Facility (GEF), known as the financial mechanism of the Rio conventions and it has led to many reforms during the last four to five years. Thus the GEF's project cycle has been shortened and the list of its agencies has been expanded.

111. The delays in the disbursement of funds are also one of the major critics raised about the African Development Bank too²¹. The review of past evaluation of the AfDB reveals lengthy delays in signing loan agreements, loan effectiveness and long delays in first disbursements for projects. These are recurrent bottlenecks constraining the performance of most operations launched by the bank. These are just two examples related to this barrier of disbursement effectiveness that is likely to extend to the funding of the green economy.

112. In view of these constraints, it would be difficult for the African countries, and more especially for the West African countries to easily and successfully engage in the green economy pathway without a move towards effectiveness by regional financial institutions. The West African countries would need modalities to access funds to be simplified. They would also need support through capacity building that goes beyond the needed reforms by financial institutions to simplify their project cycles and disbursement rules and procedures.

Barriers related to the absorption capacity

²⁰ BARON, Richard, et. al (2010).- Le financement de la croissance verte.- Paris : CEDD, October 2010.- 120 p.

²¹ NKAMLEU, Guy Blaise et al.- Always Late: Measures and Determinants of Disbursement Delays at the African Development Bank, AfDB, Working Paper N°0141, December 2011, 24 p.

113. A lot of efforts have been made by the international community to make funds available to support African countries in their fight for sustainable development and to protect global environment. A lot has also been made to facilitate access to the numerous funds that have been established over the years. In addition, recent studies have shown that the level of funding needed to face climate change for instance is in the order of billions of dollars. In terms of transition towards a green economy, it is estimated that by 2050, an annual investment totaling U.S. \$ 1 300 billion²² (2% of world GDP) would be necessary in a business-as-usual scenario to ensure "green" economic growth in the world. African countries will need to increase their absorptive capacities.

114. Because precisely the future needs of green investments are high and the current rate of use of the available funds is relatively low, the countries need to be prepared to be able to fully benefit from all the possibilities that lay ahead. To do so, it will be necessary to help them:

- Build or reinforce their capacity to identify and develop projects and programmes
- Strengthen governance, transparency and accountability in fund management
- Invest in research and development and innovation

3.3 Analysis of barriers related to adaptation and mitigation of CC

115. Climate change adaptation and mitigation are gateways to a green economy. Climate change impacts have been recognized by companies as a risk to their products and services and responding to climate change constitute an opportunity for the private sector. As such, any barriers to climate change adaptation and mitigation constitute obstacles to the green economy objective.

3.3.1 Analysis of barriers related to adaptation to CC

116. Adaptation to climate change has become a major focus of international negotiations on climate change and the major concern of African countries that see it as an existential question. Many initiatives have been launched in Africa to respond to the vulnerability of the continent. Financially too, efforts have been made since the creation of the LDC Fund to support the development and implementation of National Action Programmes for Adaptation (NAPA), the establishment of the Adaptation Fund, etc. However, studies have shown that billions of dollars are necessary to successfully build resilience in developing countries and the amounts available are well below the estimated needs. Thus, despite the prominence of the theme, the availability of funds to a point and the implementation of a number of activities in West Africa, there are still some obstacles or rather major constraints for the satisfactory implementation of adaptation.

117. According to the 4th Assessment Report of the IPCC, the following "barriers to adaptation" can be noted²³:

²² UNEP (2011).- "Towards a Green economy - Pathways to Sustainable Development and Poverty Eradication", cited by VERREAULT, Lucy in "L'émergence de l'économie verte : quel rôle pour les acteurs publics? ", ENAP: Montreal, 2011, 22 p., p. 8.

²³ See the 4th Assessment Report of the IPCC, WGII.

- The uncertainty of scientific knowledge, which is significant enough to interfere with the decision-makers (Schneider, Lane, 2006; Dessai, van Sluijs, 2007);
- Unavailability of appropriate technology, making any adjustments in some cases impossible (Hulme, 2005);
- The cost-benefits of adaptation measures are not always favorable to public action (ECA, 2009);
- The lack of economic resources (Global Environmental Facility (GEF), 2010; or
- The weakness of state institutions (Yohe et al. 2006).

118. Thus, barriers to the implementation of adaptation to climate change can be classified into several categories: political, technological, economic, financial and institutional matters.

119. With regard to West Africa, the major constraints can be identified through the identification of major gaps in capacity. A number of factors make it difficult to fight against climate change at the sub-region level.

120. The sub-region of West Africa has many political, financial, technical and scientific organizations, as well as networks of civil society organizations. All of these organizations should be a perfect base for the implementation of adaptation options in the sub-region, and in a way, they have begun to do so for some years now.

121. There was however a kind of duplication and lack of clarity in the mandates and in the comparative advantage of each organization. The constraints that these organizations face include:

- Slowness in decision-making at the regional level, especially when it comes to projects involving several countries;
- Initiatives are often developed in a top-down approach, with insufficient participation of target populations;
- Limited access to finance (e.g. CDM, Adaptation Fund Project, etc.).
- Lack of effective networking between academia, civil society and government departments;
- Lack of experience implementing field activities
- Lack of information on future scenarios, costs, cost-profits, etc.
- Limited availability and reliability of data, knowledge and information.
- Lack of synergies between environmental programs, for example, biodiversity, climate change and land degradation;
- No sub-regional organization is a party to the Convention.

3.3.2 Analysis of Barriers related to climate mitigation

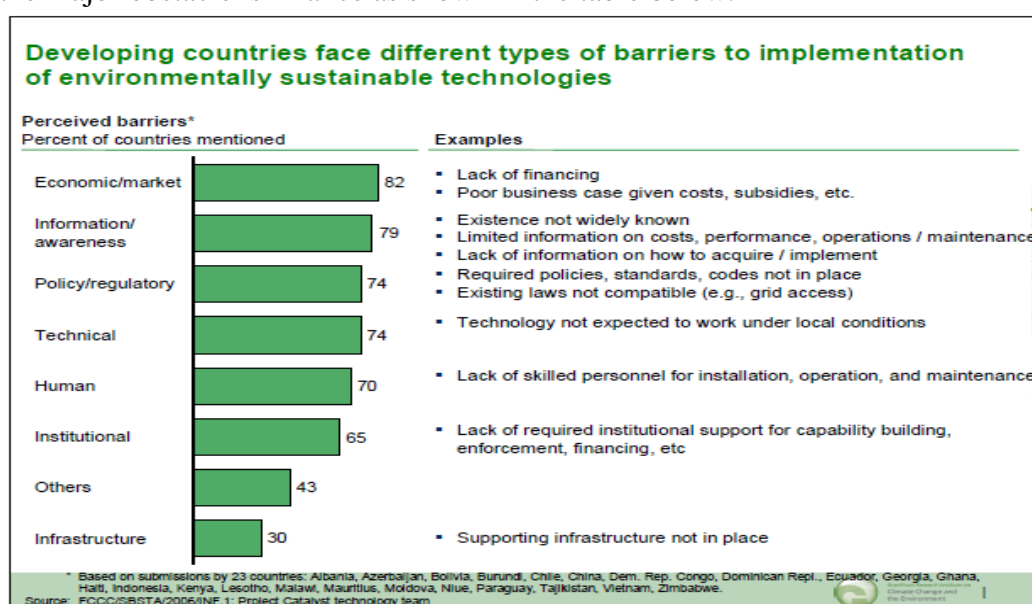
122. Africa is the continent least responsible for the emissions of greenhouse gases, and yet remains the continent most vulnerable to climate change. The early actions related to the implementation of the Framework Convention on Climate Change, African countries have focused their interventions especially in the area of mitigation, including by many studies and capacity building on GHG emissions inventories, CDM, etc.. However, the fight against

climate change in developing countries, especially in Africa in terms of reducing GHG emissions is fundamentally a challenge. This option may not be viable under the very low level of consumption of energy. On the contrary, actions allowing the avoidance of emissions are opportunities.

123. Indeed, an African man generates 13 times less carbon than a North American. This position is explained by energy poverty and the continent in general result and from the combination of several factors. The most notable are:

- Low installed capacity of energy production due to a Lack of investment in the sector;
- dilapidated facilities, lack of service and political instability in some regions;
- adverse weather circumstances include not Droughts Such as neglect;
- and finally the diversification of the energy mix.

124. Mitigation of greenhouse gas emissions, so far, is the responsibility of polluting countries of Annex I. The integration of developing countries in general in the collective effort to reduce GHG emissions, begins to manifest itself within the new dynamics of the negotiations on the post-2012 regime. For developing countries this logic of participation in the collective effort should be marked by the revival of a mode of low-carbon development. For African countries, there are many niches including a mobilization around renewables, energy efficiency, forestry, agriculture, etc.²⁴. For the West African countries as well as in other African countries, the constraints are political, institutional, technological, organizational, informational, infrastructural, regulatory, business environment, etc. However, the major obstacle is finance as shown in the table below.



125. Funding of mitigation options in Africa is still cited as the major obstacle that prevents the continent from embarking on the path of low-carbon development. From this point of view, it is necessary to find innovative solutions to overcome this obstacle and the significant potential available to the continent, especially sub-Saharan Africa may just be the solution to this barrier financing²⁵. The total mitigation potential in Africa is estimated at 2,800 MtCO₂e and could thus serve as a basis for the financing of low-carbon growth. It is estimated that the

²⁴ IEPF (2009).- Etude preliminaire d'adaptation aux changements climatiques en Afrique : Energie. Etude preparee par ENDA.- Montreal : IEPF ; PNUE, 2009.- 60p.

²⁵ Grantham Research Institute (2009).- Possibilities for Africa in Global Action on Climate Change. 86p.

cost of financing may well be covered by mitigation costs, especially for the forestry, agriculture and energy of up to \$ 41 billion per year by 2030.

126. However, due to rapid urbanization and population growth, a long-term planning is necessary. The option taken by ECOWAS to integrate energy planning strategies for long-term development at local, national and regional levels is from this point of view an essential step in optimizing investments.

127. Both for adaptation and mitigation, policymakers have a lot to do in terms of engagement at all levels. The public sector need to build a foundation for private sector investment, disseminate information, and help establish a strong collaboration. For financial institutions, there is also a need to rethink their criteria for green business, since green economy is all about how to change the way of doing business.

Chapter 4: Promoting the green economy to meet the challenges of climate change adaptation and mitigation

128. The green economy, a new concept, has ignited a lot of debate and continues to absorb a large amount of intellectual energy. The question is how does the green economy link to climate change adaptation and mitigation? Can the green economy be reconciled to climate change adaptation and mitigation in West Africa? In other words, can promotion of the green economy meet the requirements needed to adapt to and mitigate climate change? How?

Box 9: Conceptual framing of adaptation and mitigation

Adaptation to climate change is a continuous process of adjustment of the nature, practices (including the habits, attitudes, behaviors), policies and procedures of institutions and public and private organizations and individuals to minimize negative impacts and / or optimize the opportunities offered by climate change in key sectors of human life. The goal of any adaptation action is to guarantee the conditions for the exercise and performance of key sectors towards human well-being. The adaptation also has an important economic direction.

Mitigation involves sequestration, avoidance and / or reduction of emissions of greenhouse gases in the production, processing and distribution of goods and services. Mitigation seeks to protect the environment, and thus its eco-climatic orientation is evident.

129. The conceptual analysis shows that there exists a complementarity between green economy and climate change adaptation or mitigation. Green economy encompasses these two concepts and beyond. The new approach of efficient wealth production as a characteristic of adaptation is taken into account by the green economy. Climate protection is also integrated into the green economy concept in the sense that it also seeks to reduce environmental risks. Aside from the economy and climate, the green economy is also concerned about the degradation of ecosystems. The analysis of the vulnerability of sectors of the economy to climate change can well highlight the opportunities they offer to the green economy.

4.1 Vulnerability of the agricultural sector

4.1.1 Vulnerability of the farming sector

130. Agriculture is taken here in the broad sense and covers the activities of farming, livestock, forestry and fishing.

131. In all these sub-sectors, farming activities in West Africa depend primarily on weather conditions. This dependence on climate is a major source of vulnerability of this key economic sector. Productivity and production of agricultural produce are particularly sensitive

to climate variability. And yet, the main feature of the climate in West Africa for the past 50 years is the increase in rainfall variability and the frequency and intensity of extreme weather, particularly droughts, strong winds and torrential downpours.

132. These climatic events have a direct impact on agricultural production activities. They destroy crops, degrade vegetation, including mangrove which is home to a variety of species exploited in the fisheries sub-sector and reduces both forage resources and water resources (surface and groundwater).

133. Aside from climatic stimuli, other biophysical, technical and political-institutional factors negatively affect the performance of agriculture in West Africa. From the biophysical perspective, the agricultural sector suffers from land degradation (erosion and fertility decline), a deficit in the quantity and quality of water resources and agricultural crops that are poorly adapted to new climate regime.

134. Agriculture productivity in West Africa is severely hampered by the lack of mechanical inputs, infrastructure and technology packages and a low carbon performance. The weak capacity of producers in planning and management activities is a significant barrier to adaptation to climate change in agriculture. In addition, the West African agriculture suffers from the limited existence of strong institutions capable of transforming this sector's performance, but also of relevant policies and adequate governance.

135. Existing mechanical equipment, infrastructure and farming techniques are equally rendered unsuitable by changes in climate. This is also linked with institutions, policies and the governance of the agricultural sector. Most institutions, development strategies and agricultural management regimes that have been designed for a totally different context than the current one, which is largely characterized by climate change. Given the complexity and magnitude of the impacts, climate change makes the systems of institutions, governance and agricultural policies inadequate.

4.1.2 Vulnerability of the livestock sector

136. Livestock rearing is directly affected by climate change and climate variability. Droughts result in declining quantity and quality of fodder and water resources, which results in a high mortality rate and decreased milk productivity. Rising temperatures, strong winds and torrential rains also negatively affect the health of livestock. This set of constraints leads to a significant decrease in the income of livestock farmers.

137. Moreover, climate change forces livestock farmers who, faced with scarcity of forage grass, feed with elevated forage, notably from tree layers. This results in cutting of tree branches which in turn, not only releases carbon, but also calls into question the viability of plant species.

138. Climate change requires an adjustment both in terms of policies, institutions and governance, but also from the point of view of technical agricultural production, livestock, forestry and fisheries.

Box 10: Since 1950, breeding in Mauritania has shown a greater vulnerability to the effects of drought, particularly for cattle, whose numbers have been reduced by about a third between 1969 and 1975. Also, the lack of fodder due to drought caused a decline in cattle performance. If the deficiency is severe, animal growth is hampered, following weight loss. If there is no improvement, meat deficiency will be about 54,000 tons in 2015.

The vulnerability of water resources

139. Groundwater and surface water resources are particularly vulnerable to climate change in West Africa. Droughts and higher temperatures result in a depletion of water reserves and the degradation of water quality. For example, in May 1985, due to drought, flows of the Niger River to Niamey completely stopped. In the Groundnut Basin of Senegal, episodes of droughts have resulted in a salinization of groundwater resources. In addition to climate, water reserves and surface water bodies are affected by the increase in demand, due to irrigation development and population growth. The use of pesticides and fertilizers, lack of efficient sanitation, sewage and industrial waste systems are also factors of degradation of the quality of surface and ground water in West Africa.

The vulnerability of the fisheries sector

140. After agriculture and animal husbandry, this sector occupies a very important position in the countries' GDP and is also threatened by climate change for several reasons: the degradation of coastal and marine ecosystems, the advance of the sea and erosion coastal flooding, etc. This is reinforced by weak political institutions and over fishing. This weakness is reflected by the ineffective and unsustainable fishing techniques and technology, poor processing of fishery products, the lack of a structured marketing system of fisheries products; and it is this lack of organization of the market for fish products that explains the low prices to the producers.

141. Climate change has both direct impacts and negative effects on fishing. Natural disasters are not without a direct impact on fish nurseries. The countries that suffer most from this phenomenon are coastal; it has a direct impact on the production of wind regime evolutions and the upwelling, which is an extremely important factor for the enrichment of the coasts at the level of the Atlantic Ocean alongside Africa.

The vulnerability of forestry

142. Climate change, particularly drought, reduces the density and diversity of woody plants. This results in the transformation of plant cover into sparse vegetation units, and sometimes a total loss of vegetation cover. In these climatic stimuli, added effects of human action, through agriculture, livestock and forestry destroy vegetation.

4.2 Vulnerability of the industrial sector

143. In West Africa, the industrial sector is generally weak, in terms of GHG emissions, but also the number of jobs provided. GHG emissions from the industrial sector do not exceed 5% of total CO₂ emissions. The industry is dominated by manufacturing, which in turn is highly dependent on agricultural, pastoral, fisheries and forestry resources. To understand the

vulnerability of the industry to climate change, refer to the above analysis the vulnerability of these sectors.

144. Apart from climate change, the industrial sector suffers from an environment of legal and fiscal constraints (difficulty of creating an enterprise, long and costly administrative procedures around money, corruption, etc.), a lack of corporate culture in West Africa, and competition from foreign company subsidiaries and imports.

4.3 Synergies between adaptation, mitigation and green economy in West Africa

145. Several entry points can reconcile adaptation, mitigation and green economy. Those areas identified as having a high vulnerability to climate change can play an important role in the fight against climate change, degradation of natural resources and the creation of wealth and jobs. These are niches that have interesting potential for the successful concomitant realisation of adaptation, mitigation and green economy. These are agriculture (including livestock, fisheries and forestry), industry, energy, building and construction, transport, waste and water resources. Achieving adaptation and mitigation to climate change and the green economy necessitates innovation which can be evolved in the way of producing, processing, marketing and organizing and managing a sector.

146. Technological innovation refers to the development of production, transformation and distribution processes, while being more efficient (in terms of execution time required and the quality and quantity of the product) to meet the growing human needs and pressure, and to ensure regeneration capacity and production of the environment. Technological innovation in the green economy, adaptation and mitigation of climate change refer to new or improved practices. These practices provide greater performance in the stages of production, processing and distribution of goods and services to ensure the integrity of the environment.

147. Social Innovation: There is a social innovation when there is implementation and ownership by stakeholders of a new or improved practice, or a new or better service. Social innovation implies participation via social inclusion. It is in this sense that the fight is against social inequalities and towards ensuring social inclusion.

148. Organisational innovation: It refers to the establishment of institutions, structures, policies and modes of governance that prove more efficient in terms of execution and performance products towards resolving a problem. It includes the technological and social innovations.

4.4 Opportunities at low carbon emission

149. Agriculture, while being a victim of climate change, is also one of the main contributors. For agriculture to achieve adaptation, mitigation and green economy, it must become a source of national wealth production, with practices that reduce or avoid GHG emissions and ensure regeneration of soil, water and vegetation. All stages of farming (clearing, plowing, sowing, weeding, harvesting, threshing) and agricultural inputs (fertilizers and mechanical equipment) must use little or no fossil fuel, prevent or reduce their carbon emissions and assure that natural resources have a regenerative capacity.

Opportunities for climate change adaptation and mitigation for the agricultural and industrial sectors that may also serve as niches for the green economy include:

Sectors	Opportunities
Agriculture	
Safe and sustainable agriculture	Integrated approach (water, agriculture and livestock rearing) ; Water control pumping systems that use renewable energy; Promoting innovative financing; Promote agroforestry and reforestation; Sustainable land management; Soil restoration
Sustainable forestry	Reforestation; Forest management; Assisted natural regeneration and agro-forestry
Sustainable fishing	Promotion of energy efficient equipment for fish processing; Regeneration of mangrove ecosystems; Development of protection works along sandy coasts (seawalls, groins, beach surfacing, artificial beach feeding, massive sand dune replenishment etc.;
Industry	Develop resilient equipment and processes; Develop industrial processes using renewable energy; Promoting CSR in companies;

Chapter 5: Initiatives and strategies to promote the green economy in West Africa

150. Several initiatives and strategies have been launched in West Africa without considering the green economy as a priority. However, their analysis shows promising active opportunities for green growth and creating green jobs that are niches that confirm our choice of sectors.

5.1 Initiatives to promote the green economy in West Africa

151. The typical characteristics of the sub-regions' development challenges has led West African countries to develop initiatives in line with the principles of a good green economy such as:

Resilience Initiative

152. The Global Alliance for Resilience Initiative (AGIR) supported by ECOWAS and WAEMU aimed, on the one hand, the implementation of policy and technology options addressing the structural causes of food crises by promoting improved resilience of vulnerable populations and overall sustainable food and nutrition security, and on the other hand, to prepare States to better cope with crises when they occur. This initiative puts the focus on the agricultural sector in its agenda, with the development of:

- A Regional Agricultural Investment Programme (PRIA), adopted in 2010 focusing on three main objectives: (i) promotion of strategic products for food sovereignty and security, (ii) Promoting a global environment that favours regional agricultural development, (iii) reduction of food vulnerability and promotion of sustainable access to food;
- National programs for Agricultural Investment and Food Security (NIPA-SA) centred on strengthening food production, enabling a market environment and improving vulnerable populations' access to food.
- As part of capacity building and awareness raising, this initiative provides for the establishment of mechanisms for systems of information, vulnerability analyses, and monitoring and warning, with, as a pillar for the prevention and management of food crises (PREGEC) at the regional-level, the Regional Agricultural Information System (CRMS) of WAEMU and the Agricultural Information System (ECOAGRIS) of ECOWAS, in terms of a unifying framework for all existing agricultural information systems.

The regional initiative for energy efficiency supported by the Regional Centre for Renewable Energy and Energy Efficiency

153. This initiative has negative environmental externalities (e.g. GHG emissions, pollution of air, soil and water and land degradation) of energy use. Energy efficiency will contribute to higher living standards of the ECOWAS populations by reducing the cost of energy bills, and

by making access to energy more affordable and easier in urban and rural areas. It will also help in the supply of energy to all public services, including education, health and water quality. It aims to establish a solid institutional framework, the basis for efforts to change and move towards a more energy efficient economy.

The Regional Initiative for Sustainable Energy

154. Following the twelfth Ordinary Session of the Conference of Heads of State and Government of the WAEMU in 2008, a special “Energy” commission was established to provide sustainable solutions to issues related to the energy crisis. The work of this commission made way for the establishment of a regional initiative for sustainable energy (IREN). This initiative has set as its target for 2030, access by the citizens of the Union, to low-cost energy within a large, integrated and harmonized market at the West African sub-regional level, producing clean energy based on a dynamic public-private partnership. A roadmap laying out the strategic axes has been established, integrating all activities related to the green economy including: developing a diversified, competitive and sustainable proposition, elaborate a regional master plan for managing electricity consumption and improving energy efficiency, accelerating the emergence of a regional energy trade within West Africa and establish a dedicated funding mechanism for the electricity sector.

The Initiative on safe, affordable and sustainable cooking

155. The ECOWAS Initiative for safe, affordable and sustainable cooking is to ensure that by 2030, the entire population of ECOWAS will have access to modern fuels and efficient and sustainable cooking. It covers:

- Improving the efficiency and sustainability of traditional cuisine in wood and coal from the energy value chain through sustainable forest management, conversion to improved, clean and efficient charcoal stoves.
- Strengthening local economies through increased production of biomass fuels and stoves through the application of proven business models focused on intensification
- Development of new forms of biomass energy for cooking
- Promotion of LPG and modern stoves.

Initiative for energy efficient lighting

156. Lighting, having electricity as its main source of energy, is used the most by West African households and forms 20% of electricity consumption in the ECOWAS region. The transition to energy efficient lighting is a simple and cost-effective way for the region to significantly reduce electricity consumption during peak periods, and also enabling greater economic growth, social progress, improved rates of literacy, safety and productivity in West Africa. For this reason, ECOWAS decided to launch an initiative for an 'energy efficient lighting', as one of the priority initiatives within the implementation of the ECOWAS energy efficiency policy framework on.

5.2 Sub-regional and National Strategies for capacity building on green economy for mitigation

157. For some years, West African countries have begun to formulate and implement strategies towards promoting a green economy in the context of their regional and national development objectives.

5.2.1 Sub-Regional - ECOWAS, WAEMU- and bilateral strategies (policies, training, funding, governance, etc.).

158. It is generally accepted that entry points to green economy and green growth must integrate the pillars of socio-economic and environment of sustainable development, and moreover, be embedded in the national strategies for sustainable development (NSSD) of these countries.

159. In the sub-region, green economy is now seen as an activity leading to poverty reduction and job, wealth and income generation for the benefit of the population. Green economy is well recognized by the states of West Africa as an option that can and should be taken in all sectors of the economy. And so, states directly reconcile sustainable development and green economy.

160. In this way, sub regional sustainable development strategies have relied primarily on policy approaches that make a real transition to a green economy. Among these strategies one may note:

✓ The regional agricultural policy of West Africa

161. The vision of the West African regional policy is consistent with the principles of sustainable development. It is "a modern, sustainable agriculture, based on the effectiveness and efficiency of family farms and the promotion of agricultural enterprises through private sector involvement. Productive and competitive in the intra-community and international markets, it must ensure food security and provide decent incomes for its assets. "

162. The objective of this policy is to sustainably contribute to satisfying the food needs of the population, towards economic and social development and to reduce poverty in the Member States, as well as, reduce inequalities between territories, zones and countries.

163. From the perspective of massive job creation and sustainable agriculture, this policy enables operating through the green growth niche through:

- Sustainable intensification of production systems and
- Job creation that guarantees an income that can improve the living conditions of rural populations and services in rural areas.

✓ West African Common Industrial Policy (WACIP)

164. The general objectives of WACIP are to promote an accelerated industrialization of West Africa, through a support in favour of endogenous industrial processing of local raw materials, the development and diversification of industrial productive capacities, and strengthening regional integration and export of manufactured goods. Even though, this policy does not announce a clear strategy for greening the sector, its analysis moves along tracks similar to a transition to a green economy, such as:

- the development of entrepreneurship and technical competences amongst citizens of the community and
- the promotion of competitiveness of industries, and national and regional industrial sectors, by upgrading and strengthening their technical capacity around corporate financing, technology transfer and innovation.

✓ **Conducting an African Ministerial Conference on the Environment (AMCEN) in September 2012 (WAEMU)**

165. This meeting led to the development and launch of flagship programs for the achievement of sustainable development in Africa, taking into account cooperation frameworks. Considered among the envisioned flagship programs, are key strategic meetings for a transition to a green economy, such as:

- African Partnership for a green economy;
- Sustainable land management and against desertification in Africa;
- The development of sustainable energy;
- Capacity building for technology transfer and skills development

✓ **Establishing an Energy Efficiency Policy for ECOWAS (CCAP) and a Renewable Energy Policy (PER)**

166. ECOWAS is committed to green energy policies as a contribution to the Rio+20 initiative on sustainable energy for all.

167. The ECOWAS Commission strives for a voluntary commitment to the Initiative on Sustainable Energy for All presented at Rio+ 20, by the Secretary General of the UN. At a regional workshop held in November 2012 in Ghana, the Ministries of Energy of ECOWAS approved an accord on the key objectives and pillars of regional policies for renewable energy and energy efficiency for ECOWAS. These policies have the following objectives:

- Approximately 30% of the electricity consumption in the ECOWAS region will be saved by 2030 through better supply to meet demand and an improvement in efficiency ;
- The share of renewable energy sources (including large hydroelectric power) of the electricity generation capacity installed within the region will increase to 35% in 2020 and 48% in 2030;
- The share of new and renewable energy such as wind, solar, small hydro and bio-electricity (excluding large hydro) should increase to around 10% in 2020 and 19% in 2030. These objectives are reflected in an increase in renewable energy installations to 2425 MW in 2020 and 7,606 MW by 2030;
- To ensure universal access to energy services by 2030, it is expected that nearly 75% of the rural population will be served by the extension of the network and approximately 25% by mini-grids powered by renewable energy and autonomous systems.
- In 2020, the total population of ECOWAS will have access to more efficient cooking facilities, either through improved stoves or by substituting fuel with other modern forms of energy such as LPG.
- The share of ethanol / biodiesel in transport will increase to 5% in 2020 and 10% in 2030.

- In 2030, about 50% of all health centres and 25% of all hotels and food industries will be equipped with solar thermal systems to meet their hot water needs.

✓ **The Action Plan for the promotion of biomass energy and alternative energy in the context of sustainable development and the green economy in the WAEMU**

168. The action plan aims to contribute to poverty reduction and sustainable development of the WAEMU member states through coherent policies and strategies for biomass energy sub-sector. Its primary mission is to undertake actions in favour of bio-energy in an effort to reduce poverty.

✓ **AfDB's "Green Growth in Africa" Programme**

169. The African Development Bank (AfDB) has a long-term strategy around the programme for green growth in Africa that uses a systematic approach to development. It focuses on strengthening the emphasis on the quality of growth, ensuring that economic growth is sustainable by using resources more efficiently. It is also closely related to inclusive growth by including the transition to the green economy as the basis of its actions. By adopting a multi-sector approach, the green growth programme intends to open new opportunities for development in Africa. Africa has the opportunity to leapfrog stages of development by adopting more efficient infrastructure and new technologies. This type of development can be implemented without the added compliance costs of existing infrastructure, with the new standards.

5.2.2 National strategies: State, private sectors (policy, training, funding, governance, education, etc.)

170. After the adoption of a common position on the green economy at various events such as: the third African Ministerial Conference on Financing for Development (May 2009), the session of the African Ministerial Conference on the Environment (AMCEN) in June 2010, the first Pan-African Conference on Biodiversity (September 2010), the Seventh Forum for Africa's Development (October 2010) and, more recently, the 18th Ordinary Session of the Executive Council of the African Union (January 2011), West African states in their respective countries are finding ways and means to a more sustainable development via a transition to a green economy.

171. As part of the current trend towards implementing sustainable development, several countries have already put in place a national strategy for sustainable development (NSDS) which remains to be operationalized.

172. The predispositions necessary to move towards a green economy exist in some countries: for example, Senegal's Program 2 of "Building Capacity for Dynamic Economic and Social Development" of PODES which aims, in its second section, to support the creation of job opportunities, including green jobs, particularly in rural areas; the ten year National Action Plan on Sustainable Consumption and Production Methods (PAN/MPCD) with various of its own production and/or consumption projects, and the creation of its own production centre.

173. Although the concept of a green economy is not yet sufficiently integrated into national policies around sustainable development, other countries remain engaged in actions promoting a green economy within green growth sectors. One can cite the example of the implementation of components related to the reform and adjustment of forest ecosystems and the National Strategy for putting in place rural markets of wood energy in Benin, adopted in 2009, as a major new approach in participatory forestry management and the local income generation for poverty reduction, already justifies the beginnings of the green economy.

174. The preparation of the national sustainable development report makes the green economy a priority for the next decade. For example, in Côte d'Ivoire the development of a green economy constitutes the sixth strategic priority, which aims to put in place the conditions for enabling businesses to fulfil their ecological and societal responsibilities, to develop "green industries" and opt for sustainable public procurement.

175. Further studies on the opportunities for creating green jobs in Mauritania and Senegal have been carried out by the International Labour Office (ILO) in partnership with UNDP and ENDA Energy. These studies aim to position the basis for a reflection that leads to the implementation of a program linking local development and green job creation through the establishment of national and regional active policies in the field of economics green which, depending on their success, can be extended across the Sahel region.

Box 11: A Green Agriculture Model in Bamako²⁶

A green agriculture model is currently being demonstrated in the form of the Tambaroua Farming Business in Bamako, Mali. A farm with an area of about 4 ha (10 acres), and which consists of livestock, fruits and vegetables. It will be powered by solar energy and will use drop irrigation. The water for irrigation comes from groundwater wells that work using solar submersible pumps embedded in elevated tanks.

The farm also includes a research centre for excellence and a school. Thanks to this school, young entrepreneurs learn the art of modern agriculture so they can create their own farms or act as co-entrepreneurs. The centre of research and training will ensure the adoption of best practices and a code of ethics, including the best seedlings and optimal use of inputs (fertilizers and chemicals). Testing of soil, water and others will be performed to achieve optimal farming conditions for minimal residual inputs in soils and quality products yields. In fact, the best quality products are sold at higher prices in niche markets.

To date, more than twenty types of farming tested show high productivity at a lower cost. The farm, which operates throughout the year through irrigation fed by groundwater, can serve as a model for many African governments and members of civil society. With a little capital, governments, individuals and organizations can get such facilities in collaboration with smallholder farmers. Large farmers can also learn lessons from this experience. Universities will be encouraged to conduct research orientated towards farmers. This is an excellent demonstration of green agriculture able to increase the yield and income of farmers, attract young people to agriculture, create decent jobs, and help eradicate poverty in rural areas.

176. To conclude, the reconciliation of adaptation and mitigation with green economy remains a goal for West Africa. Key sectors of the economy still see their performance continue to be undermined by climate change. The need for adaptation and the importance of reducing GHG emissions in the economic activities in West Africa are widely recognized. The green economy is a means of promoting adaptation to climate change.

²⁶ COMMISSION DE LA CEDEAO : Rapport sur la revue du progrès vers le développement durable en Afrique de l'ouest.

Conclusion and Recommendations

177. Demographic challenges, food and energy security, climate change, ecosystem unbalance, healthy growth and equity in the distribution of wealth, call for action upon all actors in West Africa to engage into the trajectories of sustainable development, provided they want to operate the mandatory transition in production, distribution and consumption models. Thus, in accordance with the guidelines of Rio +20, the green economy is a means to achieve sustainable development and to better fight against the drivers of poverty.

178. The urgency for the population living in that part of the continent is to ensure strong , socially inclusive , and environmentally sustainable growth that will create economic opportunities for all that are evolving in intensive labor sectors. Indeed, the reality within the economies of the region is that they are mostly and deeply dependent on natural capital. Green growth to sustain those economies would therefore, allow for a more judicious and inclusive use of natural resources through more productive, efficient and resilient to climate change investments.

179. The current negotiations on the climate aim at reaching a post-2012 agreement. This is an appropriate time for the countries of West Africa to be part of the dynamic green economic transition. Indeed, for once, actors of the sub-region should rally and coalesce around the broader objectives into which the international community is willing to achieve from a development pathway that emit less GHG but more resilient to the effects of climate change. Yet, these negotiations are already bounded in involving the non-Annex I (developing countries) into meeting the goals of reducing GHG emissions as defined by the Convention "Climate" with, in particular, the development of Nationally Appropriate Mitigation Actions measures including their funding and transfer of adjacent technologies that could benefit these countries.

180. Henceforth, as it is in any structural transformation, the transition to the green economy (EV) requires accompanying frameworks and support services targeting the many actors that will be involved with the political and institutional (instruments, institutional leadership / restructuring) crafting, the putting in place of the needed investments or seed funding, who will be undertaking the R&D, training the skilled works in the emerging professions, and spreading the information or instilling awareness for the strategies the new paradigm.

181. Truly this will depend on the political process that each country will undergo to reduce the gaps that constitute an obstacle to sustainable development.

1 Defining a clear political vision and updating of long-term part policies in a context of multiple crises: Each country must have a long-term vision coupled with a new green growth strategy through sustainable development. This vision and strategy must fit the contours of climate change to guide action towards low carbon and thus stimulate a growing economy contributing to the mitigation of carbon emissions. The establishment of this vision

and strategy requires first a conceptual consensus on the content of the green economy and then the participation of all stakeholders through the establishment of consultative framework at regional, national and local. Thus, a mode of political, economic and social applies to all respecting the principle of sovereignty.

2 Policy based on best practices involving adaptation and mitigation in sectors with high labor intensity (LI). The synergy between adaptation and mitigation can improve the cost-effectiveness of measures and make them more attractive to stakeholders, including potential funding partners. The analysis notes that areas of synergy opportunities Adaptation-Mitigation-development are more important in agriculture, forestry, buildings and urban infrastructure, renewable energy and associated industries; there is so many niches creating decent green jobs and green growth. Many initiatives in these areas at Community level reveal the need for a change of scale and demonstrate the possibilities for replication, appropriation approaches and instruments.

3 The implementation process for the control of issues, concepts and tools both at local, national and regional levels. As such, it may be appropriate to set up a regional task force to support the appropriation of concepts and their alignment with the sustainable development process. A group that would relay these country-level and local communities, particularly for countries included in the decentralization process.

4 The development needs of regional and national leadership to overcome the challenges of good governance

5 Strengthening territorial holistic approaches to capitalize on endogenous dynamics and potential synergies Sectorial Development Approach has finally showed its limits. Today Sustainable Development and to operationalize the green economy urgently require to adopt Integrated approaches to take advantage of synergies from different geographic pooling of financial resources, skills and expertise, including indigenous knowledge

6 Integration of the green economy development strategies in local, national, regional: The approach of mainstreaming the green economy development strategy requires the provision of tools and breakthrough approaches

7 "Greening sectors and territories" favoring a 'step by step' within sector or territory (for example).

8 The search for innovative financing instruments through flexible and appropriate mixing of financial resources including state and local governments

9 Strengthening human and institutional capacities to allow the institutional coherence of actions and enable countries to take full advantage of all possible funding

10 Establishing monitoring systems, Impact Assessment of the implementation of green economy strategies in order to better assess the actual changes noted in both political, social, environmental and institutional.

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