Policy Brief

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# Inclusive Green Growth in Africa: Rationale, Challenges and Opportunities

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# Inclusive Green Growth in Africa: Rationale, Challenges and Opportunities

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[1] Disclaimer: "The views expressed in this publication are those of the author and do not necessarily represent those of the United Nations, including UNDP, or their Member States.

# Abstract

The road ahead is clearly not going to be easy for Africa as it struggles with natural resource depletion, climate change, population growth and the need to ensure that rapid economic growth translates into poverty reduction and employment opportunities for majority of Africans. To avoid costly policy reversals in Africa, this paper argues that there are significant opportunities and challenges for promoting inclusive green growth in Africa. The paper demonstrates that inclusive green growth entails supporting growth that enhances human wellbeing, social equity and shared economic opportunities while reducing environmental risks and ecological scarcities, minimizing inefficient use of natural resources and maintaining biodiversity among others.

The challenge inherently lies in how to harness the current economic momentum on the continent so as to effectively deal with Africa's development issues and environmental challenges. While there are no easy fixes or shortcuts, an 'inclusive green growth policy' approach is crucial to simultaneously address environmental, social and economic issues in Africa. Strategies for inclusive green growth should integrate environmental, social and economic issues into development plans and policies and take a long-term view of these issues as interdependent issues rather than mutually exclusive issues. Development processes in Africa must be crafted in a way that take account of natural resource depletion, environmental deterioration and economic growth in order to enhance intergenerational equity.

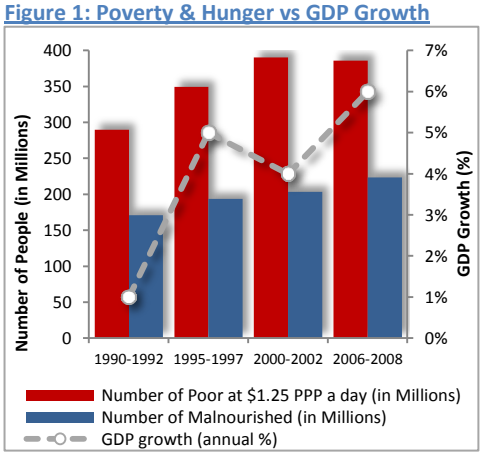
## Inclusive Green Growth in Africa: Rationale, Challenges and Opportunities

### 1. Introduction

Efforts to promote economic growth and green economy are often considered as juxtaposing, if not inherently contradictive, concepts. Yet with recent empirical evidence that inclusive economic growth is a fundamental prerequisite for poverty reduction and that current economic processes are triggering irreparable damage to the planet (and thus the future well-being of society as a whole), 'inclusive growth' and 'green economy' can no longer be conceptualized along dichotomous lines. Rather, they should be considered as part and parcel of the same development process, as mutually reinforcing means required to achieve the same ends, hence the particular idiom− 'inclusive green growth'. This notion is perhaps more relevant for sub-Saharan Africa, where growth has been extremely unequal and narrowly concentrated in only a few sectors and geographic areas; where high levels of economic growth have not translated into sustainable poverty and hunger reduction; where economies are more dependent on the unsustainable extraction/utilization of natural assets; where high levels of pollution and environmental degradation are common practice; and where climate change is currently demonstrating its most profound impacts. For Africa, the continent, which is likely to make a substantial contribution to future global growth in income, infrastructure and population, there is an obligation to 'build right' and recognize the importance of inclusive green growth or compromise the well-being of future Africans (World Bank, 2012a).

To avoid costly policy reversals in Africa, this paper argues that there are significant opportunities and challenges for promoting inclusive green growth in Africa. The paper demonstrates that inclusive green growth entails supporting growth that enhances human wellbeing, social equity and shared economic opportunities while still "reducing environmental risks and ecological scarcities, minimizing inefficient use of natural resources and maintaining biodiversity among others" (UNEP; 2011a). In this envisioned inclusive green economy, economic opportunities are increased by public and private investments that concertedly target the reduction of carbon emissions and pollution, augment energy as well as resource efficiency and prohibit the dilapidation of biodiversity and ecosystems. Such investments are catalyzed and consolidated by national policy reforms, targeted public expenditure, regulatory alterations, and the development of international policy and market infrastructure (UNESEC, 2011; UNEP, 2011a). With Africa's increasingly large labour force, low level of physical infrastructure, and diminutive stage of industrialization, the continent has vast potential to rapidly transform environmental imperatives into practical economic opportunities, which could simultaneously reconcile the environmental and poverty reducing factors of inclusive green growth.

Figure 1: Poverty & Hunger vs GDP Growth




**Source:** Own Calculations FAO (2012) & World Bank (2012b).

### 2. Rationale for Inclusive Green Growth in Africa

***Poverty and Food Insecurity****:* Despite high levels of economic growth witnessed in several African countries over the past decade, growth has not been inclusive as the absolute number of poor and hungry people in Africa has increased considerably between 1990 and 2008. The total number of Africans surviving on less than $1.25 a day has increased from 289 million in 1990 to 385 million in 2008− making Sub-Saharan Africa the only region where the number of people facing extreme poverty has increased (Figure 1). Perhaps more worryingly, the total number of hungry people in Africa has increased from 166 million in 1990-1992 to roughly 218 million in 2006-2008− a 31% increase. Since agriculture plays a crucial role in poverty and hunger reduction and roughly 70% of Africans rely on agriculture for their basic income, it is important to acknowledge that current agricultural practices are jeopardizing future productive processes, which could in turn throw many more Africans into a state of poverty and food insecurity. Most ostensibly, soil productivity is diminishing as a result of environmental disrepair prompted by flawed land and water management practices, inappropriate utilization of fertilizers, a decrease in the application and duration of fallow cycles, excess grazing and logging as well as land grabbing that drive

cultivators to utilize less favourable terrains (UNESEC, 2011). Today, 65% of Africa's cultivable land, 31% of its pasture land, and 19% of its woodland are degraded, which can ultimately cost up to 18 per cent of Africa's GDP. In addition, over the past 50 years some 270,000 miles of farming and grazing land have been transformed into desert, and in the last 20 years Africa lost 10% of its forests (UNCTAD, 2012a).

***Employment Creation and Capital Intensive Enclaves**:* The non-inclusiveness of Africa's growth can be primarily attributed to the capital intensive enclave sectors, which entail little benefits for the majority of the population as they fail to include most of the labour force (AFDB, 2012). African economic growth has not spawned a commiserate increase in job opportunities— especially for women and the youth. Yet, for growth to be inclusive, high levels of employment must be sustained over the long-term across a variety of different sectors (World Bank, 2012a). Of equal importance, the vast majority of African jobs are essentially dependent, or inextricably connected, to the extraction of natural resources. For example, 80% of Africa's employment comes from the agricultural, mineral, fishing, and forestry sectors (UNESEC, 2011). Moving inclusive green growth agenda forward in Africa has become ever more salient, as it will enhance economic opportunities while sustaining valuable natural capital and thereby serve as the foundation for sustainable employment growth.

***Natural Capital Depletion**:* It is of fundamental importance to recognize that although the extraction of primary resources offers immediate profits, natural asset depletion reduces the prospects for more enduring and more sustainable economic advancement in the future (World Bank, 2012a). Notwithstanding Africa's vast stock of natural resources, these raw materials are rapidly depleting primarily due to their capital-intensive excavation. As it stands, Africa is a net exporter of non-renewable resources (minerals and fossil fuels) and yet a net importer of renewable resources (biomass, i.e. agriculture, forestry, fishery and hunting commodities). Inadequate investment in non-renewable resources is prompting a rapid depreciation and degradation of otherwise renewable natural capital reserves. Ironically, the considerable bulk of African livelihoods are dependent on these renewable resources. Focusing on inclusive green growth therefore will help African countries allocate investments in a manner that will expand renewable natural asset stocks so as to reduce foreign dependency and ensure that the benefits of growth are shared in a fashion that is sustainable.

Figure 2: Natural Resource Imports

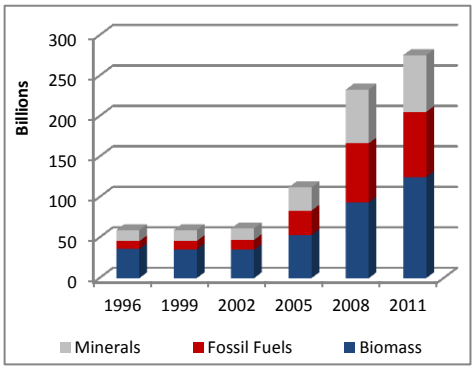
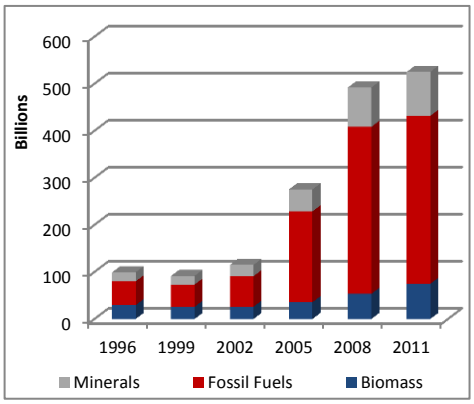


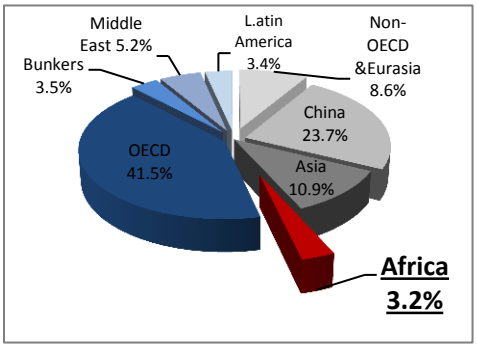

Figure 3: Natural Resource Exports




**Sources:** Own Calculations Based on UNCTAD (2012b).

***Climate Change:*** The effects of climate change are becoming increasingly noticeable in Africa, as the severity of droughts, floods and other natural hazards become more prominent (UNDP, 2012). UNCTAD (2012a) demonstrates that despite contributing the least to greenhouse gasses, Africa is the region most affected by climate change. For example, in 2009 the entire carbon dioxide emissions of Africa (including North Africa) stood at 928 million tons, compared to 10,030 million tons and 12,045 million tons of Asia and OECD countries respectively— a mere 3.2% of total global carbon dioxide emissions (Figure 4). Studies have demonstrated that agricultural production in certain African countries could be slashed by 50% by 2020 and the net revenue derived from crop production could diminish by 90% by 2100. Another study demonstrates that Africa is the most vulnerable region to climate change in terms of suffering the highest losses in agricultural productivity. It is expected that African countries will lose between 16-20% of agricultural productivity to climate change over the period of 2008-2050. In many case scenarios,

Figure 4: Regional Shares of CO2 Emissions



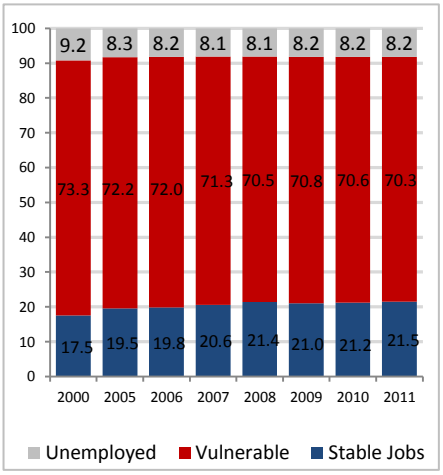

Source: Based on IEA (2011).

particular practices can be employed as prospective solutions. An inclusive green growth trajectory will seek to minimize the detrimental effects of climate change by promoting green practices that are more sustainable over the long-run.

### 3. Obstacles and Challenges to Inclusive Green Growth in Africa

There are a variety of challenges and obstacles that prevent African countries from adopting inclusive green growth strategies. For example, Africa's poverty, food insecurity, and high number of people in vulnerable forms of employment are challenges in themselves (Figure 5). In addition, current development prospects are hindered by lack of access to energy. Roughly, three quarter of Africa's population (585 million people) does not have access to electricity (AFDB, 2012). While inadequate energy levels reflect Africa's low-level of industrialization, deficient transportation infrastructure incurs considerable costs on industries, diminishes competitiveness, and curtails access to domestic and global markets. These factors, however, are concomitantly exacerbated by the increasing pressures of population growth (where roughly 50% of the 2.4 billion people to be added to the global population will be from Africa), rapid urbanization (where the number of urban dwellers will increase from 298 million in 2010 to 1.1 billion in 2050), and water scarcity (where currently 400 million people in 15 African countries suffer from water scarcity- a figure projected to rise to 800 million by 2050) (IPA, 2012).

Figure 5: African Employment Status- Various Years



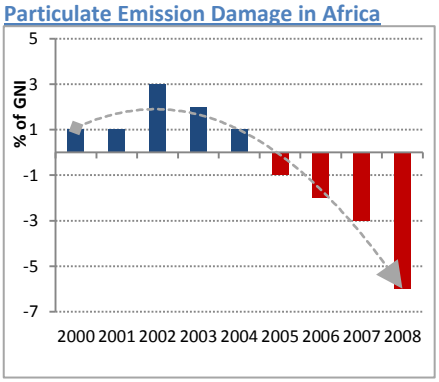

Source: Own Calculations Based on ILO (2012).

Considering these development issues alone, it is not surprising that several analysts have argued that African nations should first prioritize economic growth and economic development before focusing on the environment. This is popularly known as "grow now, clean up later" of the environmental Kuznets curve (World Bank, 2012a). Focusing on the environment at present could also potentially affect growth and poverty reduction— as certain green policies may be less productive or more expensive to adopt. Accordingly, there are questions on how to ensure green technologies based on the individual contexts of different urban and rural geographic socio-economic circumstances and how to utilize non-renewable natural resources in a more environmentally friendly fashion. Answers are required on how to efficiently exploit renewable natural resources, create the necessary green incentives for the private sector while promoting rapid growth and finance the green transformation required in many countries in the face of substantial debt and low public revenues.

### 4. A Deeper Analysis: A Qualitative Response to the Challenges

The above mentioned challenges and obstacles contain significant clout, and while this paper does not profess to offer any quick fixes, the 'grow now, clean up later' argument can be addressed and certain opportunities can be identified for establishing inclusive green growth strategies. Regarding the 'grow now, clean up later' argument, in accordance with the rationale for inclusive green growth, it is imperative to note that Africa's current path is unsustainable over the long term. Consider, for example, if Africa were to grow continuously by 7% annually, the least amount necessary to ensure adequate levels of job opportunities and poverty reduction, the continent's GDP would be 15 times greater than what it is now thereby applying unfeasible pressure on resource levels and the environment (UNCTAD, 2012a). This becomes most apparent when considering the adjusted net savings[2] of African countries, which has essentially been negative since 2000 (AFDB, 2012, UNCTAD, 2012a). When utilizing this indicator to account for the depreciation of African resources, it becomes evident that African growth has actually

Figure 6: Adjusted Net Savings, Including Particulate Emission Damage in Africa



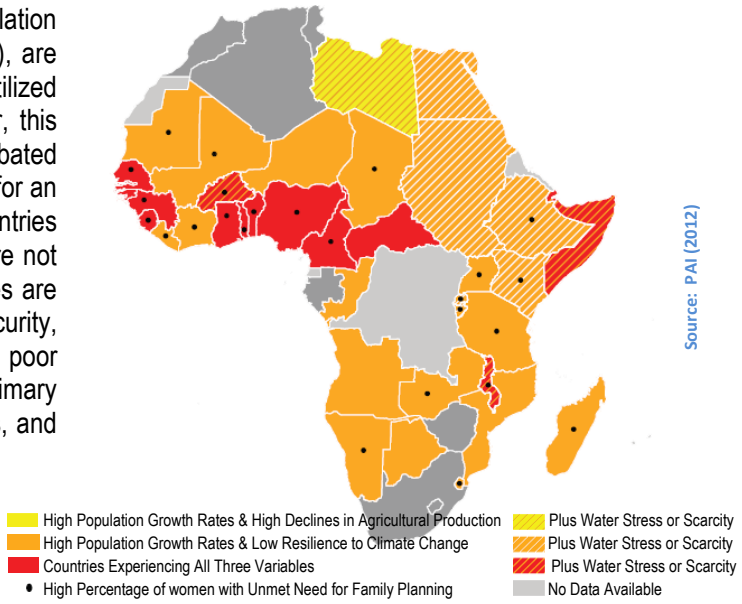

Source: Own Calculations Adapted from UNCTAD (2012a) & World Bank (2012b).

[2] An indicator which measures the national savings plus human capital expenditure and minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emissions damage.

been negative, thus maintaining this growth trajectory is unsustainable once specific natural resources are no longer available.

On the other hand, it is necessary to consider that growing now and cleaning up later may simply be too costly in the future, even when the future costs and benefits are accounted for (World Bank, 2012a). Taking action in advance is vital when decisions pertaining to industrialization and infrastructure can 'lock-in' high-carbon or environmentally degrading economic configurations (due to the substantial costs of physical capital investments). The World Bank (2012a), for example, demonstrates that keeping the increase of global warming below 2°C will require all new infrastructure to be constructed with climate change in mind— otherwise such physical capital will have to be substituted later at a higher cost. Moreover, costly infrastructural and industrial investments will be recovered via subsequent savings. For instance, the lofty start-up costs of solar, hydropower and wind energy are habitually offset by their modest operating costs. On the other hand, international estimates suggest that for every $1 expended on energy efficiency, an additional $2 is saved on new supply (where savings are calculated to be even higher in low income countries) (World Bank, 2012a). Indeed, there is little doubt that if Africa pursues the current traditional industrial and infrastructural growth paths, the future expenses related to replacement investments, dematerialization, environmental degradation, and waste or pollution reconciliation will be much higher (World Bank, 2012a; UNCTAD, 2012a, AFDB, 2012).

Figure 7: Climate Change Aggravating Development Conditions




While certain development issues, (such as Africa's high population rate, rapid urbanization, and elevated levels of water scarcity), are accentuating poverty and food security, and therefore can be utilized as qualitative grounds for growing now and cleaning up later, this paper suggests that all of the above will be even more exacerbated by climate change and hence there is an even bigger premise for an inclusive growth strategy. According to Figure 7, all African countries are currently experiencing high population growth rates and are not resilient to climate change. The vast majority of these countries are already confronted with pervasive poverty, food insecurity, inadequate levels of education and health services, poor infrastructure, and substantial amounts of inequality. Of primary importance, climate change, the depletion of natural resources, and environmental degradation will merely amplify these issues.

## 5. Opportunities for Inclusive Green Growth

Focusing on the shared characteristics of growth while ensuring the efficient utilization of natural resources, inclusive green growth strategies provide a holistic approach to Africa's development. There is ostensibly no distinct model for inclusive green growth, as policy approaches will be inherently dependent on the local contexts and contingent conditions of a given country. Every country, however, encompasses a myriad of opportunities to employ green growth policies without slowing growth itself. It is beyond the time and scope of this paper to offer detailed policy recommendations rather broader opportunities are identified in order to provide a basic platform from which African countries can begin to conceptualize inclusive green growth strategies. Accordingly, it is not expected nor recommended that African countries make a radical 'one-day' transition towards employing green economic policies. Yet the opportunities identified within this paper will help African countries make a start for gradually transitioning towards an inclusive green economy.

***Agriculture**:* With over 70% of the African population employed in agricultural production, Africa has an army of small-holder farmers at its behest, which may help provide the foundation for inclusive green growth. While additional comprehensive research may be warranted, present case studies of environmentally sustainable farming practices− such as low-tillage farming, organic fertilizers, as well as natural pesticides, enhanced water management procedures, and agroforestry− are generating economically inclusive benefits and are simultaneously ecologically

friendly (UNESEC, 2011). For example, Uganda is renowned for applying a minimal quantity of artificial fertilizer, with less than 1kg/ha (compared to an 'already very low continent-wide average of 9kg/ha). Uganda has been able to engage in organic models of agricultural production. Consequently, revenues from organic exports experienced a 600% increase from 2003 to 2008. Despite increasing incomes of small-holder farmers, the organic farming practices have contributed to lowering greenhouse gas emissions, as carbon dioxide emissions are approximately 65% lower than in conventional farms (UNEP, 2011b). In Senegal and Mali, after 1-2 years of training, farmers were able to decrease pesticide use by 90% while still enhancing incomes and crop harvests. For Senegal, crop net worth of vegetable augmented by 61% over the course of two years, and the lack of expensive pesticide investments allowed farmers to increase savings. Conversely, in Mali, cotton farmers amplified their deployment of natural everyday fertilizers (such as compost and manure) by 400%, materials that quashed the degeneration of soil fertility (UNESEC, 2011). In Mozambique, Xai Xai City inhabitants have learned adaptation techniques in the form of blocking and masonry to help adjust to the increased risk of top soil erosion prompted by elevated and erratic levels of rainfall. The blocking and masonry techniques have triggered an emerging blocking industry (spurring employment opportunities), and have reduced soil erosion as well as increased soil fertility— leading to higher yields in agricultural production, food security and general incomes (CCDARE, 2011). There is essentially immense scope to expand greener agricultural production processes that diminish negative spill-over effects (including soil erosion and land degradation), exploit the employment of cheap naturally organic materials, and increase productivity while taking advantage of Africa's substantial agricultural labour force.

***Industrialization and Infrastructure****:* With low levels of industrialization and infrastructure, African countries are in fact in a unique position to leapfrog environmentally detrimental processes and adopt advanced sustainable technologies while simultaneously saving substantial amounts of resources by avoiding the necessity to replace previous environmentally degrading physical capital investments (as many advanced economies will have to do in the future). Once infrastructural decisions have been made and implemented, it is substantially difficult as well as expensive to change their forms (World Bank, 2012a). For example, regarding the transport sector, African countries still have the alternative to either opt for low emission transport and infrastructure or an individualized car dependent transport system. It is expected that the latter will increase energy levels to inefficient levels, require higher levels of spending on energy- thereby augmenting dependency on energy, and will be responsible for a large amount of carbon dioxide emissions. The former will conversely reduce congestion levels, diminish dependency on energy, and increase savings from reduced expenditure on energy and be substantially more environmentally friendly through the reduction of pollution. Indeed ,such low emission energy efficient transport is ostensible in places like Japan, Hong Kong, Singapore, and Brazil (World Bank, 2012a), ultimately making them replicable for African countries.

While inclusively green growth would attempt to reduce the ecological and financial costs of industrialization, it would also entail enhancing production by doing more with less resources (i.e. via the efficient employment of energy and capital inputs) (UNCTAD, 2012a). This re-arrangement of the factors of production would generate higher levels of value addition thus boosting global competiveness and domestic income levels. This is, for instance, best illustrated by case studies of energy-intensive industries, such as the aluminium sector, whereby smelters operate at 14,337 (kWh/t) per ton of aluminium produced− in contrast to 15,613 in North America and the global average of 15,268 (kWh/t). The initial low levels of industrialization allowed African countries (such as Mozambique and South Africa) to create large-capacity plants with novel production amenities and the most innovative technologies to the extent that Africa is known for having 'the most efficient smelters in the world' (UNESEC, 2011).

***Energy***: A World Bank study estimates that in Africa the lowest income quintiles spend the most on energy (Bacon et al, 2010). Yet Africa leads the world in terms of potential for renewable energy generation due to its substantial levels of solar, biomass, and wind resources (UNCTAD, 2012a; UNESEC, 2011; PEP, 2012). Indeed, households and firm level industries are already taking advantage of this vast potential. For example, solar panels and solar water heater have been responsible for providing thousands of individuals with sustainable forms of power in Africa's biggest informal settlements, namely Kibera (Kenya) and Khayelitisha (South Africa). In addition, solar panels and energy efficient lights are responsible for lighting various rural villages in Senegal, Burkina Faso and Mali. In Tunisia, the largest solar project to date is being constructed with an estimated 2,000 megawatts of electricity to be generated−

representing a 100% increase in global solar capacity (PEP, 2012; Coseby, 2012). While this will not only provide cheaper, cleaner and more efficient energy to Tunisians, it will also be used as a source of considerable export revenues, where it is expected to supply 15% of Europe's energy by 2050 (Coseby, 2012). Ethiopia is another case in point, where the world's largest renewable energy endeavour is taking place. Here a geothermal plant and six wind projects are generating over 1000 kilowatts (PEP, 2012). Moreover, there is scope for various employment opportunities in renewable energy sectors, not only in terms of research and technological innovation, but also in the biomass and wind sectors− where the latter can offer anywhere from 60,000 to 80,000 jobs.

***Water:*** There are a variety of inclusive green opportunities that pertain to water. Yet due to the various categorical subdivisions related to the water sector, distinctive opportunities may necessitate specific strategies, such as water cleaning vis-à-vis irrigation (UNESEC, 2011). Concerning the MDGs associated with water and sanitation, UNEP (2011) states that the water goal is achievable by 2015. Many alterations will be necessary, specifically in harvesting water from rain and river basins− through the promotion of small scale projects as well as nationally formulated plans. Despite entailing the highest levels of water stress and scarcity in the world, rainwater is ostensibly largely uncaptured in Africa (UNECA, 2011). As demonstrated by Kenya, rainwater catchments can improve access and proximity to safe water; reduce conflict, waterborne diseases and pollution; enhance food security; and increase incomes (GHARP/KRA, 2011). Conversely, though innovative GIS technical research, UNEP (2006) demonstrates how thousands of volumes of rainwater can be captured via rooftop, surface runoff, open ground water recharge, and closed ground water recharge catchments. As demonstrated by innovative social protection policies in South Africa and Rwanda, building this type of infrastructure can be connected to public works programmes− increasing water supply while also providing valuable employment to the poorest of the poor (PEP, 2012). Of significant importance, establishing such infrastructure will reduce the burden of women and children who are predominantly faced with the timely task of fetching water— offering them more time to spend on school or other income generating activities. In addition, there is scope to enhance water reuse and treatment practices while there is also space to improve demand side linkages such as water pricing (but still shield impoverished water users), eliminate detrimental subsides and promote the application of more water 'eco-friendly' technologies. Finally, there is also opportunity to alter behavioural attitudes toward water through awareness campaigns and education (UNESEC, 2011).

***Population Growth and Green Jobs****:* While population growth is undoubtedly one of Africa's biggest challenges, the continent's increasingly youthful population can also be perceived as a great opportunity to harness. Enhancing domestic technological capacities through increased education endeavours consolidated by adequate policy approaches and instruments may assist the saturated labour market, the development of private enterprises, overall competitiveness, innovative abilities of firms in Africa and the capacity to exploit "emerging 'green' job opportunities focused on sustainable land management, urban planning and energy technologies" (AFDB; 2012, p. 7). Africa could learn from countries such as Brazil, China, Denmark, India and Japan, the world leaders in exports of green products who spawned unequivocally new green industries and markets (World Bank, 2012a). In addition to the increasing demand for sustainable goods from advanced economies, the economic growth rates of Asia and the BRICs are expected to elevate wages and will most likely increase the production costs of certain labour intensive goods, ultimately expanding Africa's opportunity for manufacturing certain light and intermediate 'green' goods. Evidence of green jobs in Africa is already taking place. For example, South Africa's 'Green Economy Accord' is expected to generate 300,000 green jobs by 2020 through a variety of green endeavours including energy generation, manufacturing of goods that diminish greenhouse gas emissions, agricultural practices that offer biofuel energy, land and environmental management practices and ecotourism activities (PEP, 2012). Conversely, urban renewal also offers a variety of new green job opportunities— while simultaneously improving livelihoods— as demonstrated in Lagos, Nigeria. Here, plans for slum upgrading, decreasing transport congestion, tree planting, and enhancing sewage systems have helped provide jobs to over 4,000 of the city's unemployed youth.

***The State and the Private Sector:*** At present, there is scope for African governments to formulate comprehensive regulatory and policy strategies that can guide the conversion to an 'inclusive green economy' without jeopardizing growth. A regulatory framework can be created that castigates (or de-incentivizes) households and firms from utilizing natural resources inefficiently while also rewarding (or incentivizing) those who exercise the efficient use of

resources. The state can also stimulate green private investment via innovative policy incentives and through the stabilization of policy and market frameworks (AFDB, 2012). The private sector may offer a crucial role in providing investments as well as the transfer of green technologies. Governments can, for example, formulate low-carbon FDI strategies and create particular low-carbon industrial designated areas that are directed at attracting investments from transnational corporations that effectively utilize eco-friendly advanced technologies. Government can then promote the transmission of knowledge and technology from these corporations via contractual agreements and joint ventures to local African SMEs (UNCTAD, 2012a). There are already demonstrations of green economy emerging from the bottom via SMEs that have incorporated eco-friendly practices into their respective company models— as illustrated by an assortment of aspirants and victors of the yearly SEED prizes (UNESEC, 2011). Thus, there is tremendous scope to conceptualize policy measures that will promote an inclusive green economy from the ground up and from the outside in.

## 6. Inclusive Green Growth Opportunities and the Achievement of the MDGs in Africa

The aforementioned inclusive green growth opportunities entail significant consequences for the acceleration of the achievement of the MDGs in Africa. Identifying the direct and recursive causal mechanisms by which inclusive green growth contributes to the MDG process may help entice African governments into pursuing an inclusive green growth development path.

**Table 1: Linkages between Inclusive Green Growth and the MDGs**

| Goal | Linkages between Inclusive Green Growth and the MDGs |
|---|---|
| 1. Eradicate Extreme Poverty and Hunger | • Increased efficiency in natural resource use can improve productivity, reduce costs, provide employment opportunities, enhance competitiveness, and elevate food security;<br>• Green physical capital investments may encompass high initial investments but may help generate savings due to low operational costs (at both the household and firm levels) and the avoidance of future replacement investments;<br>•Increase in demand for sustainable products and higher expected wages from Asia and the BRICs will provide opportunities in the manufacturing sector for African economies, thereby helping to diversify economies (increasing resilience to future shocks) and increase job opportunities and incomes;<br>•Cleaner and efficient natural resource practices will help current African citizens, and more importantly will help future generations, in alleviating poverty, food insecurity and malnutrition;<br>• More resources will be available for future generations to exploit. |
| 2. Achieve Universal Primary Education<br>3. Promote Gender Equality Empower Women | •Reducing the necessity of women and children to fetch water and fuel wood will allow for more time to be spent on education and income-generating activities;<br>• Covering environmental issues in the school curriculum can influence the behaviour of young people and their parents towards eco-friendly household practices;<br>• Focusing on resource efficiency and eco-management practices from an early age helps enhance green job opportunities, create innovative approaches to climate change, and may help increase eco-friendly agricultural practices thereby improving food production and incomes. |
| 4. Reduce Child Mortality<br>5. Improve Maternal Health<br>6. Combat HIV/AIDS, Malaria and Major Diseases | • Water-related diseases and acute respiratory infections are two of the leading causes of under-five child mortality. Providing cleaner and more resource-efficient energy and water services will help reduce the prevalence of these diseases;<br>• Cleaner and efficient energy /water services will help to reduce the risks to pregnant women's health;<br>• Malaria, a major cause of under-five mortality, may be exacerbated as a result of higher temperatures due to climate change, deforestation, loss of biodiversity and poor water management. Improved resource efficiency would help to reduce these pressures;<br>• Improved health will be achieved through access to clean water, clean energy, higher incomes, and improved food security,<br>•The future health of African citizens will be in less jeopardy when resources are utilized efficiently, when more resources are available to them, and when greenhouse emissions as well as pollution levels are reduced. |
| 8. Develop Global Partnership for Development | •Technological transfers, innovation and advancement through development assistance and FDI can allow developing countries to 'leapfrog' to sustainable industrial and infrastructural paths of growth— and will allow for more eco-friendly and adaptive agricultural practices;<br>• International coordination and cooperation efforts to promote inclusive green growth help to promote international partnerships, efforts and initiatives to stimulate resource mobilization and efficiency. |

**Source:** Adapted from UNECA (2012), UNDP-UNEP (2009); and UNEP (2009).

## 7. Conclusion

The road ahead is clearly not going to be easy for Africa as it struggles with natural resource depletion, climate change, population growth and the need to ensure that rapid economic growth translates into poverty reduction and employment opportunities for majority of Africans. The challenge inherently lies in how to harness the current economic momentum on the continent so as to effectively deal with Africa's development issues and environmental challenges over the short-term as well as the long-term. While there are no easy fixes or shortcuts, this paper has shown that an 'inclusive green growth policy' approach is crucial to simultaneously address environmental, social and economic issues in Africa. Strategies for inclusive green growth should integrate environmental, social and economic issues into development plans and policies and take a long-term view of these issues as interdependent issues rather than mutually exclusive issues. Development processes in Africa must be crafted in a way that take account of natural resource depletion, environmental deterioration and economic growth in order to enhance intergenerational equity.

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