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**ECONOMIC TRANSFORMATION,
NATURAL RESOURCES AND
SUSTAINABILITY IN AFRICA**

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WORKING PAPER N° 9 > Economic Transformation, Natural Resources and Sustainability in Africa

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Natural resources provides Africa a unique opportunity to foster human and economic development. However, there are significant sustainable development and governance challenges. The effective use of natural resources for development is a multi-stage economic and political problem that requires a balance of several factors: investment to extract the resource, fiscal regimes to capture revenues, domestic linkages to leverage project economics, sensible investment and spending decisions, and policies to manage volatility and mitigate adverse effects on the rest of the economy (Venables, 2016). The objective of this study is to analyze the importance of considering the sustainability dimension in the current process of economic transformation in Africa. In section 2 the author characterizes the relation between natural resources and economic transformation in Africa looking to the possible contribution of both renewable (agriculture) and non-renewable (extractives) resources. In section 3 the author discusses the importance of including the sustainability dimension and reviews the current policy initiatives on the subject in Africa. The last section of this study proposes elements for a research agenda on how African countries could manage and harness their natural resources for sustainable economic and social development, emphasizing that renewable and non-renewables natural resources should be linked in the national transformation strategies.

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1. Introduction

Africa has significant natural resource wealth. The region has the largest arable land mass in the world and more than half of the population in the continent is employed in the agriculture sector. Africa is home to the second largest as well as the longest rivers in the world. The continent hosts the world's second largest tropical forest and the total value added of the fisheries and aquaculture sector is estimated at USD 24 billion. In the extractives sectors, it is estimated that the region accounts for about 30% of all global minerals reserves. Its proven oil reserves constitute 8% of the world's reserves and those of natural gas amount to 7%. Minerals account for an average of 70% of total African exports and about 28% of Gross Domestic Product (AfDB, 2015).

Natural resources provides Africa a unique opportunity to foster human and economic development. However, there are significant sustainable development and governance challenges. The effective use of natural resources for development is a multi-stage economic and political problem that requires a balance of several factors: investment to extract the resource, fiscal regimes to capture revenues, domestic linkages to leverage project economics, sensible investment and spending decisions, and policies to manage volatility and mitigate adverse effects on the rest of the economy (Venables, 2016). While some countries have built on their natural resource wealth to become developed nations (Australia, Canada, Scandinavian countries), many Latin American, African and Asian commodity-dependent countries remain in low or middle-income traps, unable to harness their resource wealth for greater development benefits (Gelb, 1988; Karl, 1997; Wood, 1999; Auty, 2001).

This particular negative dynamics have been explained by multiple causes under the thesis of “the paradox of plenty” or the “curse of natural resources”, which states that countries which have a larger stock of natural resources grow less than resource-scarce countries. This paradox operates through several channels: the most known is the “Dutch disease”, in which the export of a natural resource or commodity generates an inflow of capital that appreciates the currency and deters all other exports. In time, this generates that productive resources are re-directed into the extraction of natural resources and crowds out industrialization (and the development of other productive sectors). Low diversification in production generates another channel which affects growth: in turn, this translates into little export diversification and a greater vulnerability to fluctuation of the terms of trade. Higher volatility in the exported commodities often causes external restrictions and can induce current account and government deficits. Other effects of the “resource curse” are the rapacious rent seeking behaviour among entrepreneurs, social unrest with regards of rent distribution that can lead to corruption, urban violence and even wars (van der Ploeg, 2007).

Against this background, the older debates on the subject (Forsyth and Kay, 1981; Corden and Neary, 1982; Acemoglu and Robinson, 2006) were mostly about the relations between natural resources and productive diversification and technological change. In turn, key environmental and social issues were often ignored. However, although win-win situations may exist (in which economic, social and environmental benefits come

together), natural resources exploitation may have severe environmental impacts at the local and global level (e.g. increasing CO2 emissions, deforestation, soil erosion, etc.) and negative social impacts as well (e.g. worsening income disparities, violation of the rights of local communities, etc.). Hence, there is a need to incorporate sustainable development considerations in this discussion. Furthermore, policy makers must incorporate in their decision making process environmental sustainability objectives, not only in order to meet the needs of coming generations, but also as a vital element for ensuring sustained growth for the benefit of the present generations.

The objective of this study is to analyze the importance of considering the sustainability dimension in the current process of economic transformation in Africa. In section 2 we characterize the relation between natural resources and economic transformation in Africa looking to the possible contribution of both renewable (agriculture) and non-renewable (extractives) resources. In section 3 we discuss the importance of including the sustainability dimension and we review the current policy initiatives on the subject in Africa. Given the need to incorporate the sustainability dimension in the economic transformation strategies and the possible trade-offs between economic and environment objectives, the last section of this study proposes elements for a research agenda on how African countries could manage and harness their natural resources for sustainable economic and social development. We emphasize that renewable and non-renewables natural resources should be linked in the national transformation strategies.

2. Natural resources and economic transformation in Africa

Natural resources play a central role in understanding the development dynamics of a large number of African countries. Historically, the large endowment of natural resources has been considered as an impediment for economic transformation in the continent. For instance, the AfDB (2007) found that while resource-rich African countries have indeed more GDP per capita than resource-scarce countries, the latter have grown at a significantly higher average rate (3.8%) as compared to the former group (2.4%) in the 1981-2006 period. They conclude by pointing out that the performance of resource-rich countries has indeed been disappointing because they failed to translate previous commodity booms into catalysts for growth and development.

In recent years, significant reforms in macroeconomic management, improved incentives for the private sector, and relatively favorable international context for commodity exporting countries have produced relatively high growth rates in many African countries. Despite these recent developments, countries in the continent have been far less successful in raising per capita incomes, reducing poverty, and transforming their economic structures. In almost all African countries, the primary sector in either agriculture or minerals still dominates production. Foreign trade mirrors the production structure: exports are dominated by primary commodities incorporating little application of science and technology, while the bulk of manufactures and knowledge-based services are imported. From the mid-1980s to mid-2000s, Africa's exports have remained primary production and resource-based, while exports from East Asian countries have diversified to include medium- and high-technology manufactured products. Not surprisingly, the employment structure mirrors that of production, with most people engaged in low-productivity traditional agriculture, services, and the informal sector, which account for the widespread poverty observed in the continent.

Africa's recent increased economic momentum needs to be sustained over time if it means to change the reality of the continent. It is clear that to effectively tackle the economic situation in Africa it is not enough to focus on the desirable ends of reducing poverty and expanding access to basic needs in health and education as promoted by the Millennium Development Goals. Africa must follow the path of East Asia and transform its economy. Growth without structural transformation has proved to not be sustainable. The countries of the region need to modernize and diversify their economies if they want to become authentic economic lions. It is essential that they broaden their base of production to increase the shares of manufacturing and knowledge-based services what would reduce economic volatility and provide greater scope for increasing returns and learning-by-doing, which would enhance the chances for further technological advance.

This need for transformation and diversification, however, does not mean that the continent should turn its back to natural resources. Natural resources remain one of the key sources of comparative advantage for many countries in the continent. The question then is how countries can avoid the resource curse and use the agricultural and extractive sectors as engine for economic transformation. In what follow we discuss the potential of the agricultural sector and the extractive sector to contribute to economic transformation in Africa.

The case for agriculture transformation

The earlier development literature has emphasized the role of agriculture as a facilitator of growth and diversification. A productive agricultural sector can provide non-expensive food and raw materials to start a process of industrialization. Many studies have documented the important role of agriculture as an engine of growth and overall economic transformation and as a powerful instrument for poverty reduction (Johnston and Mellor, 1961; Schultz, 1964; Christiaensen *et al.*, 2011), with causality, in most cases, running from agricultural growth to economy-wide growth at the early stages of transformation. Evidence from developed countries and the Green Revolution in Asia and Latin America clearly supports these findings; agricultural transformation and growth has been the precursor to the acceleration of industrial growth in such countries as Japan, South Korea, and Taiwan (Studwell, 2013), and more recently in emerging markets such as China and Brazil. In Africa, agricultural productivity remains low and the reinforcing linkages between agriculture and manufacturing are yet to emerge. The sector has so far failed to become an engine of growth and economic transformation for most countries in the continent. This failure has led many local stakeholders to advocate a radical change in the growth strategy of Africa and to suggest that countries in the region should import food and shift their focus away of the agriculture sector. This recent debate has to be clearly assessed, however. While agriculture-led rural transformation may not be a priority everywhere in Africa because of regional heterogeneity of rural situations across and within countries (Dercon and Gollin, 2014), it does apply in the case of many regions or countries in Sub-Saharan Africa with large share of agricultural production and employment.

In seeking to transform its agriculture, Africa faces a number of overarching challenges that specific strategies will have to confront. However, the region is also faced with important opportunities that it can leverage. We briefly summarize below the challenges and opportunities for the sector:

Challenges:

- Low productivity levels. Raising agricultural productivity will require dealing with challenges in several areas, including: research, extension, availability of seeds and other material inputs, machinery, irrigation, rural roads, well-functioning input and output markets, and credit.
- Agricultural employment: currently, agriculture provides over 60% of employment in many African countries. As productivity in agriculture rises, fewer people will be needed in agriculture in the face of a rapidly expanding labor force. Employment opportunities will be required in other sectors of the economy, particularly manufacturing and rural non-farm activities servicing agriculture and linking the countryside to towns and cities.

- Access to land and equity. The land tenure system is therefore perhaps the biggest challenge to modernizing agriculture in Africa. The question is how to come up with a land tenure system that facilitates modern commercial agriculture, and that also respects the ownership rights of communities and traditional smallholders?
- Supporting both traditional smallholders and modern commercial farmers. Farmers in Africa are predominantly traditional smallholders, the bulk of whom are uneducated and aging. Modernizing agriculture requires enticing and equipping the young and educated to take up farming as a modern commercial enterprise. The issue then is how to promote a new class of commercial farmers in ways that are also consistent with helping traditional smallholders?
- Enhancing food security and nutrition while improving agriculture's export competitiveness. In many African countries, a large part of agriculture is oriented towards export commodities that do not form part of the local food basket. Meanwhile imports of food that could be efficiently produced locally are rising, and food security and nutrition standards are becoming a concern. In addition, consumption of traditional food crops, which are very nutritious, are falling with the rise of urbanization and the middle class. Therefore a key issue as African countries transform their agriculture is how to balance the need to take better opportunities in export markets (through adding value to existing exports and expanding non-traditional exports) with the production of food for domestic markets to enhance food security and nutrition.
- Linking the farm to other sectors –processing and agribusiness. In other economic transformation experiences, agriculture has provided the raw material inputs to feed processing plants in industry, and has also provided domestic markets for manufactures –as intermediate inputs, capital inputs or consumer products. Then a key challenge is how to start or scale up the processing industry that will add value to agricultural produce and also provide employment? Also, how do we stimulate agribusiness in Africa?
- State capacity and institutions. The state has important roles to play in the early stages of economic transformation. Addressing all the challenges outlined above would require effective state institutions designing and implementing the right policies, providing the required public goods, providing the facilitating services, and institutions. Given existing constraints on financial and human resources, and on administrative capacity, it is important to enquire how can this institutional strengthening and improved coordination be brought about in a focused way to support agricultural transformation?

Despite the challenges, Africa has opportunities that it can leverage to facilitate agricultural transformation. The key ones are highlighted below.

- **Abundant arable land.** Close to 60% of the world's uncultivated arable land is in Africa. If Africa can address the issues of tenure as discussed above, this land endowment will clearly be a significant asset for agricultural transformation. And as other areas of the world begin to face shortages in arable land, the comparative advantage of Africa's land endowment will rise in the global economy providing export market opportunities and most likely rising prices for Africa's agricultural products.
- **Heightened policy interest in agriculture.** Policy interest in developing African agriculture has risen in recent years, thanks in large part to the work of the Comprehensive Africa Agriculture Development Program (CAADP). The time is therefore right for coming up with practical solution proposals to the challenges of African agricultural transformation to help translate this clear policy intent into action.
- **Recent economic growth in Africa can benefit agricultural transformation.** First, GDP growth has increased fiscal revenues, which enhances the ability of governments to raise their contributions towards the investments and programs needed for agricultural transformation. Second, the income growth of the population coupled with rising urbanization is expanding the urban middle class, leading to rising consumer spending. Supermarkets have been developing rapidly and they are, indeed, gaining ground in agrifood systems (Rao *et al.*, 2012). Supplying the supermarkets could help pull both traditional and modern commercial smallholders into domestic and sub-regional value chains, and potentially raise their incomes.
- **Latecomer advantages in technology.** Although many technological challenges remain to be addressed in African agriculture, the continent enjoys advantages by virtue of being a latecomer to agricultural transformation and having the opportunity to use or adapt technological solutions pioneered by others.
- **Regional trade and integration.** The expansion of the middle class in African cities provides market opportunities for farmers in their own countries as well as for farmers in other countries within the region.

Managing extractive resources for economic transformation

Africa is rich in oil, gas and minerals. Revenue and economic linkages from the exploitation of these resources provides governments a logical starting point to springboard the region's economic development. Out of the top 20 countries with proven oil reserves, five are in Africa. Namely, Libya, Nigeria, Angola, Algeria and Sudan, in that order. In a recent report

by The Monitor Group Africa accounts for about 30% of the entire world's known mineral reserves. The region is the world's leading producer of chrome, manganese, platinum, diamonds and uranium with significant deposits of gas, gold, iron ore, copper, coal and other base metals. Interestingly however, the same report by The Monitor shows that the continent accounts for only 6% of global production in minerals. Therefore, even though minerals account for up to 38% of Africa's GDP, the comparatively low level of production illustrates the yet to be tapped potential for the sector to contribute towards regional growth. There are several factors to explain the disproportionate level of production and comparatively low contribution to the regions' economies. To start with, Africa remains a net exporter of raw materials from oil, gas and mineral development projects with the thrust of economic activity mainly concentrated on exploration and production. This reduces the economic value derived from the resources and producer countries forgo the value inherent in activities downstream of the value chain. Equally, the region has poor infrastructure, lacks skilled manpower, has little technological capability and has a reputation for poor governance. The result is that African fail to attract investment in downstream activities that would increase domestic linkages, expand the manufacturing base and boost internal markets. This asymmetric nature of the economies of resources rich countries, otherwise known as 'the resource curse', undermines the potential for natural resources wealth to transform regional economies. To reverse the trend, African policymakers need to formulate policies that successfully tackle drivers of economic transformation while giving regard to sustainable development principles. These include infrastructure development, technological innovation, facilitation of private sector growth, human capital development and improvement of access to investment finance. Simultaneously, a concerted effort must be made to shift focus from exports to value adding activities downstream of the oil, gas and minerals production phase.

There are many policy and institutional challenges that need to be addressed to unlock the potential for oil, gas and minerals to promote economic transformation. Notably, policies on investments made by the state in national resource companies, policies on geological data management and policies to guide negotiations with investors and to regulate a range of sustainable development challenges. However, the policy areas that have the greatest potential to impact the economies of resources rich African countries and help governments maximize the value of natural resources wealth are three. Namely, policies on fiscal regimes, local content and the promotion of downstream processing activities. These three areas are not only interlinked, but collectively they can create a critical mass of financial, commercial and industrial activity which is necessary to impact the growth of economies of resources rich states significantly.

Design and implementation of fiscal regimes are important for economic transformation because taxation, royalties, resource rents, signature bonuses and other sources of revenue from projects are potentially effective and expeditious ways to raise the level of income needed to finance the development of economies of natural resource-endowed countries. Accurately assessed, efficiently collected and prudently invested in the right

activities, the revenue can be transferred into other sectors of the economy. The difficulty lies in selecting the appropriate combination of fiscal instruments and designing a regime that realises the important but conflicting objectives at the different stages in the resources value chain and in the economy. Namely, the need to maximise revenue from upstream while achieving competitiveness downstream. The need to balance current and future development needs and the importance of balancing public expenditure with public savings. The finite nature of the resources and sustainable development principles necessitate the reconciliation of these divergent considerations because without the right balance, governments are unlikely to replicate the value of the resources wealth.

In the extractive sector, “project inputs” include all human capital, goods, services, engineering processes and financial instruments that are needed to develop oil, gas and mineral resource deposits. The scope of the activities covers pre-production and extends right through the operation phases of the projects. Typically these inputs are detailed and quantified as part of the sponsor’s assessment of project viability at inception and as part of routine internal controls at the operation phase. During the project development phase the data can be used by policymakers to estimate the potential economic value of local inputs positioning government teams to negotiate more effectively with investors. It is this broad and comprehensive schedule requirements for developing projects that determine the proportion of those that are procured from the domestic market as opposed to those imported from foreign markets (otherwise known as “local content”). Governments can facilitate this through policies that link national institutions with sponsors of the project. By creating linkages between the development projects and domestic companies, governments can pave the way for national companies to participate meaningfully in the project supply and demand cycle. By promoting local inputs into these projects, African governments can also successfully leverage natural resources wealth, jumpstart domestic economies and strengthen domestic market capability. However, to achieve this, a number of challenges must first be overcome. For instance, countries need to invest in strengthening the ability of local firms to meet the demands of industry without compromising project economic viability. On the other hand, efforts must be made to upgrade the capacity of national public and private institutions to compete with their foreign counterparts. Hence, the need for fiscal regimes that target investment in building this capacity. The long-term goal being to increase the level of inputs from domestic suppliers progressively and thereby generating growth and raising the capacity of the national economy to compete globally.

To profit fully from the value of natural resources wealth, policymakers in resources rich countries must target as many of the potential economic deliverables from resources development projects as possible. One effective way of achieving this is by designing policies that promote activities downstream of the production phase. If successful, governments can position countries to capture the progressive economic value generated during the various stages starting with the production of raw material and ending with the manufacturing of finished goods. In this context therefore, the concept means the

process through which governments can extract additional value from the exploitation of oil, gas and mineral resources by enforcing policies that successfully promote processing and manufacturing of goods at source. Downstream activities complement those upstream because while the latter tends to be capital intensive and skewed towards income generation, the former facilitates domestic linkages through the establishment of processing and manufacturing plants. In addition, because downstream processing plants and manufacturing processes are labour intensive, they tend to interface more effectively with less developed economies than upstream oil or mineral development projects because downstream activities require light industrial applications and less specialist engineering processes typical of upstream mining and oil projects. Therefore, downstream industrial activity is a more effective mechanism for promoting economic growth through technology and transfers skills, employment creation, growth in the SME sector and export of goods and services. This is because vertically and horizontally integrated process enables the country of origin to realize greater value through economies of scale, the multiplier effect and ancillary economic activities that are associated with mega projects. The caveat is that fiscal policies, trade promotion policies and other initiatives aimed at attracting investment in the sector are effective. Otherwise when such regulatory frameworks are imposed without regard to their potential effect on growth in other parts of the value chain, the outcome can be counter-productive.

3. The sustainability dimension of economic transformation

In this previous section we have discussed the role natural resources can play in the process of economic transformation in Africa. However, we were mostly silent with respect to a very important dimension of this process: economic transformation needs to be environmentally sustainable. Considering this dimension introduces policy trade-offs that need to be evaluated carefully.

Sustainable development may be described as “a process for improving the range of opportunities that will enable individual human beings and communities to achieve their aspirations and full potential over a sustained period of time, while maintaining the resilience of economic, social and environmental systems” (Munasinghe, 1994). From the sustainable development point of view, both poverty and equity have not only economic, but also social and environmental dimensions, and therefore need to be assessed using a comprehensive set of indicators that go beyond income distribution alone. An important objective of poverty alleviation is to provide poor people with enhanced physical, human and financial resources that will reduce their vulnerability. From a longer-term perspective, the analysis of the evolution of social, economic and ecological systems within a larger and more complex framework provides useful insights regarding the integration of the various elements of sustainable development (Costanza *et al.*, 1997). This interconnection among the different development dimensions beyond economics has been recognized by the international community under the United Nations in 2015 signing the Sustainable Development Goals (SDGs) with a universal agenda towards 2030. The SDGs relate the local needs to design sustainable development national strategies and plans to advance these goals and the global challenges that may impact on national or local capacities to manage natural resources and the different dimensions of sustainability.

The concept of sustainable development has gained momentum in the African political discourse in recent years, especially after the Paris Climate agreements and the design of the Sustainable Development Goals (SDGs). While several political leaders in different African countries have endorsed their policies (Netzer and Althaus, 2012), implementation is still at a very early stage. In Africa, sustainable development challenges are extensive and include environmental challenges, deforestation and desertification, high population pressure and land degradation, resources conservation, displacement of communities from traditional lands, poor investment decisions and revenue management. Moreover, Africa is the continent which contributes the least to climate change, but suffers disproportionately from it (Netzer and Althaus, 2012). Therefore, it is in African countries' best interest to contribute against climate change.

As we discussed previously, agriculture will probably play an important role in the economic transformation of several African countries. Then an important question to ask is how to make agricultural transformation environmentally friendly. How do we ensure that agricultural transformation, which will entail more intensive use of agricultural lands, higher levels of mechanization and greater use of fertilizers and other chemicals, does not lead to land degradation, soil nutrient mining (through inadequate use of fertilizers), and pollution

of water bodies affecting the stock of renewable resources? The challenge is made all the more acute with the looming climate change that is expected to heavily impact Africa. For example, under various warming scenarios, Africa could experience, by 2099, a 20–30% decrease in water availability in vulnerable areas and Southern Africa, in particular, could suffer a 30–50% decline in water availability. Under a low-warming scenario, crop yield is expected to fall by 5–10%, while the decline is 15–25% under a high-warming scenario (Brown *at al.*, 2009), which would put millions of Africans at risk of hunger.

On the other hand, the exploitation of finite natural resources can never be in and of itself sustainable: every mineral deposit will ultimately be depleted and the country will be left with a hole in the ground. However, indirect sustainability can be achieved if the country reinvests all rents from finite resources into other forms of produced capital (Hartwick's Rule), such as human capital (skills) and infrastructure (transport, power, water, ICT, *et al*), resulting in "genuine savings". However, no African mineral producing country has achieved this equilibrium, as most of the resource rents leak abroad through bad (inequitable) mining contracts or laws and IFFs (illicit financial flows), particularly if the resource contract/lease is held by a foreign company (FDI). In addition, the meagre rents captured by the state are often spent on (imported) consumption goods rather than invested in other forms of capital. Consequently the capture by the country of the resource rents, for reinvestment, is seminal to sustainability and inter-generational equity.

Until recently, the emphasis on economic transformation meant that environmental considerations were seldom considered by most African governments. The Common African Position on the Post-2015 agenda stated: "...therefore, we affirm our collective interests, which include the pursuit of structural economic transformation for inclusive and people-centered development". Among African policymakers there was and there is a widespread view that there are inherent trade-offs between the different pillars of sustainable development, and in particular between the economic and environmental pillars what could introduce further constraints to an already challenging process of economic transformation. However, while the emphasis of the transformation agenda is still on growth, diversification and employment creation, sustainability has progressively become important in policy debates also in Africa. In what follows, we review the role of sustainability in the three most important multilateral agencies designing policies for Africa: the African Development Bank (AfDB), the United Nations Economic Commission for Africa (ECA) and the African Union. We also briefly discuss the incorporation of sustainability considerations in the official economic transformation plans in a number of resource rich African countries.

The AfDB has included sustainability goals in its ten-year strategy plan for the period 2013-2022. The plan has two main objectives. The first one is to achieve inclusive growth. This is growth with more and better quality of jobs and equal treatment and opportunities for everyone. The second one is to ensure that this inclusive growth is sustainable. In other words, the second objective of the ten-year strategy plan is to help African countries to gradually transit into "green growth". In words of the AfDB:

'The Bank will support green growth by finding paths to development that ease pressure on natural assets, while better managing environmental, social and economic risks. Priorities in reaching green growth include building resilience to climate shocks, providing sustainable infrastructure, creating ecosystem services and making efficient and sustainable use of natural resources (particularly water, which is central to growth but most affected by climate change)' . (AfDB, 2013 p. 2)

However, there is not a clear reference to sustainability in the five core priorities set by the ten-year-strategy program which are: infrastructure development, regional economic integration, private sector development, governance and accountability, and skills and technology. Also, there is not a clear reference in the three areas where the bank will pay special emphasis: fragile states, gender and agriculture and food security. In this last point, it is recommended to remove trade barriers and invest in infrastructure as to reduce food insecurity, but the problem is not expressed in a sustainable point of view. Nevertheless, it is important to notice that the AfDB links topics of sustainable development/green growth in the second chapter of its 2016 annual report "Energy and Climate Change: Implications for Inclusive and Green Growth in Africa" (AfDB 2016).

The ECA has been the institution which has promoted the most the concept of sustainable development through green growth. It has brought the subject to the main cover of its annual economic report under the title: "Greening Africa's Industrialization" (ECA 2016a). In addition, the ECA has published evidence of good practices, success stories and lessons learned of inclusive green growth policies in South Africa and Ghana (ECA 2015b; ECA 2016b). Furthermore, the ECA, jointly with other international organizations, details the progress towards sustainable development in its annual report. Each year's edition has a special theme, last year's report theme was: "Achieving Sustainable Development in Africa through Inclusive Green Growth"(ECA 2015a). The rationale of the theme is explained in the executive summary:

"SDRA-V [Sustainability Development Report on Africa -5th ed.] is expected to enhance awareness and appreciation among policymakers of the need for a balanced integration of the three dimensions of sustainable development (economic, social and environmental) in the development and implementation of policies, strategies and programmes. It examines the challenges and opportunities for inclusive green growth in selected sectors of the economy, in which targeted investments with accompanying enabling measures could spur inclusive green growth to contribute to transformative objectives and sustainable development" (ECA 2015a, p.XIII)

In this report we can find progress in Africa towards sustainable development in different dimensions: Governance, Economic transformation and macroeconomy, Sustainable consumption and production, Energy, Poverty, Demographic changes, Gender, Education, Health, Agriculture and food security, Natural resources and Climate change.

While ECA is providing a clear message in terms of pursuing sustainable development, the African Union has a mixed message. On one side, the concept of sustainable development

is almost absent in its Commission Strategic Plan 2014-2017 (African Union, 2013). On the other hand, sustainable development appears as the first of its seven aspirations in its Agenda 2063: their goal is to achieve inclusive growth and sustainable development. While the agenda has a long-term view, it refers to aims of sustainability as to reach food security and contribute efforts against climate change. In words of the Agenda:

“Whilst Africa at present contributes less than 5% of global carbon emissions, it bears the brunt of the impact of climate change. Africa shall address the global challenge of climate change by prioritizing adaptation in all our actions, drawing upon skills of diverse disciplines with adequate support (affordable technology development and transfer, capacity building, financial and technical resources) to ensure implementation of actions for the survival of the most vulnerable populations, including islands states, and for sustainable development and shared prosperity” (African Union, 2015, p. 3).

The increased emphasis on sustainability at the Pan-African level is also reflected at the regional and national level. Africa’s biggest economic communities, the Southern African Development Community (SADC), adopted a Regional Climate Change programme. Meanwhile, the Common Market for Eastern and Southern Africa (COMESA) has been implementing a five-year initiative since 2010 jointly with the East African Community (EAC) and SADC dubbed The African Solution to Address Climate Change. In the Gaborone Declaration for Sustainability in Africa (2012), the heads of state of ten countries commit to integrating the value of natural capital into national accounting and corporate planning, namely Botswana, Gabon, Ghana, Kenya, Liberia, Mozambique, Namibia, Rwanda, South Africa and Tanzania. Since the 2012 summit, an implementation framework has been drafted to track progress. In 2013, for instance, Botswana initiated the development of a National Climate Change Strategy and Action Plan. Emerging Gabon: Strategic Plan to 2025 (2012) considers sustainable development to be a pillar of the country’s development strategy. Emerging Gabon created a National Council on Climate Change which produced a National Climate Plan in 2013. A law on sustainable development followed in August 2014. Rwanda plans to create its own Climate Change and Environment Innovation Centre. The country made the headlines in September 2008 when it banned plastic bags. These have been replaced by biodegradable bags.

It seems that sustainable development, in the form of green growth, is slowly becoming a new standard in Africa and its international development agencies and countries strategies are picking up the concept to their policy framework. The shift towards green growth has also been supported by influential networks of international NGOs such as: The Global Green Growth Institute, the Green Economy Coalition, The Economics of Land Degradation Initiative or the Green Growth Knowledge Platform (GGKP). The GGKP which is an international network of experts and international organizations funded in 2012 by the World Bank, OECD and the Global Green Growth Institute, offers policymakers and practitioners with policy guidance and expertise to support the transition to the green economy.

While there has been a very strong promotion for pro-green growth policies, overall, the movement towards a more sustainable development model has been slow in Africa. There is an open issue on how important it is for African countries (and other developing countries) to adopt such policies. As the ECA describes, green growth and economic growth are no longer viewed as opposite paths, but as one that can have strong synergies (ECA 2016a). Nevertheless, it is worth asking if it is feasible to achieve the goals of high economic growth, inclusive growth and green growth at the same time. The strong optimism of multilateral agencies has been offset by some mild criticism. Some policy analysts have questioned the approach of green growth for developing countries (Jacobs 2012; Scott, McFarland and Seth 2013). Some authors such as Resnick, Tarp and Thurlow (2012) argue that imposing a green growth industrial policy might be inconsistent with the natural comparative advantages and past investments of these countries. They argue that green growth strategies which are promoted as 'win-win' policies may induce high short-term costs. Doing so requires that countries deviate from both the prescriptions of conventional development theory and their current development trajectories. In addition, they add that the adoption of a green growth strategies share many parallels with structural adjustment programs. These two reasons could generate anti-reform coalitions, including both powerful local actors as well as the poor. They give examples in cases for South Africa, Mozambique and Malawi. With respect to the Malawi case they explain:

“Malawi’s comparative advantage lies in its favorable agro ecological conditions. Yet, given its land scarcity, the sustainability of an agriculture-led development strategy requires a more intense use of available land. To do this, the government of Malawi has been heavily promoting the use of fertilizer, even though fertilizer can be highly detrimental to water sources and generates high levels of greenhouse gases (GHG). Since fertilizer use has been promoted through a subsidy scheme that is highly popular among poor farmers and therefore an electoral boon to many politicians from the ruling party, shifting towards a more environmentally friendly mode of enhancing soil fertility will be extremely challenging”.

The trade-offs between short-term costs versus long-term benefits should be properly addressed, given Africa’s low current contribution to climate change. As Netzer and Althus describe: “short-term and unsustainable goals often win out over long-term sustainable goals”. In their view, most Green Economy projects in Africa do not meet yet the goals of sustainable development and may fail to do in the foreseen future if the right incentives are not in place.

4. Elements for a research agenda

The existence of some trade-off between economic and social development on the one hand, and the preservation of the environment on the other is well established in the economic literature (Toman, 1994). Getting the balance right between achieving high levels of economic growth that contribute to poverty reduction and the preservation of the environment could be difficult, in particular, in the case of African countries. In developing countries, politicians, citizens and entrepreneurs often bypass sustainable development considerations in their decision-making process given that natural resources are a ready source of valuable incomes and employment opportunities. Thus, governance structures and incentives frequently lead to unsustainable natural resources extraction rates, and the social cost of natural resources based activities is often underestimated. In both cases, short-term, private/politically-driven goals collide with long-term social concerns. This is also the result of several factors, including inter-temporal myopia by decision makers, lack of information and transparency, regulatory inertia and the absence of channels for civil society to voice concerns on the environmental or socio-cultural damage caused by some forms of natural resources exploitations, among others (Tornell and Lane, 1999; Robinson, Torvik and Verdier, 2006).

The difficulty of balancing these trade-offs opens then the questions of what could be done to alleviate the environmental impact of economic transformation in Africa. The answer to this question would require research in at least two areas. The first one would be on how to alleviate these trade-offs (Basnett and Bhattacharya, 2015). The second one would be on how to make these trade-offs more explicit so the policy maker can achieve a better balance.

There is a large literature focusing mainly on developed countries' experiences that suggest that the trade-off between environmental and economic outcomes can be overcome through the use of appropriate technology (Gradus and Smulders, 1993; Mazzanti and Zoboli, 2008; UNCTAD, 2012). For instance, technology and innovation can help increase economic outputs and productivity without a commensurate increase in environmental degradation. There are a number of ways of transferring that technology to poorer economies, trade being one of the most important. However, it should be recognised that global trade rules are not conducive to technology transfer. It remains to be seen whether the SDGs, as part of the means of their implementation, can deliver more on this front. Similarly, environmentally-efficient infrastructure can allow for increased economic output and productivity. However, at present there exists a huge gap in Africa in infrastructure need and finance. Finally, the literature also points to the importance of regulation that supports and incentivise firms to adopt new, cleaner technologies (Porter and van der Linde, 1995; Mazzanti and Zoboli, 2008) but there are no many documented cases of effective regulations in the African context.

There is a general optimism, in particular among multilateral agencies, that economic transformation in Africa could be based on green growth strategies. This optimism is linked to the idea that African countries will create their own path towards development by leapfrogging (or bypassing) stages of development. There are multiple examples like

mobile banking and telecommunications where the concept of leapfrogging technologies was a success in Africa. That has led many to believe that green technologies will provide new opportunities to combine development and sustainability in Africa (Ford, 2016). However, research is needed in the context of low and low-middle income countries to better understand to what extent it would be possible to mitigate environmental damages by leapfrogging when considering larger economic sectors such as agriculture and extractive industries and what would be needed for African countries to achieve this.

The second area that requires further research is how to link renewable and non-renewable natural resources in national economic transformation strategies. Environmentally and economically, the interface between renewables and non-renewables up and downstream of the value chain is stronger than is frequently assumed and requires a delicate policy balance. This is particularly true in case of forestry, land, water and exploitation of extractive resources as pertains to environment and social impacts (AfDB, 2015). The need for conservation and a balance of subsistence and industrial needs is a particular challenge. As such, it is unlikely that the exploitation of the resources can be sustainable without reconciling the conflicting industrial development goals with subsistence economic needs. Therefore it is important to develop an integrated approach to renewable and non-renewable resources exploitation that facilitates the adoption of a long-term planning perspective to promote green and blue economy principles. Further research work in this area will contribute towards better understanding of economic and environmental trade-offs associated with choices for developing the different resource types. For instance, policymakers will be guided on the reconciliation of conflicting environmental consideration for the development of extractives project on one hand and those of land and water resources. By the same token objective methods are necessary for policy makers to assess the economic value of using water basins to support extractives projects as opposed to reserving them as destinations for tourism. Moreover, a strategy that covers renewables and non-renewables would have the advantage of enabling policy makers to address common issues that pertain to management of different natural resources cost effectively. Many natural resource management policy challenges and opportunities are common between renewables and non-renewables and an understanding of their generic nature can serve as a platform for addressing sector specific aspects. Common challenges include policies for implementation of sustainable development solutions, conservation, negotiating concessions, managing conflicting resource needs, promoting transparency and linking resources projects to mainstream economies. For example, many of the mechanisms adopted to improve transparency in the mining, oil and gas industry are applicable to land and water sectors and are therefore easily adaptable. An understanding of the drivers of illicit trade as relates to one sector can serve as a foundation for tackling illicit trade in another. Strategically, formulating resources policies in an integrated approach can also ensure that national policies for the exploitation of the resources are reconciled and harmonized, achieving a better economic and environment balance.

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