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Economic development in Africa: Structural transformation and sustainable development in Africa*

Overview

Executive Summary

The *Economic Development in Africa Report 2012* addresses the challenge of reconciling the need for structural transformation with sustainable development in Africa. Indeed, the dilemma facing African governments is that on the one hand, African countries need to accelerate structural transformation through structural change and economic diversification in order to achieve substantial and broad-based improvements in human well-being. On the other hand, even though Africa's current level of domestic resource use is half of the global average, structural transformation is likely to accentuate environmental pressures through an intensified use of natural resources and an increasing generation of waste and pollution.

The Report suggests that this dilemma can be overcome by following a sustainable structural transformation strategy. It involves the adoption of measures that make structural transformation a priority of development policy while ensuring the relative decoupling of natural resource use and environmental impacts from the growth process. Relative decoupling implies that resources should be used more efficiently by reducing the amount of inputs used to produce one unit of economic output. Relative decoupling also means that efforts should be made to mitigate the environmental impact of any resources that are used or any economic activities that are undertaken. The Report discusses how strategic priorities for relative decoupling can be identified and how strategic issues related to investment and technological development, which are identified as the two key drivers of

* This overview should be read in conjunction with the full report (UNCTAD/ALDC/AFRICA/2012).

decoupling, may be addressed.

Sustainable structural transformation should be spearheaded by private-sector development, led by an effective developmental State and backed by a set of national and international policies. To this effect, the Report stresses that an appropriate enabling environment at the international level is essential. It would include, inter alia, the adoption of support measures such as increased aid to the energy sector to produce more energy, in particular sustainable energy, and to boost energy efficiency. To develop the green industrial sector, which must lie at the heart of sustainable structural transformation in Africa, enhanced technology transfer mechanisms will need to be put in place. In the agricultural sector, policies should focus on fostering a green revolution in Africa based on the sustainable intensification of agricultural production.

Introduction

1. Structural transformation is necessary to address the development challenges facing Africa. The concept refers to a process by which the relative importance of different sectors and activities of an economy changes over time. In the African context, this implies a relative decline of low-productivity agriculture and low value added extractive activities, and a relative increase in manufacturing and high-productivity services. However, structural transformation is a double-edged sword. While it lays the foundation for high and sustained economic growth, it will also lead to deterioration in environmental quality, unless deliberate action is taken to ensure environmental sustainability during the transformation process.

2. The Report examines how African countries can promote structural transformation without jeopardizing the objective of environmental sustainability, paying particular attention to how the relative decoupling of resource use and environmental impact from economic growth could contribute to the transformation process. Furthermore, the Report presents stylized facts on resource use and efficiency in Africa, which are crucial for understanding the nature and scale of the sustainable development challenges facing the region. Finally, the Report provides a strategic framework for sustainable structural transformation and identifies policies that could be adopted to promote it in Africa.

I. Main findings

3. The level of domestic material extraction in Africa is very low compared with the global average. In 2008, domestic material extraction per capita in Africa was 5.4 tons, compared with a global average of 10.2 tons. There are nevertheless major differences between African countries. For example, Algeria and South Africa had per capita extraction levels of 10.4 tons and 14.4 tons, respectively, while Malawi and Côte d'Ivoire had per capita extraction levels of 2 tons and 2.7 tons, respectively.

4. There has been an increase in domestic material extraction in Africa over the past three decades, but a decline in per capita terms. Although Africa has a very low level of domestic material extraction per capita, total domestic material extraction in the region rose from 2.8 billion tons in 1980 to 5.3 billion tons in 2008, representing roughly an 87 per cent increase in extraction over the past three decades. However, in per capita terms, domestic material extraction declined by about 8 per cent over the same period.

5. Biomass accounts for over half of material extraction in Africa but the share of non-renewable resources in total material extraction increased from 38 per cent in 1980 to 47

per cent in 2008**.** In terms of material categories, biomass accounts for the bulk of domestic material extraction in Africa, although its share of extraction decreased from 62 per cent in 1980 to 53 per cent in 2008. Consequently, the share of non-renewable resources in total extraction increased from 38 per cent to 47 per cent over the same period.

6. Fossil fuels are the dominant material export and import of Africa. Further, Africa is a net exporter of non-renewable resources and a net importer of renewable resources. In 2008, the share of fossil fuels in total material exports was 75 per cent, well above the global average of 50 per cent. On the import side, fossil fuels accounted for about 37 per cent of total imports; biomass, 32 per cent; non-metallic minerals, 18 per cent; and metals, 13 per cent. When materials are classified as renewables and non-renewables, it turns out that Africa is a net importer of renewable resources (biomass) and a net exporter of non-renewable resources.

7. The level of domestic material consumption per capita in Africa is about half the global average of 10.4 tons per capita and decreased slightly from 5.6 tons per capita in 1980 to 5.3 tons per capita in 2008. In 2008, per capita material consumption in the region was 5.3 tons, compared with the global average of 10.4 tons per capita. In addition, there has been no significant change in material consumption per capita in the region, due largely to high population growth. While average per capita consumption in Asia and Latin America increased during the period under consideration, it fell slightly in Africa from 5.6 tons in 1980 to 5.3 tons in 2008. Although Africa has a low level of domestic material consumption per capita, total domestic material consumption in the region grew from 2.5 billion tons in 1980 to 4.9 billion tons in 2008, representing approximately a 90 per cent increase in material consumption over the period under consideration. Further, in 2008, Africa accounted for about 7.2 per cent of global material consumption, compared with 6.8 per cent in 1980, despite accounting for close to 13.8 per cent of the world's population.

8. Non-renewable resources represent a large share of domestic material consumption in African countries at a relatively higher level of industrial development. Among the 16 African countries for which there are good quality data by material category, the countries that have higher domestic material consumption per capita than the African average of 5.3 tons also have a relatively higher level of industrial development. For example, South Africa, Seychelles, Algeria, Morocco and Egypt have high per capita domestic material consumption and also have manufacturing value added per capita above the regional average of $125.

9. Material productivity in Africa is the lowest for any region in the world, but has improved over the past three decades. Africa's level of material productivity during that period has been very low compared with the global average. For example, in 2008, the average level of material productivity in Africa was about $520 per ton of material, which is quite low relative to the global average of $950 per ton of material. Although the level of material productivity in Africa is low, it rose sharply from $338 per ton of material in 1980 to $520 per ton of material in 2008.

10. Energy use in Africa is low and has been increasing much less rapidly than material use. In 2009, per capita electricity consumption in Africa was only 561 kilowatt-hours (kWh) as opposed to 741 kWh for Asia, 1,884 kWh for Latin America and 2,730 kWh for the world. Nonetheless, energy use in Africa increased by about 16.3 per cent between 1980 and 2008.

11. Africa has contributed the least to global greenhouse gas emissions, but is the region most affected by climate change. In 2009, total carbon dioxide (CO_2,) emission in Africa was 928 million tons, compared with 10,030 tons for Asia and 12,045 tons for member countries of the Organization for Economic Cooperation and Development. Africa accounted for only 3.2 per cent of global CO_2 emissions in 2009, reflecting that it is at a

much lower level of industrial development and therefore has lower levels of income and energy consumption. As for the impact of climate change, it is estimated that agricultural yields will decline by as much as 50 per cent by 2020 and that between 75 million people and 250 million people in Africa are expected to be at risk of increased water stress as a result of climate change.

12. Land-use processes are inefficient over large parts of Africa. Land-use efficiency is very low in sub-Saharan Africa mainly because of large-scale land-cover changes (deforestation) and land degradation. In several African countries, the productivity losses associated with human land use are much higher than the harvested biomass. Further, in contrast to many European and Asian countries, many African countries were not able to improve land-use efficiency, for example, to increase crop yields per land area over time. In Senegal, Uganda, and the Democratic Republic of the Congo, for instance, land-use efficiency has declined in the past decades. In the region, Egypt and South Africa, which boast relatively advanced agricultural production systems, are a minority that does not follow this trend.

II. Messages and recommendations

13. The Report argues that, although structural transformation is necessary to address Africa's key development needs and challenges, it should be done in a manner that is consistent with environmental sustainability. In this regard, it recommends that African countries should not follow the development path adopted by the currently industrialized economies, which has involved promoting economic growth at the expense of the environment.

14. The main message of the Report is that achieving sustainable development in Africa requires deliberate, concerted and proactive measures to promote structural transformation and the relative decoupling of natural resource use and environmental impact from the growth process. In particular, the Report emphasizes the need to design a development strategy for sustainable structural transformation, defined as structural transformation accompanied by the relative decoupling of resource use and environmental impact from the economic growth process.

15. There are several reasons why African countries should promote sustainable structural transformation now. First, the strategy of "Grow now and clean up later" pursued by the currently industrialized countries is no longer tenable, given how difficult it has been to repair damage to the environment. Second, the current pattern of economic growth is unsustainable in the medium- and long term, and current trends of resource depletion and ecosystem degradation are likely to accelerate in the future with population growth, rising living standards and structural transformation. Third, infrastructure and technology choices have a lock-in effect, in which countries get stuck on a particular development path. Therefore, delaying the implementation of sustainable structural transformation may become extremely costly in the future, particularly if worsening environmental conditions force the early replacement of past investments. Yet at the same time, there are potential economic benefits to be derived from relative decoupling, which are in particular associated with increased resource productivity.

16. The Report stresses that African countries are heterogeneous; therefore, the optimal choice of policy instruments for relative decoupling will vary across countries. It suggests that decoupling lies at the heart of sustainable structural transformation, but argues that given Africa's special development needs and its low level of resource use, the focus of African policymakers should be on relative, rather than absolute, decoupling. Relative decoupling implies that resources may be increasingly used but at a rate lower than the rate

of increase in output, while absolute decoupling requires a decrease in the absolute quantity of resources used, irrespective of the output level. African countries should continue to use their natural resources to propel growth but they should do so in a more efficient and sustainable manner.

17. In this regard, the Report recommends that African countries should give priority to three areas critical to promoting resource productivity and mitigating the environmental impact of resource use. These are energy, industry and agriculture.

18. Energy: Fostering sustainable structural transformation in Africa requires providing better access to modern energy sources, improving energy efficiency and facilitating a switch from non-renewable to renewable energy sources. Policy options for increasing access to modern energy sources include rural electrification programmes and economic incentives to lower the relative cost of modern energy to households and firms. Regional cooperation in energy production and distribution is also crucial in enhancing access to modern energy in the region. In terms of improving energy efficiency and the use of renewable energy, the Report suggests that better access to technology is a crucial factor. This can be achieved by means of technology transfer from developed and emerging partners to Africa and by building national capabilities to access, use and adapt existing technologies, and when possible, to create needed technologies.

19. Industry: Making structural transformation compatible with environmental protection requires improving resource productivity and reducing the environmental impact of industrialization. The Report recommends that African countries should incentivize domestic firms to improve resource productivity, for example, by subsidizing the adoption of clean or environmentally sound technologies and promoting low-carbon foreign direct investment. It also suggests that African countries should pay more attention to reducing the environmental impact of resource use in the industrial sector by, perhaps, using economic incentives and regulatory measures to induce firms to adopt recycling technologies. In addition, it suggests that the removal of fossil fuel subsidies could also play an important role in inducing substitution away from fossil fuels to renewable energy sources where such substitution is possible. The Report suggests that African governments should use fiscal, trade and regulatory instruments to create and build competitiveness in producing and exporting environmental goods and services such as solar water heaters, recycling products and fluorescent lamps.

20. Agriculture**:** The effective promotion of sustainable structural transformation in Africa requires increasing agricultural productivity and promoting environmentally sustainable agricultural practices. In this regard, the Report suggests that African governments should subsidize access to productivity-enhancing technologies and improve the sustainable management of land and natural resources by reforming land tenure systems, better defining and enforcing property rights, and restricting or regulating imports of hazardous chemicals, pesticides and other pollutants.

21. Technology and innovation: The Report emphasizes the importance of technology and innovation in promoting sustainable structural transformation. In this regard, it suggests that strategies geared towards resource and impact decoupling should encompass science, technology and innovation policies. These policies should emphasize the acquisition, application and adaptation of clean and efficient technologies, and the development of the capacities of African countries to leapfrog into such types of technology wherever possible. The emergence of sustainability-oriented innovation systems can support this objective. However, technological leapfrogging will require more technology transfer from developed and emerging partners to African countries, greater domestic absorptive capacities and a stronger domestic science and technology base.

22. The State should play a crucial role in promoting sustainable structural transformation. Given the externalities associated with promoting sustainable structural transformation and the long-term nature of the required investments, it is unlikely that firms (or the private sector) will on their own commit to making these investments. Consequently, there is a need for deliberate action by the State to initiate the transformation process. More specifically, the State should play a leading role; liaise with other local stakeholders to identify priority areas or activities and support these priority areas using available instruments. While the State is expected to take a lead role in promoting sustainable structural transformation, it should make a genuine effort to involve other local stakeholders in the process, in particular the private sector, to enhance the likelihood of success.

23. Environmental problems in Africa should be treated as a development issue. The Report contends that African countries should not deal with environmental problems in isolation. They should be addressed as part of overall efforts to promote development. Far too often, there is very little coordination between government departments dealing with environmental issues and key departments such as finance, trade, agriculture and energy. This has led to incoherence in policy design and implementation. There is a need for African governments to strengthen interministerial collaboration on these issues to ensure that they are addressed in a holistic manner. This calls for mainstreaming environmental issues into national development strategies.

24. Better management of natural resource rents: The mobilization of financial resources is critical to success in promoting sustainable structural transformation. It allows local ownership of the transformation and development process and provides access to much-needed long-term finance. In this regard, the Report suggests that African countries should make better use of their natural resource rent, by for example, putting a certain percentage of such rents in a special fund meant to finance public investments in infrastructure, human capital formation, technology development and acquisition, energy development and in the protection of natural capital. Transparency and accountability are important to ensure that such a fund is not misappropriated, but used for the purpose for which it was intended.

25. It is important to monitor and evaluate policies. There is a need for African countries to put in place an effective system for monitoring and evaluating progress in the implementation of sustainability programmes and policies. This will require strengthening domestic capacity in collecting environmental statistics, which are necessary for designing sustainability indicators and evaluating the impact of environmental policy measures.

26. International support is needed. While African governments must play the leadership role in formulating and implementing strategies of sustainable structural transformation, it is essential that an appropriate enabling environment, including support measures, should be established at the international level. The international enabling environment should seek to apply the principle of common and differentiated responsibilities that was articulated at the 1992 United Nations Conference on Environment and Development. In broad terms, this implies the following:

(a) African countries should not be constrained in their pursuit of accelerated economic growth and structural transformation, and should seek to enhance environmental sustainability through relative decoupling rather than absolute decoupling, the latter being much more relevant for countries that have already achieved high living standards;

(b) Developed countries should provide financial support, in particular to help develop the energy sector, facilitate technology transfer to support sustainable structural transformation, and design the international trade regime and intellectual property rights regime in a way that facilitates the sustainable structural transformation process.

27. Policy space is needed at the international level. The international trading, monetary and financial systems affect Africa's capacity to promote sustainable structural transformation because they determine the set of feasible policy instruments that countries could use to support the transformation process. Consequently, the Report stresses the need for the international community to provide African countries with enough policy space to promote sustainable structural transformation. For example, there is a need for international trade rules to reflect the objectives of environmental protection and poverty reduction.

28. Policy coherence is also needed at the regional and international levels. Africa's efforts to promote sustainable structural transformation will have maximum impact if policies at the regional and international levels are consistent with those at the national level. For example, it is often the case that African countries compete among themselves to attract foreign direct investment in the extractive industries by offering generous incentives to foreign investors without due consideration of the environmental consequences of these investments both at the national and regional levels. There is a need for African countries to avoid "a race to the bottom" and to put in place regional environmental standards that foreign investors must comply with. There is also a need for the international community to develop more coherent trade, finance, investment and environmental policies towards Africa to ensure that they complement national efforts to promote sustainable structural transformation.