

Enabling measures for an inclusive green economy in Africa



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First printing: November 2016

ISBN: 978-99944-68-77-5

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Abbreviations and acronyms

AfDB	African Development Bank
AFREPREN	African Energy Policy Research Network
BAU	business as usual
CAADP	Comprehensive Africa Agricultural Development Programme
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CIF	Climate Investment Funds
COMESA	Common Market for Eastern and Southern Africa
CRGE	Climate-Resilient Green Economy
EAC	East African Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
FDI	foreign direct investment
FONERWA	Rwanda National Climate Change and Environment Fund
GATS	General Agreement on Trade in Services
GDP	gross domestic product
GEF	Global Environment Facility
GGKP	Green Growth Knowledge Platform
GIZ	Gesellschaft für Internationale Zusammenarbeit
IGAD	Intergovernmental Authority on Development
ILO	International Labour Organization
IMF	International Monetary Fund
NEPAD	New Partnership for Africa's Development
ODA	official development assistance
OECD	Organization for Economic Cooperation and Development
PAGE	Partnership for Action on Green Economy
RECP	resource-efficient and cleaner production
REDD/REDD+	Reducing Emissions from Deforestation and Forest Degradation
REFIT	renewable energy feed-in tariff
SADC	Southern African Development Community
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights

UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Conference on Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
UNRISD	United Nations Research Institute for Social Development
WTO	World Trade Organization
WWF	World Wide Fund for Nature

Acknowledgements

The present report, *Enabling Measures for Inclusive Green Economy in Africa*, is a joint publication of the Economic Commission for Africa (ECA) and the United Nations Environment Programme (UNEP) Regional Office for Africa. The report benefited from the overall guidance of Fatima Denton, Director of the Special Initiatives Division of ECA, and Mounkaila Goumandakoye, Director of UNEP Regional Office for Africa.

Isatou Gaye, Chief of the Green Economy and Natural Resource Section of ECA Special Initiatives Division, and Desta Mebratu, Deputy Director, UNEP Regional Office for Africa, provided intellectual leadership, substantive guidance and supervision in the preparation of the report.

The report team comprised Benjamin Mattondo Banda (team leader), Charles Akol, Richard Osaliya, Andrew Allieu, Mathilde Closset, Yacouba Gnegne, Romuald Somlanare Kinda and Victor Konde of ECA; and Rhoda Wachira, Patrick Mwesigye, Joy Kim and Richard Scotney of UNEP. Matfobhi Riba, Uzumma Erume and Rawda Omar-Clinton of ECA are acknowledged for their inputs and comments on the draft report.

The report also benefited from the constructive comments and inputs of participants at the ad-hoc expert group meeting organized on 23 and 24 September 2014 to review and enrich the report. They were: Mustapha Bouzaiène, Marianne Coillot, Egidio Daniel Cuetei, Tadele Agaje Ferede, Herve Azemtsa Fofack, Essel Ben Hagan, Joy Kiiru, Charles Guy Kwesiga, Maseeiso Lekholoane, Yared Girma Mengistu, Donald Mbuga, Alexis Minga, Esnart Constance Phiri Mpokosa, Charles Chancy Mtonga, Anton Nahman, Peter Ndifon, Washington Odongo Ochola, Joshua Opiyo, Débo Sow, Symphorien Ndang Tabo, Samson Wasao, Francis D. Yamba, Jethro Zuwarimwe, Albert Ndayitwayeko, Gilles Ogandaga Ndiaye, Musole Mwila Musumali, Yogesh Vyas and Helene Gichenje.

The team is grateful for the valuable administrative and organizational support provided by Tsigereda Assayehegn, Rahel Menda and Gezahegn Shiferaw. And finally, we are grateful to Demba Diarra, Chief of ECA Publications Section, and his team, including Marcel Ngoma-Mouaya, Megan Rees, Teshome Yohannes and Charles Ndungu, for their efficient handling of the editing, text processing, proofreading, design and printing processes.

Overview

Introduction

The transition to an inclusive green economy in Africa could foster economic diversification, employment creation, enhanced access to basic services and reduced inequality and poverty. Such a shift will require an intricate array of enabling measures including: (a) supportive institutions and policies; (b) market and non-market based instruments; (c) inclusive innovation and adoption of green technologies; (d) capacity-building at all levels for managing the transition; (e) adequate funding, and domestic and international investments; and (f) mobilization and meaningful engagement of the private sector. In addition to these supportive measures and others that may be deemed necessary depending on the specific country context, countries that may wish to build an inclusive green economy should take the following into account.

The transition process should be embedded in long-term development plans that are designed to realize sustainable development outcomes. However, most developing countries, particularly those in Africa, have limited capacities to undertake the wide range of measures required for a smooth transition and may therefore require international support. Countries may need to mobilize external support to complement domestic efforts, particularly in the face of new and emerging challenges. Support may be required at several levels, including the planning stage, during which green economy policies and strategies have to be elaborated and assessments conducted to review requirements.

National assessments are usually carried out to identify the costs and benefits and green growth opportunities from a wide range of renewable and non-renewable resources. Countries may focus initial efforts on understanding the challenges and opportunities for inclusive green growth in selected sectors. This is necessary to allay fears of risks associated with the uncertainties of the transition. It could also provide an opportunity to implement inclusive green growth strategies that allow for lesson learning and the development of the required tools and methodologies for designing and implementing policies, strategies and programmes that would contribute to the effective management of the transition.

The present report is a joint publication of the Economic Commission for Africa and UNEP Regional Office for Africa. It examines the role and significance of various enabling measures that could facilitate a smooth transition to an inclusive green economy in Africa. In this regard, it analyses the implications of the transition for Africa, explores measures as they relate to the transition, analyses trends in the application of the measures, highlights challenges and opportunities to be considered in their application, and based on the findings, puts forward recommendations that could enhance the adoption of enabling measures relevant for a smooth transition in Africa. The measures examined include policies and institutions, policy instruments, technology development and transfer, capacity development and financing the transition.

The report was prepared on the basis of a comprehensive desk review of relevant reports and research papers. These included green economy and growth policies, strategies and road maps of Ethiopia, Mozambique,

Rwanda and South Africa. The report was also informed by country case studies commissioned by ECA on inclusive green economy policies and structural transformation in Burkina Faso, Ethiopia, Gabon, Mozambique and Tunisia; and questionnaire surveys on inclusive green economy policies and structural transformation administered in eight countries, namely Cameroon, Ghana, Kenya, Mauritius, Republic of Congo, Rwanda, Senegal and South Africa. The report is complemented by two other reports, titled *Inclusive green economy policies and structural transformation in selected African countries* and *Integrated assessment tools and methodologies for an inclusive green economy in Africa*, both produced by ECA.

The preliminary draft of the report was subjected to an internal peer review process. An ad hoc expert group meeting held in September 2014 provided a platform for external peer reviewers to extensively critique the draft report to identify gaps, provide inputs and propose revisions for finalizing the report. The external reviewers included experts in the fields of sustainable development, green economy, policies and institutions, economic instruments, development financing, private sector development, and technology and capacity development. The constructive comments, inputs and recommendations provided by the meeting informed the final report.

Key findings

I. Implications of green economy transition for Africa

Any transition has associated challenges and opportunities. The report offers insights into the implications of a green economy transition in Africa. The impacts vary according to household, sector, institution and country depending on initial conditions, the green economy strategy applied, and the risks and opportunities inherent in the economy. The report demonstrates that a green economy development pathway would have economic, environmental and social benefits in the medium to long term. The benefits include higher productivity and competitiveness, higher economic growth, new revenue streams, higher per capita incomes, lower poverty rates, long-term food security and job creation. The green economy could also benefit the environment through greater forest cover, increased water supply and lower carbon emissions in the long term.

The downside of the transition includes high initial investment costs, low capacity (skills and technology) for implementation, the projected insignificant rise in real GDP in the short term, and a general increase in carbon emissions as Africa develops. Some stakeholders who lose out in the transition may need to be compensated. In Kenya, for example, in spite of costs associated with green economy investments, growth in GDP would not be substantially different from business as usual in the short term (between 2010 and 2020). Employment in certain sectors may also suffer from a green transition. While overall employment is set to increase, certain sectors such as coal mining will inevitably suffer a loss of jobs. Governments will need to support such segments of the population during the transition.

Overall, the green economy offers an opportunity to address poverty, economic stagnation, unemployment, and vulnerability to environmental risks and ecological scarcities. The studies that have been conducted across a number of African countries in both small and larger economies with different resource endowments, demonstrate positive and significant impacts. However, the transition to a green economy will not happen automatically. It needs to be facilitated by various enabling conditions, including those discussed in the present report.

II. Institutions and policy frameworks

Implementing a green economy transition that leverages natural assets for economic and social transformation is crucial to Africa's quest for sustainable development. However, well-constituted, strong and effective institutions, as well as sound policies are required for the transition to become a reality. Institutions guarantee certain "enabling conditions" for coordinating and implementing green economy strategies at national, sub-regional and regional levels. Critically, national level institutional set-ups should be robust for effective translation of green economy objectives into transformative actions supporting national development plans.

Institutions play critical roles in establishing sound regulatory frameworks, prioritizing government investment and spending in support of an inclusive green economy, imposing taxes and market-based instruments to promote green investment and innovation, and investing in capacity-building, training, education and awareness creation. A well-rounded institution for advancing the green economy would have policy priorities including reforming the economic incentives framework, promoting sustainable infrastructure investment, and also facilitating investment in human capital and natural resources management and preservation.

A key tenet in the inclusive green economy is the realization of win-wins premised on the possibility of achieving economic growth within environmental limits while simultaneously improving human well-being, alleviating poverty and reducing inequalities. Institutions working together could help in amplifying the low-hanging fruits that would be harnessed across all sectors. Although there must be some trade-offs between narrowly construed economic growth and environmental quality, a strong institutional setting will allow collective identification of constraints and the formulation of smart policy interventions that are dynamic and refined to deal with the ever-changing needs during the transition, including the trade-offs.

Africa has a wealth of experience in coordinating institutional support in the implementation of sustainable development. As the transition process progresses, and as more and more African countries adopt green economy policies and strategies, decisions will have to be made about the nature, and role of institutions that must emerge to drive the implementation. Lessons will be learned along the way, but pioneers are either building on existing institutional frameworks for sustainable development and reformulating sectoral and national development strategies or creating new institutions and new development strategies. In whatever configuration, institutions that have clear mandates, and occupy strategic positions within the government machinery are going to be more effective and robust in their interventions. In this regard, the strong involvement of the ministries of finance and economic planning; the Presidency or the Prime Minister's office is crucial as it demonstrates the priority attached by the country to the green economy transition. Consistency and coherence of policies cutting across the three dimensions of sustainable development and wider stakeholder participation are also important for the effectiveness of the institutions and policies.

Despite the efforts of national Governments and the support for the green economy development pathway at the subregional, regional and global levels, the development and implementation of national policies and strategies remain a challenge due to several factors, including inadequate understanding of the inclusive green economy concept; lack of political will; inadequate funding; weak institutional and legal frameworks and governance tools, weak coordination and misalignment of efforts at greening in various sectors; and gaps in individual and institutional capacity to implement green economy policies.

Strengthening institutions that will facilitate mainstreaming of the green economy in national development plans, national sector strategies and policies, and budgeting and planning procedures will become easier with experience, particularly when reforms are incremental rather than radically replacing institutions that were effective and functional. Countries have the opportunity to build on existing institutional and policy frameworks supporting sustainable development planning and programme implementation. Institutional capacity-building networks are also emerging within the region including regional economic communities and their specialized programmes, and there is increased regional and global support for institutional capacities to implement the green economy. Through various programmes, plans and strategies, bilateral and multilateral development partners are, with varying degrees of commitment, providing technical and financial support, encouraging multi-stakeholder participation, and promoting institutional linkages and balanced integration of the three dimensions of sustainable development.

The following are some of the recommendations and ways forward for enhancing African institutions and policies that effectively foster the transition to an inclusive green economy while contributing to sustainable transformation and poverty eradication.

- The key success factor for an inclusive green economy is leadership of strong, effective and dynamic institutions. Key players need to be identified that can provide the necessary support to be leveraged in the formulation and implementation of inclusive green economy policies.
- Smart policy interventions are dynamic and refined to deal with the ever-changing needs during the transition. A well-rounded institution for advancing the green economy would have policy priorities including reforming the economic incentives framework, promoting sustainable infrastructure investment, and facilitating investment in human capital and natural resources management and preservation.
- Specific public policies and regulatory frameworks are needed to promote private investments that support sustainable development. The transition to an inclusive green economy will require that countries implement holistic or system-wide inclusive green economy policies, strategies and institutional reforms.
- It is necessary to align efforts of greening various sectors through a common institutional approach that brings together all relevant ministries and departments. The convening and resourcing role of ministries of finance and economic planning in the national development agenda is particularly relevant in bringing together all stakeholders in the green economy.
- Countries should assess their readiness in terms of individual and institutional capacity to implement the green economy. Capacities are needed to ensure effective translation of strategies and policies during implementation, including through technology deployment, technical and financial support, and raising awareness and participation of all stakeholders.

III. Policy instruments for an inclusive green economy

Policies are translated into action through instruments. Transitioning to an inclusive green economy will require a shift towards a policy structure that engenders fundamental reviews, redesign and different mixes of policy instruments that encourage shifts in production, consumption and investment in and across various sectors of the economy. This calls for appropriate incentives and disincentives that send strong and coherent signals to economic agents.

Market-based instruments help to correct market failures that lead to overuse and inefficient use of resources, pollution, and disincentives to cleaner and more efficient technologies. By getting the prices right, market-based mechanisms make green products more competitive and affordable for consumers and environmentally harmful products and practices more expensive to discourage their consumption. Fiscal reforms can potentially generate fiscal revenues through taxes or charges and reduce fiscal expenditures through the removal of harmful subsidies. The appropriate deployment of these revenues can also make a significant contribution to enhancing incomes, addressing poverty and inequalities, and enhancing expenditures on social services. Through green public procurement, the public sector reduces the environmental impact of its operations, may improve efficiency by rationalizing needs, and reduces expenditure, especially when purchasing energy-efficient products. Green public procurement also accelerates the market transformation for greener solutions, encouraging eco-innovation and new, environmentally conscious business practices.

Green economy investments can also be stimulated by incentives for research and innovation, low-carbon technology, resource efficiency and environmental preservation. Investments in renewable energy and energy efficiency, for example, can improve energy security and enhance enabling conditions for sustained and inclusive economic growth. Information-based instruments address the issues of information asymmetry and provide information and raise awareness about the attributes of products and processes and the alternatives available.

There are many applications of policy instruments across Africa. Examples include renewable energy feed-in tariffs (REFITs), removal of subsidies on fossil fuels, capital cost subsidies, and financing and loans mechanisms for solar plants. Algeria, Botswana, Egypt, Ethiopia, Ghana, Kenya, Mauritius, Namibia, Nigeria, Rwanda, South Africa, United Republic of Tanzania and Uganda have either adopted or are putting in place policies to attract investments in renewable energy through REFITs. Morocco and Tunisia have a policy of low-interest bank loans and capital subsidies for solar energy. South Africa's carbon tax programme is expected to reduce carbon emissions by 34 per cent by 2020, and by 42 per cent by 2025. A benchmark of carbon emissions per unit of output has been proposed and may be defined at an industry sector or subsector level. Promoting clean industrial technologies could further address the environmental issues related to pollution, water, forests, and biodiversity loss, and could support wealth creation through the more productive and sustainable use of natural resources.

Understanding the context of a policy instrument, including the existing institutional, legal and economic conditions in which the instrument is meant to function, especially in the case of the inclusive green economy, is often a major challenge. The choice and applicability of policy instruments requires finding the right balance between growth, environmental and distributional concerns. The design, implementation and monitoring of policy instruments require capacities at various levels. There are also concerns relating to inertia in moving away from the business-as-usual or unsustainable growth path, as well as vested interests, scepticism and lack of understanding of the green economy concept and appropriate policy instruments. Nevertheless, the green economy has a lot of opportunities even for policy purposes.

African countries have begun adopting inclusive green policies and strategies. Fiscal policy reforms are adopting instruments such as environmental taxes, pollution charges, subsidies for green technologies, green budgeting and tax incentives to create the needed fiscal space for promoting green investments while limiting environmental externalities. The choice, policy focus and innovations in policy instruments have evolved over time, adapting to changing economic, environmental and social policy considerations. Trends in green investments and climate and development finance across Africa present opportunities for greater use of policy instruments. As renewable energy markets grow, approaches such as REFITs are a means of encouraging investments. Green funds, green markets, green bonds, green projects, green public procurements, investments in green technologies and infrastructure, and private and foreign direct investments in natural resource sectors are growing, further providing opportunities for greater use of a wide range of policy instruments.

Compared to developed countries, Africa is still at a transition stage in so many aspects of development. This offers considerable flexibility and opportunities to introduce new policy instruments to support the transition to a green economy. Structural transformation, in particular, is expected to accelerate industrial development, promote energy efficiency, increase production and access to renewable energy, sustain and enhance natural resources and other ecological assets, and expand trade opportunities. All of these would require greater use of economic instruments. The future of green economy policy and strategic frameworks will, in part, depend on current and ongoing knowledge generation initiatives and the evidence that will inform the future applicability and effectiveness of policy instruments.

Findings suggest that policy instruments could foster the transition to inclusive green economies by creating incentives for behavioural change and redressing social and environmental impacts. As the green economy concept evolves, and knowledge and evidence increases; the emerging policy choices provide more opportunities for the use and effectiveness of instruments. However, the effectiveness and efficiency of policy instruments depends on the existing institutional, legal, social and economic systems. Choosing an effective policy package that fits in with institutional capabilities and existing policy frameworks remains a challenge. The following recommendations, certainly not exhaustive, provide guidance for enhancing the effectiveness of policy instruments in fostering the transition to inclusive green economies in Africa.

- The broad inclusive green economy policy objectives must guide and inform the choice of policy instruments.
- Policy choices and trade-offs must be analysed to ensure that due consideration is given to the implications of choices and the implicit compromises they contain.
- There is a need to pay due attention to impact and distributional concerns. In an inclusive green economy, particular attention must be paid to impacts, especially on poor and vulnerable groups.
- Governments must be aware of vested interests that undermine reforms. The introduction of policy instruments could face opposition from various groups. This may water down initiatives and distort the intended (dis)incentive framework. Stakeholder participation; phase-in, gestation periods and incremental implementation strategies could help in addressing the concerns of all stakeholders.

IV. Promoting green technology development and transfer

Africa's transition to an inclusive green economy will necessitate a shift from low productivity, inefficient, wasteful technologies to green technologies. This shift could potentially facilitate Africa's structural transformation through efficient resource extraction and use, value addition to natural resources and agricultural products, and sustainable industrialization. However, realizing a transition to more efficient and cleaner green technologies requires deliberately establishing and implementing measures that support a process of phasing out "dirty" technologies by developing and transferring from elsewhere the green alternatives. These include technologies for renewable energy, biotechnology, efficient vehicles, waste management, crop management, sustainable buildings, efficient water use, improved irrigation systems, and technologies that provide protection against sea level rise.

Technology development and transfer as a means to foster sustainable development in developing countries remains a priority. Strong and sustained economic growth requires technological progress, innovation and technology indigenization. Technologies for renewable energy such as mini-hydropower and solar energy will significantly increase access to electricity for a high proportion of the population (74 per cent of total, 92 per cent in rural areas). Green technology in agriculture could contribute to poverty eradication and economic growth. Green technologies in manufacturing and industry could reduce waste generation and associated pollution especially of air, land and water bodies.

The region could benefit from technology development and transfer in the transition to an inclusive green economy. Multilateral environmental agreements with relevant provisions for technology development and transfer include the United Nations Framework Convention on Climate Change (UNFCCC). The Clean Development Mechanism under the Kyoto Protocol of UNFCCC and the Global Environment Facility (GEF) are important mechanisms for technology development and transfer, while the Bali Strategic Plan for Technology Support and Capacity-Building could potentially play a critical role in its application to the inclusive green economy. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is one of the most important World Trade Organization (WTO) agreements for technology development and transfer. In seeking the full implementation of technology transfer clauses in all WTO agreements, the Doha Declaration adopted at the fourth Ministerial Conference of WTO held in Doha, Qatar, in November 2001, established a WTO Working Group on Trade and Transfer of Technology with a binding mandate for members to examine the relationship between trade and technology transfer and make recommendations.

Africa is also taking steps to develop technology that is relevant for its development aspirations. The New Partnership for Africa's Development (NEPAD) framework, Africa's Science and Technology Consolidated Plan of Action of 2006, the Action Plan for the Accelerated Industrial Development of Africa of 2007 and the strategy for its implementation of 2008 underscore the role of science, technology and innovation in underpinning industrialization, economic growth and the competitiveness of Africa. Further, in June 2014, African heads of State and Government adopted a 10-year Science, Technology and Innovation Strategy for

Africa STISA-2024. The strategy is the result of a review of the Consolidated Plan of Action and is aimed at accelerating transition to an innovation-led, knowledge-based economy within the overall framework of the African Union Agenda 2063. The strategy's flagship research programmes and actions to be elaborated in line with the key priorities for impact areas and sectors are expected to take stock of existing initiatives and build on existing actions identified in the Consolidated Plan of Action.

The challenges to technology development and transfer include weak support for research and innovation. Innovation requires financial, legal and institutional barriers to be overcome. Research and development funding is below 1 per cent of GDP in all African countries with only South Africa allocating about 0.9 per cent. The non-binding nature of many international declarations and provisions relevant to international support for technology development and transfer also means that support to developing countries is mostly on an ad hoc basis. In addition, most African countries suffer from inadequate skills required for technology innovation, research and development, entrepreneurship and management. In general, there is a low level of awareness and appreciation of quality; product standards, which are important for functionality and usability as well as adaptability of the technologies, are inadequate.

International agreements that incorporate technology development and transfer such as the Clean Development Mechanism and Technology Mechanism under UNFCCC and the Bali Strategic Plan provide important entry points for Africa to leverage international support for green technology development and transfer. Further, the establishment of the Working Group on Trade and Transfer of Technology is an opening for a negotiated intellectual property rights regime through WTO processes. Africa could also pursue technology development and transfer through the commercial interests driving foreign direct investments in the region. Capital goods and knowledge embodied in human capital accompanying these investments would be important for technology transfer. Efforts to deploy green technology, especially renewable energy, biotechnology, and green practices in industry and mining, are among the major interactions between technology and foreign direct investment.

Industries in Africa are increasingly adopting cleaner production processes for economic and environmental reasons, including resource efficiency and waste reduction. Africa has 10 national cleaner production centres established with support from the UNEP and United Nations Industrial Development Organization (UNIDO) joint Resource Efficiency and Cleaner Production Programme. Africa's young and dynamic population, which is projected to peak at 1.6 billion in 2030 from 1.0 billion in 2010, will be key in spearheading the continent's green technology innovation, but only if countries invest in their education and skills. Africa is also active in research and development partnerships, including through South-South cooperation in sectors such as agriculture and clean energy. African clean energy technologies have a 23 per cent share of international research collaboration, compared to 12 per cent worldwide – a sign that with appropriate policies and support such as through South-South cooperation, the continent would become an important player in green technology development.

African countries therefore need to accelerate the implementation of appropriate measures to address challenges and harness opportunities for promoting green technology development and transfer. In this regard, the following recommendations are considered pertinent:

- Investment in human capital is needed to spur innovation, research and development, as well as development of market opportunities and potential partnerships within and across national borders.
- Development of both “hard” and “soft” science, innovation and technology infrastructure are needed to strengthen networks of scientists, intellectuals and research and development resources.
- Academic-industry-public partnerships that support innovation and technology development should be promoted to offset the limitation of a relatively small private sector; the multiplier effects of technology development and transfer and research and development should be enhanced and skills development accelerated.

- Policy and regulatory frameworks that synergistically cover environment, trade and industry aspects should be implemented to facilitate technology development and transfer and to provide incentives for investment in development or diffusion of green technologies.
- International partnership arrangements should be explored, particularly frameworks relevant to technology development and transfer such as UNFCCC, the Clean Development Mechanism and Bali Strategic Plan, which should guide countries in developing and implementing technology development and transfer strategies. This requires a clear vision, committed political and professional leadership, and a strong belief in technology as a key input in a green economy transition.

V. Capacity development for an inclusive green economy

Capacity development plays a fundamental role in realizing vital elements for enabling the adoption and practice of an inclusive green economy on a meaningful scale. Capacity development is necessary for creating and enhancing inclusive green economy awareness and understanding; developing employable skills in a green jobs labour market; and supporting inclusive green economy policy formulation, planning and implementation. Capacity development at the enabling environment level is essential in strengthening overall legislative policy and the social norms environment within which individuals, institutions and organizations operate at the national, subregional and regional levels. Moreover, there is a close link between capacity development and other enabling measures for an inclusive green economy.

The crucial role of effective capacity development in enabling the transition to an inclusive green economy is recognized and has featured prominently as a discussion area in many forums at various levels. In their common position at the United Nations Conference on Sustainable Development (Rio+20) held in Rio de Janeiro, Brazil, from 20 to 22 June 2012, African countries underscored the need to foster better understanding of the green economy concept in the context of Africa and called for comprehensive national capacity development strategies for sustainable development. At Rio+20, heads of State and Government and high-level representatives recognized that capacity-building, information exchange and experience sharing are critical for developing and implementing green economy policies. The outcome document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes held in November 2012 underlines that capacity-building is crucial to implementing sustainable development commitments in Africa, and consequently calls for the development and implementation of comprehensive national capacity development strategies as a matter of priority to further the implementation of the region's sustainable development agenda. The seventh Joint Annual Meeting of the ECA Conference of African Ministers of Finance, Planning and Economic Development and the African Union Conference of Ministers of Economy and Finance in 2014 called upon the African Union Commission, ECA, African Development Bank (AfDB) and other development partners to support African countries in strengthening their capacity to formulate, adopt and implement inclusive green economy policies in the context of accelerating structural transformation in the region.

Some African countries have designed frameworks that are providing the strategic direction and insights for capacity development to foster the transition to an inclusive green economy. Ethiopia's Climate-Resilient Green Economy (CRGE) Strategy, Mozambique's Road Map for a Green Economy, Rwanda's Green Growth and Climate Resilience National Strategy for Climate Change and Low-Carbon Development, and South Africa's Green Economy Accord are some of the examples. These and other national frameworks are assisting in the identification of capacity development needs, priorities and approaches. The scope of the needs and approaches identified, however, is uneven. Most of the country frameworks have a narrow scope, thereby leaving out many important aspects of capacity development. While some identified capacity development needs at the level of organizations and institutions, only South Africa identified capacity at the individual level. Some countries have taken the positive step of identifying lead actors to spearhead or deliver the required capacity development, which provides a firm basis for not only the implementation phase but also for accountability and the regular review of capacity development.

UNEP has carried out green economy scoping studies in selected countries in the region. The studies revealed some striking capacity development needs that are key to the ownership and practical application of an inclusive green economy. Common to most countries is the need for a good understanding of the concept of the green economy and related tools such as sustainable consumption and production and clean production. Lack of implementation capacity is another constraint commonly cited and the identification of potential sources of support for country inclusive green economy-related programmes and activities is vital in building partnerships and mobilizing funding for capacity development.

For the inclusive green economy transition, countries have to overcome several challenges and harness the opportunities related to capacity. Among the main challenges are the lack of comprehensive capacity development plans and strategies and limited interventions on capacity development. Other challenges include: ensuring effective coordination and enhancing synergies among capacity development initiatives; and securing adequate financing for inclusive green economy capacity development. Among the opportunities are the ongoing and emerging initiatives and partnerships at international level that finance and carry out capacity development activities on the inclusive green economy. Agencies such as the International Training Centre of the International Labour Organization (ILO) and the Global Green Growth Institute are providing institutional leadership for inclusive green economy-related capacity development. Other institutions that can support the capacity development efforts of African countries include the Partnership for Action on Green Economy led by UNEP, ILO, UNIDO, the United Nations Institute for Training and Research (UNITAR) and the Millennium Institute, the Green Growth Knowledge Platform and the African Green Economy Partnership.

Recommendations to scale up and ensure effective capacity development at various levels in the region include:

- Country plans for the development, coordination and delivery of inclusive green economy capacity development should be strengthened.
- Easily accessible capability that can be leveraged and tailored to respond to needs at local, national and regional levels is needed and should be strengthened.
- Global level and regional partners and national Governments should mobilize and provide support to address countries' immediate capacity development needs and priorities.
- Region-wide coherence, synergies and coordination in capacity-building should be promoted and monitored.
- Capacity development should be woven as a mutually supportive measure within initiatives related to technology development and transfer, financing, private sector development, and institutional development for the inclusive green economy.

VI. Financing the green economy

The importance of adequate financing to support the transition to an inclusive green economy in Africa cannot be overemphasized. Financial resources for Africa's transition to an inclusive green economy should be catalytic and support investments, particularly those that could not be realized otherwise. The transition will require significant upfront capital investments and major structural changes. Financial resources will also be needed for countries to effectively deploy all enablers of the transition, particularly technology, capacity development and policy reforms. For most developing countries, domestic resources will not be enough to meet all the financing requirements, hence a mixture of domestic and international resources, including public and private finance, will be critical for the green economy transition.

Financial resources can unlock opportunities to develop the economic and social infrastructure, strengthen institutions and enhance the facilitation required to implement inclusive green economy projects. Adequate resources can stimulate investment in smallholder agriculture and sustainable land use sectors that normally

do not attract investment due to uncertainties and high risks associated with climate change and individual farmer risks (associated with scale of operations and market access), and the public good nature of benefits of sustainable land use. Countries that have sound financial systems will benefit more from the resource mobilization process. An enabling policy for lowering the risks of new investments and for fostering early stage investments or providing public infrastructure and services is crucial in the transition process.

Although there is no comprehensive estimate of the resources required to transition to a green economy, the indicative estimates based on sectoral requirements and incomplete data are quite enormous. Overall, about 2 per cent of global GDP (currently \$1.3 trillion per year but expected to rise to over \$3 trillion in future) will be needed to finance the transition to a green economy in developing countries by 2050. For example, the green investment gaps for low-carbon energy supply and energy efficiency at the global level, based on CO₂ emission reduction targets that exclude considerations such as resource efficiency across sectors, are projected at \$1 trillion annually over the next thirty years. Financing the transition should be seen as integral to financing development. Therefore, countries should look inwardly and enhance their capacity to mobilize domestic resources.

Economic growth will also afford countries the much-needed fiscal space to provide financial stimulus to green growth sectors. However, inefficiencies in existing tax administration systems of most countries means that foreign financing will still be needed in the interim, and will have to complement domestic resources over the long term. Most countries in Africa are unable to attract international finance to complement domestic resources because of weak capacity to conceive projects and mobilize initial resources. Regardless of the perceived misalignment between donor funding and developing countries' needs, it is incumbent upon countries to take the lead in developing inclusive green economy strategies that attract private and public funding from both domestic and international sources. International donor resources could complement the initial low-level private and domestic resources currently being channelled to wider green economy sectors. However, it is expected that private capital will supply more than 80 per cent of the investment required for the transition. Green investments therefore need to be promoted over conventional ones through better policy frameworks and a shift in incentives and behaviour.

The need to keep investors interested in inclusive green economy projects is an opportunity for policymakers to focus their energies on enhancing policies to improve the investment climate. It is therefore critical that green economy funds are channelled through the private sector or in a manner that will stimulate private sector development. Sustained financing of the green economy will further increase growth prospects and broaden opportunities for job creation, reduction of income inequalities and elimination of poverty. The perception of high risks associated with huge capital investments in green projects is also a challenge. Generally green economy projects have perceptions of high risks because of the huge initial outlays that may necessitate longer payback periods. Mobilizing private sector investment funds is also challenging due to persistent risks, among them, political and policy risks associated with regulatory changes, civil unrest and conflicts, and macroeconomic risk associated with exchange rate fluctuations and high volatility of commodity prices. Developing countries should find ways of leveraging innovative investment instruments such as green bonds and sovereign wealth funds that could shore up funding. However, underdeveloped capital markets are a constraint in capitalizing on such instruments.

Countries can also tap into the huge carbon markets either through direct participation or through carbon offsetting projects such as the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) and REDD+ programme, and others. The region does have some opportunities that it can exploit to enhance resource mobilization for the green economy. Africa's untapped domestic resources including tax revenue, mineral wealth, diaspora remittances, banking assets and stock market capitalization may well be over \$2 trillion. Recommendations of the

High-Level Panel on Illicit Financial Flows from Africa such as the proposed private sector contributions and various levies on insurance premiums, imports, international travel and tourism could have a positive bearing on domestic resource mobilization. There is also an opportunity for the international community to plan and coordinate support to Africa based on inclusive green economy priorities of beneficiary countries.

The rising private investment flows to Africa, predominantly in the natural resource sectors, should also be exploited for green investments in the region. These natural assets are estimated to account for 24 per cent of total wealth in sub-Saharan Africa and their value is expected to rise with each additional dollar of investment. With larger flows of funds, and increased demand for green investments, domestic financial markets can grow if they offer financial solutions offering reduced risk and lower cost of capital for green economy projects. Thus, Governments working together with key financial market actors can ensure investments are channelled to priority green sectors.

Against the foregoing, it is evident that mobilizing financial resources for the green economy transition is a priority for bridging the trillion-dollar funding gap worldwide. A green economy strategy hinged on national development plans would clearly identify priority areas for investment (and disinvestment) and map the associated mix of funding sources required. It would also address incentives, fiscal measures and other policy measures needed for the transition. For effective resource mobilization, the following recommendations are considered critical:

- African countries should assess their financing options for the green economy through a thorough planning process. Countries need to be explicit with respect to green investments they would want to undertake. In this regard, appropriate, clear and consistent national policy frameworks will be critical in mobilizing domestic resources.
- The impressive economic growth recorded in the last decade should be used to provide a strong foundation for green growth sectors and investment in health and other social services. Infrastructure and human capital investments, in particular, would be critical in the transition.
- While international partners are called upon to provide catalytic finance for the initial investments required for the transition, domestic resource mobilization will be critical for the success of the green economy in developing countries. Active government support is needed to advance green investment at scale, but this will require realignment of public finance with development plans, and enhanced mapping of domestic resources with priorities.
- The international community should also address the fragmentation of funding mechanisms towards sustainable development in developing countries. The multiplicity of instruments, facilities, eligibility criteria and other conditionalities constitutes an important challenge to developing countries that have to develop bankable projects for various benefactors.
- The role of capital markets in mobilizing private investment funds to growth sectors should not be underestimated. Deepening of financial markets and private sector development in developing countries should be part of the financing strategy. Non-traditional financing instruments should also be considered during the transition, but emphasis should be on developing a stable flow of resources to key sectors, within the framework of national development.

1: Introduction

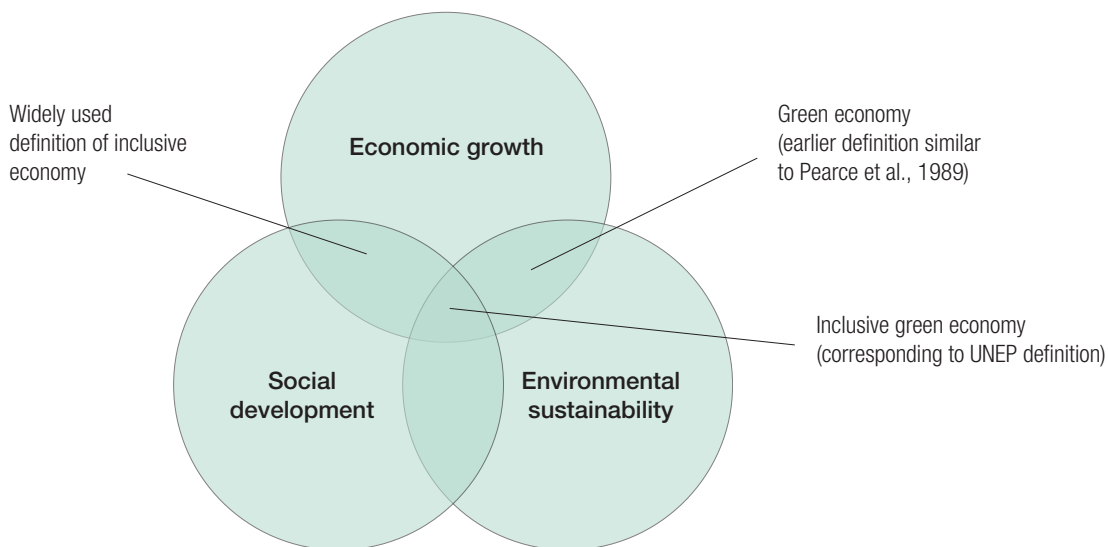
1.1 The green economy concept

A green economy is an economic system of activities of production, distribution and consumption of goods and services that result in “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP, 2011). A green economy, therefore, concerns the interrelated system of economic production and consumption activities, policies and instruments, and institutions determining how scarce resources are allocated to meet economic, social and environmental objectives. In that sense, a green economy is low-carbon, resource efficient, socially inclusive, and protects and enhances biodiversity and ecosystem services (UNEP, 2010; UNEP, 2011).

The UNEP definition of a green economy is explicit on all three dimensions of sustainable development. However, the need to highlight the social dimension in addition to the economic and environmental ones led to the coining of the term “inclusive green economy” to reflect the reality that opportunities, costs and benefits of a green economy transition will vary for different social groups, countries and regions (UNRISD, 2012). An inclusive green economy can therefore be broadly understood as an economy that integrates all three dimensions of sustainable development in ways that can benefit poor and vulnerable groups to reduce inequality (Figure 1).

The United Nations Conference on Sustainable Development discussed “green economy in the context of sustainable development and poverty eradication” as one of the two themes of the conference.

Figure 1: Concept of a green economy in relation to sustainable development



Source: Poverty-Environment Partnership Joint Agency Paper, June 2012.

It identified the green economy as one of several approaches to achieve sustainable development, and in particular, that the green economy should “contribute to eradicating poverty, as well as sustained economic growth, enhancing social inclusion, improving human welfare, and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth’s ecosystem” (Outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”, paragraph 56). “Inclusive green economy” therefore emphasizes the need to enhance equity and redistributive justice, so that growth emanating from a green economy creates jobs, improves human welfare including poverty eradication, is resource efficient and enhances environmental assets, thus contributing to sustainable development.

For the purpose of this report, green economy and inclusive green economy are used interchangeably. Green growth refers to economic growth with desirable environmental and social outcomes spurred by targeted interventions in selected sectors of the economy with supporting enabling measures. In this regard, green growth arises from specific policy and institutional measures such as taxes, subsidies, regulatory frameworks and voluntary measures to transform a traditional economy to be responsive to environmental and social considerations (OECD, 2013)¹. Thus while green growth may not necessarily be inclusive, an inclusive green economy can only result from an economy that has green growth as a minimum requirement and social inclusiveness at its core. Hence, resource efficiency to reduce wastage in production and consumption while maintaining the structure and functions of ecosystems is at the core of a green growth strategy. Inclusive green growth strategy on the other hand deliberately seeks to reduce poverty and inequality within the framework of growth that is environmentally sustainable (World Bank, 2012; EEA, 2011).

¹ According to the Green Growth Knowledge Platform, the concept of green economy rests on the economy, the environment and the social pillars of sustainable development. Thus the concept of inclusive green economy and sustainable development are synonymous.

1.2 Why a green economy?

An inclusive green economy provides a credible opportunity for achieving sustainable development in Africa focusing on key sectors in which the greatest impact can be realized. It offers alternatives for tackling unique development challenges including persistent poverty and unemployment, threats of environmental degradation, vulnerability to climate change, and rapid population growth. Sub-Saharan Africa is the only region that has seen the number of people living in extreme poverty rise steadily, from 290 million in 1990 to 414 million in 2010, accounting for more than a third of people worldwide who are destitute. Natural resources which support the economic well-being of even the poor are threatened. Forests are disappearing at a fast rate in Africa, where 3.4 million hectares per year were cleared over the period from 2005 to 2010 (United Nations, 2013).

The potential for a green economy to generate further growth for Africa lies in the huge natural resource endowments that form the basis of economic growth for most countries. The region boasts 60 per cent of the world’s arable land, proven oil reserves of about 12 per cent of the world’s total, 40 per cent of gold, and between 80 to 90 per cent of chromium and platinum group metals. However, the non-inclusive nature of economic growth, and specific sectoral challenges including poor infrastructure and low human capital remain key challenges in the transformation of the continent (ECA, 2012).

The transition to an inclusive green economy in Africa could foster economic diversification, employment creation, enhanced access to basic services and reduced inequality and poverty. It could also generate wealth and promote pro-poor growth through building up natural capital on which the livelihood of the poor depends (UNEP, 2011a). However, uncertainties and risks to future economic growth that are inherent in replacing the conventional economic model with a green economy should not be ignored. In the run-up to Rio+20, there were concerns that the green economy could become a protectionism tool or conditionality for official development assistance, while the emphasis on low-carbon and high-technology development as critical for achieving green economy transition does not bring confidence in terms

of tackling equity and poverty in developing countries (OECD, 2012). Hence, transitioning to a green economy should in essence be designed as a comprehensive social, economic, political and sociocultural process of change, requiring political and social support due to concerns about fairness of distribution of costs and benefits that may occur during the transition, and about sustainability, to avoid mistakes of past transition processes (Davies, 2013).

Thus, the transition will require an intricate array of enabling measures including: (a) supportive institutions and policies on which the transition will be grounded; (b) policy instruments that encompass and serve as incentives and disincentives to foster the transition; (c) an environment that stimulates innovation and the adoption of green technologies that do not exclude any social group; (d) building capacity at all levels to implement inclusive green economy policies and strategies²; (e) adequate financing for the process, including mobilization of domestic and international resources and investments; and (f) a bolstered role of the private sector to complement the efforts of Governments in driving the transition. These and other supportive measures that may be deemed necessary depending on the specific country context should facilitate the transition for countries that seek to carry it out.

In the Africa Consensus Statement, which embodied the region's common position for the United Nations Conference on Sustainable Development African countries highlighted the importance of understanding the implications of the green economy paradigm for the region. They emphasized the need to properly plan the transition in a way that minimizes the potential adverse effects on certain groups or sectors over time. They also called for building the capacities of countries in green economy strategic policy formulation and coordination to ensure consistency with national development plans that relate to economic, social and environmental goals. In this regard, countries that wish to transition to an inclusive green economy may consider implementing several interrelated steps.

² United Nations Environment Programme, "Towards a green economy: pathways to sustainable development and poverty eradication", version 02.22.2011. Available from http://web.unep.org/greeneconomy/sites/unep.org.greeneconomy/files/field/image/green_economyreport_final_dec2011.pdf

First, the transition process should be embedded in long-term development plans that have fundamental impacts on achieving sustainable development³. This is consistent with the Consensus Statement which emphasised that the promotion of a green economy in the region should be underpinned by national objectives, social, economic and environmental development imperatives and the attainment of internationally agreed sustainable development commitments (ECA and others, 2011). However, most developing countries, particularly in sub-Saharan Africa, have limited technical and financial capacity to undertake green economy transitions at the scale that would make significant economic, environmental and social impacts. Thus, international support is needed to complement Africa's commitment to catalyse local actions for development programmes in the area of inclusive green growth.

Second, it may be necessary to mobilize international support to facilitate a rapid transition in countries that have decided to do so. In the outcome document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes, representatives of African member States reiterated that the region requires external support to complement its efforts, particularly in the face of new and emerging challenges. Support is required at several levels, including the planning stage, during which green economy policies and strategies have to be elaborated and assessments conducted to review requirements.⁴ The Africa Regional Implementation Meeting specifically pledged Africa's commitment to effectively engage in intergovernmental processes, to ensure that the region's priorities and concerns are adequately addressed in their outcomes, including the means of implementation (financing, technology development and transfer, and capacity development).

³ Examples include Mozambique' Green Economy Roadmap, Ethiopia's Climate- Resilient Green Economy Strategy, Rwanda's Green Growth and Climate Resilience Strategy, and South Africa's New Growth Path and Green Economy Accord.

⁴ United Nations Environment Programme, "Modelling global green investment scenarios: supporting the transition to a global green economy", version 02.22.2011. Available from http://www.unep.org/greeneconomy/Portals/88/documents/ger/13.0_Modelling.pdf.

Third, countries may consider conducting a thorough evaluation to identify their needs during the transition. This may include national assessments to identify the costs and benefits and green growth opportunities from the wide range of renewable and non-renewable resources of African countries.⁵ This would entail quantifying investments that promote sustainable use of natural resources and at the same time pave the way for, among other things, economic diversification, industrialization, innovation and technological development, an evidence-based institutional and policy shift, and the closing of financing gaps that constrain green investment.

Fourth, countries may also consider focusing initial efforts on understanding the challenges and opportunities for inclusive green growth in selected sectors. The Africa Regional Implementation Meeting of 2012 considered it “prudent to adopt a step-wise approach, focusing on selected sectors of the economy where targeted investments with accompanying enabling measures could spur inclusive green growth” (ECA, 2013). This is necessary to allay fears of risks associated with the uncertainties of the transition. It could also provide an opportunity to implement inclusive green growth strategies that allow for lesson learning and the development of the required tools and methodologies for designing and implementing policies, strategies and programmes that would contribute to the effective management of the transition.

The enabling measures for an inclusive green economy are a rallying point for all partners. Hence international support should aim at enhancing partnership for the inclusive green economy in Africa. During the Africa Regional Implementation Meeting, African countries committed to putting in place an enabling environment that would strengthen partnership with civil society, the private sector and other stakeholders, and enable business and industry, to ensure that green growth contributes to the overarching goal of poverty eradication. They also called upon the international community “to mobilize additional financial resources to support

African countries that so decide to develop and implement inclusive green growth strategies and plans” (ECA, 2013).

Furthermore, the Regional Implementation Meeting declared that African countries should be supported in their efforts to improve their competitiveness in the world market. In this context, economic integration and strengthening capacity and institutions are critical in the transition to an inclusive green economy. In the Rio+20 outcome document, entitled “The future we want”, heads of State and Government and high-level representatives reaffirmed the following: the means of implementation identified in Agenda 21; the Programme for the Further Implementation of Agenda 21; the Johannesburg Plan of Implementation; the Monterrey Consensus of the International Conference on Financing for Development; and the Doha Declaration on Financing for Development. They also highlighted the need for adequate financing, technology transfer and development, capacity-building and rule-based trade in order to promote sustainable development, and called upon the United Nations regional commissions, other United Nations organizations and bodies, and relevant intergovernmental and regional organizations to support developing countries, upon request, in implementing sustainable development, including through, among other things, green economy policies in the context of sustainable development and poverty eradication.⁶

1.3 Objective of the report

The objective of the present report, which is a joint publication of ECA and UNEP, is to examine and document the role and significance of various enabling measures that could facilitate a smooth transition to an inclusive green economy in Africa, taking into account the implications of such a transition for the region. The measures examined are: policies and institutions, policy instruments, technology development and transfer, capacity development, and financing the transition.

⁵ Organization for Economic Cooperation and Development, “Green growth and developing countries: a summary for policy makers”, June 2012. Available from <http://www.oecd.org/greengrowth/green-development/50526354.pdf>.

⁶ Resolution adopted by the General Assembly on 27 July 2012 (A/RES/66/288) adopting the Outcome Document of the United Nations Conference on Sustainable Development, entitled “The future we want”.

Specifically, the report

- (i) Analyses the implications of the transition to an inclusive green economy for Africa;
- (ii) Explores measures as they relate to the transition, and analyses trends in the application of the measures;
- (iii) Discusses challenges and opportunities for an inclusive green economy transition in Africa; and
- (iv) Puts forward policy recommendations that could enhance the adoption of enabling measures relevant for a smooth transition in Africa.

1.4 Methodology

The report was prepared through a comprehensive desk review of relevant reports and research papers. These included green economy and growth policies, strategies and road maps of Ethiopia, Mozambique, Rwanda and South Africa; five country case studies on inclusive green economy policies and structural transformation in Burkina Faso, Ethiopia, Gabon, Mozambique and Tunisia commissioned by ECA; and questionnaire surveys on inclusive green economy policies and structural transformation administered in the following nine countries: Cameroon, Ghana, Kenya, Mauritius, Republic of Congo, Rwanda, Senegal and South Africa. The report is complemented by two other reports, namely; *Inclusive Green Economy Policies and Structural Transformation in Selected African Countries* and *Integrated Assessment Tools and Methodologies for an Inclusive Green Economy in Africa*, both produced by ECA.

The preliminary draft of this report was subjected to an internal peer review process. An ad hoc expert group meeting held in September 2014 provided a platform for external peer reviewers to extensively critique the draft report with a view to identifying gaps, providing inputs and proposing revisions for finalizing the report. The external reviewers included experts in the fields of sustainable development, green economy, policies and institutions, economic instruments, financing sustainable development, private sector development, and technology and capacity development. The constructive comments, inputs and recommendations provided by the meeting informed the final report.

The findings of the present report, the report on integrated assessment tools and methodologies, and the report on inclusive green economy policies and structural transformation in selected Africa countries will contribute to informing in-depth work on inclusive green economy enablers in the context of structural transformation in Africa.

1.5 Outline of the report

The rest of the report is organized as follows. Chapter 2 discusses the implications of green economy transition for Africa. It notes that an increasing number of countries in Africa are taking steps aimed at fostering inclusive green growth and building a green economy. It uses selected country case studies in the region to highlight green economy investments that can drive growth and result in positive social and environmental impacts.

Chapter 3 analyses supporting institutions and policy frameworks for the transition. The chapter proceeds on the premise that institutions can guide and facilitate the transition to a green economy. It notes that as the transition process progresses, and as more and more African countries adopt green economy policies and strategies, decisions have to be made about the nature and role of institutions that must emerge to drive the implementation.

Chapter 4 explores policy instruments and their role in facilitating the transition. It notes the central role of policy instruments in stimulating and supporting behaviour and investments to foster the transition to an inclusive green economy. It also discusses the issues surrounding choice of policy instruments, including consistency with policy objectives; the importance of evidence of impacts; the policy context; and effectiveness of the instruments.

Chapter 5 examines the role of green technology development and transfer in ensuring a smooth transition. It explains why Africa's transition to an inclusive green economy will necessitate a shift from low productivity, inefficient, wasteful technologies to green technologies, and the challenges that must be surmounted and opportunities that must be harnessed for technology development and

transfer to foster the transition to an inclusive green economy in the region. The chapter also highlights actions that African countries must take to accelerate the implementation of appropriate measures to achieve this.

Chapter 6 explores capacity development for the transition. It explains why capacity development is necessary, and in particular, the crucial role of effective capacity development in enabling the transition. The chapter also highlights the capacity development needs identified by countries in their

green economy strategies and national sustainable development plans, and proffers some recommendations to scale up and ensure effective capacity development at various levels in the region.

Finally, chapter 7 presents and discusses financing as one of the key enabling measures for an inclusive green economy in Africa. It underlines the role that financing could play in the transition, highlights financing requirements and gaps, and explores possible sources and measures necessary to leverage traditional and mobilize innovative financing.

References

- Davies, A.R. (2013). Cleantech clusters: Transformational assemblages for a just, green economy or just business as usual? *Global Environmental Change*, vol. 23, pp. 1285-1295.
- Economic Commission for Africa (2012). Bridging the means of implementation gap: Key issues for Africa.
- (2013). Outcome document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes.
- Economic Commission for Africa, African Development Bank and African Union (2011). Africa Consensus Statement to Rio+20. The Africa Regional Preparatory Conference for the United Nations Conference on Sustainable Development (Rio+20), 20-25 October 2011, Addis Ababa, Ethiopia.
- European Environment Agency (2011). Europe's environment: An assessment of assessments. Available from <http://www.eea.europa.eu/publications/europes-environment-aoa>
- Organisation for Economic Cooperation and Development (2012). Green growth and developing countries. A summary for policy makers.
- (2013). A toolkit of policy options to support inclusive green growth. Submission to the G20 Development Working Group by AfDB, OECD, United Nations and World Bank. Available from <http://www.oecd.org/greengrowth/toolkit.pdf>.
- Pearce, D., A. Markandya, E. Barbier, (1989). *Blueprint for a green economy*. London: Earthscan Publications Ltd.
- Poverty-Environment Partnership (2012) Joint Agency Paper. Building an Inclusive Green Economy for All: Opportunities and Challenges for Overcoming Poverty and Inequality.
- United Nations Environment Programme (2010). *Green Economy: Developing Countries Success Stories*. Available from http://www.unep.org/pdf/greeneconomy_successstories.pdf.
- (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*.
- (2011a). *Modelling global green investment scenarios: Supporting the transition to a global green economy*.
- United Nations Research Institute for Social Development (2012). Social dimensions of green economy. UNRISD Research and Policy Brief 12.
- United Nations (2013). The millennium development goals report 2013.
- (2012). The future we want. Outcome Document of the United Nations Conference on Sustainable Development. Available from: <https://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf>.
- World Bank (2012). *Inclusive green growth: The pathway to sustainable development*.

2: Implications of the inclusive green economy transition for Africa

Key messages

An increasing number of African countries are taking steps aimed at fostering inclusive green growth and building a green economy. Several countries are already implementing inclusive green economy policies and strategies and leveraging the opportunities that an inclusive green economy development pathway offers.

Green economy investments drive growth and result in positive social impacts, particularly on poverty eradication. Green investments have improved agricultural yields and income for farmers. They also result in increased energy efficiency and enhanced deployment and access to renewable energy, and positively affect the poorest in society who rely on natural resources for their well-being.

A green economy creates jobs. With approximately 70 per cent of the population in Africa under 30 years of age, and an estimated 11 million youth expected to join the labour market every year, an inclusive green transition would create the economic space to absorb the growing labour force.

The benefits from the green economy vary by sector and country. Benefits can be harnessed in energy, agriculture, tourism, natural resource management, ecosystem goods and services and forestry, among other sectors. A green economy approach also improves the value of natural resources.

2.1 Introduction

Africa has embarked on a process of economic transformation. This process has seen solid and sustained growth over a decade, but it has been uneven and without a sufficiently firm foundation (AfDB, 2013). African countries continue to face many economic and social challenges. Although real GDP growth in the region averaged 3.9 per cent in 2014 and is expected to increase to 4.5 per cent in 2015 (ECA, 2015), challenges remain with 48.5 per cent of sub-Saharan Africans living in extreme poverty, 76 per cent of households without electricity, and 70 per cent without access to improved sanitation. Countries like Ethiopia will have to grow by at least 10 per cent per year to achieve middle income status by 2025 (WHO and UNICEF, 2014; ECA and others, 2015). Building on the broad concept of sustainable development, the green growth model provides an opportunity to achieve growth targets and development objectives in a more efficient, sustainable and resilient manner (AfDB, 2013).

Investing in a green economy is one way to achieve the required growth, while also being inclusive and green. By increasing renewable energy capacity, investing in cleaner public transport, or transitioning to greener agricultural practices, countries could create jobs, expand export opportunities and eradicate poverty. At a global level, the UNEP *Green Economy* report of 2011 demonstrated that a shift of investment into green industries impacts positively on GDP.

Most African economies are heavily reliant on exports of raw materials which often yield low prices and are vulnerable to commodity price shocks on the international market. The low value addition

to exports explains the high discrepancy between GDP growth and social outcomes in many countries. A transformative socioeconomic outcome can be achieved in Africa through the application of innovation and technology, better linkages between sectors, and equitable distribution of income. Hence, a green economy fashioned around a transformative agenda could result in positive social impacts, particularly on poverty eradication. The green economy could also solve the critical development challenges of the region. For example, in Kenya it is projected that a shift in investment to green sectors would lead to an additional 3.1 million people being lifted out of poverty by 2030, compared to brown investments (UNEP, 2014).

The environment is not only compatible with development, but green investment can also be a driver of growth. By continuing to gather evidence, and make the economic argument for environmental investment, African citizens can collectively build a green economy that addresses the transformative development needs of the region.

Any transition has associated challenges and opportunities. This chapter offers insights into the implications of a green economy transition in Africa. The insights are derived from country simulation studies, specifically in Burkina Faso, Kenya, Senegal and South Africa, which compared green economy investments of 2 per cent of GDP and a similar 2 per cent increase in investments in a business-as-usual scenario. The impacts vary by sector, institutions and country depending on initial conditions, the green economy strategy applied, and the risks and opportunities inherent in the economy.

2.2 Green economy assessments and related studies in Africa

A number of countries in Africa have embarked on a green economy transition. Ethiopia, Mozambique, Rwanda, and many other African Governments are now implementing green economy strategies. These strategies were developed through multi-stakeholder processes, and using detailed macroeconomic studies providing a framework for investments in

the green economy. Some of the green economy initiatives being implemented are in sectors such as sustainable agriculture, renewable energy, water, sustainable transport and natural resource management. Other examples ranging from solar water heaters in Tunisia, organic agriculture investment in Uganda, to geothermal energy in Kenya, show that green economy initiatives are generating jobs, raising incomes, creating export opportunities and bringing about positive environmental change.

Huge potential remains to further scale up green economy initiatives in Africa. Being at an early stage of development, African countries have a unique opportunity to chart a green economy future. For example, the number of Africans living in towns and cities will increase by 345 million between 2010 and 2030. In sub-Saharan Africa, the urban population will double, to almost 600 million (FAO, 2012) – African Governments have a choice of whether they want to invest in green urbanization, such as energy-efficient buildings and public transport, or rely on more conventional growth pathways. Investing in green sectors also has positive benefits on employment. Job creation is a particular challenge in Africa. As green sectors such as organic agriculture are often more labour intensive than resource intensive alternatives, sustainable investments can lead to an increase in jobs. For example, in Mauritius, a green economy results in over 25 per cent more green scenario compared to a conventional growth scenario (ILO, 2013⁷).

A green economy transition can also help Africa deal with environmental crises. Green investments can reduce air pollution, improve agricultural yields and increase forest cover. Though most African countries are not major greenhouse gas emitters, a green economy also results in lower greenhouse gas emissions across the continent without imposing unnecessary costs on the implementing countries. Green energy investments, for example, can also meet Africa's increasing demand for electricity. Africa is expected to dramatically increase the size of its electricity grid 250GW of capacity will be required between 2012 and 2030, a 150 per cent growth on current levels (IRENA, 2012). This offers a unique opportunity to invest in cleaner energy, and avoid locking in the

⁷ http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_184298.pdf.

carbon-intensive, polluting energy infrastructure experienced in other economies. Such a transition will leave Africa less reliant on international fuel markets, and the continent will benefit from the decreasing costs of renewable energy.

In general, natural resource management is a driver for growth, poverty eradication and job creation. Sectors which maintain and improve the natural environment can also be a source of growth. Since 1995, an estimated 486,000 work opportunities were created in South Africa in environmental rehabilitation programmes⁸. These sectors include activities from sustainable forest management to reducing the amount of invasive species.

In Ghana, Kenya, Mauritius, Mozambique, Senegal, and South Africa, green economy assessments have been undertaken or are underway with support from UNEP, regional bodies and various development partners. These consist of primarily quantitative assessments of green economy challenges and opportunities in key economic sectors. They aim to assess the feasibility and effectiveness of proposed interventions and investment scenarios, considering their economic, social and environmental impacts both in the short and the long run. This chapter mainly highlights the results of these assessments to understand the macro and sectoral economic, social

and environmental implications of the green economy transition in Africa.

The UNEP *Green Economy* report of 2011 demonstrated that global resources required for the world to transition would be approximately 2 per cent of GDP. The report reveals that a green economy can generate as much growth and employment as a brown economy, and outperforms the latter in the medium and long-term, while yielding significantly more environmental and social benefits. There are many risks and challenges along the way, though the biggest risk of all is to remain with the status quo and not engage in a transition towards a green economy. Following this report, country-level studies specifically in Burkina Faso, Kenya, Senegal and South Africa simulated green economy investments of 2 per cent of GDP using the T21 model (box 1) and this was compared with a similar 2 per cent increase in investments in a business-as-usual scenario. The results were used to estimate the implications of a green economy development pathway in these countries.

The main scenarios in the assessments were the following:

- The business-as-usual (BAU) or baseline scenario assumes no fundamental changes in policy or external conditions up to 2030;

Box 1: The T21 model

The Threshold 21 (T21) model is a System Dynamics model structured to analyse medium to long-term development issues. The model integrates in a single framework the economic, social, and environmental aspects of development planning. T21-World modelling structure includes both monetary and physical indicators, to fully analyse the impacts of investments on natural resources, low-carbon development, economic growth and job creation.

The T21 model and its foundation incorporate various methodologies, such as optimization (in the energy sector) and econometrics (in the economic sectors). The integrated global model is used to: (1) provide an integrated analysis and evaluation of investment choices; (2) generate projections of future developments (though acknowledging that long-term accurate projection cannot easily be produced, even when simulating a large number of endogenous key variables (Sarewitz, 2000)); (3) increase the understanding of the relations underlying the system analysed; and (4) bring consistency to models. The inclusion of cross-sectoral relationships - social, economic and environmental - allows for a wider analysis of policy implication by identifying potential side effects or longer-term bottlenecks for development. In other words, a policy can have very positive impacts for certain sectors and create negative impacts or others. Also, successful policies in the longer term may have negative short-term impacts, for which mitigating actions may be designed and implemented.

Source: UNEP, 2011.

⁸ UNEP Press release: Placing economic value on Africa's natural resources <http://www.unep.org/NEWSCENTRE/default.aspx?DocumentId=2756&ArticleId=9718>.

- The BAU 2% allocates an additional 2 per cent of GDP per annum as investments to the current BAU investment path; and
- The green economy (GE 2%) scenario assumes an additional 2 per cent of GDP per annum as green investments to the baseline.

The results of the assessments are highlighted in this chapter. In the two sectors of focus, agriculture and energy, investments in the green economy result in positive economic and social benefits. It should be pointed out, however, that green investment benefits can be harnessed not only in these sectors but also in tourism, ecosystem goods and services, and forestry, among other sectors. These benefits vary by sector and by country.

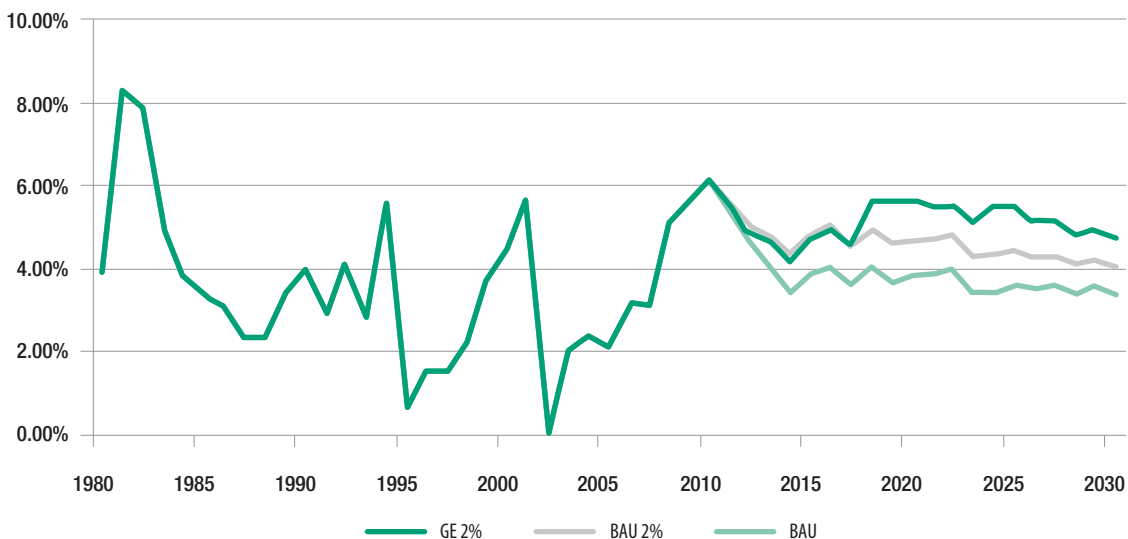
While the benefits of a green economy transition are clear, there are challenges in implementation, most notably in finance and long-term political commitment. For much of the transition to a green economy, finance barriers remain the principal block to scaling up green economy investments. Long-term political vision and leadership are also required to spearhead the transition. As noted in several studies, the returns on growth of green compared to brown investments are marginal in the short term. However, green investments begin to have positive social and economic returns in the medium to long term, with GDP consistently higher under green scenarios.

2.2.1 Economic implications

In agriculture, a dominant sector in most African economies, green investments could result in positive agricultural yields and revenue. Since the sector accounts for 32 per cent of Africa’s GDP and supports about 65 per cent of the labour force (AGRA, 2013), targeted green investments in the sector could yield the highest social impact and long-term positive results on the economy. For example, increased green investment results in increased agricultural production in Senegal, while green agriculture investments result in increased export opportunities in higher value-added activities, such as organic produce, in Uganda, further driving growth (UNEP, 2010).

Across Africa, studies have demonstrated that green investments can drive economic growth faster than business-as-usual investments. From the green economy assessment undertaken in Kenya, the real GDP is projected to exceed the business-as-usual investment scenario by about 12 per cent by 2030 (figure 2). In South Africa and Burkina Faso, increases in GDP were also observed, although the level of increase varies depending on the amount, and the way green investments were undertaken (UNEP, 2014a; UNEP, 2013). In Senegal, the green economy investment scenario would yield a higher real GDP growth rate compared to the same amount of investment being undertaken in the business-as-usual investment scenario in the medium to long term (UNEP, 2014b).

Figure 2: Kenya Real GDP growth in green economy investment scenario and business-as-usual scenario



Source: UNEP, 2014

The benefits of green investments tend to be felt over the medium to long term so that there is no significant change in GDP in the short run. Depending on the green economy investments undertaken in the various countries, benefits can sometimes take longer to materialize. In Kenya for example, results from the assessment report indicate that from an economy-wide perspective, positive economic returns are expected approximately 7-10 years after green economy policy interventions (UNEP, 2014).

Although economy-wide impacts are positive in the medium to long term, green economy investments may be associated with adjustment costs in the short run that lower the GDP compared to the business-as-usual investment scenario. This outcome points to the importance of green policies to deal with negative short-run impacts including prices of final goods and services, costs of operations and technology and to create different welfare costs and benefits for different segments of the population. In addition, the outcome is likely to depend on the type of green economy interventions or the policy package implemented. For example, increasing acreage under irrigation has a relatively stronger short-run impact on national output than afforestation and reforestation – it takes approximately eight years for a tree to mature. However, afforestation and reforestation increases long-term potential output from agriculture (UNEP, 2014).

Green fiscal policy reforms could help improve fiscal outcomes. According to the International Monetary Fund (IMF), the fiscal cost of fuel subsidies, taking into account both direct subsidies and foregone taxes, amounted to 1.4 per cent of the region's GDP in 2012 (IMF, 2013). Such environmentally harmful subsidies put further pressure on the fiscal balance of countries particularly when Governments across Africa need to balance low tax revenues with a high demand for social welfare support. Ghana, for example, ran a deficit equivalent to 12 per cent of GDP, significantly over the target (UNEP, 2014c). Green fiscal policy reform is not only a driver to create “fiscal space” for green investment and reduce the use of polluting energy sources, but also improves the Government's fiscal balance.

2.2.2 Social implications

Poverty eradication is arguably Africa's main priority. While progress has been made in recent years, 48.5 per cent of the sub-Saharan population lives on less than \$1.25 per day, and 69.9 per cent on less than \$2 a day (World Bank, 2014). Poor populations rely heavily on natural resources, meaning green economy interventions have greater impact on the poor. Indeed, natural resources generate between 50 and 90 per cent of the GDP of the poor in developing countries (TEEB, 2010). Increased investment in natural resource management, agriculture, and other areas are therefore often pro-poor.

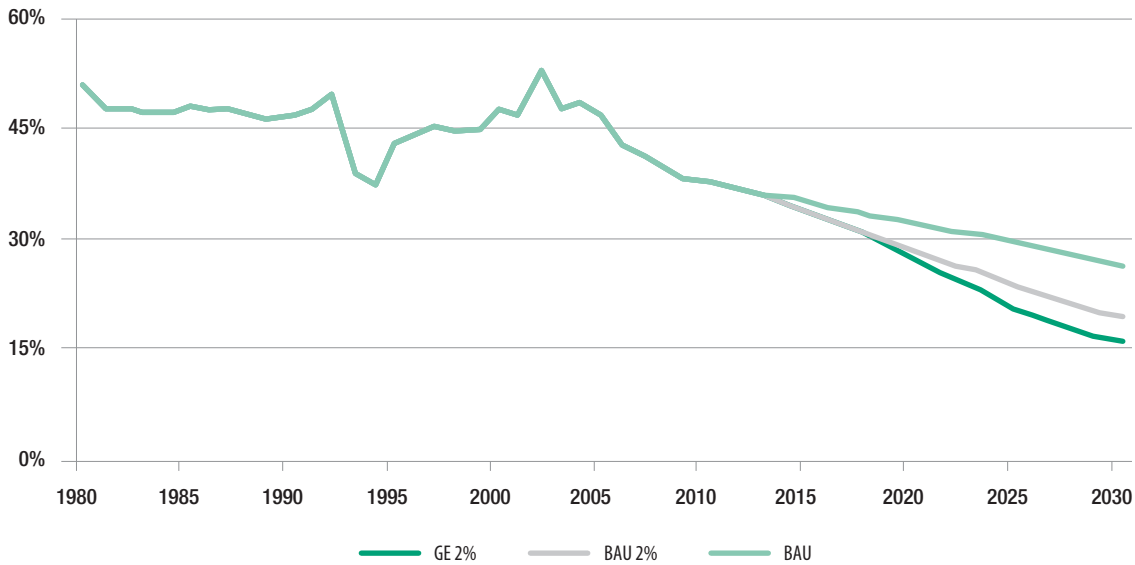
According to a number of studies, the green economy could deliver long-term poverty eradication. For example, in Kenya a 2 per cent of GDP increase in investment in green sectors reduces more poverty than a similar increase in business-as-usual investment. The proportion of the population below the poverty line under the green economy investment scenario is expected to be about 2 percentage points lower on average between 2015 and 2030 than that of the business-as-usual investment scenario (figure 3).

Similarly, green economy investments can reduce the urban-rural divide. Green sectors often involve rural populations. For example, in Senegal it was found that a green economy scenario is expected to see a smaller poverty gap between rural and urban areas. Poverty in rural areas is expected to be lower in the green economy scenario compared to the business-as-usual investment scenario (figure 4).

Governments may need to mitigate the impacts of green economy policies on certain communities. Although green economy policies in general have positive pro-poor benefits, certain communities may be affected negatively. For example, fuel subsidy reforms may increase living costs for some of the poorest communities that use fossil fuels. In February 2013, the Government of Ghana announced that the prices of petroleum products would be adjusted by between 15 and 50 per cent. Further adjustments in June 2013 resulted in a total elimination of subsidies on petroleum products and the price adjustment mechanism was restored in July 2013⁹. The

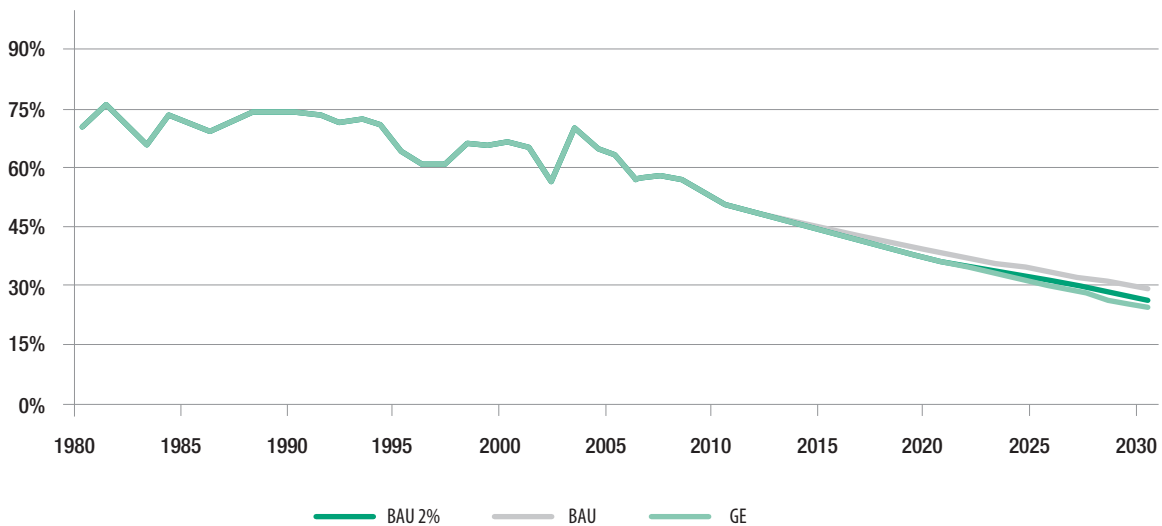
⁹ Premix remains subsidized.

Figure 3: Kenya Proportion of population below the poverty line



Source: UNEP, 2014.

Figure 4: Senegal Proportion of rural population below the poverty line



Source: UNEP, 2014b.

removal of fossil fuel subsidies has opened up fiscal space for enhancing social protection and welfare programmes (UNEP, 2014c).

2.2.3 Employment implications

Demographic shifts mean African Governments should be paying increasing attention to providing jobs. An increasing youth population, as well as urbanization, puts pressure on Governments to create new jobs. Around 70 per cent of the population in

Africa are under 30 (Euromonitor, 2013)¹⁰, and an estimated 11 million youth are expected to join the labour market every year (World Bank, 2014)¹¹. Millions of jobs will need to be created in order to meet this growing active population.

Governments in Africa are beginning to integrate green jobs strategies into their national planning processes. In Namibia, the National Employ-

¹⁰ <http://blog.euromonitor.com/2013/04/global-population-under-the-age-of-30-centered-in-emerging-markets.html>.

¹¹ <http://www.worldbank.org/en/region/afri/publication/new-report-outlines-priorities-to-address-africa-s-youth-employment-challenge>.

ment Policy (2013-2017) includes in its policy framework specific provisions on “Sustainable development: greening the economy and green jobs”, while in Senegal, the National Strategy for Economic and Social Development (2013-2017) includes specific objectives of promoting a green economy and green job creation. Other countries are establishing ambitious green jobs targets. In Tunisia, a green growth scenario (assuming implementation of planned programmes) would lead to 80,000 additional jobs by 2025, an 80 per cent increase on the 100,000 green jobs that already exist in the country. Finally, the South Africa Green Economy Accord seeks to create 300,000 new green jobs by 2020. In Mauritius, the Maurice Ile Durable (Sustainable Island) initiative aims to create 10 per cent more green jobs by 2020.

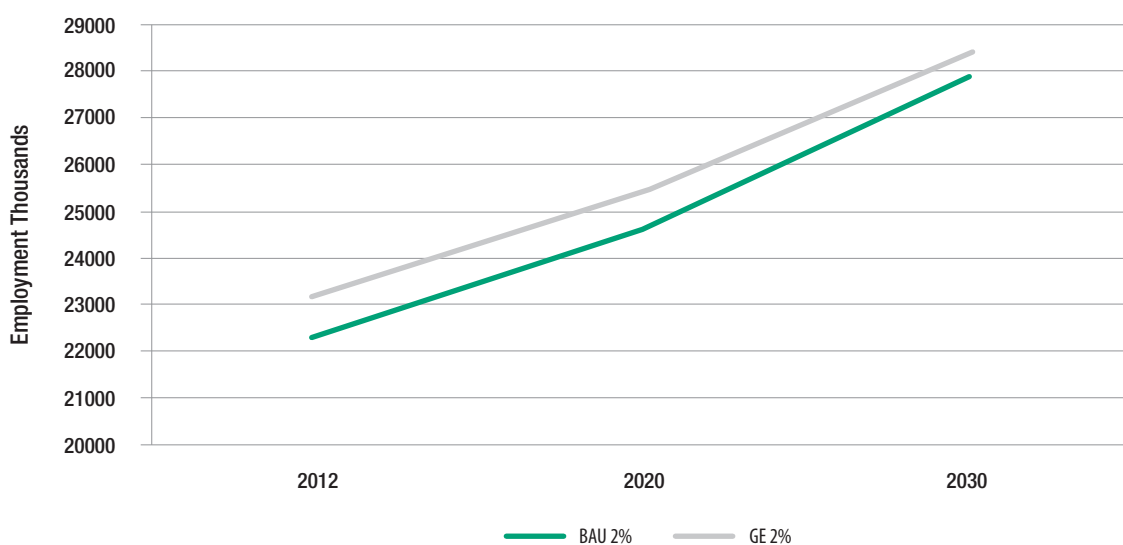
The foregoing suggests that investing in green economy initiatives results in positive employment outcomes, particularly investments in sectors that are relatively labour intensive such as sustainable agriculture, renewable energy and waste management. ILO research demonstrates that the employment multiplier is higher with investments in green sectors compared to conventional sectors. In South Africa, the modelling analysis shows that green economy investments stimulate job creation relative to the business-as-usual investment

scenario. Figure 5 shows that by investing in green economy, employment will be 3 per cent higher on average than the business-as-usual investment scenario between 2012 and 2030.

Green economy initiatives provide an avenue for the much needed job opportunities for the youth and women in the various communities in Africa. The green economy also provides an opportunity for new entrepreneurs to thrive. Women and youth in Africa should seize these opportunities to improve their livelihoods and at the same time contribute to building a green economy in their respective countries. For example, in Kenya the SEED initiative award winner Lorna Rutto co-founded Ecopost, an initiative, which develops fencing posts from recycled post-consumer waste plastic (box 2). Similarly, certain forms of farming, such as permaculture and organic farming practices or biomass production are ideal candidates for job creation under a green economy (box 3).

Despite the opportunities in terms of job creation, reskilling for the green sector can be a considerable challenge. Skills development and training will generate significant costs. Moreover, workers in certain sectors may lose out from a green transition, and Governments need to deal with this potential employment loss. While overall employment is set

Figure 5: South Africa Employment under green investments and business-as-usual investments



Source: UNEP, 2013.

to increase, certain sectors, such as coal-mining, will inevitably suffer a loss of jobs. Governments should work with businesses and labour groups to ensure such workers are provided with support to find new employment opportunities, including development of new skills.

2.2.4 Environmental implications

Investing in green industries will, by its very nature, have positive environmental impacts. A green economy would result in increased agricultural biodiversity, restored fish stocks, lower CO₂ emissions and a multitude of other positive environmental

Box 2: Green entrepreneurship developing fencing posts from recycled post-consumer waste plastic

One woman's success story shows how green entrepreneurship could be an answer to both youth unemployment and environmental degradation in Africa (ILO news). "Since Rutto started the company at the age of 24, she has created more than 500 jobs, saved over 250 hectares of forest and eliminated over 1 million kilos of waste from the environment. She has won a number of awards, including a prize in the green category of an ILO-sponsored business plan competition."

Lorna Rutto is the co-founder and director of EcoPost, a Kenyan-based social and green enterprise that recycles waste plastic into aesthetic, durable and environmentally-friendly fencing posts. The enterprise aims to address some of Kenya's main challenges in the area of waste management, deforestation and unemployment. Kenya generates over 10,000 tonnes of garbage every day but the lack of an organised system of waste management has resulted in crude dumping of the waste leading to heaps of garbage littering streets and open fields. In addition, the country faces massive and rapid deforestation. This is particularly alarming since less than 2 per cent of Kenya's land mass is covered by forests. When it comes to unemployment, some 500,000 of Kenya's youth (8 per cent being graduates) enter the job market every year with limited employment prospects.

The efforts of EcoPost have proven to register remarkable ecological and social impacts. So far, EcoPost has withdrawn over 1 million kilograms of plastic and saved an estimated 250 acres of forest. Plastic recycling also saves 2.5 kg CO₂/kg plastic resulting in the prevention of 2,500,000 kg of CO₂ emissions further mitigating climate change. In addition, the enterprise recruits its factory employees from nearby slums providing them full-time permanent jobs. Given this opportunity, many of them managed to move to better locations and make a living wage. EcoPost mainly receives its used plastic from waste collectors around Nairobi, most of whom were homeless with few prospects. Counting the waste collectors, EcoPost employs over 300 people who would otherwise be living in poverty.

Source: SEED Initiative: <http://www.seedinit.org/blog/articles/1424-the-circular-economy-and-opportunities-for-small-businesses.html>

Box 3: Women earn income from biomass production in Rwanda

In 2004, the women of the SAM Muhima community-based organization received a grant of \$73,500. The women started collecting garbage from 5,245 households, sorting and processing the waste into biomass fuel briquettes and organic compost fertilizer for agricultural production – both of which are in high demand. Since the project became operational, it has contributed to the reduction in deforestation and reduced depletion of soil nutrients by providing an alternative source of cooking fuel. Since 98 per cent of the Rwandan population uses charcoal and/or wood fuel for cooking, pressure on natural resources is great, and much of the country's tree cover has been eliminated.

This project currently employs 117 regular workers and an additional 10 to 25 part time workers. Nearly 90 per cent of these workers are women, with little or no formal education. Within a period of less than three months, project revenue brought the organization's bank account balance from zero to Rwandan Francs 5,157,500 (approximately \$9,350), and every worker has opened his or her own bank account. The local government has since copied this model and set up seven additional trash collecting cooperatives around Kigali.

Source: USAID, 2005. "Rwanda: Women Empowered Through Biomass Energy Production." http://pdf.usaid.gov/pdf_docs/pnaea039.pdf

externalities. African populations are particularly vulnerable to the impacts of climate change and other environmental risks, making environmental sustainability a priority.

While Africa is not a major greenhouse gas emitter, a green economy scenario demonstrates substantial reductions in the rate of growth of greenhouse gases compared to the business-as-usual investment scenario. In Senegal, emissions would be approximately 9 per cent lower than the business-as-usual case (26.7 million tons), with the same level of investments. In Ethiopia, the Government’s Climate Resilient Green Economy strategy has a target of limiting emissions by 2030 to around 150 million tons per year- which is 250 million tons less CO₂ emissions per year than estimated for the business as usual development path.

In Kenya, although as a result of green economy investments, CO₂ emissions are projected to increase from 12 million tons per year in 2012 to 24.35 million tons per year in 2030 in the agriculture and energy sector alone, emissions would be approximately 9 per cent lower than the business as usual 2% case (26.7 million tons) by 2030. Figure 6 shows the trends in CO₂ emissions from green investments and from business-as-usual investments in Kenya.

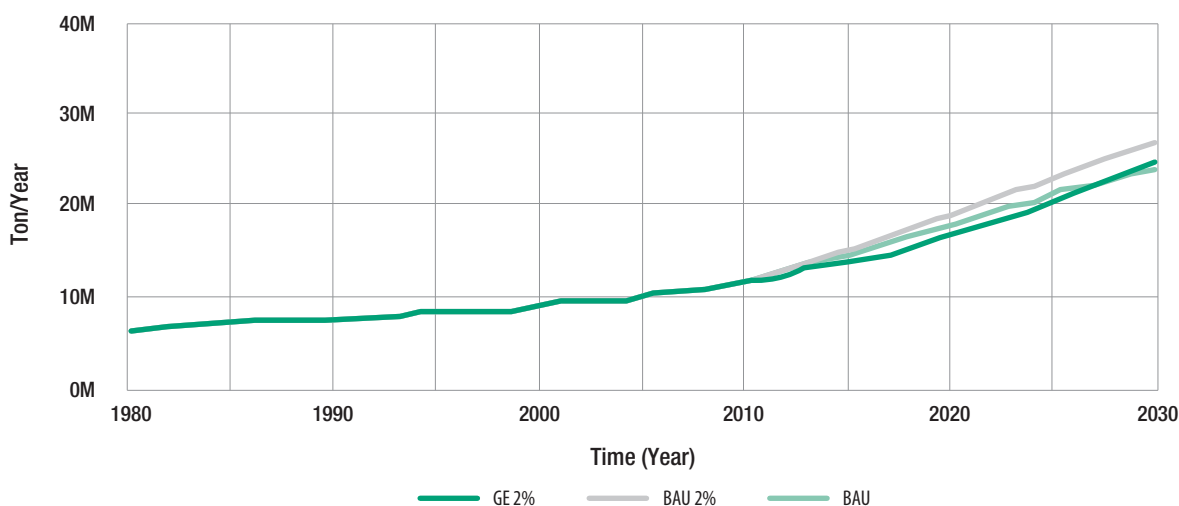
Overall, green investments in Africa will lead to an increase in emissions. However, due to the region’s level of development, the emissions will increase at

a lower rate than in a business-as-usual investment scenario (BAU 2%). To elaborate further, due to an increase in general investments in both the BAU 2% and GE 2% scenarios emissions will increase faster than in BAU (no-investments scenario). For example, with increased investments, energy consumption will increase leading to higher emissions. However, the emissions under GE 2% will increase at a lower rate than under BAU 2% since investments in renewable energy and energy efficiency and in natural resources will mitigate these effects. Similarly, investing in increased forest cover will help mitigate the effects of increased emissions and consequently climate change.

Forest cover is one sector where a green transition is expected to have major positive environmental benefits. Figure 7 shows the expected changes in forest cover in Senegal with a green economy scenario compared to a business-as-usual investment scenario. After the green investments, forest cover in the medium term would stop declining. This would generate increased opportunities in the forestry sector. Box 4 shows the implications of not investing in forest cover.

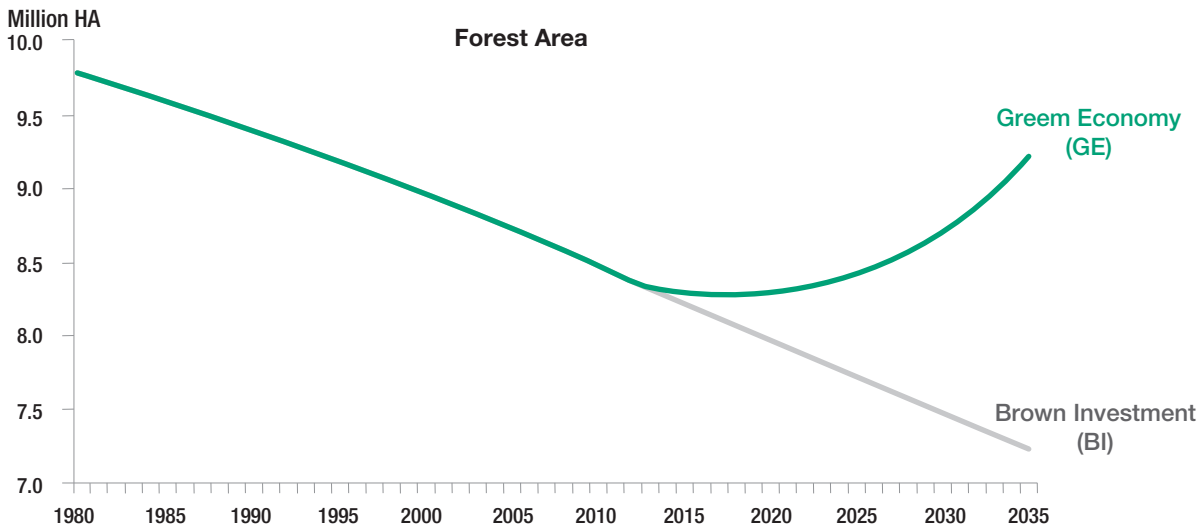
Another major positive environmental benefit will be a decrease in water stress. By investing in green activities, countries can also reduce their water stress. In South Africa, by investing in natural resource management, and in particular in land restoration, billions of tons of water can be saved (UNEP, 2013).

Figure 6: Kenya Fossil fuel emissions under green investments and business-as-usual investments



Source: UNEP, 2014.

Figure 7: Senegal Forest cover under green investments and business-as-usual investments



Source: UNEP, 2014b.

Box 4: Rwanda – Lesson from environmental degradation

Implications of environmental degradation in Rwanda.

Investing in green activities like reforestation and sustainable farming will curb environmental degradation. In 2006, the Government of Rwanda, with support from the Poverty-Environment Initiative, conducted an economic analysis of natural resource management. The study found that due to environmental degradation, poverty had increased, provincial health budgets were escalating, and soil loss of 15 million tons per year was in itself costing the country 2 per cent of its GDP annually. This was equivalent to a reduction in the country’s capacity to feed 40,000 people a year. The cost of electricity had increased by up to 167 per cent per unit cost following the degradation of the Gishwati forest and the Rugezi wetland. Siltation from soil erosion and the reduced water levels in the lakes and hydropower reservoirs downstream decreased electricity generation and resulted in an extra cost of \$65,000 per day as fossil fuel generated electricity replaced hydroelectricity. (PEI Africa, 2014)

Investments in the green economy have also enhanced the value of natural resources. Rural economies that rely on natural resources and ecosystems can explore biotrade, a fresh and complementary approach to sustainable development. Biotrade utilizes the comparative advantages of various products unique to a country or region. For example, marula oil, Kalahari melon seed oil, manketti oil and ximenia oil are products that are unique to the arid yet rich biodiversity of the Namibian economy. The results from the Namibia report illustrate the economic, ecological and social potential of biotrade, in terms of its role in Namibia’s transformation to a green economy. Biotrade could contribute to the overall economy and to the country’s poverty reduction efforts and could result in remarkable economic, environmental and social benefits to the country (UNEP, 2012).

2.3 Illustration of the implications of green investments in selected sectors

Green economy principles can be applied to any sector of the economy depending on country circumstances. In this section, the implications of green investments in the agriculture and energy sectors of some countries are discussed. These are sectors that offer quick-wins since both agriculture and energy have high backward and forward linkages, and are amenable to practical demonstrations given the availability of data.

2.3.1 Agriculture

Agriculture remains the dominant industry in Africa accounting for 32 per cent of GDP and about 65 per cent of the labour force (AGRA, 2013). In Kenya, for example, agriculture accounts for approximately one quarter of national GDP and 65 per cent of Kenya’s total exports. The sector also accounts for about 45 per cent of total employment in Kenya (UNEP, 2014). In Senegal, agriculture employs around 75 per cent of the working population and comprises 17 per cent of GDP. The Senegal assessment indicates that an increase in agricultural outcomes can have a significant impact on the lives of Senegal’s poorest (UNEP, 2014b).

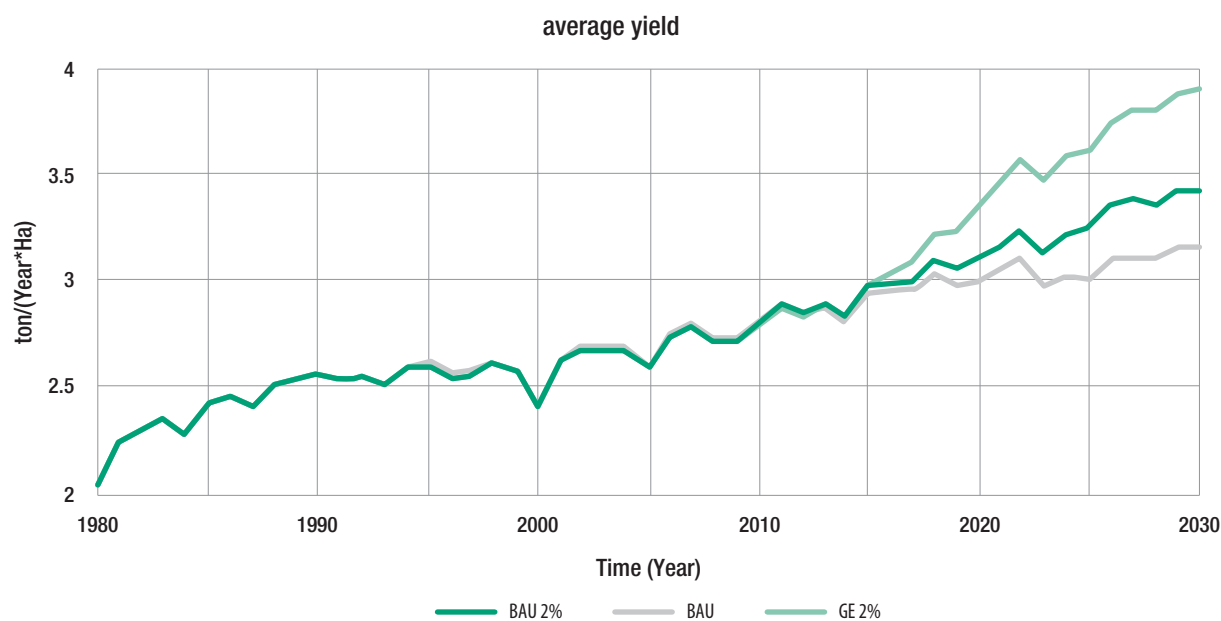
Greening the agricultural sector can result in improved yields and therefore increased incomes for rural communities.¹² According to studies, the use of ecological practices in Africa yields appreciable benefits in terms of productivity and production, at least in the medium term, by avoiding negative impacts on

soil quality (Pretty, et al., 2006). In Kenya, average agricultural yield under the green economy scenario would exceed that under a business-as-usual investment scenario by about 15 per cent by 2030 (figure 8). In South Africa, investments allocated to the adoption of ecological agriculture practices (such as organic fertilizer use) would provide a sustained increase (5.5 per cent if the Green Economy Accord strategy is implemented) in yield per hectare, as opposed to the short-term gains from the use of conventional fertilizers.

Over the long term, greening agriculture would also result in an increase in the amount of arable land. Figure 9 demonstrates the positive increase in arable land in a green economy investment scenario, compared to the equivalent brown investment, in Senegal.

Green agricultural practices can also increase the producer price and open up export opportunities. The increasing demand for organic and sustainably

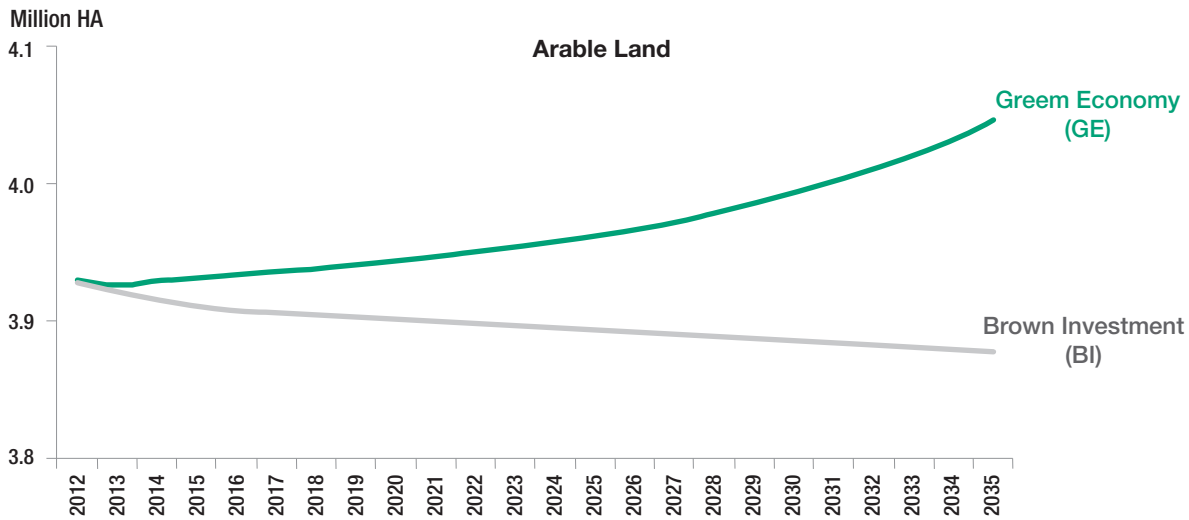
Figure 8: Kenya Average agriculture yield



Source: UNEP, 2014.

¹² Green agriculture involves a multitude of different practices and changes of behaviour. Green agriculture characterized by shifting both commercial and subsistence farming towards ecologically-sound farming practices, such as efficient use of water, extensive use of organic and natural soil nutrients, optimal tillage, integrated pest control and many other processes, reduces the environmental impact of farming (UNEP, 2011).

Figure 9: Senegal Arable land



Source: UNEP, 2014b.

farmed agricultural products, offers a great opportunity for African farmers. The global market for organic food and beverages is projected to grow to \$105 billion by 2015, from the total value of \$62.9 billion in 2011 (UNEP, 2013). Countries such as Uganda are already benefiting from this trend (box 5), and further investment in sustainable farming practices would open up additional export markets.

Food security in the short term in Africa is likely to remain a key concern under a green economy scenario. While investments in the business-as-usual scenario would suggest greater use of chemical fertilizers, which is projected to increase yields in the short run, this will impact negatively on food production in the long run. Green investments would result in higher productivity in the medium to long

Box 5: Organic agriculture in Uganda

In 2005/2006, 85 per cent of the population in Uganda was engaged in agricultural production, contributing to 42 per cent of GDP and 80 per cent of exports earnings. Uganda has taken important steps in transforming conventional agricultural production into an organic farming system, with significant benefits for its economy, society and the environment. Uganda is among the world’s lowest users of artificial fertilizers, at less than 2 per cent (or 1kg/ha) of the already very low continent-wide average of 9kg/ha in sub-Saharan Africa. The widespread lack of fertilizer use has been harnessed as a real opportunity to pursue organic forms of agricultural production, a policy direction widely embraced by Uganda.

By 2003, Uganda had the world’s thirteenth-largest land area under organic agricultural production and the most in Africa. By 2004, Uganda had around 185,000 ha of land under organic farming covering more than 2 per cent of agricultural land, with 45,000 certified farmers. By 2007, 296,203 hectares of land were under organic agricultural production with 206,803 certified farmers. This constituted an increase of 359 per cent in terms of number of farmers and 60 per cent in terms of acreage from 2002 to 2007.

As a significant producer of organic products, Uganda benefits from an important source of export earnings and revenue for farmers. Certified organic exports increased from \$3.7 million in 2003/4, to \$6.2 million in 2004/5, before jumping to \$22.8 million in 2007/8. In terms of price premiums and income for farmers, studies commissioned by UNEP and UNCTAD indicate that in 2006, the farm-gate prices of organic pineapple, ginger and vanilla were 300 per cent, 185 per cent, and 150 per cent higher, respectively, than conventional products. Through organic farming, Uganda not only gains economically, it also contributes to mitigating climate change, as greenhouse gas emissions per hectare are estimated to be on average 64 per cent lower than emissions from conventional farms.

Source: UNEP 2010, Green Economy Developing Countries Success Stories.

term through better land management practices and better market integration from improved infrastructure in the region. Hence in undertaking green economy investments in agriculture, policy makers must take necessary measures to ensure food security in the short term, especially where a decline in chemical fertilizer use could result in lower productivity in the short term.

2.3.2 Energy

The growing demand for energy across the African continent offers a unique opportunity to lock in cleaner energy capacity. Africa is expected to add 250GW of electricity capacity by 2030, a 150 per cent rise on current capacity. A shift to green energy would present an economic opportunity through increased energy supply and improved energy efficiency. Increasing investment in geothermal, solar and wind power, hydroelectricity and biofuels has environmental, economic and social benefits. For example, increasing investment would lead to lower energy costs and greater connectivity, and hence to better costs of doing business, and better services in health and education, among others.

A transition to cleaner energy could result in increased energy independence with lower marginal costs. Currently, many African countries are net importers of fossil fuels. However, the region's wind, hydro and solar potential is enough to power the population many times over, as 93 per cent of Africa's natural and renewable energy resources remain untapped (IRENA, 2012). Renewable energy therefore has the potential to reduce Africa's dependence on foreign energy sources.

A clean energy revolution can also increase connectivity across the continent. About 58 per cent of the African population does not have access to electricity¹³. Often they rely on non-renewable biomass or on expensive portable fossil fuels, such as kerosene. Investing in off-grid technologies such as mini-solar grids and small-scale hydroelectric plants, has the potential to rapidly increase connectivity.

In the short run, such energy investments may require additional support. The up-front cost of renewable energy is high, despite recent falls in prices. In the past, deployment of renewables was hampered by a number of barriers including their high up-front costs. Today's renewable power generation technologies are increasingly cost-competitive and are now the most economic option for off-grid electrification in most areas, and in locations with good resources, the best option for centralized grid supply and extension (IRENA 2012). Governments therefore will need to tap into additional financing streams: the Green Climate Fund under the United Nations Framework Convention on Climate Change, for example, is one avenue through which the international community can support clean energy investments with large-scale financial support. Notably, Kenya and Ethiopia have accessed Climate Investment Funds for renewable energy development.

Energy efficiency is also an opportunity for Africa. A green economy contributes to energy efficiency and results in a reduction in energy demand and lowered investments in power supply especially if implemented simultaneously with resource efficient and cleaner production programmes. Indeed, a 2 per cent (of GDP) investment in the green economy distributed equally among all sectors, including energy efficiency, would result in a reduction of energy demand compared to a 2 per cent increase elsewhere. In South Africa, the reduction that could be achieved is comparable to the capacity of the large coal power stations that are under construction in the country. In Rwanda, the electricity supply is projected to increase if electricity generation activities are implemented. By 2020, it will reach 511,165 MWh from hydropower; 24,143 MWh from solar; 910,603 MWh from geothermal; and 576,074 from methane gas. This provides the potential to replace the diesel generators that were put in place as an emergency back-up in 2004, but have since been in full operation. It is estimated that the total capital investment required to develop geothermal, hydropower, methane gas and peat energy will reach 1,657 billion Rwandan francs by 2018, while the operations and maintenance expenditures will total 69,133 million Rwandan francs (UNEP, 2014d).

¹³ http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf.

2.4 Summary of the implications of transition to a green economy in Africa

Overall, Africa could benefit from the transition to an inclusive green economy that offers a development path for addressing poverty, economic stagnation, unemployment, and vulnerability to environmental risks and ecological scarcities. This chapter has provided insights into the opportunities and challenges of a green economy transition in Africa and highlighted some measures to overcome the challenges. Table 1 gives a summary of these:

The results from the various assessment studies discussed in this chapter demonstrate that there is a case for green economy in Africa. The studies were conducted across a wide section of countries in Africa, including small and larger economies and with different resource endowments. The studies also demonstrated that the transition would have both positive and negative implications. However, the benefits would exceed the costs when countries identify key sectors with greatest economic, social and environmental impacts. These low hanging fruits should be harnessed by creating an enabling environment for green investments to flourish.

Table 1: Summary of opportunities and challenges of transition to a green economy in Africa

Area	Opportunities	Challenges
Economic	<ul style="list-style-type: none"> Economic growth (GDP) in the medium to long term New revenue streams from environmental fiscal reforms Increased export opportunities 	<ul style="list-style-type: none"> No significant change in GDP in the short run High initial costs of investments Weak fiscal policies Lack of policies to mitigate negative impacts of the transition
Social	<ul style="list-style-type: none"> Lower poverty rates Higher per capita incomes Increase in employment 	<ul style="list-style-type: none"> Potential employment loss e.g. coal mining sector Cost on the poor especially from fiscal reforms Higher prices of green products (e.g. organic agriculture) Higher cost of reskilling
Environmental	<ul style="list-style-type: none"> Increase in forest cover Decrease in water stress Lower carbon emissions compared to BAU investments Improved natural resource management 	<ul style="list-style-type: none"> Increase in investments could lead to general increase in CO₂ emissions due to increased productivity and increased consumption in Africa.
Agriculture	<ul style="list-style-type: none"> Higher productivity Increase in arable land Positive impact on rural incomes – decrease in rural urban income gap Increased export opportunities 	<ul style="list-style-type: none"> Could result in lower productivity in the short run for crops that highly depend on chemical fertilizers. Increase in acreage under cultivation could have negative environmental impacts if not managed properly.
Energy	<ul style="list-style-type: none"> Increased energy supply Lower energy costs Greater connectivity (hence better costs of doing business, better health and education services) Improved energy efficiency 	<ul style="list-style-type: none"> High capital costs especially of infrastructure and technology
General	<ul style="list-style-type: none"> Improved well-being and lifestyles High potential for replication Increased confidence among the population 	<ul style="list-style-type: none"> Inertia among population and political class Capacity (skills and technology) for implementation

2.5 Enabling conditions

The transition to a green economy will not happen automatically, certain “enabling” conditions need to be created so that various stakeholders, including public and private actors, have an incentive to invest in green economy initiatives. Countries need to put in place relevant enabling conditions to facilitate the transition to a green economy.

Enabling conditions are defined as conditions that make green activities attractive opportunities for investors and businesses. If the right mix of fiscal measures, laws, norms, international frameworks, know-how and infrastructure is in place, then the green economy should emerge as a result of general economic activity (UNEP 2011). In addition to these policies, creating the right conditions in the investment environment requires a combination of capacity, information, dissemination of good policy practice, social assistance, skills, general education and awareness to make sure that green measures are well designed, implemented, enforced and understood, without causing unintended impacts or being prevented by practical or political challenges (UNEP 2011).

The summary of the implications of the transition (table 1) alludes to several enabling measures. Some of these are discussed in subsequent chapters of the present report, which focus on enabling conditions, and in particular, explore key measures that should be in place as countries transition to a green economy.

First, appropriate institutions and policies create an environment where green economy investments can thrive. From the assessment and scoping studies, it emerged that many countries in Africa are already implementing various green economy initiatives,

guided in one form or the other by a policy or strategy. The fundamental challenge is to mainstream and align these green economy activities across the social, economic and environmental spheres of society. Countries that already have existing green economy strategies or road maps such as Rwanda, Ethiopia and Mozambique require support to implement green economy initiatives.

Second, conditions must be established that make it possible for African countries to move towards a green economy. Some of the challenges of the transition could be solved by adequate financing for green investments, technology and innovation, and developing capacity for both public and private sector to engage and identify opportunities in the green economy. For example, financial support to green economy investments through the Climate Investment Fund for renewable energy development in Kenya and Ethiopia, and the budget allocation to the Green Fund in South Africa were critical in advancing various initiatives in the three countries.

The key enabling conditions identified to facilitate a smooth transition and discussed in subsequent chapters of the present report are: strengthening institutions and adopting appropriate policies; deploying policy instruments for a green economy; enhancing technology development and transfer; developing capacity for the transition; mobilizing financing resources, both domestic and international; and recognizing the critical role of the private sector and providing an enabling policy environment for their operations, which cut across all the enablers mentioned above, thus calling for the mainstreaming of private sector interventions across the board. The private sector role and interventions are therefore treated as cross cutting in the report.

References

- African Development Bank (2013). *African Economic Outlook*.
- African Development Bank Group (2012). Africa in 50 Years Time – the Road Towards Inclusive Growth, briefing paper for AfDB long-term strategy. Available at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Africa%20in%2050%20Years%20Time.pdf>.
- Alliance for a Green Revolution in Africa (2013). Africa Agriculture Status Report: Focus on Staple Crops. Nairobi, Kenya. Available from <http://www.farmaf.org/en/publications-and-resources/related-materials/54-the-africa-agriculture-status-report-focus-on-staple-crops-2013>.
- Economic Commission for Africa (2015). Economic Report on Africa 2015: Industrializing Through Trade.
- Economic Commission for Africa, African Union, African Development Bank and United Nations Development Programme (2015). MDG Report 2015: Assessing Progress in Africa toward the Millennium Development Goals. Available from: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/MDG_Report_2015.pdf
- FAO. 2012. Growing greener cities in Africa. First status report on urban and peri-urban horticulture in Africa. Food and Agriculture Organization, Rome.
- International Monetary Fund (2013). Energy Subsidy Reform in Sub-Saharan Africa: Experiences and Lessons. Washington, D.C. Available from <https://www.imf.org/external/pubs/ft/dp/2013/afr1302.pdf>.
- International Renewable Energy Agency (2012). Renewable Power Generation Costs. Available from http://irena.org/DocumentDownloads/Publications/Overview_Renewable%20Power%20Generation%20Costs%20in%202012.pdf.
- Pretty, J.N. et al. (2006). Resource-Conserving Agriculture Increases Yields in Developing Countries. *Environmental Science and Technology*, 40(4).
- The Economics of Ecosystems and Biodiversity Study Reports (2010). Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB. Available from <http://www.unep.org/pdf/LinkClick.pdf>.
- United Nations Environment Programme (2010). *Green Economy: Developing Countries Success Stories*. Available from http://www.unep.org/pdf/greeneconomy_successstories.pdf.
- (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. (2012). *Green Economy Sectoral Study: BioTrade – A catalyst for transitioning to a green economy in Namibia*.
- (2013). *Green Economy Modelling Report of South Africa Focus on Natural Resource Management, Agriculture, Transport and Energy Sectors*. Available from https://www.environment.gov.za/sites/default/files/docs/greeneconomy_modellingreport.pdf
- (2014). *Green Economy Assessment Report – Kenya*. Available from http://www.greengrowth-knowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf
- (2014a). Green Economy Assessment Study – Burkina Faso.
- (2014b). *Green Economy Assessment Report – Senegal*.
- (2014c). *Fiscal Space Report – Ghana*.
- (2014d). *Green Economy Sectoral Study on Energy - Rwanda*.
- United States Agency for International Development (2005). Energy Update: Powering Economic and Social Development through Expanded Access to Modern Energy Services, Issue 1: pp 6-8.
- World Bank (2014). World Development Indicators 2014. Available from <http://data.worldbank.org/data-catalog/world-development-indicators>.
- World Health Organization and United Nations Children's Fund (2014). Progress on sanitation and drinking-water - 2014 update. Available from: http://www.unicef.org/gambia/Progress_on_drinking_water_and_sanitation_2014_update.pdf.

3: Institutions and policies for an inclusive green economy in Africa

Key messages

The successful transition to an inclusive green economy in Africa will depend on several institutional factors. These include the strength and effectiveness of institutions, vision of the leadership, quality of technical and financial planning and coordination processes, depth of stakeholder engagement, governance of institutions, and transparency in the implementation and monitoring processes.

African countries have stepped up the development and implementation of inclusive green economy policies and strategies. They include those that are stand-alone, and those that have been mainstreamed into existing national policy frameworks, or both. However, more needs to be done in terms of strengthening the inclusiveness aspects and integrating social sector institutions in the planning and implementation process.

Sustainable development policies and strategies that embody the economic, social and environmental dimensions can provide a broad framework for inclusive green economy strategic planning and policy process. However, the inclusive green economy strategic process would need to be supported by sectoral strategies that promote inclusive green growth to kick-start and inform the transition to inclusive green economies.

Good economic and political governance are critical for building inclusive green economies that promote the meaningful participation of all stakeholders. Countries should therefore continue to foster a governance environment that encourages citizens' participation and access to resources and information.

Transitioning to an inclusive green economy not only entails “win-win” outcomes in terms of broad-based economic growth, environmental management and protection, and social development, but also involves trade-offs, including favouring long-run and sustainable wealth over short-term returns. Trade-offs are between the social and economic benefits arising from development and any resulting environmental and welfare impacts from natural resource depletion, exclusion, unfair benefit sharing, pollution and ecological degradation.

3.1 Introduction

Implementing a green economy transition that leverages natural assets for economic and social transformation is crucial to Africa's quest for sustainable development. However, well constituted, strong and effective institutions, as well as sound policies are required for the transition to become a reality. Institutions guarantee certain “enabling conditions” for coordinating and implementing green economy strategies at the national, subregional and regional levels. Critically, national level institutional set-ups should be robust for effective translation of green economy objectives into transformative actions supporting national development plans.

Institutions may be defined as systems of established and prevalent social rules that structure social interactions (Hodgson, 2006). Lin and Nugent (1995, pp. 2306-2307) see institutions as a set of humanly devised behavioural rules that govern and shape the interactions of human beings, in part by helping them to form expectations of what other people will do, whether political, social, or economic. “Institu-

tions are the kinds of structures that matter most in the social realm: they make up the stuff of social life” (Hodgson, 2006, p. 2). Institutions, however, go beyond “social rules” and may include well-established arrangements, structures or specific agencies, both private and public that enforce social rules. Specifically, this chapter discusses institutions starting from the high-level national entities facilitating government efforts in the transition to a green economy, to subregional and regional entities that support national Governments in the process.¹⁴

Policy refers to a broad concept that embodies several different dimensions. Policy development involves the selection of choices about the most appropriate means to a desired end. A policy decision is the result of a method, which in theory at least, considers a range of options and the potential impact of each (Torjman, 2005). Public policy seeks to achieve a desired goal that is considered to be in the best interest of all members of society. Examples include clean air, clean water, good health, high employment, an innovative economy, active trade, high educational attainment, decent and affordable housing, minimal levels of poverty, improved literacy, environment quality, climate resilience, low crime and a socially cohesive society, to name a few.

In order to eradicate poverty and to achieve international development goals, and also to develop the necessary infrastructure to provide clean water, energy for all, and to transition to a low-carbon and resource-efficient economy, and preserve biodiversity and ecosystem services, a review of the role of the State is an essential ingredient (ODI, 2006). Institutions greatly improve developmental governance, for example through coherent policy formulation, effective public administration, limiting corruption, and the design and implementation of an inclusive green economy strategy that ensures a balanced integration of the environmental, social, and economic dimensions of sustainable development (PEP, 2012; Alence, 2004). Improving institutions and their ability to enable the right frameworks is critical so

that all actors can deliver on their shared responsibility and ensure better coordination and policy implementation for an inclusive green economy (The Guardian, 2012).

The African Consensus Statement to Rio+20¹⁵ acknowledges and emphasizes that the critical foundation for sustainable development lies in strong and responsive institutions, good governance, wealth creation, social equity and equality, poverty eradication and environmental sustainability, and sustained progress in the achievement of internationally agreed commitments, including the Millennium Development Goals (ECA, 2011a).

This chapter discusses the fundamental and overarching role of institutions and policies in fostering the inclusive green economy agenda in Africa. It presents channels through which institutions and policies can guide and facilitate the transition to an inclusive green economy, including through enhancing the integration of the three dimensions of sustainable development, and strengthening coordination and collaboration among actors. It also discusses existing trends, highlighting in particular emerging national institutional set-ups that are supporting implementation of inclusive green economy policies and strategies, and how the policies are aligned with or integrated into national development plans. The challenges and opportunities for strengthening institutions and policies in support of an inclusive green economy are also highlighted, including institutions at the regional and subregional level that are increasing their synergy in building institutional and policy capacity in the region. The chapter concludes with some policy recommendations on the basis of the findings.

¹⁴ Within the context of sustainable development, ECA (2005) took stock of the institutionalization of national councils for sustainable development. This chapter draws on a questionnaire survey and case study reports to analyse the institution landscape that is forming across Africa to support the implementation of the green economy transition.

¹⁵ Other major regional forums and documents where the role of institutions and policies for an inclusive green economy in Africa is set out include: the Outcome Document of Rio+20 (UN, 2012); the Africa Regional Implementation Meeting for the Rio+20 follow-up processes held in November 2012 (ECA, 2012a); the seventh Joint ECA Conference of African Ministers of Finance, Planning and Economic Development and the African Union Conference of Ministers of Economy and Finance in 2014; the Africa regional report on the Sustainable Development Goals that informed the Africa Regional Consultative Meeting held in October/November 2013.

3.2 Role of institutions and policies in advancing an inclusive green economy

Institutions can play important roles in advancing an inclusive green economy, critically, in establishing sound regulatory frameworks, prioritizing government investment and spending in support of an inclusive green economy, limiting government spending in areas that deplete natural capital, imposing taxes and market-based instruments (see chapter 4) to promote green investment and innovation, and investing in capacity-building, training, education and awareness creation (see chapter 6). A well-rounded institution for advancing the green economy would have policy priorities that include reforming the economic incentives framework, promoting sustainable infrastructure investment, and also facilitating investment in human capital and natural resources management and preservation (UNDESA, 2012).

Enhancing integration of the three dimensions of sustainable development

An inclusive green economy is a vehicle for achieving sustainable development, which is generally regarded as the integration of its three dimensions economic, social and environmental, with clear and strong linkages. An inclusive green economy should therefore foster a balanced integration of the three dimensions of sustainable development (ECA, 2008; ECA, 2012a). This should of necessity be facilitated by institutions and policies that promote integrated and interlinked approaches. It needs to be supported by development-led policies and concerted actions to ensure outcomes are inclusive across and within countries (UNCTAD, 2011; Gaspartos and Stevens, 2015). Countries should therefore be supported to implement holistic or system-wide inclusive green economy policies, strategies and institutional systems (ECA and OECD, 2014).

In Africa, most development plans are aimed at structurally transforming the economy. However, countries in the region are yet to realize their vision of such transformation, regardless of the planning phases and approaches adopted. Achieving structural transformation requires a more inclusive approach to planning, more effective mechanisms of implementation and robust monitoring and eva-

luation systems that track progress and take corrective measures to improve implementation¹⁶. Most importantly, it requires stronger involvement and engagement of national ministries of finance, economic development and planning, as prime movers (Toman, 2012).

Institutions and strategies that promote holistic and integrated approaches are needed to enhance integration within the economic-social-environmental dimensions of sustainable development¹⁷. Policymakers have at least three possible options in pursuing inclusive green economy objectives: developing a stand-alone inclusive green economy plan; mainstreaming an inclusive green economy strategy into the existing national policy frameworks (e.g. Burkina Faso, Gabon, Tunisia); or adopting a strategy mix that combines the two (e.g. Ethiopia, Kenya, Mozambique, Rwanda).

Clear institutional mandates and the support of government leaders and stakeholders are of utmost importance for establishing integrated policies (GGBP, 2014). Apart from mandates, location within the government institutional machinery is also important for clout and authority. For instance, although implementation of the Climate-Resilient Green Economy Strategy of Ethiopia was led by the Ministry of Finance and Economic Development, overall coordination is carried out by the Prime Minister's Office, signalling a strong message throughout the government ministries that the green economy is a priority in the country (box 6).

Integration is also about stakeholder participation. Institutions at national level can play the role of facilitating the participation of all relevant stakeholders, particularly if they have strong coordination and consultation mechanisms. Thus an integrated framework is both multi-institutional (multi-agency) and multidisciplinary and allows for checks

¹⁶ <http://www.uneca.org/stories/planning-africa%E2%80%99s-development>.

¹⁷ The Africa Regional Implementation Meeting (ECA, 2012a) reaffirmed the key role of all levels of government and legislative bodies in promoting sustainable development. It also requested ECA, the African Union Commission, AfDB, regional economic communities, UNEP, UNDP and other partners to continue and step up efforts to provide the necessary facilitation and coordination support towards the effective implementation of the Rio+20 outcomes to support sustainable development efforts in Africa.

and balances to be inbuilt in the system. In this regard, inclusive green economy policies should be supported by a combination of interventions and instruments covering all relevant sectors, including price-based policies, norms and regulations, public production and investment, information creation and dissemination, education and moral suasion, and industrial and innovation policies. Integration should also be the basis for operation, and in the context of the policy cycle, this implies wider stakeholder consultation and engagement in policy development, implementation, monitoring, evaluation and feedback.

Strengthening coordination and collaboration mechanisms

A coordination mechanism is important for harnessing synergies among stakeholders, and for informing trade-offs when the latter is necessary. Institutions can also ensure consistency and coherence of policies covering the three dimensions of sustainable development. In most countries, coordination among government ministries, agencies and other stakeholders and their decentralized structures is mostly assured through various multi-stakeholder committees, which allow for direct communication and cooperation. For example, in the Ethiopian case, the Climate-Resilient Green Economy strategy and the second Growth and Transformation Plan are mutually reinforcing in all three dimensions. At na-

tional level, a broad range of sector-specific green activities have been launched and integrated into phase two of the Plan, consistent with the objectives of achieving a sustainable economic, environmental and social transformation in the long term (i.e. CRGE objective). From priority sectors, to overarching objectives identified, both the Growth and Transformation Plan and CRGE use consistently similar indicators (figure 10). Some of these were originally selected for CRGE and then mainstreamed into the second Plan as part of policy integration and reformulation of the Growth and Transformation Plan.

Promoting win-wins and dealing with trade-offs

Institutions play a key role in assisting Governments in decision-making, providing clear guidance on policy tools and instruments, regulations and indicators of achievement (ECA, 2005). In this regard, an integrated framework for policy analysis is key. Functional and well-coordinated institutions will deploy tools and methodologies that enable this integrated analysis to inform implementation. Also, wide consultation with all stakeholders at the outset and communicating the challenges and opportunities in an unambiguous manner should be a priority of an institutional set-up to support the green economy.

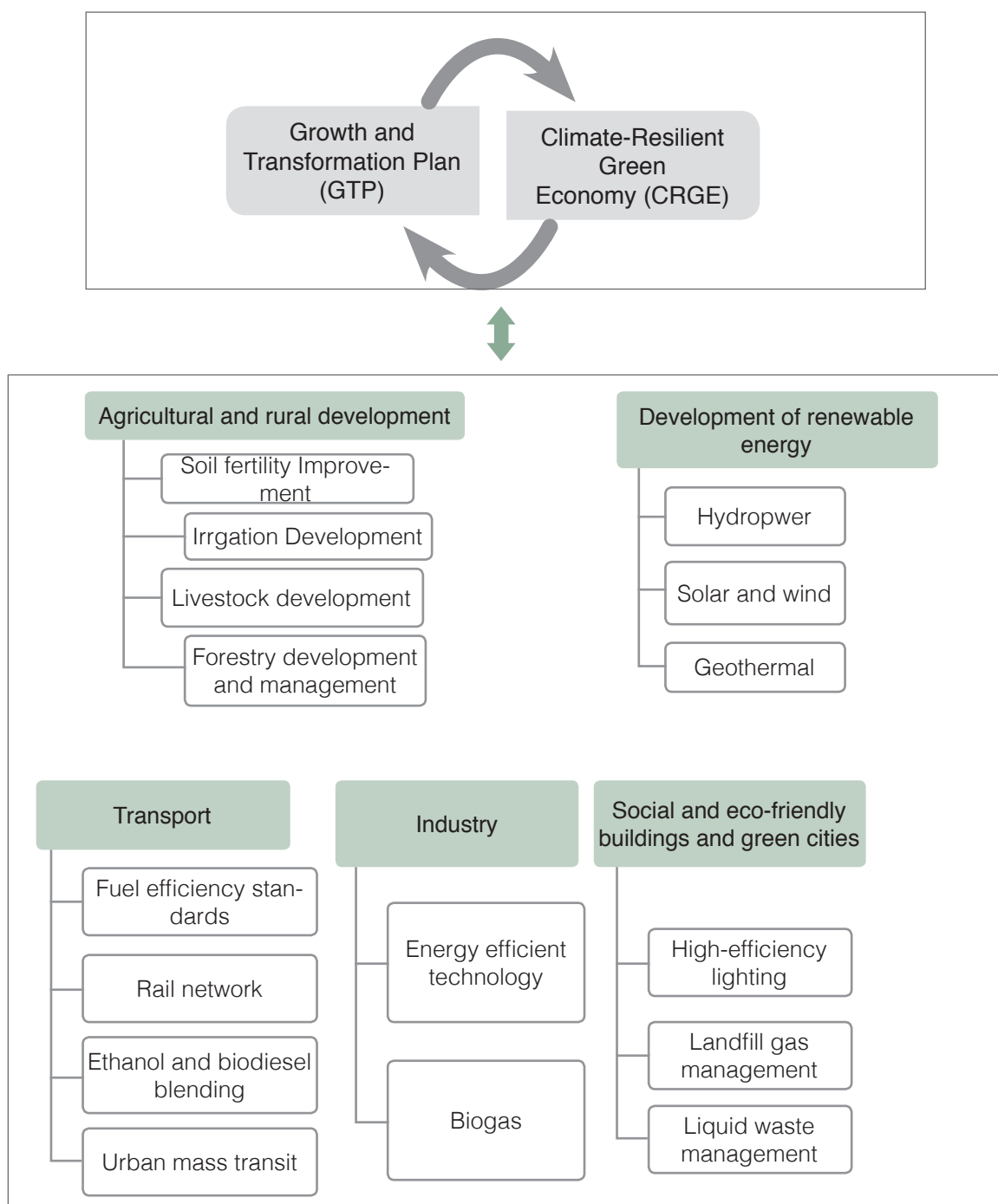
Box 6: High-level political support for Climate-Resilient Green Economy in Ethiopia

The development of CRGE was supported by strong leadership from the Office of the Prime Minister, followed by ministerial representation on the various Committees, thus sending a strong message to government offices that green economy planning and implementation was indeed the country's priority. The key focus areas of the strategy are investments in low carbon economic infrastructure; investments in high-potential low-carbon sectors; expanding access to services and new economic opportunities; improving social services and economic opportunities for the wider population; and investments in climate change adaptation infrastructure.

Another aspect of the policy design process was its participatory nature. Although CRGE preparation was initiated at the top level, there were participatory processes both vertically and horizontally ensuring wider coverage and awareness. The process thus had strong leadership and support from the federal Government, and visible representation of different sectors. The policy design processes have helped to achieve buy-in among stakeholders and to integrate it into the country's structural transformation plan. This resulted in the CRGE framework that responds to domestic priorities such as economic growth, poverty reduction, employment, emission reductions, industrial growth, and natural resource protection that are important objectives of the Growth and Transformation Plan.

Source: ECA, 2015c. Inclusive Green Economy Policies and Structural Transformation in Ethiopia

Figure 10: Integration between the Growth and Transformation Plan and Climate-Resilient Green Economy at the policy development stage



Source: ECA, 2015c. Inclusive Green Economy Policies and Structural Transformation in Ethiopia.

A key tenet in the inclusive green economy is the realization of win-win-wins premised on the possibility of achieving economic growth within environmental limits while simultaneously improving human well-being, alleviating poverty and reducing inequalities (Gaspertos and Stevens, 2015). Institutions working together could help in amplifying the

low hanging fruits that could be harnessed across all sectors. However, Resnick et al. (2012) question what win-win-wins inclusive green economy actually is, and argue that it may present more trade-offs when scaled up into national development strategies than is readily acknowledged. In particular, reducing carbon emissions remains a key component of inclusive

green economy strategies, but achieving this often requires countries to deviate from the course recommended by traditional development theory, as well as from their current development trajectory. The high short-term costs of inclusive green growth can have a political impact, generating substantial anti-reform coalitions that may include both powerful interest groups as well as the poor. Using case studies from South Africa, Malawi and Mozambique, Resnick et al. (2012) argue that the inclusive green economy agenda confronts this risk in the absence of concurrent interventions by donors to protect those who stand to lose from the implementation of the reforms.

In Ethiopia, for example, the Climate-Resilient Green Economy strategy recognizes that the transition to an inclusive green economy not only entails win-win outcomes in terms of improved economic performance, environmental protection and social development, but it also involves trade-offs in the short run. Coherence in the implementation of CRGE and the Growth and Transformation Plan factors in win-win situations between the two, especially in areas such as agriculture and land use efficiency, forest protection, electricity generation from renewable energy sources, and household economic empowerment. Hence, a strong institutional setting will allow collective identification of constraints and the formulation of smart policy interventions that are dynamic and refined to deal with the ever-changing needs during the transition.

Although there must be some trade-offs between narrowly construed economic growth and environmental quality, it is incorrect to suggest that all environmental policy choices amount to a fundamental “economic growth versus the environment” trade-off. The fundamental economic-environment trade-off is between the economic benefits arising from development and any resulting environmental and welfare impacts arising from natural resource depletion, pollution and ecological degradation (Barbier and Markandya, 2012). Overall, institutions, especially governments at national and local levels, will need to ensure that inclusive green economy policies contribute to poverty eradication and social inclusiveness, create decent jobs, enhance environmental assets and support a climate-resilient development in order to maximize synergies and minimize trade-offs.

The social dimension – one of the dimensions of sustainable development – is often marginalized in green economy analysis and policy. Also side-lined are questions about how green economy strategies impact different social groups and patterns of inequality; whose values, priorities and interests are shaping the concept and policies of green economy; and what alternative visions and processes exist at local, national and global scales to achieve social, environmental and economic objectives in a holistic way (UNRISD, 2012). An inclusive society is a society that overrides differences of race, gender, class, generation and geography, and ensures inclusion, equality of opportunity and capability of all members of the society to determine an agreed set of social institutions that govern social interaction¹⁸. The Nobel laureate Stiglitz (2013) notes that some countries reduce inequality as they grow while it increases in others, thus suggesting that the presence or absence of strong inequalities in a country is the result of policy choices followed by its institutions.

Africa has a wealth of experience in coordinating institutional support, particularly in the implementation of sustainable development agreements through provision of greater coherence, and better coordination of global, regional and national-level concerns, priorities and actions (ECA, 2005). The institutional set-up adopted by latecomers in the transition will have the advantage of good practices and lessons elsewhere, while the first movers must use their own experiences documented over time during implementation, monitoring and evaluation, and feedback from stakeholders to promote win-wins and effectively deal with trade-offs.

Addressing market failures, risks and uncertainties

Characteristics of non-exclusion and jointness of consumption create situations in which market arrangements may fail to meet individual demands for public goods, or decent jobs, and environmentally friendly processes and goods¹⁹. Green and inclusive

¹⁸ UNDESA Expert Group Meeting on Promoting Social Integration, Helsinki, July 2008.

¹⁹ In the most basic sense, a market failure occurs whenever the production or allocation of goods or services by a market is suboptimal. On the one hand, this can mean that the output, price, or distribution of products is either inefficient in the sense that the overall level of economic value or social welfare could be increased, typically through transactions that should occur, but don't (even though

markets will not occur spontaneously. Special forms of governmental or quasi-governmental organization are required to deal with these contingencies (Ostrom and Ostrom, 2014).

One very important task of the State is to create well-functioning markets by providing a legal framework, standards, credit, physical infrastructure and, if necessary, to function temporarily as an entrepreneur of last resort (Reinert, 1999). Furthermore, Jaffe et al. (2004) state that market failures associated with environmental pollution interact with market failures associated with the innovation and diffusion of new technologies.

Market failures and their combination provide a strong rationale for a portfolio of public policies that foster emissions reduction, the development and adoption of environmentally beneficial technology, and the provision of environmental goods and services. The public sector can be thought of as being composed of many public service industries including the police industry, education industry, water industry, fire protection industry, health services industry, transportation industry, clean air industry, abundant fresh water industry, wastewater management and decomposition of waste industries, and the maintenance of biodiversity industry (Ostrom and Ostrom, 2014).

Thus, institutions and policies are key players in restructuring markets in a way that is both green and fair. They must take the following into account: (i) winners and losers, hence the role for social policy in mitigating the unequal social effects of different green economy approaches; (ii) how inclusive green economy can transform persistent structural inequalities that underpin poverty and vulnerability, rather than reproducing them; (iii) strategies of participation that are emerging or might need to emerge for diverse social actors to influence inclusive green economy agendas (UNRISD, 2012).

Inclusive green economy policies should also aim at reducing risks and uncertainties related to climate change and extreme weather, particulate matter,

ground-level ozone, unsafe water supply and sanitation, indoor air pollution and malaria. African countries are also confronted with economic and social risks and uncertainties such as commodity price instability on international markets, diseases, migration and immigration, as well as political risks. There are also risks and uncertainties associated with the transition to an inclusive green economy itself. Risks and uncertainties that may be associated with the misuse of the concept of the inclusive green economy include operationalizing it in a one-dimensional manner, as purely “environmental”, or adopting a “one size fits all” approach, in which all countries are treated in the same manner.

For African countries, there are also risks and uncertainties related to change in the trade regime. These include risks of using environment for trade protection; gaining market access through the guise of environmental protection; developing countries facing products that are subsidized in the developed world without being able to impose corrective measures; limiting the policy space that African countries have to promote their own green economy sectors; and developing countries facing technical standards that their exporters cannot meet. And finally, the risk that the concept of the inclusive green economy could be used to impose new conditionality on developing countries for aid, loans, and debt rescheduling or debt relief (UNDESA, UNEP and UNCTAD, 2012).

Mobilizing resources for the green economy transition

Most countries in the region have committed to making budgetary allocations and mobilizing donor funding for the green economy transition. The leading countries that have adopted a green economy strategy have also established financing mechanisms to support the implementation process. The viability of these mechanisms and volume of resources to be mobilized will depend on the quality of institutions mobilizing the resources, and in particular, how the institutions are invested in and aligned with the green economy.

Institutions should be prepared to mobilize internal resources first, and must be ready to unlock external resources including through the transformative

they would create value), or through transactions that do occur, but should not, because they destroy value. On the other hand, it can mean that the resulting allocation is inequitable or inconsistent with values of justice or fairness (Phills and Denend, 2005).

potential of people, the private sector and external partners. For example, the Addis Ababa Action Agenda of the third United Nations International Conference on Financing for Development, which highlights the financing needs to achieve the 2030 Agenda for Sustainable Development, goes beyond the Monterrey Consensus of the 2002 International Conference and recognizes that finance is not just about financing flows, but also depends on public policies that strengthen the national and international enabling environments. The Agenda reiterates that “countries have primary responsibility for their economic and social development, while committing the international community to create an enabling environment for their development”. It further notes that specific public policies and regulatory frameworks are needed to encourage private investments that support sustainable development. It also points out the potential contributions of public finance, highlighting the growing role of national, international and multilateral development banks (UNDESA, 2015)²⁰.

3.3 Trends in institutions and policies for the inclusive green economy

National institutional set-ups to support implementation of green economy strategies and policies

African countries have begun developing and implementing policies and strategies for inclusive green economy and growth (table 2). Among the countries studied, Ethiopia and Rwanda have explicit strategies to guide the transition. Specifically, the Climate-Resilient Green Economy strategy in Ethiopia also outlines the structure of a permanent institutional set-up headed by the Prime Minister’s Office and an interministerial steering group of key government ministries to drive implementation and promote the participation of a broad set of stakeholders. In Rwanda, the Green Growth and Climate Resilience Strategy is also driven by a steering committee consisting of ten Cabinet ministers. The design process of the strategy included both national

stakeholders and international partners. It adopts integrated sector planning that balances cross-cutting issues of resource management and continuity of the transition process. However, the ministry in charge of social affairs is currently not part of the steering committee.

In South Africa, a green economy is one of the five objectives of the National Strategy for Sustainable Development and Action Plan and is coordinated by the Ministry of Water and Environmental Affairs, through the Department of Environmental Affairs, which also oversees the National Committee on Sustainable Development²¹. The Committee is multidisciplinary and multisectoral (covering all key government sectors) and engages civil society, the private sector, academia and other stakeholders in its mandate. The signing of the Green Economy Accord was a milestone as it brought together all the key actors that are important for the transition to a green economy. The Accord was an outcome of the first South African National Green Economy Summit hosted by the Department of Environmental Affairs, in collaboration with Departments of Science and Technology, Trade and Industry, and Economic Development of the economic sectors and employment cluster. Funding of the green economy transition is through the Green Fund, also established by the Department of Environmental Affairs. The Green Fund is housed within the Development Bank of Southern Africa, but management is a government-wide undertaking, overseen by a multisectoral Government Advisory Panel and Management Committee²².

In Mauritius, the Maurice Ile Durable Policy and Strategy Action Plan coordinated by the Ministry of Environment and Sustainable Development provides a framework for green economy implementation. The policy has four priority programme areas implemented alongside the economic and social transformation plan, namely energy conservation and renewables; cleaner, greener and pollution-free Mauritius; green economy; and ocean economy. A commission for the policy was established in the

²⁰ <http://www.un.org/esa/ffd/wp-content/uploads/sites/2/2015/07/DESA-Briefing-Note-Addis-Action-Agenda.pdf>

²¹ https://www.environment.gov.za/sites/default/files/docs/sustainabledevelopment_actionplan_strategy.pdf

²² <https://www.environment.gov.za/projectsprogrammes/greenecconomy/about>

Table 2: National inclusive green economy strategy and policy frameworks of selected countries

Country strategic and policy frameworks	Institutional set-up	Strengths	Weaknesses
<p><i>Ethiopia Climate-Resilient Green Economy (CRGE) Strategy (2011).</i></p> <p><i>The vision:</i> Achieve middle-income status by 2025 in a climate-resilient green economy.</p>	<p>CRGE is led by the Prime Minister’s Office, nine ministries, namely Ministry of Environment and Forestry (formerly Environmental Protection Authority), Ministry of Finance and Economic Development, Ministry of Agriculture, Ministry of Water, Ministry of Irrigation and Energy, Ministry of Trade and Industry, Ministry of Transport, Ministry of Science and Technology, and Ministry of Urban Development and Construction. The Ethiopian Development Research Institute and regional States are also represented.</p>	<p>High-level political commitment and support; planning informed by baselines; establishment of near and long-term economic, environmental and social targets and their alignment with domestic economic, environmental and social priorities.</p>	<p><i>Limited focus on other environmental and social issues; Ministry of Social Affairs is not directly involved.</i></p>
<p><i>Mozambique Towards a Green Economy. Road Map for a Green Economy in Mozambique: accelerating sustainable economic, social, and environmental development (2012).</i></p> <p><i>The Vision:</i> Mozambique to become an inclusive middle-income country by 2030, within ecological limits.</p>	<p>Four key ministries to play a decisive role in guiding and planning (Ministry of Environmental Action Coordination; Ministry of Planning and Development; Ministry of Finance; and Ministry of Foreign Affairs and Cooperation). The National Council for Sustainable Development also plays an important role. A Multisectoral Platform is being proposed to support integrated implementation.</p>	<p>Clear definition of the process towards an inclusive green economy. Detailed planning and calendar of activities.</p>	<p><i>The Ministry of Women and Social Action is not in the proposed composition of the Multi-sectoral Platform for a Green Economy (but ministries for health and education are included).</i></p> <p><i>The informal private sector is not formally identified among the private stakeholders.</i></p>
<p><i>Rwanda Green Growth and Climate Resilience: National Strategy for Climate Change and Low-Carbon Development- 2011-2050 (2011).</i></p> <p><i>The Vision:</i> Vision 2020 of the strategy: transform Rwanda to a middle income country by 2020. Vision for 2050: Rwanda as a developed country in accordance with the principles of sustainable development.</p>	<p>The strategy is coordinated by the Ministry of Natural Resources. Implementation of the strategy is directed through a Steering Committee of ten Cabinet ministers (Disaster Management, Agriculture and Animal Resources, Trade and Industry, Finance and Economic Planning, Education, Infrastructure, Natural Resources, Local Government, and Health). The Technical Coordinating Committee, the National Fund for Climate and Environment, and the Centre for Climate Knowledge for Development are responsible for implementation of the Strategy.</p>	<p>The design process of the strategy included both national and international teams.</p> <p>Integrated sector planning that balances cross-cutting issues of resource management, and meaningful stakeholder engagement in the process.</p>	<p><i>The ministry in charge of social affairs is not part of the Steering Committee.</i></p>

Country strategic and policy frameworks	Institutional set-up	Strengths	Weaknesses
<p><i>Kenya Green Economy Strategy and Implementation Plan (2015).</i></p> <p><i>The Vision:</i> Facilitate a transition to green economy; align green economy initiatives across the economic, social and environmental spheres of society towards a globally competitive low-carbon growth path.</p>	<p>The national Government will play a prominent leadership and coordination role (e.g. ministries of key sectors such as water, industrialization, energy, planning, treasury, agriculture). The role of sector working groups, counties, private sector, etc. is recognized.</p>	<p>Monitoring, evaluation and knowledge management are taken into account.</p> <p>Coordination challenges are recognized.</p>	<p><i>The focus areas of the Plan are not well balanced in terms of the social dimension. The role of the ministry in charge of social affairs is not clear.</i></p>
<p><i>South Africa Green Economy Accord (2011)</i></p> <p><i>The Vision:</i> Economic growth and poverty reduction.</p> <p>The Accord is a partnership of Government, business actors, labour organizations and communities aimed at achieving a green economy. It identifies areas of action for greening the economy.</p>	<p>The parties to the Accord meet on a regular basis to assess progress. An inter-departmental Green Growth Committee has been established to lead the process. Government ministries involved in the process include energy; water and environmental affairs; economic development; agriculture, forestry and fisheries; transport; higher education and training; trade and industry; public enterprises; public works; rural development and land reform.</p>	<p>Strong collaborative arrangements on policy design and implementation.</p>	<p><i>Absence of the Department of Social Development among the signatories of the Accord.</i></p> <p><i>The informal private sector is not formally identified among the private stakeholders.</i></p>

Source: Compiled from Ethiopia Government, 2011; Mozambique Government, 2012; Rwanda Government, 2011; Kenya Government, 2015; South Africa Government, 2011.

Prime Minister's Office to collaborate with the Ministry of Environment and Sustainable Development in the coordination process. In addition, a Maurice Ile Durable Strategic Committee was established, also under the Prime Minister's Office, with members drawn from key ministries and parastatals, the private sector and civil society²³.

In Mozambique, four key ministries played a decisive part in guiding and planning during the 2012-2014 preparatory period and also in mainstreaming the green economy in the Government's five-year plans (table 2). The Ministry for the Coordination of Environmental Affairs (*Ministério para a Coordenação de Acção Ambiental*) is playing a leading role, and together with the National Council for Sustainable Development and the Environment Fund coordinates the implementation of policies, plans and programmes for sustainable development in the country. The Council plays a key role in public consultations and the fact that it is chaired by

the Prime Minister makes sustainable development a top priority for the Government (MICOA, 2012). The Ministry and the Council therefore establish a bridge with all other key sectors of the country, coordinating the implementation of policies, plans and programmes linked to the green economy.

In Kenya, the Ministry of Devolution and Planning is considered the lead in coordinating activities and initiatives towards a green economy (UNEP, 2014). With agriculture, energy, manufacturing and transport identified as key sectors, a more formal multi-sectoral approach should emerge to coordinate government processes and initiatives to facilitate the green economy transition in Kenya. In other countries where green economy strategies have not been fully developed or adopted, institutional frameworks for sustainable development will play a crucial role in the national consultations on the green economy. For instance, in Senegal, the Ministry for the Environment, through both the High Council of Natural Resources and Environment and the National

²³ <http://mid.govmu.org/portal/sites/mid/MIDRole.htm>.

Commission for Sustainable Development, will have to lead coordination. However, for the process to receive wider sectoral support, the Ministry of Finance will have to play a prominent role, and roles must be found for other key sectors such as land, agriculture, forestry, mining, energy, wildlife, fisheries, urban development, housing, and tourism. This is the approach that Mozambique is taking in its road map towards a green economy.

Aligning and integrating green economy policies with national development plans

Ethiopia's CRGE and Rwanda's Green Growth and Climate Resilience National Strategy were initially developed as standalone policies supporting implementation of long-term national development plans. In Ethiopia, CRGE strategy was prepared and then integrated into the existing Growth and Transformation Plan and institutions. The development of CRGE was informed by the country's medium-term growth and transformation plan. The Ethiopian Government has since been aligning the CRGE strategy with domestic priorities as reflected in the second, revised Growth and Transformation Plan and adjustment of sectoral strategies. In particular, sector-specific strategies related to agriculture, forestry, water, transport, manufacturing and energy were shaped by the CRGE strategy to support the transition to a green economy (ECA, 2015c). However, poverty, inequalities and other social issues have largely remained on the periphery. Moreover, there is limited inclusion of the private sector and community stakeholders, including from the informal sector, in the institutional set-up for implementation, monitoring and evaluation.

The overall objective of green growth strategy in Rwanda is similar to that of Ethiopia and it is similarly undergoing a process of integration into sectoral policies. The Rwanda National Strategy for Climate Change and Low Carbon Development (2011-2050) in its Vision 2020 aims to transform Rwanda from a subsistence agricultural economy to a middle-income country by 2020. The Economic Development and Poverty Reduction Strategy is the framework for achieving Vision 2020. The baseline report of the National Strategy on Climate Change and Low Carbon Development for Rwanda identifies integration as the next step for the success of the

policy. Among initiatives to promote integration is the designation of adaptation investment plans by key themes as a method of shaping priorities and efficiently advancing funding applications across key sectors and ministries.

The legislation contained in Law No. 16 of 22 May 2012, determining the organization, functioning and mission of the Rwandan National Climate Change and Environment Fund (FONERWA) was also a milestone establishing a funding mechanism for the country's green growth strategy. The fund will be the primary instrument for channelling, distributing and monitoring international and national climate finance (Nachmany et al., 2015)²⁴.

The Green Economy Road Map in Mozambique identifies the steps to be followed by the country to achieve an inclusive green economy by the year 2030. It also presents a declaration of intent to accelerate sustainable development in the economic, social and environmental fields, based on the protection, restoration and rational use of natural capital and ecosystem services to guarantee development that is sustainable, inclusive, efficient, and within the limitations of the planet. The road map follows an integrated implementation strategy and sequenced approach in chronological conformity with the Rio+20 outcome document, "The future we want", covering the period 2012-2030. It sets out implementation policies in four key areas: i) regulatory policies for the conservation, exploitation and management of natural resources; ii) fiscal policies focused on taxation; iii) investment policies directed towards infrastructure development, training and funding producers; and iv) institutional policies aimed at strengthening national institutions through capacity-building, transformation and best governance practices (Mozambique Government, 2012).

Kenya adopted a Green Economy Strategy and Implementation Plan in 2015. The country was supported in the process by AfDB, UNEP, ILO, UNDP, WWF and the Danish International Development Agency, DANIDA. The plan will guide the transition process to a green, low-carbon and climate-re-

²⁴ <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/RWANDA.pdf>.

silient economy and is informed by the Second Medium-Term Plan of Vision 2030. There is strong involvement of the local level in the plan, especially the 47 county governments. Although a range of scoping activities, assessments and stakeholder consultations were undertaken in the development of the strategy, the focus areas are not well balanced in terms of the social dimension. The key focus areas are: i) promoting sustainable infrastructure; ii) natural resource management; iii) building resilience to climate change, and iv) promoting resource efficiency²⁵. Social inclusion is only captured through promotion of mainstreaming green economy issues into all levels of education by 2020; promoting employment creation and employability especially for youth, women and persons with special needs; and promoting growth and the establishment of micro and small enterprises.

South Africa's Green Economy Accord (2011) is an outcome of social dialogue on the New Growth Path. It is an important step towards a greener, but also a more prosperous South Africa. It enjoys a high level of political buy-in. The Accord is viewed as a key point in the partnership between the South African Government, business community, trade union movement and community organizations. The process is led by an interdepartmental Green Growth Committee. The Accord is based on buy-

in by stakeholders without the need for regulations and legislation to coerce parties to work together. Stakeholder objectives can be harmonized to accelerate implementation and reduce blockages. There is collaborative policy design and implementation. The Department of Social Development is, however, notably absent among the signatories of the Accord. Furthermore, the informal private sector is not formally identified among the private stakeholders.

Zambia is developing green economy policies to mainstream the green economy in national development plans. Partners like OECD, AfDB and the International Institute for Environment and Development are supporting the country to develop an operational inclusive green growth strategy. An analysis of eight other countries covered by the questionnaire survey and five country studies on inclusive green economy policies and structural transformation in selected African countries shows that they have not yet elaborated national green economy strategies. However, most countries are actively implementing inclusive green economy initiatives or activities in key sectors, particularly agriculture, energy, transport and industry (box 7). These include Burkina Faso, Cameroon, Gabon, Ghana, Mauritius, Morocco, Republic of Congo, Senegal, Tunisia, and Uganda.

Box 7: Morocco: High political commitment to inclusive green economy

The political commitment of the Government of Morocco to sustainable development is very high. For example, the Constitution (July 2011) enshrines "the right to sustainable development". The country has adopted a national environmental and sustainable development charter and a framework law in an effort to mainstream all public policies into the national sustainable development strategy. The priorities of this strategy include transitioning to a green economy and accelerating the implementation of the national climate change policy. The country has various plans designed to contribute to its social and economic development and environmental sustainability. The *Maroc Vert* plan, for example, aims to modernize the agriculture sector, which accounts for 15 per cent of GDP, 46 per cent of total employment and 23 per cent of total exports. Morocco is also implementing ambitious national programmes in several other key sectors, including (ECA, 2015a):

- Solar energy plan (2020); integrated wind energy programme (2020); energy efficiency (building construction, industry and transport) (2030); national water irrigation programme; national household waste management programme; and national wastewater sanitation plan.
- A green investment plan was presented on the margins of the United Nations Climate Summit, held in New York in September 2014. Discussions are under way on a green investment fund. To support business in the transition and enhance public private dialogue, the Moroccan Business Association has set up the Green Economy Commission to encourage and support businesses in their environmental work and commitment to the green economy.

²⁵<http://www.environment.go.ke/wp-content/uploads/2015/05/Kenya-Green-Economy-Strategy-and-Implementation-Plan-GE-SIP-.pdf>

Promoting integrated, broad-based development supported by coherent institutions

A successful global transition to an inclusive green economy requires that national development planning processes be reframed accordingly. In practice, African countries with inclusive green economy policies have put in place institutions and policies that promote broad-based economic growth, resource use efficiency and maintenance of environmental quality, and social inclusiveness and equity (box 8). The transition is characterized by mostly flexible policy designs, offering some leeway for experimenting, learning and evaluating results. Other more rigid policy designs must be subjected to rigorous impact evaluation during implementation to generate evidence of the desired goals. What is emerging is that countries are either building on existing institutional frameworks and reformulating sectoral and national development strategies (e.g. Ethiopia, Rwanda and South Africa), or anticipate a gradual but eventual introduction of new institutions and mechanisms to take over the implementation and oversight role (e.g. Mozambique).

Ethiopia, Rwanda, and Mozambique, for example, have favoured an integrated approach in the implementation of their strategies. In Ethiopia, an integrated inclusive green economy strategy will also allow the country to address issues such as public

health, pollution, forest degradation, soil quality, food security and water (Ethiopia Government, 2011). In the Kenyan context inclusive green economy refers to a shift towards a development path that promotes resource efficiency and sustainable management of natural resources, social inclusion, resilience, and sustainable infrastructure development. Policies and programmes include investments in renewable energy, promotion of resource-efficient and cleaner production, enhanced resilience to economic and climatic shocks, pollution control and waste management, environmental planning and governance, and restoration of forest ecosystems (Kenya Government, 2015).

For Mozambique to achieve its goal of an inclusive green economy by 2030, the country will have to implement 17 lines of interventions that have been identified to drive the transition to a green economy. In addition, the country will enhance policy coherence between existing and new policies; facilitate reforms identified by the new policies; address the lack of technical, financial and human capacity; analyse and strengthen the tools that the country has for the transition to green economy; reduce the vulnerability of Mozambique to natural disasters and other climatic and environmental factors; and improve the management of the green economy policy components.

Box 8: Factors contributing to the success of institutions and policies for inclusive green economy

While Governments have employed a wide variety of approaches to inclusive green growth planning, the most successful are characterized by:

- Strong, high-level leadership, which links long-term national goals with environmental risks and opportunities and builds winning coalitions; examples include Ethiopia and Morocco.
- Clear economic, environmental and social objectives reflected in formal outcome-based mandates supported by strong institutional governance such as in Rwanda and South Africa.
- Robust and adequately resourced planning and coordination process, designed to generate compelling evidence, overcome barriers, and manage conflicting interests; such an efficient approach characterized the development of Kenya's Low Carbon Climate Resilience Plan.
- Active and strategic processes of stakeholder engagement with clear roles and well-managed expectations exemplified in the inclusive green growth process of Mauritius.
- Well-governed institutions able to manage a predictable long-term cycle of planning, implementation and review, which aligns with other activities and protects against political change and interference by interest groups. Republic of Korea and Mexico are among countries doing well in this respect.

Source: ECA (2015a, c) and GGBP (2014).

In Rwanda, the guiding principles of the inclusive green economy strategy encompass all three dimensions. These principles are: (i) economic growth and poverty reduction; (ii) welfare and wellness of all citizens in a growing population; (iii) gender equality and equity; (iv) sustainability of the environment and natural resources; and (v) good regional and global citizenship. The objectives of Rwanda's Vision 2050 also cover these dimensions. Furthermore, one of the stated purposes of the inclusive green economy strategy in Rwanda is to guide policy and planning in an integrated way (Rwanda Government, 2011).

The Green Economy Accord in South Africa seeks to provide an important entry point for broad-based black economic empowerment and to create competitive domestic markets in the green economic space. It seeks to address the needs of women and youth entrepreneurs and offer opportunities for enterprises in the social economy, and also aims to foster green industrial development using existing and new tools and incentives. Commitment two of the Accord includes investment in the inclusive green economy; rollout of renewable energy; energy efficiency; waste recycling, reuse and recovery; biofuels; clean-coal initiatives; retrofitting; reducing carbon-emission on roads; electrification of poor communities and reduction of fossil-fuel open fire cooking and heating; promotion of localization, youth employment, cooperatives and skills development (South Africa Government, 2011).

Thus overall, inclusive green economy policies in the five countries (Ethiopia, Kenya, Mozambique, Rwanda and South Africa) seek to achieve development outcomes in the areas of economic growth, social inclusiveness and equity, and resource use efficiency and maintenance of environmental quality (table 3).

Enhancing win-wins and minimizing trade-offs

A balanced integration of the three dimensions of sustainable development gives countries the opportunity to implicitly or explicitly minimize trade-offs and follow a win-win approach to development. The green economy strategies for Ethiopia, Kenya, Mozambique, Rwanda and South Africa, seek to

minimize conflict between socioeconomic and environmental objectives, transforming the latter into development opportunities. For instance, the Rwandan strategy emphasizes "big wins" that if implemented, will make a significant impact on adaptation, mitigation and economic development.

The big wins are likely to produce the greatest return on investment (enabling low-carbon development, increasing food and energy security, reducing vulnerability to oil price spikes and reducing payments abroad) as they impact the whole economy in a sizeable manner in the long term. Despite synergies among them, they have been split into low-carbon development or mitigation and climate resilience or adaptation. As the three largest sources of greenhouse gas emissions in Rwanda, agriculture, energy and transport are addressed in the climate change mitigation big wins. Rwanda has also identified immediate quick wins that can be implemented to begin addressing the enabling pillars of its strategy. The quick wins focus on mainstreaming climate resilience and low-carbon development into initiatives that are currently under way: institutional framework; finance; integrated planning and data management; capacity-building; knowledge management; technology; infrastructure (Rwanda Government, 2011).

Mozambique is relying on specific public surveys to identify key economic and social challenges and opportunities for an integrated evaluation of inclusive green economy policies. The country will undertake a series of activities during the transition process, including: (i) mapping, valorization and planning of natural capital, (ii) technical-institutional capacity for the implementation of the green economy approach, including their integration into the planning processes; and (iii) identification of sectoral policies that may contribute to the green economy and their prioritization for implementation.

Addressing market failures and risks

Inclusive green economy policies being implemented by countries in the region can address market failures, risks and uncertainties that have prevented or slowed down development in key sectors. Ethiopia, for example, is tackling some development challenges, including improvement of crop and

Table 3: Expected implementation outcomes in selected countries

Economic	Social	Environment
Ethiopia		
Increase in real GDP GDP per capita to reach middle-income level before 2025. Increase in domestic capital formation. Increase in exports. Benefit to public finance.	Poverty reduction. Food security. Increase in employment.	In 2030, 60% reduction on BAU estimates and near-zero net emissions. Per capita emissions to fall from 1.8t CO ₂ e in 2010 to 1.1 in 2030 (minus 40%). Forest preservation. Soil protection.
Kenya		
Real GDP is projected to exceed the BAU2% by about 12 per cent by 2030, to reach \$45 billion. Real per capita income will rise from \$498.7 in 2012 to \$871.3 in 2030 under the GE2% scenario, compared to \$664.3 in 2030 under the BAU2% scenario.	Population below the poverty line under GE2% is expected to be about 2 percentage points lower on average between 2015 and 2030 than that of BAU2%. Public health will improve with better water and air quality. Rural development. Higher energy efficiency for households.	Energy savings will reach 2% of future BAU energy consumption in 2030. Geothermal power capacity will increase from 0.1 GW (2011) to 1.34 GW by 2030 (twice as much as in the BAU scenario). Other new renewables reaching a total 20 per cent of power supply.
Mozambique		
Economic growth that is sustainable and resilient to climate change through appropriate valuation of natural capital and ecosystem services.	Social equity in the distribution of benefits of natural capital and ecosystem services. Reduction of poverty, creation of green, decent jobs.	Restoration and protection of ecosystem assets and services for the benefit of the present and future generation.
Rwanda		
Economic development. Energy security and a low-carbon energy supply. Green industries and services.	Social protection, improved health, and disaster risk reduction that reduces vulnerability to climate change. Poverty reduction.	Sustainable land use and water resource management, appropriate urban development and preservation of biodiversity and ecosystem services.
South Africa		
Economic prosperity. Industry-wide localization of at least 35% by 2016 and increase local content in the years to follow towards the aspirational target of 75%. Manufacturing (or assembly), construction and installation of renewable energy plant and equipment. Cooperatives and skills development.	Combat poverty. Greater employment creation and equality creating five million new jobs by 2020. Rural, social and economic development. 300,000 new jobs. Electrification of poor communities. Youth employment.	Greener South Africa. Reduce dependence on coal-based energy. Waste-recycling. Reducing carbon-emissions on the roads.

Source: Compiled from Ethiopia Government, 2011; Mozambique Government, 2012; Rwanda Government, 2011; Kenya Government, 2015; South Africa Government, 2011.

livestock production practices to increase food yields, while reducing externalities resulting from emissions, and correcting negative market impacts on forests by protecting and reestablishing forests for their economic and ecosystem services, including as carbon stocks. In the energy sector in particular, the State is bolstering the market for core green energy products such as solar solutions, wind turbines, smart grid technologies (smart meters), power generation solutions and distribution. It is estimated that

based on projected needs, the wind turbine technology sector alone is potentially a \$2 billion business (Ethiopia Government, 2013).

The Green Economy Strategy and Implementation Plan in Kenya seeks to increase economic growth and human well-being and address challenges related to environmental degradation, climate change and variability, or social inequality. The promotion of renewable energy, resource-efficient and cleaner

production, enhanced resilience to economic and climatic shocks, pollution control and waste management, and restoration of forest ecosystems all seeks to address market failures and risks. In the specific case of green technology, it is underscored that technological and market uncertainties are particularly high, raising risks. The country adopted renewable energy feed-in tariffs in 2008, a policy it revised in January 2010. The REFIT policy aims to stimulate market penetration for renewable energy technologies by making it mandatory for energy companies or utilities to purchase electricity from renewable energy sources at a pre-determined price.

Kenya's strategy also focuses on ensuring that the economy and livelihoods are less vulnerable to risks and challenges of climate change and changing growth dynamics. In this context, resilience building is intended as a proactive approach to reduce vulnerability by integrating emerging climate change and variability risks into sectoral development strategies. The same applies to inclusive green economy policies in Mozambique, Rwanda and South Africa. In these countries, the pursuit of socioeconomic development outcomes is also envisaged along with resilience to climate change and environmental preservation. The Green Accord (South Africa) identified a specific potential risk with product guarantees on solar-water units, particularly in respect to start-up companies which may no longer be in business when warranties need to be honoured.

International support for Africa's green economy agenda

At the subregional level, through various programmes, plans and strategies, the regional economic communities²⁶ have, with varying degrees of success, encouraged multistakeholder participation, built institutional linkages and sought the balanced integration of the three dimensions of sustainable development. Over the years, regional economic communities have put various programmes in place on the environment, agriculture, natural resources, energy, peace and security, governance and socioeconomic development. Invariably, these individual

programmes are anchored on long-term strategies that constitute the main regional development framework.

At the regional level, the African Union through various summit decisions has committed to strengthening institutional frameworks for sustainable development. The African Union Commission, NEPAD Planning and Coordination Agency and the regional economic communities with the support of ECA, AfDB and various development partners are coordinating and facilitating support to member States and subregional organizations. The African Union has spearheaded several initiatives including reforms to address the development challenges of the continent. With regard to a continent-wide framework for an inclusive green economy, the fifth special session of the African Ministerial Conference on the Environment launched the African Green Economy Partnership to provide a more coordinated support for green economy in the region. The Partnership brings together organizations such as the African Union Commission, AfDB, UNEP, ECA, ILO and the NEPAD Planning and Coordinating Agency. Its main objective is to facilitate the provision of coordinated and consolidated support to African countries in assessing, designing and implementing inclusive green growth strategies and approaches for building an inclusive green economy that ensures a resource efficient and low-carbon development path, and contributes to sustainable livelihoods, poverty alleviation and sustainable development.

At the global level, the Partnership for Action on Green Economy, a joint initiative of UNIDO, UNEP, ILO and UNITAR, is a response to the Rio+20 outcome document, "The future we want", which calls for implementation of green economy as one of the vehicles of sustainable development. PAGE aims to facilitate the shifting of countries' policies and investment towards the creation of green assets, such as clean and low waste technologies, resource efficient equipment and infrastructure, well-functioning ecosystems, green labour, and the promotion of good governance.²⁷

²⁶ The following eight regional economic communities have been recognized as such by the African Union since 2006: SADC, ECOWAS, EAC, COMESA, the Arab Maghreb Union, the Community of Sahel-Saharan States, ECCAS and IGAD.

²⁷ <http://www.un-page.org/about/who-are-we> [Link doesn't seem to work- CHECK NEW PAGE]

The Green Growth Knowledge Platform is another global network of international organizations and experts that identify and address major knowledge gaps in green growth theory and practice. It was established in January 2012 by the Global Green Growth Institute, OECD, UNEP and the World Bank, but since then has expanded to include diverse groups of partners. By encouraging widespread collaboration and world-class research, GGKP offers practitioners and policymakers the policy guidance, good practices, tools and data necessary to support the transition to a green economy.²⁸

3.4 Challenges and opportunities

3.4.1 Challenges

Despite the efforts of national Governments and the support for the green economy development pathway at subregional, regional and global levels, the development and implementation of national policies and strategies remain a challenge due to several factors:

Inadequate understanding of the inclusive green economy concept

Insufficient understanding of the green economy concept has emerged as a key challenge in several countries, including Burkina Faso, Cameroon, Kenya, Mauritius, and Morocco. There is insufficient data, knowledge and information for inclusive green economy policies. This creates a weak climate, limited incentives, and even refusal (e.g. from the private sector) to engage in green economy activities (see table 4).

Lack of political will

While in some countries the key success factor has been political support or will; this is not the case in others. Lack of political will has been reported in Cameroon, Ghana, and Gabon, resulting in a situation where decision makers do not always give priority to the allocation of funds for the development and implementation of specific inclusive green economy policies. Where political commitment has been expressed, the challenge is

actual materialization of intent. For instance, in Gabon, the commitment is clearly expressed in the country's Strategic Plan but this is yet to be demonstrated in concrete terms.

Insufficient funding

The questionnaire survey conducted as part of the ECA study on inclusive green economy policies and structural transformation in selected African countries also revealed that insufficient funding for implementation of green economy initiatives and unpredictable and slow disbursement of financial resources from development partners were key challenges in Kenya, Mauritius and South Africa. Although the survey does not go into detail about the extent of the funding gap, the resources required are enormous. The transition to a green economy will require investments up front in key sectors, but most countries will not be able to mobilize the required resources without external support or significant private sector investments. The Kenya National Climate Change Response Strategy, for example, identifies total resource requirement of \$2.4 billion per year in the energy sector alone (WEF, 2012).

Mauritius established the Maurice Ile Durable Fund as a matter of survival and in order to take urgent action to green the island. As a specialized fund under the Finance and Audit Act, it finances projects, schemes or programmes related to sustainable development. This followed two national budgets which specifically mentioned the green economy (the 20082009 budget with the title “*Building an attractive, modern, inclusive, green, open Mauritius*”; and the 20102011 budget, “*Shaping recovery, consolidating social progress, sustaining green Mauritius*”) (Heeramun, undated). The challenge now for the country is to consolidate the funding arrangements, and to enhance mobilization of resources for technology and infrastructure development and for building capacity of businesses and Government to implement the green transition.

Weak institutional and legal frameworks

Countries are relying on existing institutional frameworks to design, guide and implement the green economy strategies and programmes. Most green economy initiatives are multisectoral and in-

²⁸ <http://www.greengrowthknowledge.org/about-us>.

involve multistakeholder participation (UNEP, 2014). Without reforming or strengthening institutional and legal frameworks, the green economy transition is likely to be slow or uninspiring in terms of outcomes. In some countries, the transition would be spurred by adequate government readiness, including high-level commitment to enhancing institutional set-ups and developing the necessary legislation to empower government ministries and departments to implement programmes or mobilize resources. For example, Rwanda passed legislation establishing its National Climate Change and Environment Fund to enable the Government to mobilize resources for the green economy. South Africa also had to reform national and sectoral policies to facilitate the transition.

The South African approach thus far has been to enable earlier reforms that preceded the green economy transition, including the 2006 National Treasury Framework for Environmental Fiscal Reform; the 2008 Department of Science and Technology Ten-Year Innovation Plan; the 2009 National Planning Commission Medium-Term Strategic Framework 2009–2014; and later the National Development Plan in 2011; the 2011 Department of Environmental Affairs National Climate Change Response; the 2011 Department of Environmental Affairs National Strategy for Sustainable Development, among others (Kaggwa et al., 2013).

In countries where the development philosophy puts emphasis on the private sector as the main driver of the growth process (like Uganda and Kenya), the challenge, especially in the context of inclusive green growth, is that certain investments including those that support large-scale innovations may not be undertaken appropriately. Uganda has the largest area under organic agricultural farming in Africa, and has seen certified organic exports increase from \$3.7 million in 2003/2004 to \$22.8 million in 2007/2008 (ECA, 2011a; UNEP, 2010). The value of organic agriculture in Uganda will continue to rise as a result of government initiatives supporting private sector development in this segment.

In Kenya, investments in renewable energy, promotion of resource-efficient and clean production,

pollution control and waste management, environmental planning and governance, and restoration of forest ecosystems required policy direction for the private sector to contribute meaningfully to the transition. In particular, the legal and institutional frameworks for environmental management and related matters are currently under review to give a renewed mandate to the Ministry of Environment, Water and Natural Resources. Similarly, other sectoral policies and legislation are also being reviewed to give credibility and promote coherence in the transition (UNEP, 2014)²⁹.

Coordination, harmonization and integration

Consistency and coherence with existing national institutions is a critical requirement for key stakeholders in green economy implementation, as seen in Cameroon and Gabon. There is a need to align greening efforts in various sectors through a common institutional approach that brings together all relevant ministries or departments. Weak coordination, harmonization and integration creates an environment where the fragmented nature of sectoral policies on green growth leads to duplication of activities (e.g. Ghana, Senegal). Various activities serving the same purpose are implemented at different levels, and leadership quickly becomes an issue (e.g. Burkina Faso). In some cases (e.g. Mauritius) a plethora of buzzwords and new concepts associated with the green economy and growth weaken the ability of institutions to find entry points to harmonize actions.

The initial approach of Ghana to inclusive green growth, for example, is sectoral in nature. It rests more on the environment pillar and is driven by the ministry responsible for the environment sector. However, most national green economy plans and strategies constitute new forms of coordination across multiple government ministries – including finance, planning, energy and environment (e.g. Ethiopia, Kenya, Mozambique and Rwanda). Social ministries, though, are hardly involved and little reference is made to small businesses or informal actors. The ECA questionnaire survey also

²⁹ See UNEP (2014), table 4, on policy and legal provisions for a green economy, spanning at least 29 policy and legislative areas for Kenya's transformation to the green economy.

show that to promote inclusive green economy, organizational reforms are considered important and urgent preconditions for the transition. These reforms are given first priority in Republic of Congo and Senegal, third in Ghana, fourth in South Africa and fifth in Cameroon, Kenya and Mauritius, respectively.

Gaps in individual and institutional capacity to implement green economy policies

There are gaps in institutional and individual capacity to implement a broad green economy concept. Capacities are needed in the preparation of programme and project implementation, monitoring and evaluation. It is therefore anticipated that the technical translation of policies relating to the green economy into actions and enforcement processes will be a major challenge for most countries in Africa (GIZ, undated). For example, Ethiopia, Kenya, Rwanda and Senegal have set up inter-ministerial green economy committees to coordinate efforts toward a green economy transition (UNEP, 2015). In the case of South Africa, there is a need to build individual and institutional capacities and for responsible authorities to implement the green economy (Nhamo, 2013). The capacity of individuals and institutions should be enhanced, primarily of the authority implementing policies and of other stakeholders including academia, the private sector and non-governmental organizations, in order to build the skills and entrepreneurship that are required for implementation (UNEP, 2015; Swanson et al., 2004; Benson et al., 2014).

The example of the renewable energy skills exchange in Rwanda and Kenya is relevant for scaling up and lesson learning. Countries should also explore the possibility of exchanging skilled personnel and peer learning in the transition process. Specifically, capacity in Rwanda is being built in the energy sector at governmental level through exchanges on best practices between Rwandan government officials and Kenyan geothermal technology developers and, at the technical level, through the training of technicians within the National Domestic Biogas Programme (UNEP, 2015).

3.4.2 Opportunities

Existence of institutional and policy frameworks

Strengthening the institutions that will facilitate mainstreaming of the green economy in national development plans, national sector strategies and policies, and budgeting and planning procedures will become easier with experience particularly when reforms are incremental rather than radically replacing institutions that have proven to be effective and functional. Several countries in the region have identified potential policy or institutional intervention areas within existing frameworks, while others are in the process of reformulating their frameworks (see table 5). For instance, although Ghana is yet to have a green economy strategy, the country's Shared Growth and Development Agenda II 2014 2017 focuses on socioeconomic transformation through inclusive, sustainable growth coupled with job creation. One of the strategies under Agenda is to promote the mainstreaming of green economy principles in national development planning (UNEP, 2015).

Countries must build on their national development plans to mainstream green economy-related policies and streamline implementing institutions. This is important as existing institutional and policy frameworks were not initially designed for the green economy, and may have to be reformed to effectively implement the new agenda. In Egypt, for example, the National Committee for Sustainable Development is going to refocus attention on the green economy through its National Framework for Sustainable Development which has the objective of promoting economic growth, reducing pressure on the environment and enhancing social justice (UNEP, 2015).

Political will to reform institutions to support the green economy

There is growing recognition of the need to strengthen institutions to support the transition given that most green economy initiatives are multisectoral and involve multistakeholder participation (UNEP, 2014). In their Consensus Statement to Rio+20, African countries committed to enhancing efforts to improve the national governance environ-

Table 4: Challenges and constraints in institutions and policies for inclusive green economy policies and programmes in selected countries

Country	Challenge/weakness	Some potential remedial actions identified within the country
Cameroon	<ul style="list-style-type: none"> Overlapping duties: break or delay in the implementation of policies and actions Lack of political will: decision makers do not always provide political and financial support for promotion of inclusive green economy 	<ul style="list-style-type: none"> Establish a platform for coordinating actions with clearly identified leadership Raise awareness of decision makers, and mobilize support from regional and international cooperation
Kenya	<ul style="list-style-type: none"> Lack of coordination: inclusive green economy policy formulation and implementation is a multistakeholder affair; inadequate coordination constitutes a hindrance to the process Change in government structure due to the introduction of a devolved system of governance: newly formed Governments do not always prioritize green economy 	<ul style="list-style-type: none"> Ensure effective stakeholder coordination in all activities of inclusive green economy Create awareness and build capacity within institutions
Mauritius	<ul style="list-style-type: none"> Plethora of buzzwords and new concepts weaken the ability of institutions to find adequate entry points and harmonize actions Lack of predictable funding for National Programme on Sustainable Consumption and Production hinders implementation 	<ul style="list-style-type: none"> Provide clearer guidance and capacity-building within national institutions Ensure that implementation agencies integrate their sustainable consumption and production projects in their budgeting process
Rwanda	<ul style="list-style-type: none"> No costing of programmes of action in the Growth and Climate Resilience Strategy makes it difficult to price programmes of actions under the strategy Lack of sufficient understanding of the inclusive green economy due to the novelty of the concept 	<ul style="list-style-type: none"> Conduct a financial assessment of the strategy Strengthen understanding and engage all key stakeholders
Senegal	<ul style="list-style-type: none"> Insufficient integration and harmonization of sectoral policies creates difficulties in policy coordination and inefficiencies in public spending Sectoral approach is not effectively implemented and green economy requires an integrated approach 	<ul style="list-style-type: none"> Develop and implement an integrated policy guide and strengthen capacities Strengthen integrated and cross sectoral approaches
South Africa	<ul style="list-style-type: none"> Policy coordination objectives of the inclusive green economy often compete in public policy space for prioritization, especially within Government 	<ul style="list-style-type: none"> Ensure greater policy coordination

Source: Compiled from questionnaire survey conducted as part of ECA study on inclusive green economy policies and structural transformation in selected African countries.

ment, ensuring full accountability of institutions and transparent and inclusive planning and budgetary processes by developing national strategies for sustainable development. They also called on the international community to step up efforts to support the strengthening of institutions and planning capabilities in Africa.

In most countries, difficult socioeconomic and environmental conditions are compelling factors for an inclusive green economy transition that promotes sustainable development and improved living standards (OECD, 2012). This provides an opportunity for garnering the necessary political support and commitments through existing sustainable develop-

ment planning frameworks. This could be in the form of integrating green economy into programmes of key sectoral ministries; budget allocations to green investments; creating national green funds through fiscal reforms to introduce environmental taxes, as well as enhancing resource mobilization from other sources to finance the green economy; and enhancing the leading role of ministries of finance, planning and economic development with the support of ministries of environment in implementing, monitoring and evaluating green economy policies (AfDB and others, 2013).

Institutional capacity-building networks emerging within the region

Countries are becoming innovative in seeking to build the capacity of individuals and institutions responsible for implementing green economy programmes. Capacity-building programmes and institutions, such as the Kenya National Cleaner Production Centre and the Rwanda Resource-efficient and Cleaner Production Centre, have been created to develop skills and support access to new green job opportunities (UNEP, 2015). Some countries are explicitly identifying within their green economy strategies the institutional capacity gaps that need to be filled. CRGE in Ethiopia, for example, specifically seeks to build institutional capacity for the permanent institutional set-up and personnel that will be implementing the green economy (Ethiopia Government, 2011). Regional and subregional institutions are also in the forefront of building the capacity of member States in the three dimensions of sustainable development (annex I).

Existence of baseline data and sectoral surveys

Although for many countries it will be necessary to enhance their capacity to collect and evaluate data to inform green economy policymaking, sectoral evidence on the benefits and costs of the transition is now emerging (UNEP, 2012). For the successful implementation of inclusive green economy policy and strategies some countries (e.g. Malawi, Mozambique and Burkina Faso) have undertaken statistical and sectoral surveys to collect relevant

information on the challenges and opportunities facing green economy related sectors and their integration. While it is recognized that development of an indicator framework and set of indicators to inform all the key steps of policymaking in an inclusive green economy may pose challenges, it should be acknowledged that fostering an inclusive green economy provides additional opportunities to develop statistical capacity (UNEP, 2012).

Awareness level of civil society and private sector support

The awareness level of civil society and private sector support (e.g. insurance companies and financial institutions in Ghana) create an enabling environment for the penetration of inclusive green economy principles and for financial and insurance institutions to finance projects and programmes that will enable the transition. Private institutions are also key in providing the much-needed financial resources, including for strategic and long-term investment projects (Litido and Righini, 2013). Countries such as Kenya and South Africa are enhancing partnerships between public and private sector to enable the far-reaching restructuring of economies that is required (UNEP, 2014). This is an area where international development financial institutions can also play a pivotal role in supporting efforts by domestic financial institutions for inclusive green economy (UNEP, 2015).

Rodrik (2000) also notes that one of the important lessons from comparative experience with economic growth over the last few decades is the importance of private initiatives and incentives. All instances of successful development are ultimately the collective result of individual decisions by entrepreneurs to invest in risky new ventures and try out new things. Thus, while public policy and finance are needed to initiate the transition towards an inclusive green economy, they should also be accompanied by the necessary policy measures and enabling conditions for the development of a green private sector.

Table 5: Potential for institutional and policy interventions for inclusive green economy in selected countries

Country	Potential for institutional development and policy intervention	Possible actions for harnessing opportunities
Cameroon	<ul style="list-style-type: none"> • Low level of industrialization: green investment potential and structural transformation • Significant natural resource endowments: wealth creation and environmental management potential • Sanitation and waste management challenges: opportunities for wealth creation and jobs 	<ul style="list-style-type: none"> • Ensure technology transfer, technical and financial support, capacity-building of stakeholders, raising awareness of decision-makers • Assess economic potential in terms of natural resources; strengthen the management of these resources sustainably • Develop programmes in renewable energy, sewerage and solid waste management of household and industrial waste
Republic of Congo	<ul style="list-style-type: none"> • Ecotourism: development in protected areas with a high concentration of wildlife • Promoting eco-construction: development of houses with local materials (wood, clay, tile, etc.) with low power consumption • Sustainable forestry: valuation of non-timber forest products and biodiversity resources 	<ul style="list-style-type: none"> • Raise the capital necessary for the development of protected areas; develop infrastructure • Reduce the costs of production of green homes; mobilize external partners; reduce taxes related to the production of materials • Develop commercial and industrial activities; promote research and development
Kenya	<ul style="list-style-type: none"> • Abundance of development partners: opportunity for partners and other stakeholders to work together effectively • Opportunities in sustainable consumption and production: more investment and innovation in renewable energy, resource efficient and clean production 	<ul style="list-style-type: none"> • Improve coordination and engagement with stakeholders and improve absorption of funds from development partners • Implement public private partnership projects listed in medium-term plans.
Mauritius	<ul style="list-style-type: none"> • Adopt an evidence-based approach to green economy policy development and evaluation with a set of indicators • Proper institutional arrangement to implement green economy 	<ul style="list-style-type: none"> • Encourage corporations towards greater disclosure of environment-related reporting • Supplement Maurice Ile Durable initiative and provide Maurice Ile Durable Commission with green economy policies
Rwanda	<ul style="list-style-type: none"> • Multisector and multistakeholder approach to implementing green economy: mainstreaming of green economy across sectors as a cross cutting issue • Green investment promotion: Rwanda position worldwide in doing business can attract investment and multiple partners 	<ul style="list-style-type: none"> • Promote sustainable urban development; ensure industrial and private sector development and green innovation • Enhance resource mobilization; leverage domestic resources through environmental taxes, grants from development partners, and climate finance
Senegal	<ul style="list-style-type: none"> • Endowment of natural resources in the country which could generate jobs and wealth • Existence of an institutional and policy framework: creates a favourable policy context 	<ul style="list-style-type: none"> • Establish incentives or institutions that increase welfare by improving resource management and productivity • Strengthen existing institutional and policy frameworks; restructure institutions to accommodate new agenda
South Africa	<ul style="list-style-type: none"> • Increasing job creation in agriculture: most agriculture production (for bio-fuels, natural fibres, etc., that are used for industrial inputs) is associated with low-carbon outputs 	<ul style="list-style-type: none"> • Develop small-scale farmers; incentivize conversion of industrial processes to lower carbon inputs

Source: Compiled from ECA questionnaire survey.

3.5 Conclusions and recommendations

3.5.1 Conclusions

A green economy transition without the backing of strong, effective and dynamic institutions would not lead to broad-based growth that is socially inclusive, resource efficient and environmentally sustainable. Institutions and the policies they formulate and implement have fundamental roles in advancing the inclusive green economy agenda in Africa, especially through enhancing the integration of the three dimensions of sustainable development; strengthening collaboration and coordination mechanisms among stakeholders; promoting win-wins and dealing with trade-offs; addressing market failures, risks and uncertainties; and mobilizing resources for the green economy.

Institutions can guide and facilitate the transition to a green economy. Some countries in the region have adopted strategies, plans and road maps which are being implemented by institutions in various configurations or formations. In whatever form, institutions that have clear mandates and occupy strategic positions within the government machinery are going to be more effective and robust in their interventions. In this regard, the strong involvement of the ministries of finance and economic planning, the Presidency or the Prime Minister's Office are crucial as it demonstrates the priority attached by the country to the green economy transition. Consistency and coherence of policies cutting across the three dimensions of sustainable development and wider stakeholder participation are also important for the effectiveness of the institutions and policies.

Africa has a wealth of experience in coordinating institutional support in the implementation of sustainable development. As the transition process to a green economy progresses, and as more and more African countries adopt green economy policies and strategies, decisions will have to be made about the nature and role of institutions that must emerge to drive the implementation. Lessons will be learned along the way, but pioneers are either building on existing institutional frameworks for sustainable development and reformulating sectoral and national

development strategies or creating new institutions and new development strategies. However, challenges remain to be addressed on the institutional and policy side to realize an effective green economy transition that will contribute to sustainable development in the region.

Inadequate understanding of the green economy concept and insufficient data creates a weak environment for institutions to emerge and engage in the green economy. Political commitment to green economy must be cultivated; resources need to be mobilized to strengthen institutions and to fund interventions in the transition; and coordination and integration of sectoral policies need to be strengthened. Institutional development in the region also calls for closing of gaps in individual and institutional capacity to implement green economy policies. Countries should utilize existing institutional and policy frameworks to build relevant institutions that will be effective for the green economy, and take advantage of the institutional capacity-building networks emerging within the region, and from abroad, particularly from development partners committed to supporting the transition in Africa.

3.5.2 Recommendations

The following are some of the recommendations for enhancing African institutions and policy development and implementation aimed at fostering the transition while contributing to sustainable transformation and poverty eradication.

Countries should build on existing national institutions and frameworks for sustainable development to implement the green economy. In doing so, it should be borne in mind that political commitment to effective institutional leadership manifests in dynamic national governance institutions and accountability and transparency of planning and budgetary processes.

Countries should ensure greater engagement with all stakeholders involved in green economy implementation. There is a need to align efforts of greening in various sectors through a common institutional approach that brings together all relevant ministries and departments. The convening and coordinating role of ministries of finance and economic planning

on the national development agenda is particularly relevant to bringing together all stakeholders in the green economy. There is also a need to develop and implement programmes in an integrated manner, using multisectoral approaches to amplify impacts, while also strengthening capacities required to manage the transition.

African countries should intensify the development of national inclusive green economy strategies that fully reflect the economic-social-environmental dimensions of sustainable development. The existence of such strategies provides the opportunity to establish or strengthen institutions capable of driving the inclusive green economy agenda.

Green economy policy and institutional frameworks should be embedded into national planning processes, and innovative ways of resource mobilization devised. Countries should mainstream green economy related policies into national development plans and strengthen institutions to implement the green economy agenda. They should also improve their absorptive capacity for funds from development partners.

Countries should assess their green economy implementation readiness. Capacities are needed to ensure effective translation of strategies and policies into desired outcomes and impacts. Capacity requirements include technology deployment, technical and financial support, awareness raising and promoting the participation of all stakeholders. There is also a need to strengthen understanding and provide clear guidance to relevant state and non-state actors with a view to their effective engagement.

African countries should take full advantage of the global efforts to support implementation of the green economy. Better international coordination and mobilization of financial resources are also needed to deepen the engagement of African regional and subregional bodies and Governments. Regional and global institutions and initiatives for the promotion of inclusive green economy could support countries as they define priorities, formulate institutions and policies, and engage with other partners for enhanced support during implementation, monitoring and evaluation.

References

- AfDB, OECD, UN and World Bank (2013). A Toolkit of Policy Options to Support Inclusive Green Growth. A Submission to the G20 Development Working Group. Available at: <http://www.undp.org/content/undp/en/home/librarypage/environment-energy/toolkit-inclusive-green-growth.html>.
- Alence, R. (2004). Political institutions and developmental governance in sub-Saharan Africa. *Journal of Modern African Studies*, 42, 2 (2004), pp. 163–187.
- Barbier, Edward B. and Anil Markandya (2012). *A New Blueprint for a Green Economy*. London and New York: Routledge.
- Benson, Emily, Steve Bass, Oliver Greenfield (2014). *Green Economy Barometer: Who is doing what, where, and why?* Green Economy Coalition.
- Economic Commission for Africa (2005). National councils for sustainable development in Africa: A review of institutions and their functioning.
- (2007). Relevance of African traditional institutions of governance.
- (2008). *Sustainable Development Report on Africa I Managing Land-Based Resources for Sustainable Development*.
- (2011a). Economic Report on Africa 2011: Governing development in Africa - the role of the state in economic transformation. Available from: <http://repository.uneca.org/handle/10855/21376>.
- (2011b). Africa Consensus Statement to Rio+20.
- (2012a). Outcome Document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes.
- (2012b). Institutional and Strategic Frameworks for Sustainable Development in Africa.
- (2013). Economic transformation in Africa: Drivers, challenges and options. Issues paper prepared for the third meeting of the High-Level Panel of Eminent Persons, held from 30 January to 1st February 2013.
- (2015a). Country Profile Morocco.
- (2015b forthcoming). Economie verte inclusive et transformation structurelle au Burkina Faso.
- (2015c forthcoming). Inclusive Green Economy and Structural Transformation in Ethiopia.
- (2015d forthcoming). Economie verte inclusive et transformation structurelle au Gabon.
- (2015e forthcoming). Inclusive Green Economy and Structural Transformation in Mozambique.
- (2015f forthcoming). Economie verte inclusive et transformation structurelle en Tunisie.
- Economic Commission for Africa and Organization for Economic Cooperation and Development (2014). Mutual Review of Development Effectiveness in Africa – Environmental Sustainability.
- Ethiopia Government (2011). Ethiopia's Climate-Resilient Green Economy Strategy.
- (2013). CRGE Highlights. Volume 1, No. 2, June 2013.
- Gasparatos, Alexandros; Casey Stevens (2015). Biodiversity in the green economy: setting the stage. In *Biodiversity in the green economy*, Alexandros Gasparatos and Katherine J. Willis, eds. Routledge.
- Deutsche Gesellschaft für Internationale Zusammenarbeit, GIZ (Undated). Green Economy in Sub-Saharan Africa: Lessons from Benin, Ethiopia, Ghana, Namibia and Nigeria. Available from: http://www.greengrowth-knowledge.org/sites/default/files/downloads/resource/green_economy_in_sub_saharan_africa_GIZ.pdf.
- Green Growth Best Practice, GGBP (2014). Green Growth Best Practice Report. Synthesis of key findings. March 2014.
- Heeramun, K.K. (Undated). National Initiatives on Green Economy: The case of Mauritius. Presentation. Available from http://www.oecd.org/dac/environment-development/Presentation%20on%20Green%20Economy%20-%20Mauritius_K.Kumar%20Heeramun.pdf.
- Hodgson, G. M. (2006). *Journal of Economic Issues*, vol. XL, No. 1, March 2006.
- Jaffe, A.B., R.G. Newell, and R.N. Stavins (2004). A Tale of Two Market Failures: Technolo-

- gy and Environmental Policy. Resources for the Future, dDiscussion paper RFF DP 04-38. Available from <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-04-38.pdf>.
- Kaggwa, M., S.S. Mutanga, G. Nhamo and T. Sime-lane (2013). South Africa's Green Economy Transition: Implications for Reorienting the Economy Towards a Low-Carbon Growth Trajectory. South African Institute of International Affairs, Occasional Paper No. 168.
- Kenya Government (2015). Green Economy Strategy and Implementation Plan.
- Lin, J.Y., and J.B. Nugent (1995). Institutions and Economic Development. In J. Behrman and T.N. Srinivasan, eds. *Handbook of Economic Development*, vol. 3A. North-Holland, Amsterdam.
- Litido, M.I., and Righini, G. (2013). *Tools and Methods for the Green Economy*. Italian National Agency for New Technologies, Energy and Sustainable Economic Development. Bologna, Italy.
- Mozambique Government, 2012. Towards a Green Economy. Road Map for a Green Economy in Mozambique: accelerating sustainable economic, social, and environmental development.
- Mozambique, Ministry for the Coordination of Environmental Affairs (2012). National Report to the United Nations Conference on Sustainable Development. Available from <https://sustainabledevelopment.un.org/content/documents/1032mozambique.pdf>.
- Nachmany, M., S. Fankhauser, J. Davidová, N. Kingsmill, et al. (2015). Climate Change Legislation in Rwanda. In *The 2015 Global Climate Legislation Study: A Review of Climate Change Legislation in 99 Countries*. Available from <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/RWANDA.pdf>.
- Nhamo, G. (2013). Green economy readiness in South Africa: A focus on the national sphere of government. *International Journal of African Renaissance Studies* 8(1): 115-142.
- Ostrom, V., and E. Ostrom (2014). Public Goods and Public Choices. Workshop in Political Theory and Policy Analysis, Indiana University. Available from <http://johannes.lecture.ub.ac.id/files/2012/02/Public-Goods-and-Public-Choices.pdf>.
- Organisation for Economic Co-operation and Development (2012). Green Growth and Developing Countries: A Summary for Policy Makers. Available from: <https://www.oecd.org/dac/50526354.pdf>.
- Overseas Development Institute (2006). *States and Economic Development: What Role? What Risks?* London.
- Phills, J., and L. Denend (2005). Social Entrepreneurs Correcting Market Failures. Stanford Graduate School of Business. Available from <http://www.gsb.stanford.edu/faculty-research/case-studies/social-entrepreneurs-correcting-market-failures>.
- Poverty Environment Partnership (2012). Building an Inclusive Green Economy for All: Opportunities and Challenges for Overcoming Poverty and Inequality. Joint Agency Paper. June, 2012.
- Reinert, E.S. (1999). The role of the state in economic growth. *Journal of Economic Studies*, 26(4/5): 268-326.
- Resnick, Danielle, Finn Tarp, and James Thurlow. (2012). The Political Economy of Green Growth: Cases from Southern Africa. Public Administration and Development 32: 215-228.
- Rwanda Government (2011). Green Growth and Climate Resilience National Strategy for Climate Change and Low-Carbon Development.
- Rodrik, D. (2000). Institutions for high-quality growth: What they are and how to acquire them. *Studies in Comparative International Development*, Vol 35(3): 3-31.
- Stiglitz, J. (2013). Inequality Is a Choice. *The New York Times*, 13 October.
- Swanson, D., L. Pinter, F. Bregha, A. Volkery, and K. Jacob (2004). National strategies for sustainable development: Challenges, approaches in strategic and coordinated action based on 19-country analysis.
- South Africa Government (2011). Green Economy Accord.
- The Guardian* (2012). Structural institutional change needed for a successful green economy. Avail-

- lable from <http://www.theguardian.com/sustainable-business/green-economy-institutional-change>.
- Toman, M. (2012). *Green Growth: An Exploratory Review*. World Bank Policy Research Working Paper 6067. Washington, D.C.: World Bank.
- Torjman, S. (2005). *What is Policy?* Caledon Institute of Social Policy. Available from <http://www.caledoninst.org/Publications/PDF/544ENG.pdf>.
- United Nations (2011). *Working towards a balanced and inclusive green economy: A United Nations system-wide perspective*. Prepared by the Environment Management Group.
- (2012). *The future we want. Outcome Document of the United Nations Conference on Sustainable Development*.
- United Nations Conference on Trade and Development (2011). *Building a development-led green economy*. Policy Brief No. 23, June 2011.
- United Nations Department of Economic and Social Affairs (2012). *A Guidebook to the Green Economy Issue 3: Exploring green economy policies and international experience with national strategies*.
- (2015). *Financing sustainable development and developing sustainable finance. Briefing note on the Addis Ababa Action Agenda*. Available from <http://www.un.org/esa/ffd/wp-content/uploads/sites/2/2015/07/DESA-Briefing-Note-Addis-Action-Agenda.pdf>.
- United Nations Department of Economic and Social Affairs, United Nations Environment Programme and United Nations Conference on Trade and Development (2012). *The Transition to a Green Economy: Benefits, challenges and risks from a sustainable development perspective*. Report by a panel of experts to the second Preparatory Committee Meeting for the United Nations Conference on Sustainable Development.
- United Nations Environment Programme (2010). *Green Economy: A Brief for Policymakers on the Green Economy and Millennium Development Goals*. Geneva.
- (2012). *Measuring Progress towards a Green Economy. A Draft Working Paper*.
- (2013). *South African Green Economy Modelling Report – Focus on Natural Resource Management, Agriculture, Transport and Energy Sectors*.
- (2014). *Green Economy Assessment Report – Kenya*.
- (2015). *Building Inclusive Green Economies in Africa: Experience and Lessons Learned, 2010-2015*.
- United Nations Environment Programme and Economic Commission for Africa (2011). *A Green Economy in the Context of Sustainable Development and Poverty Eradication: What are the Implications for Africa? Background report*. Africa Regional Preparatory Conference for the United Nations Conference on Sustainable Development. Addis Ababa, 20-25 October 2011.
- United Nations Research Institute for Social Development (2012). *From Green Economy to Green Society: Bringing the Social to Rio+20*. Special magazine for Rio+20.
- World Economic Forum (2012). *Financing Green Growth in a Resource-constrained World: Partnerships for Triggering Private Finance at Scale*. Available from http://www3.weforum.org/docs/WEF_ENI_FinancingGreenGrowthResourceConstrainedWorld_Report_2012.pdf.

4: Policy instruments for an inclusive green economy

Key messages

Policy instruments have a central role in stimulating investments and motivating behaviour to foster the transition to an inclusive green economy. They seek to correct market failures by internalizing negative externalities and promote change through incentives and disincentives that promote green behaviours, innovations and investments. They are also an important source of public revenues to finance national development.

The choice of policy instruments must be in line with broad inclusive green economy policy objectives and must be consistent with sustainable development goals of a given country. Emerging policy initiatives and reforms must be evidence-based and seek to benefit all. Since the transition to an inclusive green economy is a dynamic process of change from current practices, the choice of instruments should reflect this dynamism by, for example, encouraging innovation in production processes that promote sustainable resource use.

Prior to designing and applying any policy instruments for inclusive green economy, the policy context must be understood. This should include a realistic assessment of existing institutional, legal and economic conditions in which these tools are meant to function. While institutional growth could be part of the policy frame, it is important that institutional limitations are also recognized to increase the likelihood that the new instruments will achieve desired results.

Effectiveness of the instrument in achieving the specific policy objectives must remain paramount. The potential efficiency of policy instruments must also be balanced against existing policy constraints. Potential losses in the

efficiency of one instrument could be balanced against the ease and timeliness of implementation of another, given social considerations and the political economy. Analysing trade-offs in a particular policy context is useful to ensure that due consideration is given to the implications of choices and the implicit compromises they contain.

The wider economic and environmental impacts and distributional concerns should influence the design and application of policy instruments. In the transition to inclusive green economy, particular attention must be paid to impacts, especially on poor and vulnerable groups. Vested interests should not undermine reforms such as removal of subsidies, introduction of new taxes, and transfers to the poor. Phase-in, gestation periods and incremental strategies might smooth out implementation constraints, address stakeholder concerns or resistance, and enhance buy-in and outcomes.

4.1 Introduction

The effective implementation of policies can be achieved through the application and enforcement of appropriate instruments. Transitioning to an inclusive green economy will require a shift towards a policy structure that engenders fundamental reviews, redesign and different mixes of policy instruments that encourage shifts in production, consumption, and investments in and across various sectors of an economy. This requires appropriate incentives and disincentives that send strong and coherent signals to economic agents (United Nations, 2011).

Promoting and implementing green policies is a complex issue. Often, individuals, households and firms do not relate their consumption, production

and behavioural choices to issues of energy scarcity, pollution, biodiversity loss and natural resource depletion; or how they can contribute to fostering a green economy. The supply side of businesses and industry is also critical in stimulating demand for better technologies and products and in helping to encourage greener choices. Policy instruments for the green economy are relevant for businesses if they remove barriers to innovation or systemic failures that hinder the flow of knowledge and technology, and reduce the overall efficiency of the system-wide research and development and innovation effort. Green transformation also requires systemic and transformative changes in the way consumers make choices (OECD, 2012a). Hence, a more comprehensive understanding of the interaction between supply and demand will be a prerequisite for selecting appropriate green economy policy instruments (OECD, 2009).

Implementing green policy interventions in the African context is even more challenging due to scepticism or lack of understanding of the green economy concept; structural constraints; governance challenges; and poverty, growth and distributional concerns. As more African countries adopt green economy policies, fundamental questions arise. Which instruments? What outcomes should green economy policy instruments seek to achieve? Which factors underlie the relevant change? What are the potential rebound effects and social considerations?

Much of green growth is about good policies addressing market failure and “getting the price right” by introducing environmental taxation, pricing the use of scarce natural resources and pollution (such as carbon pricing), defining and enforcing property rights, and reforming inefficient subsidies (AfDB and others, 2013). Sonigo et al (2012) identify four main categories of policy instruments that can be used to encourage green behaviour: (i) regulatory – such as mandatory labelling that bans or limits certain products or behaviour and requirements; (ii) information – such as product labels and information on energy bills; (iii) behavioural tools or nudges aimed at influencing consumer behaviour by leading individuals to make greener choices; and (iv) economic instruments comprising a variety of policy approaches such as taxes, incentives, subsidies, pe-

nalties or grants for green enterprises that influence decisions of economic agents through their impact on market signals.

This chapter discusses policy instruments and the role they can play in facilitating the transition to an inclusive green economy in Africa. It also discusses the emerging trends in the application of policy instruments in various sectors including energy, industry, transport and the environment. It also explores the challenges and opportunities policymakers face in choosing the set of policy instruments suitable for various situations. The chapter concludes with recommendations aimed at enhancing the use and effectiveness of policy instruments to support the green economy transition.

4.2 The role of policy instruments in fostering an inclusive green economy

Correcting market failures

Market failure is a situation where markets fail to price goods and services at their true costs to society as a whole and hence send the wrong cost information to economic actors³⁰. Undistorted and full cost-reflective prices are essential for efficient functioning of markets. Market-based instruments help to correct market failures that lead to overuse and inefficient use of resources, pollution, and disincentives to cleaner and more efficient technologies. Negative externalities such as greenhouse gas emissions pass costs from private actors onto society. Market-based instruments help to internalize negative externalities and allow the market to play the critical role of changing consumption, production and investment patterns in favour of greener and resource-efficient technologies and practices. Taxes, for example, put a price on emissions and allow the market to determine emission levels. Taxes can also serve as disincentives to over-extraction of

³⁰ The economic theory of market failure seeks to account for inefficient outcomes in markets that otherwise conform to the assumptions about markets held by neoclassical economics (i.e. markets that feature perfect competition, symmetrical information, and completeness). According to the neoclassical theory, markets fail under any of three conditions: production has increasing economies of scale; goods in the market are public; or production or consumption has externalities. <http://www.britannica.com/topic/market-failure>

resources and incentivize sustainability. Cost-reflective tariffs are an important policy instrument in ensuring efficient allocation of resources and attract inclusive green growth investments (Stavins, 1998; Stavins, 2002).

By getting the prices right, market-based mechanisms make green products more competitive and affordable for consumers and make environmentally harmful products and practices more expensive to discourage their consumption. This promotes behavioural changes and may stimulate innovations, leading to new lines of businesses and creation of new jobs and employment opportunities.

Green fiscal reforms generate revenues and create fiscal space for green public investments and social expenditures benefiting the poor.

Fiscal reforms can potentially generate fiscal revenues through taxes or charges, and reduce fiscal expenditures through the removal of harmful subsidies (Schlegelmilch and Joas, 2015; Chaturvedi et al., 2014). For example, fossil fuel subsidies are putting fiscal strains on government budgets and crowding out public expenditures on social services. These subsidies make innovation and development of cleaner and low-emission energy sources less competitive, encourage inefficiency and overallocate resources to energy-intensive sectors (Schlegelmilch and Joas, 2015; World Bank, 2014). Reforms of these subsidies are essential for enabling inclusive green growth, given their economy-wide impacts beyond the energy sector.

Environmental taxes and levies have proven to be effective in addressing not only environmental externalities but also generating substantial fiscal revenues. The appropriate deployment of these revenues can make a significant contribution to enhancing incomes; addressing poverty and inequalities; promoting inclusive growth; and enhancing expenditures on social services. Several countries including South Africa and Tunisia are already exploiting the fiscal dividend of environmental taxes by recycling them to reduce market distortions while reducing overall tax burdens and addressing social concerns (Spratt, 2013; UNEP et al., 2012; Heine et al., 2012).

Fiscal reforms that promote green public procurements are another policy mechanism for fostering greener and inclusive economies. Governments and other non-private entities spend sizeable shares of GDP on infrastructure and procuring goods and services. Public procurement represents over 20 per cent of GDP in developing countries (Querol and Schaefer, 2013). Greening procurements at such values and volumes may be sufficient to trigger markets and transform supply chains and administrations towards greener economies. Through green public procurements, the public sector reduces the environmental impact of its operations, may improve efficiency by rationalizing needs, and reduces expenditure, especially when purchasing energy-efficient products. Green public procurement also accelerates the market transformation for greener solutions, encouraging eco-innovation and new, environmentally conscious business practices (Querol and Schaefer, 2013; IISD, 2012).

Incentivizing investments

Up-front investments for a green economy transition are enormous and may require direct incentives that stimulate investments in critical sectors. Green economy investments can also be stimulated by incentives for low-carbon technology, resource efficiency and environmental preservation. Investments in renewable energy and energy efficiency can improve energy security and enhance enabling conditions for sustained and inclusive economic growth (OECD, 2012b). Feed-in-tariffs (REFIT) as a policy instrument, for example, has proven to stimulate investments in renewable energy by reducing transactions costs, providing investment security and market stability. REFIT policies provide guaranteed priority purchase targeting firms to generate energy from renewable sources – for example wind, small-scale hydropower, biomass and solar. Beyond promoting investments in renewable energy, REFIT can be an effective tool for stimulating rural development and tackling poverty (AFREPREN/FWD, 2009; UNEP, 2012).

Targeted public spending and investment in key sectors with high inclusive green growth potential can trigger and leverage private investment (United Nations, 2011). Agriculture, fishing and forestry are, for instance, the sectors that the poor depend on

heavily for their livelihoods, especially in rural areas. Development of the agriculture sector is often proven to be a multiplier for poverty reduction, especially rural poverty and food security (DFID, 2005; McIntyre et al., 2009). Targeted public spending in public works for environmental protection activities such as the removal of invasive species, soil erosion control, watershed management and irrigation also generate local employment, provide social safety nets and improve rural communities' resilience to natural hazards and climate change impacts (McIntyre et al., 2009; United Nations, 2011).

Private investments in research and development for green innovations and technologies often tend to be suboptimal or unattractive. This is because individuals or companies hold all the downside risk if the research fails, the company bears the full cost. However, if the research is successful, the company does not capture all of the upside benefit – rival firms may benefit from it. Policy instruments attempt to allay this market failure with subsidies and tax incentives for private research and development and with public funds to provide incentives and support (OECD, 2002; Busom et al., 2014).

Provision of incentives for better stewardship of ecosystems, enhancing livelihoods and complementing regulations

Ecosystems provide society with a wide range of services, from reliable flows of clean water to productive soil and carbon sequestration. Societies rely on these services for raw material inputs, production processes and climate stability (Waage et al., 2008). However, many of these ecosystem services are either undervalued or have no financial value at all. Payment for ecosystem services is an example of a market-based approach that has demonstrated a strong potential for enhancing local livelihoods and ecosystems management. Payment for ecosystem services provides direct economic incentives for better stewardship of environmental resources and can complement indirect means of financing and regulation. In particular, financing the management of ecosystems goods and services in Africa requires new and additional sources. Payment for ecosystem services provides opportunities as an innovative financing source, while enhancing local livelihoods (Sander and Cranford, 2010).

Better informed decision-making

Information about resource-use efficiency and options are often incomplete, unavailable, expensive, and/or difficult to obtain or trust (IPCC, 2007). Consumers and even business professionals and experts – developers, designers and contractors – are not always aware of the green technologies available and lack knowledge of the application of new technologies. Even when they are aware, they may be reluctant to take a chance. Information-based instruments address the issues of information asymmetry and provide information and raise awareness about the attributes of products and processes and the alternatives available. For example, a consumer may not be aware of the potential economic gains from adopting energy-efficient technologies. Labelling and performance rating programmes facilitate better informed decision-making. Addressing the challenges of information asymmetry is particularly crucial in the transition to an inclusive green economy due to the general lack of knowledge and scepticism of the green economy concept.

There are a broad range of inclusive green economy principles and various natural capital- and social equity-related goals and outcomes that policy instruments are designed and implemented to achieve through appropriate incentives and disincentives. Annex 1 provides examples of policy instruments and their possible applications to the green economy.

4.3 Trends in the use of policy instruments for an inclusive green economy

Policy instruments have been applied to address a wide range of issues in support of development objectives in many countries, and many initiatives in the use of policy instruments for inclusive green economy are also emerging across Africa. This section highlights examples of the applications of economic, regulatory, information and behavioural instruments. Annex 1 provides further examples of policy instruments and their possible applications.

Economic instruments

Stavins (2002) describes economic instruments as comprising a variety of policy approaches that encourage behavioural change through their im-

impact on market signals rather than through explicit directives. Generally, a distinction is made between market-based economic instruments and non-market based ones. The theoretical rationale behind economic instruments is to secure an optimal use of resources. As such, economic instruments affect costs and benefits of alternative actions open to economic agents, with the effect of influencing behaviour in a way that is favourable to the environment while addressing social and equity issues. Broadly, economic instruments can coerce or apply disincentives, provide incentives, or allow actors to negotiate the level of benefits they receive (e.g. trading systems).

Application of economic instruments in the energy sector stimulating investments in renewable energy to address energy challenges

The energy sector is crucial in the transition to a green economy. One of the key contributions that energy can make to the transition is supplying increased and sustainable energy for a diverse range of economic and social activities. But Africa is facing an energy crisis. Existing production capacity has not met the growing energy demand to power and grow the economy, drive local development and tackle poverty.

Africa's renewable energy potential presents prospects to address energy related challenges, create jobs and enhance human welfare. However, the initial capital requirements are often very high, thus posing an obstacle for many investors. In order to realize the full potential of renewables, Governments have to provide an enabling policy environment, encouraging and supporting widespread investment. Renewable energy feed-in tariffs (REFITs) have proven to be successful policy tools in this respect (box 9). A REFIT encourages independent power producers such as companies, communities and even individual citizens to invest in renewable energy technology by guaranteeing that all the energy produced will be bought at a fixed and profitable price. More than just a way of increasing investments and ensuring guaranteed payment for production of sustainable electricity, REFITs can also be an effective tool for promoting rural development and tackling poverty, with positive spillover effects on other sectors.

Other benefits of REFITs include the reduction of greenhouse gas emissions, enhancing energy-supply security by reducing a country's dependence on imported fuels and, thus, dealing with the global scarcity of fossil fuels and their attendant price volatility. The REFIT concept is highly adaptable to varying national circumstances and policy objectives. A number of countries including Algeria, Botswana, Egypt, Ethiopia, Ghana, Kenya, Mauritius, Namibia, Rwanda, South Africa, Uganda, United Republic of Tanzania, and Nigeria have either adopted or are putting in place policies to attract investments in renewable energy through REFITs.

Besides REFITs, there are many other policy initiatives for promoting investments and uptake of renewable energy across Africa. These include removal of subsidies on fossil fuels, capital-cost subsidies and financing, and loan mechanisms for solar plans in Tunisia and Morocco, for example (box 10).

Application of economic instruments in the industrial sector – creating incentives, curbing emissions and raising revenues

Industrial development is traditionally associated with greenhouse gas emissions, environmental degradation and health risks. In the context of a green economy, industrial development can be supported by appropriate policies that promote investments and enhance the deployment of clean, efficient and resource-saving technologies (box 11). Appropriate industrial policies also raise revenues and integrate social concerns as useful elements for the inclusive green economy. Promoting clean industrial technologies further integrates inclusiveness by addressing the environmental burden of disease and water, forest, and biodiversity loss, and also supports wealth creation through the more productive and sustainable uses of biodiversity.

Application of economic instruments in the transportation sector

The transportation sector is a key sector responsible for greenhouse gas emissions. Hence regulations are often applied in this sector to enhance energy efficiency or reduce emissions (box 12). Currently there is an unprecedented increase in motor vehicles

Box 9: Application of renewable energy feed-in tariffs in Kenya

Kenya's energy profile is characterized by a predominance of traditional biomass energy to meet the energy needs of rural households and a heavy dependence on imported petroleum for the modern economic sector needs. As a result, the country faces challenges related to unsustainable use of traditional forms of biomass and exposure to high and unstable oil import prices. In March 2008, the Kenyan Ministry of Energy adopted a feed-in tariff based on the realization that renewable energy sources, including solar, wind, small-hydro, biogas and urban solid waste energy, have the potential for income and employment generation, while also contributing to the energy supply and diversification of electricity-generation sources. As Kenya's greatest renewable energy potential lies in its rural areas, the effects of the feed-in tariff policy are expected to trickle down and stimulate rural employment. This can happen through the construction of power plants, for example in agro-industries, in particular the sugar cane industry. Some of the feed-in tariff projects have already commenced operation. The cogeneration plant of the Mumias Sugar Company Limited in western Kenya, for instance, is now adding 26 MW to the grid out of the 38 MW it produces. The company produces power through the burning of bagasse, a waste product from sugar cane.

It is estimated that the sugar factories have directly and indirectly contributed to employment generation by supporting about 200,000 small-scale farmers within the sugar belt of western Kenya; and that between five and six million people either directly or indirectly benefit from the sugar factories.

The feed-in tariff allows power producers to sell to the national grid and obligates the distributors to buy, on a priority basis, all renewable energy source-generated electricity at predetermined fixed tariffs for a given period of time. The feed-in tariff policy is expected to trigger the generation of an additional 1,300 MW of electricity from clean sources over the next five years. A 1,311 MW project was recently approved and two power purchase agreements have been signed. This will nearly double the country's current installed capacity, while enhancing economic competitiveness and job creation.

Source: UNEP (2014). Green Economy Assessment Report – Kenya; UNEP (2010). Green Economy: Developing Countries Success Stories.

Box 10: Low interest bank loans and capital subsidies for solar energy in Tunisia

In December 2009, the Government of Tunisia established the first national solar energy plan with the objective of increasing the proportion of renewable energy sources from 1 per cent to 4.3 per cent in 2014. The plan includes the use of solar photovoltaic systems, solar water heating systems and solar concentrated power units for electricity generation. The energy savings expected to result from the plan could reach 22 per cent for 2016, with a reduction of 1.3 million tons per year of CO₂.

Within the framework of the national solar plan, the Government established the Tunisian Solar Programme (PROSOL) – a joint initiative of the Tunisian National Agency for Energy Conservation, the State utility Société-Tunisienne de l'Electricité et de Gaz, the United Nations Environment Programme and the Italian Ministry for the Environment, Land and Sea. PROSOL provides an example of solar thermal market development using economic instruments. Financial and fiscal support for the programme combines a capital grant qualifying for VAT exemption, customs duty reduction and a bank loan with reduced interest rates.

The Government provides a subsidy of 20 per cent of the system cost, while customers are expected to finance a minimum of 10 per cent of the purchase and installation costs. As a result of the programme, over 50,000 Tunisian families now get their hot water from the sun based on loans. As of 2008, PROSOL helped avoid 214,000 tons of cumulative CO₂ emissions. Jobs have also been created as 42 technology suppliers were officially registered and at least 1,000 companies installed the systems.

Source: UNEP (2010). Green Economy: Developing Countries Success Stories.

Box 11: Green tax initiatives in South Africa

South Africa's carbon tax programme is likely to come into effect in 2016, a year after the expected start date. First proposed in December 2010, the carbon tax programme aims at reducing South Africa's emissions by 34 per cent by 2020 and cut them by 42 per cent by 2025 on condition that developed countries provide financial and technical assistance. Total carbon emissions in the country may peak at 614 million tons by 2025 and drop to a maximum of 428 million tons by 2050, according to the Government. The 2013/14 budget review proposed that the tax will initially be levied at ZAR 120 (US\$ 13) per ton of CO₂ and will increase by 10 per cent per annum during the first implementation period of 2015–2020. A benchmark of carbon emissions per unit of output has been proposed, and may be defined at an industry sector or subsector level. Companies that emit less CO₂ than the benchmark will receive additional tax-free allowances, while those performing below the standard will have their free allowances reduced.

Section 12I Tax Allowance Incentive is designed to encourage the development of major manufacturing projects in the country and offers support for both capital investment and training. Among other criteria, to qualify projects must demonstrate a minimum 10 per cent energy saving sustained for a minimum of 4 years. The incentive offers a tax allowance of between 35 per cent and 100 per cent up to a maximum of ZAR 900 million (US\$ 97 million) for green field projects with "preferred" status. As at 30 April 2014, the programme has supported 42 projects with an investment value of ZAR 43 billion. These projects are within the priority sectors identified in the Industrial Policy Action Plan. All 42 projects will create approximately 6,205 direct jobs and 89,583 indirect jobs. It is further estimated that ZAR 10.7 billion worth of opportunities will be created through small, medium and micro enterprise procurement.

An energy efficiency saving tax allowance (Section 12L, Income Tax Act) also proposes a tax deduction based on the amount of energy saved by the taxpayer in the year of assessment. The deduction is proposed to be calculated at ZAR 0.45 (US\$ 0.05) per kilowatt hour (or equivalent) of energy saved.

South Africa also offers 150 per cent tax deduction for eligible general research and development, including green and energy saving research and development. A project may qualify, for example, if the innovation is related to changing a production process to a greener method.

Source: KPMG (2013). The KPMG Green Tax Index; Republic of South Africa, Ministry of Trade and Industry Available from https://www.thedti.gov.za/financial_assistance/financial_incentive.jsp?id=45&subthemeid=26

in Africa and the trend is expected to continue for another 30 years³¹. Public transport is generally poor across the continent.

Poor and old transport systems have also been associated with the growing road traffic fatalities. Africa is the continent with the highest road fatality rates in the world. The 2013 World Health Organization report shows that the estimated road traffic death rate was 24.1 per 100,000 compared to 18.5 in Asia and 10.3 in Europe. Although there has been an increase in infrastructural development, many challenges remain with regard to road fatalities, poor transport governance, connectivity and increasing greenhouse gas emissions from cars. Many countries in the region are adopting policies to support public health and ecosystems and minimize emissions as essential for a green economy.

³¹ <http://www.who.int/indoorair/publications/energyhealthbrochure.pdf>.

Regulatory instruments

Regulatory instruments, often referred to as command and control measures, specify mandatory actions or outcomes for firms and households, and these requirements are controlled and enforced. Regulatory instruments for the green economy can be broadly divided into two categories: standards, and restrictions and prohibitions.

Standards can be described as prescriptive norms that govern or inform products and processes or set actual limits on the amount of emissions or pollution. Standards can be further classified into process standards, product standards, emission standards, quality standards, and best environmental practice or best available technology standards. Examples include specifications for green technologies, pollution abatement technologies, biofuel standards, fuel efficiency standards.

Box 12: Environmental levy on motor vehicles in Uganda

Gaseous emissions from vehicles constitute a significant portion of pollutants in towns and 75 per cent of greenhouse gas emissions (Uganda Energy Policy, Ministry of Energy and Mineral Development, 2002). In an effort to address this, the Government of Uganda announced in 2006, a 10 per cent environmental levy on motor vehicles (excluding goods vehicles) of eight years old and over. Old vehicles are also more accident prone and Uganda has one of the highest accident rates in Africa, at 160 fatalities per 10,000 vehicles. In 2001, it was estimated that nine out of ten new registrations were used vehicles and there was no age limit on vehicle imports (Benmaamar, 2001). Other goods subjected to the same levy at different rates were fridges, television sets, cookers, radios and second-hand household appliances.

The policy also had a revenue target of 4.6 billion Ugandan shillings per annum. Experience with implementation shows that second-hand vehicles over eight years old continue to be imported into the country. The environmental levy did not lead to a significant shift in the age mix of imported vehicles for two main reasons: first, the cost of old vehicles is about a one-fifth of new vehicles, hence a 10 per cent levy may not be a factor in the decisions of importers. Second, most consumers do not have the means to purchase newer cars and although banks are providing hire purchase loans to their customers importing cars of seven years and under, very few customers earn enough with regular incomes to qualify. The revenue target was however met. In 2007 revenue was 10.5 billion shillings, exceeding the target of 4.6 billion.

These mixed outcomes point to the need to understand the policy context, including the existing economic conditions, in which instruments are meant to function.

Source: Kazoora, C., F. Mwerinde, P. Birungi, and G. Yaron. 2009. Economic Instruments for Promoting Sustainable Natural Resource Use, Environmental Sustainability and Responses to Climate Change. UNDP/NEMA/UNEP Poverty Environment Initiative, Uganda.

Restrictions and prohibitions seek to reduce or eliminate the likelihood of risk or harm an activity, product or process may present. The number and type of restrictions or prohibitions could be unlimited, but broadly, in practice, they can be categorized into limits and bans that seek to restrict non-green or less environmental friendly products, processes or activities; taking and trading measures to promote sustainable use or trading of resources, including import and export restrictions; and land use regulations that promote conservation, protected areas, green areas, urban planning and sustainable human settlements.

Traditionally, regulatory measures seem to receive less preference on the part of policymakers because of costs and enforcement challenges. Efficient use of regulatory instruments for the transition to an inclusive green economy should take account of:

- Which standard and how much change is required to be on a green economy or low emission pathway?
- Coverage and sector specificities – given that regulations require specific technologies or outcomes, they are inevitably sector specific. In the power sector, for example, this could be the share

of renewable energy in the energy mix; in the transportation sector, fuel efficiency or reduction of emissions; and in the agricultural sector, social implications of land use regulations.

- Flexibility – regulatory mechanisms tend to be complex and costly because they are prescriptive. How much flexibility that compliance entails could reduce cost and enhance outcome. Flexibility mechanisms include market-based measures such as purchase of credits and green technology funds.
- Dynamism and incentivizing innovations – regulations should be adjusted, reasonably, through time to reflect changes in technologies and the green economy trajectory. Regulations should also provide incentives for innovation in new and revolutionary green technologies.
- Efficient monitoring and enforcement is critical and could decrease overall costs and improve outcomes.

Application of regulatory instruments for energy efficiency

Energy efficiency and demand-side management policy measures are being vigorously pursued in various African countries largely in response to

power shortages and rising electricity costs. These measures include energy audits, power factor correction, distribution of compact fluorescent lamps, time-of-use tariffs, installation of prepayment meters in residential and commercial customers, solar geysers, and power alert systems and ripple control systems for electric water heaters. Demand-side management energy technologies seek to reduce energy consumption. The ban on importation of incandescent bulbs and their replacement with compact fluorescent lamps in Ghana presents a good example of the application of a regulatory instrument for energy efficiency (box 13).

Information and behavioural instruments

Information instruments or tools aim at providing information on a product, process or service with a view to informing or raising awareness about certain product attributes to influence consumer behaviour. The use of information tools as policy instruments is linked to the notion that economic actors are rational decision makers and it is assumed that poor choices are due to lack of information or misinformation. Hence information-based instruments seek to provide better information, encourage actors, and improve capacities for green behaviour. Information and behavioural instruments include awareness campaigns, labelling and

training. Awareness campaigns increase consumer awareness of the importance, nature and benefits of a green development pathway.

Labels convey the green attributes of products and processes. They are usually categorized into performance and endorsement labels. Performance labels provide information on the performance or greenness of a product such as its relative energy efficiency. Endorsement labels are often applied to “top performing” green products and further incentivize innovators and manufacturers to produce products that can be labelled accordingly. Training programmes can be used to build capacity and increase skills, knowledge, and the ability of firms, Government and relevant stakeholders to make green policy and investment choices.

Information-based instruments are often voluntary and may not lead to the desired green outcome. They are typically part of the broader green economy strategy and used as important complements to other more aggressive policy instruments, such as regulatory and market-based instruments. Information-based instruments can enhance regulatory and market instruments by increasing awareness in a way that enables emitters to respond more efficiently to either the requirements of regulations, or the incentives of market-based instruments.

Box 13: Ban on importation, manufacture and sale of incandescent bulbs in Ghana

Lighting accounts for a large portion of residential electricity load. In 2000, the total lighting load was estimated at 60-65 per cent of the total residential load in Ghana. A survey of energy consumption for interior lighting in Ghana in 1999 revealed that incandescent lamps constituted 79 per cent, linear fluorescent 20 per cent and compact fluorescent lamps only 1 per cent. Generally, compact fluorescent bulbs use about 75 per cent less energy than a comparable incandescent bulb.

In response to the acute power crisis Ghana experienced between August 2006 and September 2007, the Government of Ghana banned the importation, manufacture and sale of incandescent lamps in 2008. Under this policy the Government imported and distributed for free about 6 million compact fluorescent bulbs to residential consumers in exchange for incandescent lamps. The objective was to reduce household expenditure on electricity, eliminate brownout and transformer overloads, as well as reducing the domestic peak load by 200 to 220 megawatts.

The total energy saved as a result of the transition to energy-efficient lighting in residential, commercial, industrial and outdoor sectors was about 375.0 GWh in annual electricity consumption, equivalent to the power output of three small (20MW) power plants. The project was estimated to generate CO₂ savings of about 112,320 tons per annum.

Source: Ghana, Energy Commission, <http://www.energycom.gov.gh/>; <http://www.energycom.gov.gh/files/CFL%20Report%20final.pdf>,

Application of information and behavioural instruments for energy efficiency

Information about energy-use efficiency and options is often incomplete, unavailable, expensive, and difficult to obtain or trust. Consumers often may not be aware of the potential economic gains from adopting energy-efficient behaviours or technologies. A home owner may not know how to improve energy efficiency. Awareness campaigns can help fill these information gaps and achieve energy-efficient outcomes (box 14).

4.4 Challenges and opportunities

4.4.1 Challenges

Understanding the structure of the problem and the policy context

Understanding the structure of the problem to be addressed by the policy instrument, including the existing institutional, legal and economic conditions in which these tools are meant to function, especially in the context of an inclusive green economy, is often a major challenge. As the Uganda example shows, the entire policy and results space is a lot more complex, often requiring trade-offs.

Box 14: Eskom 49 Campaign, South Africa



In March 2011, the South African electricity power utility, Eskom, launched its 49M campaign. The company was first established in 1923 as the Electricity Supply Commission. The 49M campaign was launched as a policy initiative in response to the country's constrained power system, climate change, the economic downturn and rising electricity costs. The campaign aims at motivating all 49 million South Africans to willingly reduce electricity consumption wherever possible. The campaign encourages individuals and corporations to lead energy-smart lifestyles to help save the planet and their pockets. The 49M slogan is "remember your power". Other key messages of the campaign include: If you are not using it switch it off; Aim to save 10 per cent on your electricity usage; and Save the planet, save the power, save your pocket

The 49M campaign provides information and awareness about energy efficiency through extensive advertising and public relations campaigns, door-to-door information campaigns, extensive media coverage on radio and TV, and energy exhibitions and briefings. The Energy Efficient exhibition, for example, allows the general public to take a journey "through their own home": The Energy Efficient stand consists of a kitchen, lounge and bathroom where the public are shown how energy efficiency can be achieved either through a change in habit or behaviour, or by utilizing new energy-saving technologies such as solar geyser heaters, heat pumps and induction cookers.

Other initiatives include targeting the country's youth and young leaders as ambassadors; adverts aimed at motorists and commuters; 49M branded taxis; a Business Energy Rating Index for corporate, retail and industrial companies; and partnerships with top companies, corporate entities, environmental non-governmental organizations, research institutions, and trade unions.

The campaign is also leading by example. The campaign's television commercial literally saves power by only using a black screen and uses audio to communicate the message to save energy. The commercial opens with a black screen, with small white copy and audio telling the viewer that every little bit of saving helps.

The campaign has been well received nationwide. In 2012, for example, it called on all South Africans to participate in Earth Hour on 31 March by switching off all unused electricity appliances. South Africans heeded the call and saved about 402 MW, enough electricity to power the city of Mangaung (Bloemfontein) for a day.

Sources: <http://www.eskom.co.za/Pages/Landing.aspx>.

The fact that the green economy is a fairly new and evolving concept with limited experiences in terms of policy design and outcomes presents additional challenges.

Finding the right balance growth, environmental and distributional concerns

Improved human well-being is a major objective of the inclusive green economy, and poverty eradication is a top priority of all African countries. Economic growth is crucial for social development and African economies are mostly dependent on environmental and natural resources, which are also crucial for the livelihoods of the poor. Maintaining a balance between these considerations poses significant challenges in the choice and applicability of instruments. In particular, distributional concerns may disqualify or limit the use of certain instruments. For example, if the poor depend on local resources for their livelihood or survival, assigning property rights may have implications. Similarly, pollution or product charges may be regressive if they raise the price of goods that account for a significant percentage of poor people's expenditure, or if the environmental improvement so attained benefits mainly the rich. Fossil fuel subsidies could be a barrier to the green economy transition. Phasing out these subsidies while protecting low-income households from rising energy prices could pose a challenge to fiscal reforms.

Capacity

The design, implementation and monitoring of policy instruments require capacities at various levels. These are often lacking in developing countries, where for example, tax administration is too weak to effectively collect emission charges, or issuing tradable permits, recording trades and checking them against actual emissions may pose enormous challenges to institutional machinery. Implementation of instruments also presupposes the existence of well-functioning markets and undistorted prices.

Business-as-usual inertia and vested interests

Policy instruments are designed to promote change through incentives and choices that modify behaviour, for example, by creating incentives to

minimize resource use, pollution, and waste. However, there are constraints relating to inertia in moving away from the business as usual/unsustainable growth path, as well as vested interests, scepticism and of lack of understanding of the green economy concept. These can greatly water down initiatives, distort the intended (dis)incentive frameworks, and impact on the use and effectiveness of policy instruments. In Africa, fossil fuel subsidies have contributed to the slow pace of development of renewable energy infrastructure. In South Africa, for example, fossil fuel subsidies totalling US \$ 1.38 billion in 2011, were identified as a barrier to a green economy transition (UNEP 2013).

4.4.2 Opportunities

Green economy – emerging concept, emerging policy choices

Policy has a role in supporting and encouraging green behaviour (Lehner et al, 2011). Promoting green behaviour has been inherent in several new policy initiatives African countries are increasingly adopting green economy policies and strategies in new development plans or reforms of existing strategies and approaches. Fiscal policy reforms are adopting instruments such as environmental taxes, pollution charges, subsidies for green technologies, green budgeting and tax incentives to create the needed fiscal space for promoting green investments while limiting environmental externalities. These green policy developments provide opportunities for greater use of economic and other policy instruments as efficient means of supporting the transition to an inclusive green economy. Since the green economy is still an emerging and evolving concept, it also offers opportunities for lesson learning and experience sharing – and potentially further use of these instruments as Africa charts and shapes the course to an inclusive green economy.

Evolving landscape of environmental governance

The choice, policy focus and innovations in policy instruments have evolved over time, adapting to changing economic, environmental and social policy considerations. The use of policy instruments is therefore becoming increasingly prominent in new policy measures. Traditionally, market-based

instruments, as well as behavioural and information instruments, are contrasted with regulatory or command and control instruments, and some theoretical analyses regard market-based instruments as alternatives or substitutes for regulatory instruments. Current environmental governance approaches consider regulatory, market-based and other policy instruments as interrelated and complementary. This has added greater policy and implementation flexibility in addressing a wide range of resource efficiency and sustainability issues.

Multilateral environmental agreements and frameworks such as UNFCCC and the Convention on Biological Diversity are increasingly adopting and promoting the use of economic and other policy instruments as efficient means of monitoring and achieving environmental and climate policy objectives.

Trends in green investments and multilateral financing mechanisms

Trends in green investments and climate and development finance across Africa present opportunities for greater use of policy instruments. As the renewable energy market grows, approaches such as renewable energy feed-in tariffs are a means of encouraging investments in renewable energy and provide opportunities for use of economic and other policy instruments. Green funds, green markets, green bonds, green projects, green public procurements, investments in green technologies and infrastructure, and private and foreign direct investments in natural resource sectors are growing, further providing opportunities for greater use of a wide range of policy instruments.

Multilateral climate financing mechanisms, provisions of UNFCCC, the Global Environment Facility³², Climate Investment Funds, and the Climate for Development in Africa (ClimDev) Special Fund, are examples of opportunities that promote the use of policy tools and instruments. Official

development assistance (ODA) and international development cooperation partnerships also include elements that promote investments and policy reforms that foster greater use of market-based, fiscal and other policy instruments.

Structural transformation and transition of African economies

Compared to developed countries, Africa is still at the transition stage in so many aspects of development. This offers considerable flexibility and opportunities to introduce new policy instruments to support the transition to a green economy. Structural transformation, in particular, is expected to accelerate industrial development, promote energy efficiency, increase production and access to renewable energy, sustain and enhance natural resources and other ecological assets, and expand trade opportunities. All of these require greater use of policy instruments.

While the choice of instruments is often constrained by the legacy of existing ones and vested interests, among other factors, African countries enjoy considerably more flexibility in introducing new policy instruments with limited structures in place, high growth rates, relatively greater room for green investments, and potentially low implementation and compliance costs. This also offers opportunities to leapfrog dirty development pathways in the transition to an inclusive green economy.

Research and knowledge generation

The green economy is a new and evolving concept, both in terms of policy measures, knowledge and evidence on the outcome of policy choices. The future of the green economy policy and strategic frameworks will, in part, depend on current and ongoing knowledge generation initiatives. Currently, global research and knowledge generation on green economy and ECA policy research on inclusive green economy in the context of Africa's structural transformation are focusing significant attention on policy choices and tools. The Green Growth Knowledge Platform, for example, has been engaged in research and discourse on: green fiscal reform, designing effective green taxes, reforming environmentally harmful subsidies, creating incentives for investment in clean

³² GEF is a financial mechanism linked to several Conventions including Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), UN Convention to Combat Desertification (UNCCD), Stockholm Convention on Persistent Organic Pollutants (POPs) and Minamata Convention on Mercury. It also supports the countries in transition to implement the Montreal Protocol on Substances That Deplete the Ozone Layer (MP). <http://www.thegef.org/gef/whatisgef>

technologies, promoting green transport, managing solid waste, and taxes on water pollution, among other instruments. The outcomes of these will provide evidence on the applicability and effectiveness of instruments and inform future policy actions and will likely lead to greater use and uptake of policy instruments.

4.5 Conclusions and recommendations

4.5.1 Conclusions

The transition to an inclusive green economy essentially requires a shift towards a policy structure that encourages and stimulates changes in production, consumption, and investments in and across various sectors of an economy. Policy instruments can foster the transition to green economies by creating incentives for behavioural change and redressing social impacts. In particular, because of the inherent incentive structure, economic and other policy instruments can support shifts of investments towards resource efficiency, innovations, research and green technology development, natural capital and social infrastructure, providing opportunities for a faster and more inclusive transition to a green economy.

As the green economy concept evolves, and knowledge and evidence increases, the emerging policy choices, the evolving landscape of environmental governance in response to global challenges, the trends in green investments and multilateral financing mechanisms, and the emerging policy imperatives for structural transformation in Africa, provide more opportunities for the use and effectiveness of policy instruments.

However, the effectiveness and efficiency of policy instruments depend on the existing institutional, legal, social and economic systems. The application of particular instruments may not be an effective response in addressing a certain problem, and need not be the sole policy response, but can equally yield desired results even as a component of a wider policy package. This may also entail trade-offs at various levels.

Choosing an effective policy package that fits in with the overall policy context remains a difficult challenge. However, the following recommendations, certainly not exhaustive, provide guidance for enhancing the effectiveness of policy instruments in fostering the transition to inclusive green economies in Africa.

4.5.2 Recommendations

Focus on the broader policy framework. The shift towards an inclusive green economy offers new growth and development policy perspectives. However, these occur within the context of existing policy frameworks. The choice of policy instruments must be in line with broad inclusive green economy policy objectives and mechanisms for managing the transition and a benchmark for effective results. Emerging policy initiatives and reforms must seek to benefit all. The transition is also a dynamic process of change and the choice of instruments should therefore support this dynamism. For example, instruments that promote incentives for investments in renewable energy and targeted investments in key sectors may have greater catalytic outcomes for poverty reduction and sustainable development.

Choice of instruments to incorporate realistic assessments of institutional frameworks and capabilities. The expectations from the use of an instrument must be matched or managed against existing institutional frameworks and capabilities. Prior to designing and applying any policy instruments for the green economy, the policy context must be understood, including the existing institutional, legal and economic conditions in which these tools are meant to function. The choice of policies should incorporate realistic assessments of the limitations both of the policy instruments themselves and the institutions that will be overseeing them. This sometimes involves trade-offs, as a less effective policy on a theoretical basis may actually be the most appropriate, given institutional capabilities. While institutional growth could be part of the policy frame, it is important that institutional limitations are recognized to increase the likelihood that the new instrument will achieve desired results. Monitoring and enforcement capabilities and systems need to be established from the outset.

Analyse policy constraints. The potential efficiency of policy instruments must be balanced against the existing policy constraints. Several pressures on resource use, and environment and climate related problems exist which may mean the application of market-based economic instruments, for example, is not an effective policy choice. Potential losses in the efficiency of one instrument can be balanced against the ease and timeliness of implementation of another. Analysing trade-offs in a particular policy context is useful to ensure that due consideration is given to the implications of choices and the implicit compromises they contain. Evaluating alternative policy options is equally important. Gradual phase-in, or appropriate measures to minimize impacts can be adopted to reduce the transition costs while smoothing the transition.

Although trade-offs and compromises may be necessary, how well a proposed policy instrument achieves the specific policy objective should remain at the core when determining which options are acceptable.

Distributional concerns and a just transition for all. Inclusive green economy policies in general are designed to have positive pro-poor benefits. However, certain unintended negative consequences may arise. Particular attention must therefore be paid to impacts, especially on the poor and vulnerable groups. For example, low-skilled workers may lose

jobs as investments in new technologies in the transition to a green economy take effect; investments in sustainable cities and infrastructure may result in displacement of poor segments of the urban population. Policy proposals should therefore include appropriate measures to address potential impacts, through for example, transitional support for displaced individuals or poor segments of society, social protection and appropriate labour market policies.

Discerning vested interests. Depending on the socioeconomic, political and cultural characteristics of a country, the introduction of economic and other policy instruments can face opposition from various groups. Protracted disagreement over the introduction of new instruments or reform of existing ones can greatly water down initiatives and distort the intended (dis)incentive framework. Long gestation periods can allow the targeted problem to continue unchecked and hinder the transition. Reforms can also be undermined by vested interests, for example in the case of the removal of harmful subsidies on fossil fuels and when instituting taxes and policies that promote investments in renewable energy. The challenges in implementing policy instruments are both practical and political and require a combination of strong political will and compensatory measures to overcome opposition from vested interests. Stakeholder participation, phase-in, gestation periods and incremental implementation strategies can help in addressing the concerns of all stakeholders.

References

- AfDB, OECD, UN and World Bank (2013). A Toolkit of Policy Options to Support Inclusive Green Growth. A Submission to the G20 Development Working Group. Available at: <http://www.undp.org/content/undp/en/home/librarypage/environment-energy/toolkit-inclusive-green-growth.html>.
- African Energy Policy Research Network (2009). The Role of Feed-in Tariff Policy in Renewable Energy Development in Developing Countries: A Toolkit for Parliamentarians. Energy, Environment and Development Network for Africa. Available from <http://www.e-parl.net/eparliament/pdf/090911FITDevCountries.pdf>.
- Busom, I., B. Corchuelo, and E. Martinez-Ros (2014). Tax incentives... or subsidies for business research and development? *Small Business Economics*. Volume 43, Issue 3, pp. 571–596.
- Chaturvedi, A., M.S. Saluja, A. Banerjee, and R. Arora (2014). Environmental fiscal reforms. *Indian Institute of Management Bangalore Management Review*, 26(3): pp. 193-205.
- Department for International Development (2005). Growth and poverty reduction: the role of agriculture. Policy paper.
- Heine, D., J. Norregaard, and I.W.H. Parry (2012). Environmental Tax Reform: Principles from Theory and Practice to Date. International Monetary Fund Working Paper WP/12/180.
- Intergovernmental Panel on Climate Change (2007). Intergovernmental Panel on Climate Change Fourth Assessment Report: Climate Change 2007.
- International Institute for Sustainable Development (2012). Procurement, innovation and green growth: The story continues... Available from http://www.iisd.org/pdf/2012/procurement_innovation_green_growth_continues.pdf.
- Kazoor, C., F. Mwerinde, P. Birungi, and G. Yaron (2009). Economic Instruments for Promoting Sustainable Natural Resource Use, Environmental Sustainability and Responses to Climate Change. UNDP/NEMA/UNEP Poverty Environment Initiative, Uganda.
- KPMG 2013. The KPMG Green Tax Index: Republic of South Africa, Ministry of Trade and Industry.
- Lehner, M., K. Popwer, and O. Mont (2011). Public perceptions and values and perceptions of importance for Sustainable Consumption policy? Sustainable Consumption Conference 2011 “Sustainable Consumption – Towards Action and Impact”. Hamburg, Germany, 6-8 November 2011.
- McIntyre, B.D., H.R. Herren, J. Wakhungu, and R.T. Watson, eds. (2009). International Assessment of Agricultural Knowledge, Science and Technology for Development Global Report 2009.
- Organization for Economic Cooperation and Development (2002). Tax Incentives for Research and Development: Trends and Issues. OECD Study on Science and Technology Industry.
- (2009). Sustainable Manufacturing and Eco-innovation: Towards a Green Economy. OECD Policy Brief, Public Affairs Division, Public Affairs and Communications Directorate.
- (2012a). The Future of Eco-Innovation: The Role of Business Models in Green Transformation. OECD Background Paper. OECD/European Commission/Nordic Innovation Joint Workshop.
- (2012b). Towards A Green Investment Policy Framework: The Case of Low-Carbon, Climate-Resilient Infrastructure. OECD staff consultation draft, 18 June 2012.
- Querol, Á.A., and B. Schaefer (2013). SEAD Guide for Monitoring and Evaluating Green Public Procurement Programs. Super-efficient Equipment and Appliance Deployment (SEAD) Initiative Procurement Working Group. Ecoinstitut, Barcelona.
- Sander, K., and M. Cranford (2010). Financing Environmental Services in Developing Countries. 2010 Environment Strategy Analytical Background Papers. World Bank Group.
- Schlegelmilch, K., and A. Joas (2015). Fiscal considerations in the design of green tax reforms.

- Green Growth Knowledge Platform Third Annual Conference: Fiscal Policies and the Green Economy Transition: Generating Knowledge – Creating Impact. University of Venice, Venice, Italy, 29-30 January 2015.
- Spratt, S. (2013). Environmental Taxation and Development: A Scoping Study. Institute of Development Studies working paper, vol. 2013 No. 433.
- Sonigo, et al. (2012). Policies to encourage sustainable consumption. Final report prepared by BIO Intelligence Service for European Commission. Available from http://ec.europa.eu/environment/eussd/pdf/report_22082012.pdf.
- Stavins, R.N., (1998). Market-based environmental policies. Resources for the Future discussion paper 98-26.
- (2002). Lessons from the American experiment with market-based environmental policies.
- United Nations (2011). Working towards a Balanced and Inclusive Green Economy: A United Nations System-wide Perspective. Prepared by the Environment Management Group.
- United Nations Environment Programme (2010). Green Economy: Developing Countries Success Stories.
- (2012). Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energy and Green Economy in Developing Countries. Available from https://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/unep_us_ws2.pdf.
- (2013). Green Economy Scoping Study in South Africa. A Working Paper.
- (2014). Green Economy Assessment Report – Kenya.
- United Nations Environment Programme, International Monetary Fund and Gesellschaft für Internationale Zusammenarbeit (2012). Fiscal Policies Towards an Inclusive Green Economy. Summary Report of UNEP-IMF-GIZ Workshop.
- Waage, S., C. Bracer, and M. Inbar (2008). *Payments for ecosystem services: Getting started*.
- World Bank (2014). Transitional policies to assist the poor while phasing out inefficient fossil fuel subsidies that encourage wasteful consumption. Contribution by the World Bank to G20 Finance Ministers and Central Bank Governors.

5: Promoting green technology development and transfer

Key messages

Regional initiatives on technology and innovation must be supported by implementation measures that effectively promote green technology development and transfer. Africa needs to strengthen networks of scientists, intellectuals and research and development resources, as well as potential partnerships within and across national borders. Governments in partnership with the private sector should invest in infrastructure that supports research and development.

The development and promotion of appropriate technology standards are crucial for green technology development and transfer. These include standards for the installation, operation and marketing of technologies to minimize, if not eliminate losses due to shortcomings in the quality, functionality, usability and adaptability of the technologies. In addition, deliberate policies are needed to spur green technology development in the region. Policy frameworks that synergistically cover environment, trade and industry aspects would facilitate leapfrogging to green technologies.

Human capital is critical for spurring innovation, identifying and undertaking research and development, and developing business models that support technology development and transfer. In this regard, African countries should build human capital across the technology innovation value chain from the conception of ideas to commercialization. Governments should have a clear vision or programme for skills development at all levels of education and training, including on-the-job training, in collaboration with the job market.

Africa's political and technical leaders, including leading institutions, must champion green technology development and transfer on the continent. Regional frameworks such as the Science, Technology and Innovation Strategy for Africa and international ones relevant to technology development and transfer such as the Bali Strategic Plan, relevant technology clauses in World Trade Organization agreements, and the UNFCCC and relevant mechanisms should guide countries in developing and implementing technology development and transfer strategies.

5.1 Introduction

Africa's transition to an inclusive green economy will necessitate a shift from low productivity, inefficient, wasteful production and consumption technologies to green technologies. This shift will also potentially facilitate Africa's structural transformation and sustainable industrialization through efficient resource extraction and use, and value addition to natural resources and agricultural products. However, realizing a transition to efficient and cleaner technologies requires deliberate measures that support development and transfer from elsewhere of green technologies, and an accelerated process of phasing out "dirty" technologies. For Africa to achieve this, an understanding of trends, challenges and opportunities for promoting green technology development and transfer is essential.

Green technologies encompass green systems and the environment, emphasizing sustainability, efficiency in resource use, and reduction in waste and emissions to facilitate or accelerate improvements in economic and social well-being while minimizing

negative impacts on the environment. These technologies are continuously expanding and improving. They include technologies for renewable energy, crop management, biotechnology, green chemistry or green nanotechnology for industrial production, energy-efficient appliances, waste management, and efficient vehicles. They also include those related to sustainable buildings, efficient water use, improved irrigation systems, and the group of technologies that provide protection against sea level rise.

In the context of Africa's structural transformation, policymakers are keen to achieve a shift from low to high productivity activities, with the industrial sector playing a central role. Sustaining a strong and robust economic growth requires technological progress, innovation and technology indigenization (Sachs and MacArthur, 2002). For example, GDP per capita of countries in East and South Asia grew faster than that of African countries from the 1990s due to a higher rate of technological progress (World Bank, 2008). In addition and, in general terms, high human development indices are associated with technological advancement (UNDP, 2014). Therefore, African countries will need to pay attention to both human capacity development and adoption of green technologies in order to attain the desired economic and social progress, while also addressing environmental challenges.

Green technology is an "endogenous" feature of economic development (Sachs and MacArthur, 2002). Benefits of promoting green technologies need not conflict with, but rather complement countries' economic growth. Domestic green technology development will help countries attain appropriate technology for specific development needs or geographic requirements. For example, high-yielding crop varieties may be developed for specific soil and climatic characteristics. However, development and use of green technologies may often entail relatively higher initial investment costs which may lead to the contention of the short-term gains. Also, green technology development and transfer cannot be attained without strong financial backing and skilled human capital.

The present chapter highlights the role of green technology in facilitating the transition to an inclusive green economy. It explores the emerging trends

in green technology development and transfer, with emphasis on trends that have a positive bearing on Africa's green economy transition. It also identifies the challenges and opportunities in promoting technology development and transfer for the inclusive green economy, and advances recommendations on the basis of the findings.

5.2 The role of technology in facilitating an inclusive green economy

Expanding the production possibilities frontier

As African countries develop, it will be important to decouple economic growth from harmful patterns of resource use and shift to more sustainable growth paths. Improvements in technology can lead to improvements in production and distribution of goods and services. With innovation or new technologies, countries can increase production possibilities, allowing the production of more output and newer, more environmentally-friendly outputs with fewer material inputs (Dutz and Sharma, 2012). Access to green technologies can also contribute to fostering a sustainable path to Africa's structural transformation by facilitating efficient resource extraction and use, as well as sustainable industrialization.

New business opportunities and markets

Innovation and technology developments are driven mainly by business interests. Technology is among the leading private sector job creators worldwide, with companies commercializing innovative ideas and technologies through their business models. In a competitive world, having a technology edge is almost synonymous with having a market lead. It is not just a matter of companies integrating new technologies into the technology base of a product (i.e. technology cross-fertilization) but also looking to further open up new subspaces in the existing technical performance and functionality space (Zott et al., 2011). For the green economy, the transition is going to redirect and expand the space in which innovation and technology development must continue if companies, and countries for that matter, are to remain competitive in the world market.

Already, progress can be seen in technologies such as computing, genetics, new materials, energy, transportation and environmental systems. By 2030, the projected exports of green technologies and services specifically related to renewable energy and clean energy (mainly electric) vehicles will rise to \$229395 billion in export sales. Republic of Korea for example has an elaborate plan to increase its global market share of green technology exports from 2 per cent in 2009 to 10 per cent by 2020 (World Bank, undated). Over the next 10 years, an estimated \$6.4 trillion will be invested in clean technologies in developing countries. Of the total market in developing countries, some \$1.6 trillion will be accessible to small and medium enterprises within sub-Saharan Africa expected to earn \$235 billion, from sectors such as wastewater treatment, onshore wind, solar panels, electric vehicles, bioenergy and small hydropower systems. Overall, the market size for clean technologies in sub-Saharan Africa is estimated at \$900 billion by 2023 (infoDev, 2014).

Better environmental and economic performance

Technology has a critical role to play in ensuring sustainable development in Africa, including the sustainable exploitation of its natural resources (ECA, 2012). Green technologies will contribute to the transition to inclusive green economies in Africa by reducing material extraction and waste generation, and associated pollution especially of air, land and water bodies through deployment of clean, efficient, and resource-saving technologies in manufacturing and industry. Embracing cleaner production technologies, galvanizing indigenous and developing new ones, and upgrading existing green technology are important for competitiveness in the global market for Africa's value-added goods. In addition, efficient use of energy and inputs will be crucial in maintaining the competitiveness of Africa's exports.

The benefits of using green technology include improved health and quality of life, due to among other benefits, the maintained or enhanced quality of the environment; energy efficiency; lower cost of resource use; and substantial linkages with poverty eradication. Indoor and outdoor air pollution, contamination of water sources, degradation of land and coastal zones, and solid waste that may be asso-

ciated with dirty technologies have negative impacts on economic growth. In 2008, these costs among Middle East and North African countries were estimated to range from 2 per cent of GDP in Tunisia, to 7 per cent of GDP in Iran (Popp, 2012). By reducing the stress on the environment through efficient extraction and use of natural resources, green technology helps avoid abatement and pollution costs.

Increased access to energy, health and other services

Technologies for renewable energy such as small-scale hydropower and solar energy will significantly increase access to electricity for a high proportion of the population in sub-Saharan Africa (74 per cent of total, 92 per cent in rural areas) that is currently without it due to lack of modern electricity infrastructure. New spending on utility-scale renewable energy projects and provision of equity capital for renewable energy companies in developing countries reached \$72 billion in 2010, and is expected to continue growing. This will not only reduce deforestation in the region, where 89 per cent of the population relies on traditional biomass for cooking and heating (Nampoothiri and Manoharan, 2013), but also improve linkages between rural farming and non-farming activities, thus facilitating both growth and poverty eradication. Another benefit is in savings from fossil fuel subsidies (UNEP, 2013).

Increased potential for addressing poverty and low productivity

Green technologies improve the potential of countries to eradicate poverty, while addressing environmental challenges. For example, green technology in agriculture could contribute to poverty eradication and economic growth, while avoiding negative externalities such as the water pollution from excessive agrochemical use identified with Asia's Green Revolution (World Bank, 2008). It is estimated that for every 10 per cent increment in farm yields there is an associated 7 per cent reduction in poverty in Africa. Green agriculture can increase farm productivity and profitability; ensure the provision of food and ecosystem services; and replace negative externalities of agriculture with positive ones (UNEP, 2015a). The agroecologically based method of rice production known as the System of Rice Intensification were documented in Madagascar to increase yields

by 50100 per cent using less water, reduced or no agrochemical inputs and a lower cost of production (Anthofer, 2004; Scherr and McNeely, 2008). Popular varieties of New Rice for Africa (NERICA) a cultivar group of hybrid rice developed by the Africa Rice Centre in 1999 and now grown in more than 22 countries, have proven to be high yielding, early maturing (75100 days), weed competitive, drought tolerant, resistant against Africa's major pests and diseases, and tolerant to soil acidity and iron toxicity (Adedeji et al., 2013). Other technological applications such as mobile telephone applications support dissemination of information for improved productivity. Field ex-post rates of return from the application of agricultural technologies in most cereals can reach 87 and 97 per cent (Moussa, 2002).

Furthermore, green technology innovation contributes to job creation. While green jobs benefits cut across all social groups and include opportunities for managers, scientists and technicians, short to long-term job gains may result from opportunities to start new businesses and new markets through innovation. For example, four broad categories of green segments or technologies (energy generation, energy and resource efficiency, emissions and pollution control, and natural resource management) in South Africa would in the short-term (2 years) generate an estimated total net direct employment potential of 98,000 jobs, and in the long-term (8 years), 462,567 jobs (Maia et al., 2011). These jobs would potentially result from building, construction and installation activities; operations and maintenance services; and the possible localization spin-offs for the manufacturing sector. Despite uncertainty around such estimates and their underlying assumptions and issues concerning the size of the necessary stimulus, they are a good indication of the potential of green technology for addressing unemployment alongside environmental and other benefits.

5.3 Trends in technology development and transfer

Applications for and patents issued, trade in merchandise requiring high-technology skills (high-technology exports), and research and development are useful proxies for insights into the

continent's engagement in technology innovation and development. Technology transfer may occur as trade in intellectual property estimated through licensing fees and royalties, trade in means of production (capital goods imports), and foreign direct investment (FDI).

Patent applications rising rapidly elsewhere but slow in Africa

While a number of countries, especially in Asia (China, India, Republic of Korea and Taiwan), are emerging as frontier innovators, there is little to show in Africa. Patent applications between 1997 and 2004 grew rapidly in Asia and other regions, but only marginally in Africa (ECA, 2010). The region accounted for about 0.8 per cent of the world total of about 2.35 million patent applications in 2012. Egypt, Morocco, Tunisia and South Africa account for most of Africa's patent applications. About three quarters of all applications reported by African countries were made by non-residents (ECA, 2014). Africa also contributes less than 1 per cent of the global technologies for climate change mitigation and adaptation. For example, Africa's patent applications for adaptation technologies grew by only 17 per cent annually between 1980 and 2009 (UNEP/EPO, 2013).

With regard to trade in intellectual property, Africa has in the last two decades realized a significant rise in royalties and payments of licensing fees. Royalties and fees may be paid for the use of trade names or trademarks, industrial designs, patents, breeders' rights or copyrights (ECA, 2014). While these payments rose six times globally between 1990 and 2008, signifying a global rise in technology trade, this rise was 10 times in sub-Saharan Africa – second only to East Asia and the Pacific's 57 times rise (ECA, 2010). There were variations at the national level, with South Africa significantly leading the continent but payments for Cameroon, Senegal, South Africa, Swaziland and Tunisia increased rapidly between 1990 and 2007.

Great potential from growth in high-technology trade

During the period 2000 to 2011, the region experienced a significant (60 per cent) increase in high-technology exports (in current \$). But overall,

traded volume remained at 0.25 per cent of global technology exports, dominated by a few countries including Algeria, Côte d'Ivoire, Egypt, Gabon, Kenya, Morocco, Tunisia and South Africa. Africa's high technology exports constitute about 5 per cent of its total merchandise exports, whereas high technology exports account for about 15 per cent of total merchandise exports in Latin America and the Caribbean and about 31 per cent in developing Asia (ECA, 2014). The region has also seen a rise in imports of capital goods as countries seek technology and research and development spillovers from exporting countries.

Compared to other regions Africa recorded the fastest growth – a three-fold increase, in capital goods imports between 2001 and 2006, but the lowest between 1990 and 2006 (ECA, 2010). Between 2001 and 2008, at least 19 African countries realized a three-fold increase in capital goods exports. Over the same period (2001–2008), imports of capital goods increased by more than six to eight times for Guinea, Madagascar, the Niger, Nigeria, Rwanda, Uganda and Zambia. South Africa, Nigeria, Egypt, Algeria and Morocco (in descending order) accounted for about 70 per cent of the total value of imported capital goods between 2001 and 2008 (ECA, 2014). These capital goods, particularly clean energy, and clean industrial technologies could spur industrialization in the region.

Further, there has been a general increase in foreign direct investment (FDI) over the past two decades in Africa and developing countries in general (UNCTAD, 2013). There have also been increasing South–South FDI flows which could promote green technology development and transfer. However, this remains low, at less than 2 per cent of global FDI flows (see chapter 7). It is also not clear what proportion of this foreign direct investment promotes green technology development and transfer as foreign firms sometimes seek new locations where environmental regulations are relatively weak to transfer polluting technology. Because of the difficulty in defining green foreign direct investment, using FDI in environmental goods and services, and FDI in “environmentally relevant sectors” as proxies of “potential green FDI”, green FDI flow to developing countries for the period 2005–2007 was roughly es-

timated at under \$8 billion (1.9 per cent) and close to \$190 billion (46.1 per cent) of total FDI per year respectively (Golub et al., 2011). The current contribution of foreign direct investment to technology development and transfer is, therefore, insignificant and uncertain.

This and the involvement of foreign firms, international organizations and partners in green technology initiatives across Africa points to the need for the region to adopt a long-term perspective of building domestic innovation while benefiting from technology transfers in the short run. However, transferred technologies will need to support Africa's green transformation objectives. Multilateral agreements, international trade and Africa's own frameworks on technology development and transfer have influenced the trends in the last two decades.

Deployment of green technologies

Efforts to deploy green technologies, particularly renewable energy, biotechnology, and green practices in industry and mining are also emerging in several countries, including Egypt, Ethiopia, the Gambia, and Namibia (table 6).

The Tunisian Solar Programme, PROSOL, initiated in 2005, is a renewable energy project designed to address market barriers and increase investment flows to renewable energy. The project provided a 20 per cent subsidy on the capital costs of solar water heaters and loans at a reduced interest rate by commercial banks to residential consumers (UNEP, 2013). The initial cost of the programme, financed through a grant, totalled \$2.5 million but it raised approximately \$211 million over a seven-year period (2005–2012). By 2012, PROSOL had helped more than 165,000 households to obtain solar water heaters; achieved a significant saving in household energy costs and fuel subsidies (\$15.2 million for the period (2005–2010)); and created 3,000 new direct jobs and 7,000 indirect jobs (Touhami and Hannane, 2011). Additionally, the project achieved 705,600 tons of CO₂ emissions reduction. The country has also generated an estimated 102,000 green jobs as of 2010, with the largest shares being in water and waste, agriculture and services (UNEP, 2015b).

Table 6: Examples of country investments in technology development and transfer

Country/ source of support	Initiative(s)	Aim and results	Year(s) launched
Egypt	Gasification of sewage sludge in wastewater treatment plants	Renewable energy to comprise 20 per cent of energy supply by 2020; and 50 per cent by 2050	
Ethiopia	Renewable energy under CRGE	Develop six wind energy projects with capacity of about 1,000 MW under way	2010
The Gambia/ UNIDO/GEF.	Interconnection standards for the supply of renewable energy to the grid	To promote renewable energy: six demonstration projects provided funding and technical support to private sector developers	2012
Namibia/GEF	Energy White Paper 1998; Renewable Energy Programme	Develop solar power: increased solar energy generation from 685 MWh (2004) to 14,941 MWh (2008); revolving fund established to support families not connected to grid to install solar home systems; three licenses for wind development issued (2010) with potential of adding 40-45 MW to the grid	1998; 2004

Sources: Bjork et al., 2011; Tekleberhan, 2012.

Industries in Africa are increasingly adopting cleaner production processes, improving resource efficiency and reducing waste. There are now 10 national cleaner production centres established with support from the UNEP and UNIDO joint Resource Efficiency and Cleaner Production Programme. The mining sector is also embracing green technology spurred by legislation related to climate change, energy and water rights. In South Africa, Gold Fields Limited's Beatrix mine is capturing and utilizing methane, under a Clean Development Mechanism project which is expected to reduce carbon emissions by up to 1.7 million tons CO₂e over its lifetime (2011-2018). In the process, the mine has produced 5 MW (5 per cent of the mine's needs) of electricity, has generated revenue of 200 million rand (over seven years) compared to 42 million rand of investment, and has improved the safety of workers (CDM, 2008; Creamer, 2010).

In South Africa, the Government, through the Department of Trade and Industry, introduced the Manufacturing Competitiveness Enhancement Programme in 2012. Although the objective was to safeguard jobs and improve the competitiveness of industries, a major component was the provision of grants whereby the Department pays between 30 and 50 per cent of the costs of green technology and resource and efficiency improvement. The Government has allocated 5.8 billion rand to this programme over

the period 2012 to 2015. The programme also supports businesses in capital investment, enterprise-level competitiveness improvement, feasibility studies and cluster competitiveness improvement, as long as the criteria for green technology and resource efficiency are met (Harris, 2012).

Use of innovation clusters

National systems of innovations such as clusters can facilitate innovation by leveraging existing and limited infrastructure as well as technical and financial resources. Examples include natural resource-based clusters of cut flowers in Kenya, and wine in South Africa. The United Republic of Tanzania also has an innovation-based cluster project covering metalworking and engineering; mushrooms; vegetable seeds; seaweed; tourism and cultural heritage; nutraceuticals; sisal; and vegetables and food (Diyamett and Komba, 2008). The concept has been applied successfully in the high-tech Silicon Valley in the United States of America and in Tunisia (box 15). National systems of innovations promote innovation by facilitating the flow of technology and information among people, enterprises and institutions. Countries can facilitate technology development and transfer by strengthening existing innovations' systems, universities, private firms, public research and development institutions and policy organs.

Box 15: Harnessing resources and infrastructure for technology development and innovation Silicon Valley and Tunisia

A cluster is a geographic concentration of firms, education and research institutions, and other public and private entities that facilitates collaboration on complementary activities such as innovation and technology development. Silicon Valley is a high-tech innovation cluster and may seem very advanced, but it exemplifies how technology infrastructure can inspire innovation and technology development among firms, making it a source of innovative ideas, technologies, organizations and people. Silicon Valley is successful due to several prerequisites such as a large market, the business and intellectual climate, capacity for innovation, sophisticated logistics infrastructure, and support services such as venture capital provision (Ogunleye, 2011). Such science and technology parks produce model innovators who inspire the young generation and perpetuate the innovation culture.

In a bid to facilitate a shift from traditional sectors to more advanced technological industries, the Government of Tunisia, in a new industrial policy known as Horizon 2016, adopted “clustering” or “poles of competitiveness” as a growth factor on which innovation and added value in the sectoral development strategy would be anchored by 2016 (ECA, 2014). The country launched the programme of competitive clusters in 2006 as progress towards a knowledge-based economy became part of its tenth Development Plan (2002–2006).

South–South cooperation

South–South cooperation is very important for the green economy in Africa, as stated at the fourteenth session of the African Ministerial Conference on the Environment in its decision on Africa’s post Rio+20 strategy for sustainable development establishing mechanisms that provide coordinated support to member States for the promotion of the green economy in Africa, including the development of partnerships and national strategies, promotion of regional and international cooperation, including South–South cooperation, and the transfer of resource-efficient and green technologies and know-how (UNEP, 2015b).

The emergence of economies such as China, Brazil, Malaysia, India and South Africa provides potential for South–South green technology development and transfer. For example, China, Hong Kong (China), Mexico, Singapore and Thailand are among the top ten exporters of renewable energy technologies with significant export interests in trade liberalization in the sector (Brewer, 2012). Green patent trends indicate the emergence of a new tier of developing countries as frontier technology developers (Hultman et al., 2012) which provide Africa with opportunities for collaboration. Africa is also active in research and development partnerships, including through South–South cooperation in sectors such as agriculture and clean energy. Africa’s share of international research collaborations in clean technology is 23 per cent compared to 12 per cent worldwide (UNEP/EPO, 2013). This demonstrates

that with appropriate policies and support, such as through South–South cooperation, the continent will become an important player in green research and development and renewable energy deployment (box 16).

Multilateral environmental agreements and technology development and transfer

Technology development and transfer as a means to foster sustainable development in developing countries remains a priority. Since the 1992 United Nations Conference on Environment and Development, technology has been included among the clauses of several decisions and instruments of major intergovernmental bodies. The Rio Declaration on Environment and Development, Agenda 21, Johannesburg Plan of Implementation, and more recently, Rio+20 called for cooperation in green technology development and transfer. In the run-up to, and in the post-Rio+20 follow-up processes, African countries reiterated calls for technology development and transfer, including synergies across various initiatives and international support for establishment of technology mechanisms and networks (ECA, AUC and AfDB, 2013a; ECA, AUC and AfDB, 2013b).

Multilateral environmental agreements with relevant provisions for technology development and transfer include UNFCCC, which focuses on fostering technology development and transfer for climate change mitigation and adaptation; the Convention on Biological Diversity, which provides

Box 16: Cogeneration for Africa project: supporting renewable energy generation through South-South cooperation

Launched in 2007, the Cogeneration for Africa project is an innovative clean energy regional initiative funded by GEF, co-implemented by UNEP and AfDB and executed by the African Energy Policy Research Network project builds on the success of cogeneration in Mauritius, which currently meets about 50 per cent of the country's electricity needs (UNEP, 2013). The project is scaling up the use of efficient, mostly biomass-based (agricultural waste) cogeneration systems initially in seven eastern and southern African countries (Kenya, Ethiopia, Malawi, the Sudan, Swaziland, Uganda and the United Republic of Tanzania). Key features include appropriate technologies and suppliers; technical advice to developers, financiers and investors; and policy guidance. Support is extended to stakeholders in the form of capacity-building, technology transfer and investment packages to create conducive business.

The project has supported agroprocessing private enterprises to promote renewable energy generation. Sugar factories, which were generating electricity for internal use, now supply the national grid. Mumias Sugar Company in Kenya now supplies 26 MW to the national grid after increasing its cogeneration threefold in 2009 and is expanding (Karekezi and Kimani, 2010). A new cogeneration plant of 800 kW capacities has also been installed by James Finlay Kenya Limited – a tea industry.

The experience in Mauritius and Kenya demonstrates that such a scheme where policy and technology meet can be replicated. As a result, renewable energy feed-in projects have been developed in Malawi, Uganda and the United Republic of Tanzania, and is expanding beyond sugar to the tea industry and other renewable energy sources.

for technology development and transfer and biotechnology for conservation and sustainable use of biological resources; and the Montreal Protocol on Substances that Deplete the Ozone Layer which has been regarded as a success. The Clean Development Mechanism under the Kyoto Protocol of UNFCCC and the Global Environment Facility are also important mechanisms for technology development and transfer, while the Bali Strategic Plan for Technology Support and Capacity-Building could potentially play a critical role in technology development and transfer for the inclusive green economy.

UNFCCC, the Convention on Biological Diversity and the Montreal Protocol all call for cooperation by all parties, and put responsibility on developed countries to promote, facilitate and finance the transfer of, or access to environmentally sound technologies and know-how for developing countries. These conventions recognize that developing countries, particularly least developed countries, face social and economic constraints with poverty eradication as their overriding priority; hence the significance of international support to facilitate technology development and transfer through, inter alia, appropriate measures in countries of origin, financing and capacity development.

However, there has been little progress in implementing technology transfer under UNFCCC since 1992. The slow progress is attributed to weaknesses in the framework, particularly the protracted negotiations that continue to deter tangible actions. Technology development and transfer under UNFCCC is limited to projects that have not been scaled up to cause significant impacts (Agyemang-Bonsu, 2009; Khan, 2010). Developing countries have been negotiating for the creation of a technology mechanism to enhance clean technology development and transfer. A decision to establish such a mechanism was only reached in Cancún, Mexico, during the sixteenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change more than 10 years from the time it was proposed. The Technology Mechanism only became ready to receive requests for support in early 2014. It will need to address concerns of developing countries including the disconnect between UNFCCC processes and national enabling environments; the homogenous approach for all developing countries despite their evident differences; the need to establish a direct link between the Technology Mechanism and financial mechanisms; tracking progress; and resolving the debate on intellectual property rights (Khan, 2010; Herold et al., 2013).

The Clean Development Mechanism is aimed at helping developed countries fulfil their emissions reduction commitments. It also facilitates technology transfer but most of the interventions were not to Africa. A survey based on information in the design documents of 3,949 projects registered by 31 March 2012 showed that at least 39 per cent of the projects were on technology transfer but 79 per cent of those were from Brazil, China, India, Mexico and Malaysia; moreover, the top 10 countries that accounted for 88 per cent of projects did not include an African country (Murphy et al., 2013). Funding is cited as one of the limitations of the Mechanism, as many of the activities are domestically financed. Hence, lack of seed funding and high unit transaction costs are barriers to poorer countries.

Steps have also been taken to implement technology development and transfer provisions under the Convention on Biological Diversity. These include the adoption of the programme of work on technology transfer and scientific and technological cooperation in 2004 and strategy for its implementation in 2008 (CBD Secretariat, 2006). However, the success of the Convention has also been limited due to, among other factors, lack of synergy among existing funding mechanisms earmarked for technology development and transfer; lack of focus on relevant technologies; non-existent or ineffective policies and frameworks to promote public-private partnerships in technology cooperation; limited linkages between technology needs and capacities; and lack of streamlined reporting on technology transfer and cooperation from bilateral arrangements (Pisupati, 2010).

The Montreal Protocol is generally considered one of the most successful multilateral environmental agreements responsible for phasing out 97 per cent of almost 100 ozone-depleting substances (UNEP, 2010). Its multilateral fund is lauded as a model multilateral financial mechanism in facilitating technology transfer. Africa has received more than \$171 million from the fund (about 32 per cent of the global financing) to implement activities such as institutional strengthening and training (UNEP, undated). The relative success of the Protocol is attributed, among other factors, to effective and well-planned transfers of technologies and international

assistance, “a resolute leadership, clarity of vision and lucidity of purpose”, and the role of key partners in providing capacity-building activities in Africa (UNEP, undated). Unlike UNFCCC, for example, the narrow range of technologies addressed by the Protocol may also have averted familiar complications in its implementation.

The Global Environment Facility has been instrumental in supporting energy efficiency and renewable energy projects in Africa. Since its establishment in 1991, GEF has focused on climate change mitigation technologies, particularly renewable energy and energy-efficient technologies (GEF, 2008). Of 639 projects supported between 1991 and 2013, about 22 per cent were in Africa (GEF, 2013). Besides demonstrating technologies, GEF has also undertaken programmes to remove human, institutional, technological, policy and financial barriers.

African countries have been calling for the full implementation of the Bali Strategic Plan for Technology Support and Capacity-building (ECA, AfDB and AUC, 2011). While there is a wide range of green technologies that no single international agreement can cover, a strong and coherent arrangement such as the Bali Strategic Plan is critical for green technology development and transfer. The Bali Strategic Plan was adopted by UNEP in 2005, as an inter-governmental framework for strengthening the capacity of Governments in developing countries and countries with economies in transition to coherently address their needs, priorities and obligations in the field of the environment (UNEP Governing Council, 2004). It establishes South-South cooperation as one of the primary mechanisms for institutional capacity-building. A high-level consultation meeting convened in 2005, called for the development of a clearing house for South-South cooperation to help countries in the South identify and access available technologies. The clearing house concept formed the basis of the UNEP South-South Cooperation Exchange Mechanism launched in 2012.

Trade agreements supporting technology development and transfer

The Agreement on Trade-Related Aspects of Intellectual Property Rights is one of the most important World Trade Organization agreements for tech-

nology development and transfer. It imposes on all members an obligation to establish and enforce minimum standards of protection for intellectual property rights in a manner that contributes to innovation, transfer and dissemination of technology (articles 7 and 8). There are concerns with the TRIPS Agreement, particularly over its impact on helping or hindering the flow of, and capacity to generate, technology in developing countries (Abbott, 1996, and Moon, 2011). In recognition of the specific constraints and needs of least developed countries, the Agreement provides for a flexible transition period for such countries to fully apply the clauses, which has been twice extended, currently to 1 July 2021 (article 66.1 and WTO, 2014). It also obliges developed countries to create incentives for technology transfer to least developed countries and to support their efforts to implement the Agreement through technical and financial cooperation (article 66.2).

However, there is little evidence that article 66.2 has resulted in significant additional incentives for technology transfer. Only about 30 per cent of developed countries party to the agreement had ever participated in the mandatory reporting between 1999 and 2010, with none of them submitting a report every year (Moon, 2011). While reports submitted after 2008 showed some improvements, most of the programmes and policies reported before then did not specifically target least developed countries or technology transfer. And where this was done, the information provided was not sufficient to establish whether or not article 66.2 provided incentives (Henrik, 2011). Improving the performance of the incentives and seeking an appropriate intellectual property regime for green technology transfer should be underlined by Africa in future discussions on the Agreement.

Other World Trade Organization instruments include the General Agreement on Trade in Services (GATS), and the Agreement on the Application of Sanitary and Phytosanitary Measures which encourage support for developing countries to access technology. This can be achieved under GATS through specific negotiated commitments (article IV) on commercial access to technology, mobility of persons with technological know-how (see annex on movement of natural persons supplying services

under the agreement), attaching conditions for foreign service suppliers accessing developing country markets, and developed countries establishing contact points to facilitate the access to available services technology. The GATS annex on telecommunications also requires members, in cooperation with relevant international organizations, to assist in making information available and to give special consideration to opportunities for least developed countries, as well as encouraging foreign suppliers of telecommunications services to transfer technology.

The Agreement on Sanitary and Phytosanitary Measures covers consent to facilitate the provision of technical assistance, especially to developing country members, such as for processing technologies, research and infrastructure either bilaterally or through the appropriate international organizations (article 9). The facilitation includes advice, credits, donations and grants for measures necessary to achieve the appropriate level of sanitary or phytosanitary protection in their export markets.

Most relevant in addressing barriers is the World Trade Organization Agreement on Technical Barriers to Trade which in its preamble recognizes the importance of international standardization in the transfer of technology; the challenges developing countries may encounter; and the desire to assist them in overcoming special difficulties in the formulation and application of measures to conform to technical regulations and standards. In this regard, article 11 requires members, if requested, to take reasonable measures to arrange for their regulatory bodies to advise and provide technical assistance, particularly to developing country members on mutually agreed terms and conditions.

In seeking the full implementation of technology transfer clauses in all WTO agreements, the Doha Ministerial Declaration established the World Trade Organization Working Group on Trade and Transfer of Technology with a binding mandate for members to examine the relationship between trade and technology transfer and make recommendations. In so doing, several developing countries have called for practical means to increase flows of technology and the adequate implementation of relevant trade disciplines (ICTSD and IISD,

2003). They proposed effective implementation of relevant clauses in WTO agreements; enhanced flexibility to implement activities designed to encourage technology flows; examination of restrictive practices on technology transfer in the light of competition policy; increased technical cooperation; and capacity-building. It is important that the Working Group helps resolve the divergent views of developing and developed countries where certain members of the former group of countries have expressed concern that technology transfer provisions in WTO agreements are “best endeavour” in nature rather than binding.

African frameworks promoting technology development and transfer

The NEPAD framework, Africa’s Science and Technology Consolidated Plan of Action of 2006, the Action Plan for the Accelerated Industrial Development of Africa of 2007, and the strategy for its implementation of 2008 all underscore the role of science, technology and innovation in underpinning the industrialization, economic growth and competitiveness of Africa. The NEPAD programmes, objectives and actions include building and investing in adequate knowledge and skills in targeted areas of technology and engineering, biotechnology and cooperation.

The Consolidated Plan of Action has two goals: enabling Africa to harness and apply, and contribute to the global pool of scientific knowledge and technology and innovations. However, there is little progress on implementation of the consolidated plan, seven years since its adoption. For example, its proposed African Science and Innovation Fund has not been established because modalities for ensuring that African Union member States make financial contributions are yet to be established (HTSPE – Eurotrends, 2013). Nonetheless, the establishment of the African Ministerial Council on Science and Technology in November 2003 under the auspices of NEPAD and the African Union to provide political and policy leadership for the implementation of the Consolidated Plan of Action is a positive step. In addition, the NEPAD Science, Technology and Innovation Hub (formerly NEPAD Office of Science and Technology), has been established to coordinate and consolidate NEPAD science, technology and innovation programmes and projects.

Further, in June 2014, African Heads of State and Government adopted a 10-year Science, Technology and Innovation Strategy for Africa STI-SA-2024. The strategy is the result of a review of the Consolidated Plan of Action and is aimed at accelerating transition to an innovation-led, knowledge-based economy within the overall framework of the African Union Agenda 2063. The strategy’s flagship research programmes and actions to be elaborated in line with key priorities, impact areas and sectors are expected to take stock of existing initiatives and build on existing actions identified in the Consolidated Plan of Action.

5.4 Challenges and opportunities

5.4.1 Challenges

Weak support systems for technology development and transfer

Weak support systems for the technology value chain discourage innovation. Since creation of new knowledge or products involves several stages with forward and backward linkages and loops, with one output inputting into another, failures occurring at any point affects the entire value chain. Innovation requires overcoming financial, legal and institutional barriers (GeSCI, 2010). Overcoming these barriers is constrained by the reluctance of most donors and Governments to fund initial activities, as issues around the legal protection of products are complex, requiring strong institutions and skills to generate data for registration.

Weak institutions

Green technology development and transfer institutions commonly include universities, public research and development institutes, private enterprises, financial institutions, technology support agencies, policy-making bodies and Government in general. Despite the key role played by these institutions, they remain weak in Africa, characterized by among other things little emphasis on innovation aspects such as technology prospecting, procurement and diffusion; lack of explicit innovation policies; limited and weak institutional linkages and collaboration; weak engineering and entrepreneurship capabilities;

low levels of technological readiness and innovation capacities; and a generally poor and neglected research and development infrastructure.

Inadequate skills

Many countries in Africa do not have adequate human resources with the skills required for technology innovation, research and development, entrepreneurship and management. This points to the need for robust short and long-term strategies for green technology development skills. In general, there is a low level of awareness and appreciation of quality, and of adequate product standards which are important for the functionality, usability and adaptability of technologies. Countries should therefore enforce quality standards and regulations, and increase funding to institutions responsible for technology development and transfer.

Low prioritization of technology leapfrogging

The pressing need for rapid economic growth and poverty eradication in Africa sometimes influences the view that these competing needs outweigh the importance of “leapfrogging” onto cleaner development trajectories. While they are legitimate concerns of Africa’s development challenges, countries could capitalize on the current growth drive by focusing on green technologies to harness the sectors where they already have a comparative advantage in order to accelerate the path to economic transformation.

Lack of funding for technology development and innovation

Public and private investments play an important role in technology innovation and development but they remain low in most African countries. For example, research and development funding still falls below the 1 per cent of GDP that countries committed to realizing by 2010. Only South Africa deploys about 0.9 per cent. Lack of funding has also constrained implementation of the African Union-NEPAD initiatives such as the African Science and Innovation Fund. Financial limitations including a lack of well-coordinated financing mechanisms are also constraints to international technology development and transfer (Murphy et al., 2013).

International commitment to support technology development and transfer

Progress in implementing international commitments to support technology development and transfer is slow. For example, it took 10 years for a decision to establish a technology mechanism at the request of developing countries under UNFCCC, and another four years for it to start its initial work. The non-binding nature of many international declarations and provisions relevant to international support for technology development and transfer means developed countries may not feel obliged to meet commitments. This is complicated by increasing private ownership of the needed technologies in developed countries – thus limiting the space for government action.

5.4.2 Opportunities

Existing international agreements that support technology development and transfer

Institutions and initiatives such as the Technology Mechanism under UNFCCC, Clean Development Mechanism, Climate Technology Centre and Network, and Global Environment Facility provide important entry points for Africa to leverage international support for green technology development and transfer. Since technologies for the inclusive green economy cannot be covered by one agreement, the adoption of the Bali Strategic Plan provides an opportunity to streamline and coordinate international support for technology development and transfer in developing countries. Further, the establishment of the Working Group on Trade and Transfer of Technology is an opening for a negotiated intellectual property rights regime through World Trade Organization processes. African countries should effectively utilize these arrangements particularly through support for the NEPAD science and technology programme, African Development Bank initiatives such as the pilot Climate Technology Finance Centre and Network, and other programmes coordinated by various agencies of the United Nations system.

Commercial interests driving technology development and transfer

Foreign direct investment to Africa has been increasing over the past two decades (UNCTAD, 2013). It contributes to technology development and transfer in the recipient country when movement of machinery and knowledge embodied in human capital results in knowledge spillovers through, for instance, transfer of trained personnel between firms, and learning and information through patent applications (Popp, 2012). For example, call centre companies from France and Spain have spurred domestically owned and export-oriented call centres in Morocco and Tunisia (World Bank, 2008). Africa should leverage green technology development and transfer from the increasing foreign direct investment through among other measures, policies that promote investment in green technology by foreign firms and developing skilled human resources capable of absorbing transferable knowledge.

Young and dynamic population

Africa's population is projected to peak at 1.6 billion in 2030 from 1.0 billion in 2010. Given that by 2006, more than 44 per cent of the population was under the age of 15 (Ashford, 2007), the continent will continue to be home to a large proportion of young adults for many years. Inspired by the digital revolution around the world, this young population will be the driving force behind the continent's green technology innovation, but only if countries invest in empowering them with the required technical skills for the inclusive green economy.

Information and communications technology (ICT)

ICT infrastructure and technologies such as cell phones and Internet not only facilitate the dissemination of technology, but also innovation and adaptation of applications to meet local needs and training. Internet penetration in Africa (18 per cent of its population) is still low but access is improving through mobile phones: subscriptions were about 750.3 million, 67 per cent by January 2014 (We are social, 2014). Use of information and communications technology such as web2.0 and web3.0 have helped farmers' forums to directly exchange information and knowledge on conservation agriculture practices in countries such as Ghana, Senegal and Uganda,.

South-South cooperation, particularly within Africa

South-South cooperation provides a unique opportunity for African countries to not only share knowledge, policy successes and good practices in green technology development, transfer and deployment, but also to join forces to address common interests in regard to green technology development and transfer.

Private sector role in technology development and transfer

The need to stay competitive in response to market needs provides incentives for enterprises to incorporate new technologies into their operations and bolster efficiency and productivity. With appropriate incentives, the private sector can foster green technology development and transfer through, inter alia, financing, business advisory support, encouraging greater generation of new innovations, promoting South-South cooperation, and foreign direct investment (Hultman et al., 2012). In the United States and the European Union, the business sector provides the bulk of funds (around 75 per cent) for research and development, but it is the public sector that provides most of domestic research and development funds in the less research-intensive countries. However, with no incentives, the private sector tends to neglect basic research particularly for technologies requiring seed funding or for which social benefits exceed private benefits as in the case of green technologies.

5.5 Conclusions and recommendations

5.5.1 Conclusions

In the past two decades, Africa generally realized improvements in technology development and transfer, particularly in patent applications, technology exports, fees and royalties received, and research and development. While the rates of increments were higher than world averages, the overall volumes remained very low relative to world totals at less than 2 per cent for foreign direct investment and 0.27 per cent for patent and high technology exports. However, some positive trends are emerging.

There are country efforts to deploy green technology, particularly renewable energy and biotechnology. Some countries are adopting the use of innovation clusters to spur green technology development and transfer; and the growing South-South cooperation, including in research and development, could turn Africa into an invaluable player in its own right in global green technology development and transfer.

Multilateral environmental agreements and mechanisms and world trade could help leverage international support for green technology development and transfer to Africa. The Kyoto Protocol of UNFCCC has provisions for technology development and transfer, which can promote green technology transfer. Similarly, the Convention on Biological Diversity programme of work on technology transfer and scientific and technological cooperation established in 2004, and its implementation strategy of 2008 can spur efforts to promote green technology development and transfer to Africa. The Global Environment Facility has also been a key source of funding, especially for renewable energy projects. Through the implementation of the Montreal Protocol, African countries have received substantial support including funding for projects, institutional strengthening and training. These efforts could be further enhanced by utilizing the Bali Strategic Plan and UNEP South-South Cooperation Exchange Mechanism launched in 2012. In addition, Africa and other developing countries should use platforms provided by World Trade Organization agreements to persuade developed countries to facilitate technology transfer.

Africa has put in place continental initiatives to promote technology development as underscored in the NEPAD framework and demonstrated through the Science and Technology Consolidated Plan of Action and Action Plan for the Accelerated Industrial Development of Africa. However, the role of international frameworks in facilitating green technology development and transfer has been limited for various reasons, including lack of focus on specific technologies. Within the region, green technology development and transfer faces challenges related to weak support, limited financing, high initial costs, applicability, limited skilled human resources, among others. Despite the challenges, there are im-

mense opportunities for promoting green technology development and transfer, including through existing international arrangements, investing in the skills of the continent's young population, supporting research by the private sector and strengthening the national systems of innovations. African countries therefore need to accelerate the implementation of appropriate measures to address challenges and harness opportunities for promoting green technology development and transfer.

5.5.2 Recommendations

Investing in human capital. Human capital is needed to spur innovation, identify and undertake research and development, and develop business models that support technology development and transfer. Human capital should be built across the technology innovation value chain from the conception of ideas to commercialization. Governments should have a clear vision and establish programmes for skills development at all levels of education, including on-the-job training, in collaboration with the job market.

Developing both “hard” and “soft” science, innovation and technology infrastructure. There is a need to strengthen networks of scientists, intellectuals and research and development resources, and to develop market opportunities and potential partnerships within and across national borders. Governments in partnership with the private sector should invest in infrastructure that supports research and development, including laboratories, telecommunications, science and technology parks, clusters, and business incubators. Governments must employ deliberate policy efforts to increase opportunities to spur green technology development in the region. They can support the private sector through special grants, affordable loans and guarantees, subsidies and tax incentives for research and development or science and technology parks.

Implementing policy, legal and regulatory frameworks. Policy frameworks that synergistically cover environment, trade and industry aspects of technology development and transfer are crucial, as market forces may not provide the incentives for investment in development or diffusion of green tech-

nologies. Countries need to develop guidelines for green infrastructure such as for buildings, urban design, and incorporating clean industrial production technologies. In addition, countries should develop and promote appropriate technical standards such as for the installation, operation and marketing of solar technologies to avert losses due to poor quality technology, and to ensure their functionality, usability and adaptability.

Implementing academic-industry-public partnership.

Joint projects and programmes of mutual interest that support innovation and technology development could offset the limitation of Africa's relatively small private sector. Industrial attachment programmes for students at tertiary levels should be strengthened to promote skills development. Industry should also be supported to organize in-service training. Academic-industry-public partnership could generate multiplier effects such as demonstrating the importance of research and development, encouraging joint funding and implementation of projects, creating a private sector supportive of academia, financing research and development, and ensuring that socially beneficial research receives support.

Explore the existing opportunities provided by international partnership arrangements. Africa's political and technical leaders, including leading institutions, need to champion green technology development and transfer on the continent. International frameworks relevant to technology development and transfer such as UNFCCC, Clean Development Mechanism, and Bali Strategic Plan should guide countries in developing and implementing technology development and transfer strategies. These agreements facilitate knowledge access and help overcome institutional, financial and human capital, and equipment and machinery gaps through sharing of resources such as research facilities. In addition, there is a need to institute national level monitoring and evaluation of technology development and transfer to measure progress. This requires a clear technology development and transfer vision, a committed political and professional leadership, and a strong belief in technology as a key input to a green economy transition.

References

- Abbott, F. M. (1996). The WTO TRIPS Agreement and Global Economic Development - The New Global Technology Regime.
- Adedeji T. O., M.O. Nosiru, A.A. Akinsulu, I.O. Ewebiyi, B.G. Abiona, and T.S. Jimoh (2013). Adoption of New Rice for Africa (NERICA) technology in Ogun State, Nigeria. *Journal of Development and Agricultural Economics*, vol. 5(9), pp. 365-371.
- Agyemang-Bonsu, K.W. (2009). Africa's Key Concerns and Expectations in the Context of the Ongoing UNFCCC Negotiations as it Relates to Development and Transfer of Technologies. Presentation at the Special Session of the African Partnership Forum on Climate Change, 3 September 2009. Addis Ababa: Economic Commission for Africa.
- Anthofer, J. (2004). The Potential of the System of Rice Intensification for Poverty Reduction in Cambodia. Available from <http://www.tropentag.de/2004/abstracts/full/399.pdf>.
- Ashford, L.S. (2007). Africa's youthful population: risk or opportunity? Population Reference Bureau.
- Bjork, I., C. Connors, T. Welch, D. Shaw, and W. Hewitt (2011). *Encouraging renewable energy development: A handbook for international energy regulators*. National Association of Regulatory Utility Commissioners and USAID.
- Brewer, T. (2012). International Technology Diffusion in a Sustainable Energy Trade Agreement: Issues and Options for Institutional Architectures. International Centre for Trade and Sustainable Development, Geneva, Switzerland, www.ictsd.org.
- Clean Development Mechanism (2008). The capture and utilization of methane at the Gold Fields owned Beatrix Mine in South Africa. Project design document version 4.0. Available from <https://cdm.unfccc.int>.
- Creamer, M. (2010). Gold Fields turns methane into R200m revenue stream. *Mining Weekly*, 26 May.
- Diyamett, B., and A.A. Komba (2008). Tanzania Cluster Initiative Project: An Evaluation Report from the Eight Cluster Initiatives. African Technology Policy Studies Network. Special Paper Series No. 38. Available from http://www.atpsnet.org/Files/special_paper_series_38.pdf.
- Dutz, M.A., and Sharma, S. (2012). Green Growth, Technology and Innovation. Policy Research Working Paper # 5932. Poverty Reduction and Economic Management Network, The World Bank, Washington, D.C.
- Economic Commission for Africa (2010). A Technological Resurgence? Africa in the global flows of technology. Economic Commission for Africa series on technology transfer for Africa's development.
-(2012). Outcome Document of the Africa Regional Implementation Meeting for the twentieth session of the Commission on Sustainable Development.
-(2014). Innovation and technology transfer for enhanced productivity and competitiveness in Africa. Background paper for the seventh Joint Annual Meetings of the African Union Conference of Ministers of Economy and Finance and ECA Conference of African Ministers of Finance, Planning and Economic Development.
- Economic Commission for Africa, African Development Bank and African Union Commission (2011). Africa Consensus Statement to Rio+20.
- (2013a). Outcome Document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes.
- (2013b). Outcome Document of the Africa Regional Consultative Meeting on the Sustainable Development Goals.
- Global Environment Facility (2008). Transfer of Environmentally Sound Technologies the GEF Experience. Washington, D.C.
- (2013). Report of the Global Environment Facility to the nineteenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change.
- Global e-Schools and Communities Initiative (2010). *Innovation and Change and the Knowledge Society*. Available from http://gesci.org/fileadmin/user_upload/1_African_Leadership_in_ICT_and_Knowledge_So

- ciety_Development_Files/Innovation_and_change_and_the_knowledge_society.pdf.
- Golub, S.S., C. Kauffmann, and P. Yeres (2011). Defining and Measuring Green FDI: An Exploratory Review of Existing Work and Evidence. Organization for Economic Cooperation and Development Working Papers on International Investment, No. 2011/2. OECD Investment Division.
- Harris, P.D. (2012). South African environmental taxes and investment incentives in practice. Research report presented in partial fulfilment of the requirements for the degree of Master in Business Administration at the University of Stellenbosch.
- Henrik, L.H. (2011). Assessing reporting obligations under TRIPS Article 66.2. In *Sustainable Technology Transfer* H.H. Lidgard, J. Atik, T.T. Nguyen, eds. Kluwer Law International.
- Herold, A., M. Cames, L. Emele, and S.A. Siemons (2013). The Development of Climate Negotiations in View of Warsaw (COP 19).
- HTSPE and Eurotrends (2013). Mapping of best practice regional and multi-country cooperative STI initiatives between Africa and Europe - Identification of financial mechanism(s) 2008-2012. European Union Framework Contract.
- Hultman, N., K. Sierr, and A. Shapiro (2012). Innovation and Technology for Green Growth. The 2012 Brookings Blum Roundtable Policy Briefs
- International Centre for Trade and Sustainable Development and International Institute for Sustainable Development (2003). Developments since the Fourth WTO Ministerial Conference. Doha Round briefing series, vol. 1, No. 11 of 13.
- InfoDev (2014). Building Competitive Green Industries: The Climate and Clean Technology Opportunity for Developing Countries. Washington, D.C.: World Bank Group.
- Karekezi, S., and Kimani, J. (2010). Status of Bioenergy Development in Kenya: The Case of Bagasse-based Cogeneration. Global Network on Energy for Sustainable Development (GNESD) Theme Paper on Bioenergy.
- Khan, M.A.A. (2010). Technology Transfer: Policy Brief 1. Climate and Development Knowledge Network.
- Maia, J., et al. (2011). Green jobs: an estimate of the direct employment potential of a greening South African economy. Industrial Development Corporation, Development Bank of Southern Africa, Trade and Industrial Policy Strategies.
- Moon, S. (2011). Meaningful Technology Transfer to the Least Developed Countries: A Proposal for a Monitoring Mechanism for TRIPS Article 66.2. Policy brief No. 9. International Centre for Trade.
- Moussa, S.Z. (2002). Technology Transfer for Agriculture Growth in Africa. African Development Bank.
- Nampoothiri, M. and Manoharan, H. (2013). International Trade and Access to Sustainable Energy: Issues and Lessons from Country Experiences, International Centre for Trade and Sustainable Development, Geneva, Switzerland, www.ictsd.org.
- Pisupati, B. (2010). Technology transfer and cooperation under the Convention on Biological Diversity: Towards more effective implementation. United Nations Environment Programme, Nairobi.
- Ogunleye, E.K. (2011). Structural Transformation in Sub-Saharan Africa: The Regional Growth Poles Strategy. Paper presented at the African Economic Conference 30 October to 2 November 2012, Kigali, Rwanda.
- Popp, D. (2012). The Role of Technological Change in Green Growth. Policy Research Working Paper 6239. The World Bank.
- Sachs, J.D. and J.W. McArthur (2002). Technological advancement and long-term economic growth in Asia. In *Technology and the new economy*, Chong-En Bai and Chi-Wa Yuen, eds., pp.157-185. MIT Press, Cambridge, M.A. Secretariat of the Convention on Biological Diversity (2006). Programme of work on technology transfer and technological and scientific cooperation.
- Scherr, S.J., and McNeely, J.A. (2008). Biodiversity conservation and agricultural sustainability: towards a new paradigm of 'ecoagriculture' landscapes. *Philosophical Transactions of the*

- Royal Society of London. Series B. Feb 12; 363(1491): 477–494.
- Tekleberhan, M. (2012). Adama Wind Power Project Ethiopia Progressing. Ethiopian Business Portal, 12 January 2012.
- Touhami, M. and G. Hannane (2011). PROSOL: Financing solar water heating in Tunisia. Presentation. United Nations Environment Programme.
- United Nations Conference on Trade and Development (2013). World Investment Report 2013: Global value chains: investment and trade for development.
- United Nations Development Programme (2014). Human Development Report 2014: Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience.
- United Nations Environment Programme (Undated). Patterns of Achievement: Africa and the Montreal Protocol. Available from <http://www.unep.org/roa/docs/pdf/patternofachievements/PatternsAchievement-2009.pdf>.
- (2010). Out of the Maze: Montreal Protocol, climate benefits and the green economy. OzonAction special issue 2010.
- (2013). Building inclusive green economies – Success stories from South-South Cooperation.
- (2015a). Green and Decent Jobs for Poverty Eradication. UNEP Post 2015 Note #4.
- (2015b). Building Inclusive Green Economies in Africa: Experience and Lessons Learned 2010-2015.
- United Nations Environment Programme and European Patent Office. (2013). *Patents and clean energy technologies in Africa*. Available from: www.epo.org/clean-energy-africa.
- United Nations Environment Programme Governing Council (2004). International environmental governance: International environmental governance: Bali Strategic Plan for Technology Support and Capacity-building. Document UNEP/GC.23/6/Add.1. Twenty-third session of the Governing Council/Global Ministerial Environment Forum. Nairobi, 21-25 February 2005.
- World Bank (Undated). Seizing the Opportunity of Green Development in China. Available from <http://www.worldbank.org/content/dam/Worldbank/document/SR3--229-292.pdf>.
- (2008). Global Economic Prospects 2008: Technology Diffusion in the Developing World.
- Zott, C., R. Amit, and L. Massa (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*, 37(4):1019-1042.

6: Capacity development

Key messages

Capacity development is central to making the transition to an inclusive green economy a reality. Capacity development is essential to achieving enhanced understanding and appreciation of the concept and its tangible contribution to sustaining growth and remedying inequality, unemployment and the decline of ecosystem assets. It is therefore vital to ensure that relevant capacity is developed and sustained for both public and private sector actors in order to operationalize and make inclusive green economy a fabric of economic and social activities.

Inclusive green economy policies and strategies provide the entry point and opportunity for identification and elaboration of capacity development needs and plans. Therefore, the design of inclusive green economy plans must recognize the need to incorporate proper identification of capacity development needs, approaches, implementation arrangements and financing.

Capacity development is a cross-cutting, enabling measure for inclusive green economy, fostering green financing, technology development and transfer, policy and institutional development, trade and private sector development. It is therefore a priority element, which when integrated into country and regional initiatives will complement all the other enabling measures for inclusive green economy.

Capacity development requirements for inclusive green economy in the region are diverse, evolving and thus need to be met in the immediate, medium and long-term. In order to effectively meet these needs on a

sustainable basis, capability for in-country and intraregional planning, delivery, coordination, monitoring and reporting of capacity development should be built.

Some countries in the region have already developed capacity including key skills and experience in the formulation and implementation of inclusive green economy strategies and policies. The experience and skills of these countries need to be harnessed and shared by strengthening South-South cooperation in capacity development within Africa and beyond. Strengthening triangular cooperation involving countries of the north is equally important.

6.1 Introduction

Capacity development as used in this report is defined as the “process through which individuals, groups and organizations, and societies deploy, adapt, strengthen, and maintain the capabilities to define, plan and achieve their own development objectives on an inclusive, participatory, and sustainable basis” (ECA 2014). This definition encompasses three complementary levels of capacity development, namely: individual, organizational or institutional, and societal or enabling environment level. Evidence abounds that in order to be effective, combined capacity development efforts are needed at all three levels (Food and Agriculture Organization of the United Nations³³; Theisohn, 2007; UNDP, 2002). Broadly, capacity development entails awareness raising, information exchange, knowledge management, development and sharing of tools and best practices, advisory services, technical assistance, and training.

³³http://www.fao.org/fileadmin/user_upload/newsroom/docs/Summary_Strategy_PR_E.pdf.

A successful and effective transition to an inclusive green economy requires enhanced and wide-scale understanding and appreciation of this relatively new concept. Crucially, an inclusive green economy needs to be incorporated into processes for the formulation and implementation of development policies, strategies, plans and programmes, as well as budgets at sectoral, national and international levels. Capacity development plays a fundamental role in realizing all these elements that are vital in enabling the adoption and practice of inclusive green economy at a meaningful scale. The following are illustrative of the emphasis placed on capacity development in building inclusive green economies:

- (i) In their common position at the United Nations Conference on Sustainable Development, African countries underscored the need to foster better understanding of the green economy concept in the context of Africa and emphasized that the transition to a green, efficient and inclusive economy would require increased investments, access to technologies and capacity-building. In addition, they called for the development of comprehensive national capacity development strategies on sustainable development (ECA, 2012).
- (ii) In the Rio+20 outcome document, Heads of State and Government and high-level representatives recognized that capacity-building, information exchange and experience sharing are critical for developing and implementing green economy policies. In this context, the document calls on the United Nations to work with partners to provide support to developing countries and to develop toolboxes, best practices, methodologies and models to aid green economy policy design and implementation; in addition, it notes the importance of ensuring that workers are equipped with the necessary skills, including through education and capacity-building. Rio+20 also called on Governments to improve knowledge and statistical capacity on job trends, developments and constraints, and to integrate relevant data into national statistics with the support of the appropriate agencies of the United Nations system (United Nations, 2012).
- (iii) The Africa Regional Implementation Meeting on the Post-Rio+20 Follow-up Processes

underlined that capacity-building is crucial to implementing sustainable development commitments in Africa. The Meeting consequently called for the development and implementation of comprehensive national capacity development strategies as a matter of priority to further the implementation of the region's sustainable development agenda. The support of the international community in this respect was also called for (ECA, 2013).

- (iv) The seventh Joint ECA Conference of African Ministers of Finance, Planning and Economic Development and the African Union Conference of Ministers of Economy and Finance in 2014, like other meetings, called upon the African Union Commission, ECA, AfDB and other development partners to support African countries in strengthening their capacity to formulate, adopt and implement inclusive green economy policies in the context of accelerating structural transformation in the region.

This chapter examines the role of capacity development in facilitating the transition to inclusive green economies. It analyses trends, and challenges and opportunities for capacity development to realize inclusive green economies. It highlights in particular, the capacity development role, needs and gaps identified in national green economy frameworks, and those identified through green economy scoping and other studies. The chapter also provides some recommendations for scaling-up and ensuring effective capacity development to enable the transition to an inclusive green economy in Africa.

6.2 Role of capacity development in achieving an inclusive green economy

The crucial role of effective capacity development in enabling the transition to an inclusive green economy is recognized and has featured prominently as a discussion area in many forums at different levels.

The specific role and significance of capacity development in facilitating the transition to an inclusive green economy is summarized in table 7. The table also outlines some approaches and interventions

that can be made to meet the capacity development needs at the individual, organizational and institutional, and enabling environment levels.

It shows the wide and indeed important role of capacity development in facilitating the adoption of inclusive green economy approaches by both the public and private sector. For instance, capacity development is necessary for creating and enhancing inclusive green economy awareness and understanding; developing employable skills in the green jobs labour market; and supporting inclusive green economy policy formulation, planning and implementation. Capacity development at the enabling environment level is essential in, among other things, strengthening overall legislative policy and the social norms environment within which individuals and organizations or institutions operate at national, subregional and regional levels. Moreover, there is a close link between capacity development and other inclusive green economy enabling measures. In this

regard, capacity development at organizational and institutional level plays a vital role in operationalizing or invigorating green technology innovation, trade, and financing for the inclusive green economy. Given the wide and multilevel needs, capacity development entails short, medium and long-term interventions that must be well-planned.

6.3 Trends in capacity development for the inclusive green economy

Identification and effective analysis of trends in capacity development for the inclusive green economy is constrained by the fact that the concept is largely new and most of the efforts to foster the transition are in their nascent stages. However, a review of the emerging national green economy-related strategies, other relevant studies, and ongoing green economy initiatives provides important insights into the

Table 7: The role and some approaches to inclusive green economy capacity development

Level of capacity development	Role, significance, and possible approaches to capacity development for inclusive green economy
Individual level	<p>The role of inclusive green economy capacity development at individual level includes the following:</p> <ul style="list-style-type: none"> (i) <i>Enhancing inclusive green economy awareness, understanding and appreciation.</i> This role of capacity development is crucial given that inclusive green economy is a new concept. Enhanced awareness, understanding and appreciation of the concept will form the basis for active citizen participation in inclusive green economy. Awareness and appreciation will also spur deeper inclusive green economy penetration and wider uptake, including community behaviour change to pursue green economy pathways and alternatives. Achieving enhanced knowledge and perception of the concept and practice requires strengthening formal and non-formal education systems to better integrate and deliver inclusive green economy training. (ii) <i>Developing leadership and fostering champions of change for inclusive green economy.</i> This requires training and mentorship in leadership for inclusive green economy. (iii) <i>Developing skills to organize and conduct or facilitate inclusive green economy processes.</i> Individuals need to have capacity to assist countries to formulate inclusive green economy frameworks in the context of national development priorities and frameworks. This requires training in diverse areas including strategic planning and facilitation, as well as procedures, tools, methodologies and platforms including for inclusive green economy data and information capture, management and dissemination. (iv) <i>Developing employable skills in green jobs labour market.</i> Capacity development is needed to develop new skills required for jobs that are based on low carbon, resource and energy efficiency, and low-pollution in priority development sectors such as industry, energy, agriculture, natural resources and transport. Approaches such as training including vocational training and education are required. In this connection, curriculum reform and development in line with new skills needs, and retraining and retooling for existing workforce to facilitate the transition to green industries and trades are needed.

Level of capacity development	Role, significance, and possible approaches to capacity development for inclusive green economy
Organizational and institutional level	<p>Capacity development at this level has a key role in the following areas:</p> <ul style="list-style-type: none"> (i) <i>Developing capacity to design, carry out, monitor and evaluate inclusive green economy education, training and other technical support programmes.</i> This involves strengthening national or regional institutions to be able to deliver capacity development support to individuals and other institutions involved in inclusive green economy. In this regard educational and curriculum reforms, information exchange, and experience and good practice sharing on inclusive green economy are needed. (ii) <i>Supporting inclusive green economy policy formulation, planning and implementation.</i> This can be achieved through the strengthening of capacity including support to formulate inclusive green economy policies, and to develop and apply tools for integrating inclusive green economy into overarching development and financing frameworks such as national development visions and plans, particularly those advocating for structural transformation. It can also be achieved by establishing and providing support to mechanisms for inter-institutional cooperation and coordination, such as multi-stakeholder forums and other platforms. (iii) <i>Strengthening inclusive green economy statistical capacity and ability to analyse challenges, identify opportunities and alternatives, and take decisions on and monitor inclusive green economy.</i> Fulfilling this role requires capacity development in procedures, tools and methodologies as well as equipment and infrastructure to operationalize them. (iv) <i>Ensuring effective inclusive green economy assessment and monitoring.</i> This can be realized through strengthening statistical capacity such as for determining, calculating or monitoring green jobs; and the development and application of tools and methodologies for monitoring, assessing and reporting progress on inclusive green economy. Additionally, capacity development will be necessary to effectively collect, manage and disseminate information for advocacy work for effective inclusive green economy policies, plans and programmes. (v) <i>Promoting technology innovation, research and development for inclusive green economy.</i> This requires capacity strengthening, for example to assess and analyse innovation systems in order to adopt, adapt or develop green technologies. (vi) <i>Mobilizing financing for inclusive green economy.</i> Capacity is needed to effectively budget and mobilize resources for inclusive green economy, including developing bankable inclusive green economy projects, and to effectively access grant finance and other financial instruments from different sources. Additionally, financial institutions require capacity strengthening for innovative and increased flow of funding to green investments. (vii) <i>Develop green trade.</i> In this context, capacity development is important in supporting the development of new trade regulations, including green or low-carbon certification and eco-labelling; development and harmonization of product and service standards; and greening trade-related investments, among others.
Enabling environment level	<p>Among the roles of inclusive green economy capacity development at the enabling environment level are to:</p> <ul style="list-style-type: none"> (i) <i>Strengthen overall policy and legislative and social norms environment</i> within which individuals, organizations and institutions operate at national, subregional and regional levels. (ii) <i>Strengthen incentive structures</i> to reduce employee turnover and ensure availability of long-term capacity for inclusive green economy in the public and private sector. (iii) <i>Enhance political will, commitment and leadership as well as machinery to champion inclusive green economy at different levels.</i> (iv) <i>Strengthen and enable effective participation in support of inclusive green economy.</i> (v) <i>Strengthen and broaden opportunities to enable stakeholders (including women and youth) to use and expand their capacities to the fullest.</i>

Source: AfDB et al., 2012; ECA and UNEP, 2013; GIZ, 2012; OECD, 2012(a); OECD, 2011(a); OECD, 2012(b). OECD, 2011(b); UNEP, 2011; and UNDP, 2002.

articulation and design of clear and holistic capacity development strategies, capacity development providers and the scope of intervention to facilitate the transition.

An analysis of the strategies and studies shows that overall, capacity development needs for an inclusive green economy in the region are many and diverse. Although there are many commonalities in terms of the needs, they vary widely, as does the level of emphasis. This could be attributed to the varying levels, priorities and trajectories of development in the countries. It could also be indicative of the level of capability to assess needs and articulate comprehensive capacity-building strategies and plans.

The following sections provide an analysis of trends in inclusive green economy capacity development in the frameworks adopted by some countries and in various country studies on the inclusive green economy.

6.3.1 Capacity development in national inclusive green economy frameworks

Some African countries have designed frameworks that provide the strategic direction and insights into capacity development to foster the transition. They include the Climate-Resilient Green Economy (CRGE) strategy in Ethiopia; the Road Map for a Green Economy in Mozambique; the Green Growth and Climate Resilience National Strategy for Climate Change and Low-Carbon Development in Rwanda; and the Green Economy Accord in South Africa.

Table 5 provides a summary of capacity development elements and gaps identified in these frameworks. What emerges is that the development process and the resultant national inclusive green economy frameworks have helped in identifying capacity development needs, priorities and approaches. However, the scope of the needs and approaches identified is uneven across the countries. Except for Rwanda, most of the country frameworks have a narrow scope, thereby leaving out many important roles and needs of capacity development as indicated in table 4 above. This could be attributed to differing country challenges and priorities, which inform capacity

development needs. It could also be a reflection of the limited focus accorded to capacity development during the development of the country frameworks, or of inadequate capacity to formulate comprehensive inclusive green economy capacity development plans from the outset.

With the exception of Rwanda, the capacity development needs identified are focused on only one of the three levels identified in table 8. Both Ethiopia and Mozambique identified capacity development needs at the level of organizations and institutions while the needs identified for South Africa are skewed towards the individual level. These variations in focus may point to priority action areas deemed necessary for the inclusive green economy in the different countries. Further, apart from Mozambique, the other three countries have not articulated financial resources required for the implementation of the capacity development intervention. Rwanda, however, acknowledges that the strategy will require large amounts of finance and human capacity to be implemented thus requiring significant support from development partners, civil society and the private sector. The lack of a financial plan for capacity development could nevertheless impede the mobilization and allocation of funding for it.

From the positive viewpoint, three of the countries, excluding Ethiopia, identified lead actors to spearhead or deliver the required capacity development. This provides a firm basis not only for effective implementation, but also for regular reviews and accountability for capacity development.

The process of formulating the Climate-Resilient Green Economy strategy in Ethiopia demonstrated how to develop results-oriented capacity in the inclusive green economy. Faced with lack of capacity during the preparation of the strategy, the Government of Ethiopia recruited foreign consultants and linked them with local experts drawn from various ministries. The then Environmental Protection Authority served as overall coordinator. Local experts, especially those within the Environmental Protection Authority, were heavily engaged and worked with foreign consultants to prepare the strategy. This helped local experts to gain skills for the subsequent preparation of CRGE plans at sectoral level. As a

result, some sectoral ministries at federal Government level such as agriculture, transport, water, irrigation and energy were able to prepare their own CRGE documents with technical backstopping from the Ministry of Environment and Forestry, the successor to the Environmental Protection Authority. Local capacity in the CRGE strategy was therefore developed as part of the strategy process.³⁴

There are also other noteworthy positive attributes of the capacity development aspects in the Rwan-

da strategy. Capacity development is recognized as a need for both the public and private sector, as well as civil society, and it is developed as one of the pillars of the inclusive green economy strategy with clearly laid out priority areas (box 17) that are integrated into all the priority programmes of the strategy. The Rwanda strategy also recognizes that in order to promote efficiency, actions to build capacity must, as much as possible, harness existing efforts such as the country’s Strategic Capacity-Building Initiative.

Table 8: Summary of capacity development role and needs and gaps in national green economy frameworks

National green economy framework	Capacity development attributes (needs, scope, approach and tools, identification of lead actors, role definition, and financing)	Gaps, remarks
Ethiopia Climate-Resilient Green Economy strategy.	<ul style="list-style-type: none"> (i) The need for an adequate institutional set-up to establish a lasting platform for CRGE is mentioned in the strategy, but details of the key needs are not identified. (ii) Limited capacity for collection of high-quality data is recognized. (iii) CRGE Highlights was launched as a monthly newsletter focusing on disseminating the lessons learned from the implementation of CRGE. 	<p>Capacity development not detailed as a major pillar or strategy for CRGE implementation.</p> <p>Capacity development needs and priorities at the various levels and target groups are not identified and therefore scope of capacity development and requirements for implementation are not articulated.</p> <p>Lead actors for the implementation of the capacity development elements have not been identified.</p>
Mozambique Towards a Green Economy. Road Map for a Green Economy in Mozambique: accelerating sustainable economic, social, and environmental development	<ul style="list-style-type: none"> (i) Building national capacity in broad terms is identified as necessary for moving forward. (ii) Key capacity development priorities have been identified, including coordination and capacity of environmental governance, institutions, policies and monitoring or application of environmental legislation. Others are strengthening of national awareness and understanding of the imperative to act for green economy; training of sectors for adoption and implementation of the Green Economy and Green Growth plans; establishment of integrated knowledge and information about natural capital; distribution or dissemination of maps and knowledge of natural capital and ecosystems services. (iii) An action plan including a budget for capacity development interventions identified has been developed with clear responsibilities for its implementation. 	<p>Capacity development aspects mainly targeted at institutional level are identified.</p> <p>Capacity development areas and approaches at individual level not identified.</p>

³⁴ Draft ECA study report on inclusive green economy policies and structural transformation in Ethiopia.

National green economy framework	Capacity development attributes (needs, scope, approach and tools, identification of lead actors, role definition, and financing)	Gaps, remarks
Rwanda Green Growth and Climate Resilience: National Strategy for Climate Change and Low-Carbon Development.	<ul style="list-style-type: none"> (i) Capacity development is articulated as an enabling pillar and is well developed as pillar 3, entitled Capacity Building and Knowledge Management. In addition, a comprehensive capacity-building plan is to be developed by the Technical Coordinating Committee as one of the first steps in the strategy implementation. (ii) Capacity development has been integrated in all 14 priority programme areas. (iii) Priority capacity development areas and lead actors for their implementation have been identified. (iv) The capacity development priorities identified cover all three levels, namely, individual, institutional and enabling environment. (v) The strategy acknowledges that considerable finance and human capacity is needed for implementation, requiring significant support from development partners, civil society and the private sector. (vi) Capacity to operationalize the National Fund for Climate and Environment to facilitate access to international climate finance, especially Fast-start Finance for adaptation identified as one of the priorities. 	<p>Capacity development priorities are relatively comprehensive, targeting all three levels of capacity development.</p> <p>A well-articulated budget for capacity development is lacking, posing challenges in resource mobilization and allocation. However the formulation of short-term capacity-building programmes is to be initiated and work done to develop a long-term plan to provide the support required to implement the strategy.</p>
South Africa Green Economy Accord	<ul style="list-style-type: none"> (i) Government committed to expanding training programmes linked to the skills requirements for green economy and to ensure that new programmes take into account new requirements for the green economy. (ii) Retraining and refresher courses are to be made available where appropriate. (iii) Green economy needs are to be elevated as priorities in the national skills framework as well annual strategic plans of Skills Education and Training Authorities. (iv) Links and partnerships are established between the Green Economy Accord and National Skills Accord, for example in providing artisanal and technical skills. (v) Lead actors have been identified for skills development such as the Department of Higher Education and Skills Education and Training Authorities, and further education and training colleges, and are to expand higher education, strengthen focus on the green economy and upgrade the knowledge of college lecturers, among other things. 	<p>Capacity development interventions seem to be biased towards the individual level with no clear reference to needs and approaches for the other levels.</p> <p>Although there is no action plan for skills development, a stakeholder meeting is to be held to quantify skills requirements over the next five years and work with colleges, universities and training institutions to provide the required training.</p>

Sources: Ethiopia Government, 2011; Mozambique Government, 2012; Rwanda Government, 2011; South Africa Government, 2011.

6.3.2 Capacity development aspects in scoping and other studies on green economy

UNEP has carried out green economy scoping studies in selected countries in the region. A green economy scoping is a qualitative, multidisciplinary and participatory review of opportunities and options for green economy transition at the country level. Other organizations such as the International Institute for Environment and Development, African Development Bank, and German Gesellschaft für Internatio-

nale Zusammenarbeit have also carried out scoping, stocktaking and review studies in selected African countries. These studies also examined the need, importance and other aspects of capacity development for the inclusive green economy. Table 9 provides a summary of the specific inclusive green economy capacity development aspects identified for some of the countries that have benefited from such studies.

These studies by their very nature do not provide wide and detailed analyses of capacity development interventions necessary, planned or under way but

Box 17: Priorities for the capacity-building and knowledge management pillar of the Rwanda Green Growth and Climate Resilience National Strategy for Climate Change and Low-carbon Development

Priority 1. Improve education by expanding school curricula, tertiary education, technical and vocational training and farmer field schools to address climate resilience and low-carbon development.

Priority 2. Develop capacity within national and subnational government through exchange programmes, university partnerships, training focal points, professional development and pilot villages.

Priority 3. Improve knowledge management and public awareness through an online climate portal, creative radio programming, short-term training courses, demonstrations of best practice in communities and community exchange visits.

Priority 4. Engage in regional and international forums and partnerships on climate and sustainable development topics.

Priority 5. Ensure adequate education and training is provided for women and girls (inclusive).

Source: Rwanda Government, 2011.

only a snapshot of the gaps and needs. Nevertheless, they reveal some striking capacity development needs that are key to the ownership and practical application of the inclusive green economy. The general capacity needs include:

- (i) Most countries expressed the need for a good understanding of the concept of green economy and applicable tools such as sustainable consumption and production, and clean production. The inadequate understanding of the concept of inclusive green economy, including the underlying principles and goals, could hamper the uptake of inclusive green economy principles and approaches in the region. Meeting this need is a prerequisite for buy-in and building a strong foundation for all other interventions to foster the transition.
- (ii) Lack of implementation capacity is a constraint commonly cited in most of the country studies. The implications of this impediment are clearly illustrated in the case of Benin, Ethiopia, Ghana, Namibia and Nigeria, where existing inclusive green economy-complementary strategies and plans have not been fully implemented because of inadequate capacity. This shortcoming could hamper many inclusive green economy strategies and capacity development plans designed for their implementation.

- (iii) The identification of potential sources of support for country inclusive green economy-related programmes and activities, as in the case of the Kenya country assessment report, is vital in building partnerships and mobilizing funding for capacity development.

6.3.3 Capacity development and green economy initiatives at the international level

The number of international initiatives providing support to facilitate the transition is growing. A recent review conducted by the United Nations Division of Sustainable Development in 2012/2013 identified 59 such initiatives. These green economy initiatives were grouped into four main clusters: platforms and forums; partnerships; programmes; and funds, facilities and mechanisms. The review also revealed some trends and gaps, which are pertinent to capacity development for the inclusive green economy in Africa.

Considering that information services (information exchange, awareness raising and knowledge management) is an integral component of capacity development in its broad meaning, and assuming that all those involved in capacity-building services also provide information services, then most (64 per cent) of the international initiatives that were

Table 9: Coverage of capacity development elements in scoping and other studies on green economy

Country study	Capacity development areas identified
Green Economy Assessment Report, Kenya	<ul style="list-style-type: none"> (i) Soil and water management, research and development. (ii) Quality and technical standards development and low-carbon technology, innovation and research and development in the manufacturing sector. (iii) Information management and dissemination for farmers to transition to greener, more sustainable farming practices. (iv) Sources of capacity development and other support, such as Green Climate Fund, Adaptation Fund, carbon markets and the emerging Nationally Appropriate Mitigation Action and REDD mechanisms.
Inclusive green growth in Zambia: Scoping the needs and potentials	<ul style="list-style-type: none"> (i) Public awareness for an integrated approach that will support more sustainable consumption and production. (ii) Institutional capacity and financing. (iii) Combining green and inclusive approaches. (iv) Implementation of plans and programmes. (v) Tracking and improving the economic value of environmental assets.
Green Growth Sierra Leone: Transitioning towards Green Growth, Stocktaking and the Way Forward	<ul style="list-style-type: none"> (i) Statistical capacity across sectors. (ii) Building social, economic and geographical information and monitoring systems to inform decision-making. (iii) Institutional, technical and human capacity for implementation. (iv) Stakeholder consultation and involvement. (v) Workforce training and university education programmes on sustainable resource management and other green growth topics. (vi) Environmental management in key sectoral ministries and the country's Environmental Protection Agency.
Green Economy in sub-Saharan Africa: Lessons from Benin, Ethiopia, Ghana, Namibia and Nigeria	<ul style="list-style-type: none"> (i) Human and institutional capacity to implement the broad green economy concept is a barrier in all countries studied. (ii) Knowledge and awareness of green economy in all the countries studied on issues such as economic benefits and potentials that green economy offers, and on environmental and economic benefits of the concept of cleaner production. (iii) Understanding and defining green economy in relation to national development context and priorities. (iv) Creating and exploiting synergies between the various institutions in Ethiopia. (v) Technical capacity and resource mobilization for comprehensive implementation strategies for climate change mitigation and adaptation, biodiversity, industry, tourism, agriculture, fisheries, water sanitation and transport that have already been adopted by the countries. (vi) Implementation of environmental impact assessments in Benin, Ghana and Namibia. (vii) Financing and coordination by environmental institutions to support mainstreaming of green economy into government policies. (viii) Corporate social responsibility among companies, private sector organizations, Governments and non-governmental organizations.

Source: AfDB, 2013; Banda and Bass, 2014; GIZ, 2013; UNEP, 2014.

reviewed provided capacity development services. This is a sign of the importance accorded by international partners to inclusive green economy-related capacity development. It also shows that partners are positively responding to the calls and decisions made at various forums. Among the main programmes providing capacity development were the Green Economy Initiative (UNEP), the Green Economy Joint Programme (UNDP, UNEP and UNDESA), the Green Industry Initiative (UNIDO), the Green, Low-Emission Capacity-Building

Programme (UNDP), the Green Jobs Programme (ILO, UNEP and other partners), and the OECD Green Growth Programme.

The Global Green Growth Institute, United Nations Partnership for Action on Green Economy, the Green Growth Action Alliance, the Climate Development Knowledge Network, the ClimateWorks Foundation's Project Catalyst, and the Global Climate Change Alliance were among the main green economy partnerships providing ca-

capacity development support. Among the funds supporting capacity development were the Global Environment Facility, the Least Developed Countries Fund, the Strategic Climate Fund, the Forest Carbon Partnership Facility, and the Green Climate Fund. Initiatives in the context of UNFCCC also provide capacity development support to Africa, such as the Clean Development Mechanism and United Nations REDD programme.

Another advantage for capacity development in Africa was that the green economy initiatives reviewed were providing a variety of support services to recipient partner countries, the vast majority of which were developing countries. Africa's eight top beneficiary countries, namely Ethiopia, Ghana, Kenya, Mali, Rwanda, Uganda and the United Republic of Tanzania had each successfully engaged with 1015 different green economy initiatives.

It is worth noting that many of the initiatives that were under way offered similar services to multiple partner countries, and the beneficiary countries engaged multiple initiatives. The downside observed was the potential for duplication of efforts and the possibility of marginalization of some capacity development areas that require support. This calls for enhanced coordination and the establishment of frameworks to guide and streamline capacity development efforts at all levels.

The apparent gap in initiatives that provide matching or brokerage services to help link countries with the support that they need, including capacity development, merits attention. Corrective action will enable countries to easily identify support that matches their needs and link up with service providers.

In addition, there have been other ongoing initiatives, such as resource-efficient and cleaner production programmes that deliver inclusive green economy-related capacity-building. Capacity-building by the Kenya National Cleaner Production Centre is a case in point (box 16). Initiatives such as these can be capitalized on and broadened to deliver inclusive green economy-related capacity development in the region.

6.4 Challenges and opportunities

6.4.1 Challenges

Countries face a number of challenges in inclusive green economy capacity development. As briefly outlined below, among the main general challenges to capacity development are lack of comprehensive and living capacity development plans and strategies, and limited interventions on capacity development. Ensuring effective coordination and

Box 18: Resource-efficient and cleaner production in the Nairobi-based Chandaria Industries Limited

Resource-efficient and cleaner production (RECP) addresses three sustainability dimensions individually and synergistically: production efficiency, environmental management and human development (minimization of risk for people and communities and support for their development). RECP in Chandaria Industries was achieved by raising awareness, improving technology and changing attitudes through regular audits, training and capacity-building activities by the Kenya National Cleaner Production Centre. In 2005, Chandaria Industries adopted RECP practices following an audit by the national centre. The company's core business is the manufacture of tissue paper through waste paper recycling and virgin pulp blending into hygiene grades that include toilet tissues, tissue napkins, paper towels, facial tissues; and recycling of cotton fibres into absorbent cotton wool. The company began by implementing "no and low-cost investment options" such as submetering of electricity and water consumption, process monitoring, a preventive maintenance programme, wastewater treatment and recycling. As a result of the successful implementation of RECP, Chandaria Industries has improved operations through cost reduction, efficient resource use and improved environmental performance, and the company's contribution to sustainable development has subsequently increased. Specifically, implementation of RECP auditing by the company has led to annual savings of 46,886,400 Kenya shillings (\$0.6336 million) and has facilitated the attainment of ISO 9000 2001 certification in quality management systems.

Source: UNEP, 2014.

enhancing synergies among capacity development initiatives, and securing adequate financing for inclusive green economy capacity development are also major challenges.

Inclusive green economy is a new and evolving area

Given that application of inclusive green economy principles and concepts is still at the nascent stage, capacity for self-assessment and development, and inclusive green economy-related capacity development practice are not well developed. Capacity development approaches and interventions have not matured and their efficacy in different settings is yet to be established. Determining breadth and designing effective capacity development interventions therefore remains a challenge. The constraints underlie the justifiable focus of existing capacity development interventions on enhancing understanding of the concept and its opportunities and benefits.

Lack of comprehensive, living plans and strategies, and limited interventions on capacity development

Although capacity development needs and areas are many and multilevel, only a few have been identified as part of inclusive green economy strategies and in the country scoping studies. Furthermore, interventions being implemented by various partners are also limited in terms of both scope and period covered. Many of the interventions are short-term, although achieving the required capacity could entail longer time frames. These inadequacies have implications in terms of access to and effectiveness of the capacity development interventions and could constrain prompt response to capacity development demands. There is therefore need for comprehensive, long-term and flexible capacity development strategies.

Coordination and enhancing synergies among capacity development initiatives

The number of actors and interventions responding to inclusive green economy-related capacity development is growing. The diversity of the needs and specializations required is a clear signal that actors and initiatives for the inclusive green economy will expand significantly. This poses the challenge of

avoiding or minimizing duplication and dispersion of efforts. Moreover, without adequate coordination among capacity development providers, some capacity development needs may not receive the required priority and attention, and interventions may also not be to the scale and depth required to achieve real impact. In recognition of this challenge, African countries have already called for the promotion of coordination and synergies among the various capacity development initiatives in international economic, social and environmental agreements. (ECA, 2013). This will ensure that capacity development needs are comprehensively addressed through coherent and synergistic interventions.

Financing inclusive green economy capacity development

The breadth and depth of capacity development interventions needed to support the transition to inclusive green economy is enormous, and they are likely to have significant financial implications. Yet already, a review of international initiatives supporting inclusive green economy projects has revealed that only a relatively small proportion of these (37 per cent) provide funding. An additional challenge identified is that most interventions fund specifically climate change adaptation or mitigation (United Nations Division of Sustainable Development, 2013). Thus given the limited financing available and competing development priorities, countries are bound to experience major challenges in designing, implementing and scaling up capacity development initiatives.

Countries also face specific capacity development challenges due to their varying circumstances. Table 10 highlights some of the specific challenges revealed in the country studies and the questionnaire survey conducted by ECA³⁵.

³⁵ The country studies and questionnaire survey were conducted as part of the ECA study on inclusive green economy policies and structural transformation in selected countries in Africa. The study entailed in-depth studies in five countries (Burkina Faso, Ethiopia, Gabon, Mozambique and Tunisia) and questionnaire surveys in nine countries (Cameroon, Ghana, Kenya, Mauritius, Morocco, Republic of Congo, Rwanda, Senegal and South Africa). These countries were selected on the basis of existence of national inclusive green economy strategies and policies; existence of inclusive green economy -related interventions by partners; and equitable geographical distribution.

Table 10: Challenges and weaknesses in the capacity development for inclusive green economy policies and programmes in selected countries

Country	Challenges for capacity development	Some required remedial actions identified by the country
Republic of Congo	Lack of adequate financing and management capacity, i.e. lack of adequate financial institutions and difficult access to financing, particularly for young entrepreneurs, and managerial capacity shortfalls.	Strengthen the management skills of entrepreneurs.
Kenya	<ul style="list-style-type: none"> (i) Inadequate capacity at both national and county Government levels to implement inclusive green economy policies, leading to lack of appreciation of green economy and its impact on sustainable development and inability to assess the risks of not going green. (ii) Without adequate capacity, it is not possible to identify, plan for and implement appropriate interventions. (iii) High staff turnover to other bodies including international and private sector organizations. 	<ul style="list-style-type: none"> (i) Capacity-building for inclusive green economy policy formulation and implementation. (ii) Short-term training on green economy for policymakers. (iii) Developing a pool of technical staff in the ministries responsible for planning, environment and energy who are well trained in green economy. (iv) National Government to build capacity, county governments to mainstream inclusive green economy in their development process.
Mauritius	<ul style="list-style-type: none"> (i) A plethora of buzzwords and new concepts that weaken the ability of institutions to find adequate entry points and harmonize actions. (ii) Lack of capacity-building programmes on green economy (iii) Sometimes initiatives compete with each other for the same type of activities. (iv) Capacity-building exercises are sometimes not demand driven. 	<ul style="list-style-type: none"> (i) Green economy is a new field for policymaking so strengthening the capacity and skills of institutions working in the field of green economy is crucial. (ii) Capacity-building on green economy needs to be strengthened through clearer guidance and capacity-building from intergovernmental organizations; and training for the public, private sectors and decision makers to develop a clear understanding of development policies and other measures that can be employed to foster inclusive green economy.
Rwanda	<ul style="list-style-type: none"> (i) Lack of sufficient understanding of the new concept of green economy. (ii) Lack of programme exchange, university partnerships, training focal points, professional development and pilot villages. (iii) Lack of new technical competence in areas such as renewable energy, agroforestry and irrigation. 	<ul style="list-style-type: none"> (i) Need to strengthen understanding of the concept by targeting and engaging all key stakeholders
South Africa	Limited skills to implement inclusive green economy objectives; technical and vocational skills are scarce in both private and public sectors. Skills cannot be augmented through skills transfer from other sectors due to low mobility.	An economy-wide integrated inclusive green economy skills development strategy is needed.

Source: Compiled from questionnaire survey conducted as part of ECA study on inclusive green economy policies and structural transformation in selected African.

6.4.2 Opportunities

Building on the work of agencies already providing institutional leadership for inclusive green economy-related capacity development

Effective leadership for inclusive green economy capacity development is vital in spearheading and providing ongoing assessment and review of priorities, and design and coordination of the implementation of capacity development frameworks. The International Training Centre of the International Labour Organization³⁶ and the Global Green Growth Institute, launched in 2010³⁷, are examples of international-level lead organizations available to support African countries.

In addition, there is a huge potential for existing African institutions to be champions, meaningfully engaged in coordinating inclusive green economy-related capacity development in the region. The African Institute for Economic Development and Planning stands out as one of those institutions with the capacity and stature to provide such leadership in the region³⁸. Established in 1962 by the United Nations General Assembly, the Institute is a pan-African institution that responds to African member States' capacity development needs, including through a portfolio of training programmes and policy research and dialogue initiatives. As part of recent ECA reconfiguration, the Institute has been revamped. It works in concert with the newly created ECA Capacity Development Division as knowledge delivery arms of the Commission. ECA reconfiguration also saw the establishment of the Green Economy and Natural Resources Section as part of its Special Initiatives Division. One of the comparative advantages of the Institute for Economic Development and Planning is therefore leveraging the policy research and analysis of the Green Economy and Natural Resources Section to inform its training programmes.

Another institution with a record of accomplishment on capacity development in Africa is the African Capacity Building Foundation³⁹. Formed in 1991, the

mission of the Foundation is to build human and institutional capacity for sustainable growth and poverty reduction in Africa. The focus is achieving results that come from building effective institutions, accountable governance, sustained investment in individual skills and capabilities, and effective tools and processes that lead to proven performance of public organizations at the country and regional level. The Foundation has experienced a major expansion of its mandate beyond its traditional focus on economic policy and management, and supports capacity-building initiatives in Africa through extending to capacity-building institutions; technical assistance for capacity-building projects and programmes to formulate, implement and monitor policies at national and regional levels; and conducting knowledge and learning activities.

Building on existing strategic frameworks for capacity development at regional level

There are already region-wide capacity development frameworks such as the African Union-NEPAD Capacity Development Strategic Framework which can be refined to guide inclusive green economy-tailored capacity development in Africa. Adopted in 2010, the Framework serves as the guiding framework for strengthening capacity development on the continent. It offers approaches for identifying and addressing fundamental systemic and individual capacity challenges. The Framework emphasizes a system-wide and integrated approach to capacity development around six cornerstones or core areas, namely: leadership transformation; citizen transformation; evidence-based knowledge and innovation; utilizing African potential, skills and resources; capacity of capacity developers; and integrated planning and implementation results. The Framework could be revised to better integrate green economy capacity, as called for by the Africa Regional Implementation Meeting in 2012 (ECA, 2013).

Leveraging funding from existing and emerging capacity development mechanisms

There exist various international initiatives targeting and accessible to African countries for financing inclusive green economy-related capacity development as already outlined above. In addition, there

³⁶ <http://greenjobs.itcilo.org/>

³⁷ <http://www.gggi.org/>

³⁸ <http://www.uneca.org/idep>

³⁹ <http://www.acbf-pact.org/>

is opportunity for countries to access and obtain additional capacity development support from African Development Bank financing portfolios. These include the African Water Facility, Climate Investment Funds, ClimDev Special Fund and the Congo Basin Forest Fund (AfDB, 2012).

Capitalizing on existing and emerging inclusive green economy-related capacity development programmes and partnerships

Notwithstanding that the inclusive green economy has recently gained traction, there have been positive efforts and a number of initiatives for capacity development in areas well aligned with inclusive green economy principles. Many capacity development initiatives exist without an inclusive green economy label but which embrace its principles. Identification and documentation as well as dissemination of these initiatives could catalyse inclusive green economy capacity development. Such initiatives include the UNIDO-UNEP capacity development programme for the Resource Efficiency and Cleaner Production Programme (UNEP, 2014).

Many countries in the region have strengthened education systems including integrating sustainable development-related matters into the curricula at the various education levels. This provides a good basis for inclusive green economy training. There are already collaborative arrangements between initiatives by universities and research institutions on training, research and technology innovation that can be built on to encompass inclusive green economy capacity development. Among such initiatives are the Regional Universities Forum for Capacity Building in Agriculture and the African Economic Research Consortium.

Countries can also address their capacity development needs through emerging initiatives that specifically target capacity strengthening for inclusive green economy policies development and implementation. For instance, ECA through its newly created Green Economy and Natural Resources Section has embarked on a number of activities to strengthen the capacity of African countries to formulate and implement policies and programmes to achieve a green transformation and realize op-

timal benefits from Africa's key natural resources and related sectors. Moreover, through the African Climate Policy Centre, the Commission is also supporting countries in climate change adaptation and mitigation including low-carbon development.

In addition, international partnerships have been formed that African countries can leverage to support their capacity development efforts. One such partnership is the United Nations Partnership for Action on Green Economy led by UNEP, ILO, UNIDO, UNITAR and the Millennium Institute. PAGE supports countries to formulate and adopt green economy policies, and to strengthen capacity to finance and implement inclusive green economy initiatives, among other activities. PAGE also develops and provides global access to tools and training programmes on the green economy and creates and shares knowledge on green economy⁴⁰.

Emerging partnerships and platforms, such as the Green Growth Knowledge Platform, also enhance access to knowledge to foster the transition to inclusive green economies⁴¹. The Platform's mission is to enhance and expand efforts to identify and address major knowledge gaps in green growth theory and practice, and to help countries to design and implement policies to move towards a green economy. Other platforms include the UNIDO-UNEP Green Industry Platform⁴²; the World Bank Climate Change Knowledge Portal⁴³; and the Climate Development Knowledge Network⁴⁴.

Within the region, efforts are under way to operationalize the African Green Economy Partnership to facilitate synergy and cooperation between national and regional actors and organizations that provide support to African countries on the green economy. The main objective of the Partnership is to facilitate the provision of coordinated and consolidated support to African countries in assessing, designing and implementing inclusive green growth strategies and approaches for building an inclusive green economy. Main actors in the African Green

⁴⁰ <http://www.un-page.org/>.

⁴¹ <http://www.greengrowthknowledge.org/Pages/GGKPHome.aspx>.

⁴² <http://www.unido.org/index.php?id=1002609>.

⁴³ <http://sdwebx.worldbank.org/climateportal/index.cfm>.

⁴⁴ <http://cdkn.org/>.

Economy Partnership include UNEP, ECA, ILO, African Development Bank, the African Union Commission and the NEPAD Planning and Coordinating Agency, each of which has ongoing initiatives to support the inclusive green economy.

6.5 Conclusions and recommendations

6.5.1 Conclusions

The importance of capacity development in ensuring an effective, inclusive green economy transition is recognized. Many forums at global and regional levels have called for capacity development for both the public and private sector. Capacity development for inclusive economies is required at individual, organizational and enabling environment level to enhance awareness, understanding and appreciation of the concept. Capacity-building will also support policy formulation, planning and implementation, and contribute to strengthening the overall policy, legislative and social norms environment within which individuals, organizations and institutions operate at all levels. Some countries have identified their specific needs and designed plans for capacity development as part of the process of formulating country inclusive green economy strategies and policies, but many capacity development plans are not comprehensive. Capacity development is currently met through emerging interventions, most of which are international in design and need to be well coordinated; there are few country or region-led capacity development initiatives.

Countries face diverse challenges in addressing their capacity development needs. Generally, however, because the inclusive green economy is a new concept, there are no tested capacity development approaches. Many countries also lack capacity to assess their needs and elaborate country-led capacity development plans and activities. Countries can leverage a number of opportunities at global, regional and national level to fulfil their capacity development requirements, including the ongoing and emerging initiatives and partnerships at international level that finance and carry out inclusive green economy capacity development activities.

6.5.2 Recommendations

The following are recommended in order to scale up and ensure effective inclusive green economy capacity development at various levels in the region.

Country frameworks for the development, coordination and delivery of inclusive green economy capacity development should be strengthened. Beyond ensuring that there are agencies mandated to lead inclusive green economy-related capacity development, countries should also develop and be equipped with comprehensive nationally-owned capacity development strategies or plans with clear implementation arrangements. Country capacity development frameworks will ensure that capacity development is country and demand-driven, and responds to, and takes into account the unique needs and development of each country. These frameworks will also help to institutionalize investment, ensure coordination, and strengthen nationwide synergies in capacity development; national self-capacity assessments for inclusive green economy should also be strengthened to facilitate an ongoing review and adaptation of capacity development strategies and plans to address the evolving needs.

Easily accessible institutions are needed with capability that can be leveraged and tailored to respond to needs at local, national and regional levels and should be strengthened. In-country and within-region competence in inclusive green economy capacity development should be built through among other measures, strengthening formal educational and training institutions to cater to the skills demands for green jobs; national and regional training of trainers programmes; and strengthening regional institutions such as the Institute for Economic Development and Planning and African Capacity Building Foundation. Collaboration and partnerships should also be promoted among universities and other training institutions in the region to meet inclusive green economy capacity development needs.

Inclusive green economy capacity development approaches that are linked and lead to concrete and transformative results and improved well-being of the target beneficiaries should be designed and promoted. This is not only powerful in creating

interest and serving as an incentive, but also important in mobilizing support for inclusive green economy-related capacity development. Capacity development strategies or plans with clear links to concrete results should be the norm. Practical and appropriate inclusive green economy demonstration projects should be developed and promoted to serve as teaching laboratories.

Education and vocational training reforms should be carried out to include and strengthen inclusive green economy knowledge in education and training at all levels. It is necessary, in particular, to create awareness among the youth of the green economy concept and equip them with new and employable skills. As a foundation for training of trainers, educational reforms will also contribute to strengthening the capacity of countries to design and carry out capacity development programmes for practitioners, experts and policy makers.

Global and regional partners and national Governments should mobilize and provide support to address the immediate capacity development needs and priorities of countries. These priorities include strengthening awareness and knowledge of the inclusive green economy; and strengthening the capability for capacity development including carrying out capacity self-assessment, and formulating and implementing capacity development strategies or plans. Other priority areas include mobilization of green finance, institutional and policy development, innovation and technology development, and inclusive green economy monitoring and statistical capacity.

Region-wide coherence, synergies and coordination in capacity-building should be promoted and monitored. This is essential for enhancing the efficacy and efficiency of interventions and minimizing gaps in capacity development. To this end, the African Union-NEPAD Capacity Development Strategic Framework could be revised to incorporate priority capacity development requirements for inclusive green economy and sustainable development. In addition, regional economic communities which serve as the implementing and coordination mechanisms for the NEPAD development agenda could play an

important role by strengthening their frameworks to ensure effective capacity development-specific monitoring and evaluation systems. The different clusters of the Regional Coordination Mechanism for Africa could support the African Union-NEPAD programme by developing, incorporating and prioritizing inclusive green economy-related capacity development plans and activities in their business plans, beginning with the clusters dealing with education, industry, infrastructure including energy, natural resources, and agriculture.

Partnerships, South-South and triangular cooperation in capacity development for the inclusive green economy should be strengthened. Public-private partnerships in capacity development are necessary because of the mutually supportive roles of the public and private sectors in creating an enabling environment and ensuring implementation. Evidence abounds from this and other reports that countries of the South, including in Africa, have emerged as leaders in inclusive green economy planning, policies, technology innovation and financing. These countries have an increasing number of experts, scientists and specialists, with an expanding reservoir of intellectual capital and innovations (Dias, 2013) in these areas. At the same time, in addition to the support they offer, countries of the North have trail-blazed capacity development in many areas and their experiences can be adapted to Africa's needs. Strengthening South-South and triangular cooperation can therefore be a powerful tool for scaling up inclusive green economy capacity development in Africa. The African Union Commission and regional economic communities can play an important role, particularly in enhancing inter-regional economic community and country learning.

Capacity development should be woven as a mutually supportive measure into initiatives related to technology development and transfer, financing, private sector development, and institutional development for the inclusive green economy. Capacity development is a cross-cutting measure that reinforces, and thus should not be delinked from other enabling measures.

References

- African Development Bank (2012). Facilitating green growth in Africa: Perspectives from the African Development Bank.
- (2013). Green Growth Sierra Leone: Transitioning Towards Green Growth; Stocktaking and the Way Forward.
- African Development Bank, Organization for Economic Cooperation and Development, United Nations and World Bank (2012). A Toolkit of Policy Options to Support Inclusive Green Growth. Submission to the G20 Development Working Group by AfDB, OECD, United Nations and the World Bank. Available from <http://www.oecd.org/greengrowth/toolkit.pdf>.
- Banda, T., and S. Bass (2014). Inclusive green growth in Zambia: Scoping the needs and potentials. IIED Country Report. London: International Institute for Environment and Development.
- Dias, B. (2013). Natural Development. In *Our Planet: Building Inclusive Green Economies: South-South Cooperation for Sustainable Development and Poverty Eradication*. United Nations Environment Programme.
- Economic Commission for Africa (2012): Africa Consensus Statement to Rio+20.
- (2013). Outcome Document of the Africa Regional Implementation Meeting for the Post-Rio+20 Follow-up Processes.
- (2014). Capacity Development Strategy.
- Economic Commission for Africa and United Nations Environment Programme (2013). A Green Economy in the Context of Sustainable Development and Poverty Eradication: What are the Implications for Africa?
- Government of Ethiopia (2011). Ethiopia's Climate-Resilient Green Economy Strategy.
- Gesellschaft für Internationale Zusammenarbeit (2012). Green economy –the economy of the future: Approaches for inclusive, resource-efficient and low-carbon development.
- (2013). Green Economy in Sub-Saharan Africa: Lessons from Benin, Ethiopia, Ghana, Namibia and Nigeria.
- Mozambique Government (2012). Towards a Green Economy. Road Map for a Green Economy in Mozambique: accelerating sustainable economic, social, and environmental development.
- NEPAD Planning and Coordinating Agency (2010). The African Union-NEPAD Capacity Development Strategic Framework.
- Organization for Economic Cooperation and Development (2011a). Tools for Delivering on Green Growth. Prepared for OECD Council meeting at ministerial level, 25-26 May 2011, Paris.
- (2011b). *Towards Green Growth*.
- (2012a). *Green Growth and Developing Countries. A Summary for Policy Makers*.
- (2012b). *Greening Development: Enhancing Capacity for Environmental Management and Governance*. Rwanda Government (2011). Green Growth and Climate Resilience: National Strategy for Climate Change and Low-Carbon Development.
- South Africa Government (2011). Green Economy Accord.
- Theisoehn, Thomas (2007). Towards enhancing the effectiveness of the United Nations system in supporting capacity development. Background study for the United Nations Triennial Comprehensive Policy Review 2007, vol. I: Main Report.
- United Nations (2012). The future we want. Outcome Document of the Rio+20 United Nations Conference on Sustainable Development.
- United Nations Development Programme (2002). *Capacity for development: new solutions to old problems*. Sakiko Fukuda-Parr, Carlos Lopes and Khalid Malik, eds. Earthscan Publications Limited.
- United Nations Environment Programme (2014). Green Economy Assessment Report – Kenya.

7: Financing the inclusive green economy in Africa

Key messages

Financing the inclusive green economy should be viewed in the context of financing sustainable development, since the green economy is a means to achieving sustainable development. This innovative approach could accelerate convergence, alignment and integration of the three dimensions of sustainable development.

Domestic resource mobilization will be critical for the success of the transition. Fiscal reforms will have to be cautiously undertaken within the context of improving the tax administration system. Such reforms should be used to close the domestic resource gaps by eliminating leakages and inefficiencies.

Bank-based financial services and credit remains critical for the involvement of small and medium-sized enterprises in the transition to a green economy in Africa. While large-scale private financing of projects without the backing of domestic capital markets has been observed in the region, the role of the markets in mobilizing private investment funds for growth sectors cannot be underestimated.

The introduction of non-traditional financing instruments within the framework of national development is key to ensuring sustainability. In this regard, financial markets and private sector development should be part of the financing strategy.

Significant initial investments are required for the transition in developing countries, and international partners should play an important role in mobilizing external resources. The recently adopted green economy strategies and programmes in some of the countries in

the region offer a window of opportunity for developed countries to channel their official development assistance and other technical assistance funds to green projects.

7.1 Introduction

The importance of adequate means of implementation, particularly financing, for a green economy transition in Africa cannot be overemphasized. Financing the inclusive green economy should be viewed in the context of financing sustainable development, since the green economy is a means to achieving sustainable development and eradicating poverty (UNDP, 2012). The approach is innovative, and enhances convergence, alignment and integration of the three pillars of sustainable development (United Nations, 2011). It has great appeal for business, delivering business value to companies that adopt it as a strategy, and offers enormous investment opportunities for the private sector to provide the infrastructure, equipment, goods and services that will drive the transition (UNEP, 2012a).

The transition will entail significant upfront capital investments and major structural and technological changes. These changes will require adequate financing to upgrade skills, improve capacity, and enhance coordination of actions in the economic, social and environmental spheres of development. Financial resources will also be required for countries to effectively deploy all enablers of the transition, particularly technology, capacity development, institutional and policy reforms. The transition to a green economy should therefore be used to mobilize additional private and domestic public resources required to achieve sustainable development.

Among the various investments needed for the transition in Africa, energy infrastructure is a top priority – as of 2011, about 80 per cent of the region's population (600 million people) did not have access to electricity. It is estimated that \$25,000 billion will be invested between 2011 and 2035 in renewable energy and low-carbon technologies worldwide (International Energy Agency *World Energy Outlook 2011*). Renewable energy investments are needed to expand energy access and contribute to reducing greenhouse gas emissions from energy sources. In Africa, the number of people without access to electricity is projected to rise to 645 million, while those without clean cooking facilities will rise to 881 million by 2030, from 696 million in 2011 (International Energy Agency *World Energy Outlook 2013*). Financial resources are therefore needed for Africa to close infrastructure gaps and to support private sector investments in the sectors earmarked for the transition. The public sector should also be capacitated to attract and utilize financial resources for the transition.

The financial resources needed for the transition in Africa are meant to be catalytic, supporting investments, particularly those that would otherwise not be realized. The funds could also support large-scale research that highlights and demonstrates the tangible investment opportunities that exist in transitioning to an inclusive green economy. For most developing countries, domestic resources will not be enough to meet all the financing requirements, hence a mixture of domestic and international resources, including public and private finance, will be critical for the green economy transition. Overall, about 2 per cent of the global GDP (currently \$1.3 trillion per year but expected to rise to over \$3 trillion in future) will be needed to finance the transition in developing countries by 2050 (UNEP, 2011).

This chapter discusses the role of finance in fostering an inclusive green economy. It explores emerging trends in mobilizing resources for sustainable development and highlights gaps in financing. It also discusses the challenges and opportunities in financing the green economy transition. The chapter concludes with some recommendations for enhancing resource mobilization for the green economy transition.

7.2 The role of finance in fostering an inclusive green economy

Unlocking the barriers to the green economy transition and sustainable development

Mobilizing financial resources and their effective use is central to the global partnership for sustainable development (United Nations, 2009). Financial resources can unlock opportunities to develop the economic and social infrastructure, and could strengthen institutions and facilitate the implementation of inclusive green economy projects. Financial resources are needed to support the transition in all major economic sectors including agriculture, fisheries, forestry, energy, industry, tourism, transport, water and infrastructure. Adequate resources could stimulate investments in smallholder agriculture and sustainable land use – sectors that normally do not attract investment due to the uncertainties and high risks associated with climate change and individual farmer risks (scale of operations and market access), and public goodwill with regard to the benefits of sustainable land use. The transition is also an opportunity for investors to explore new technologies and markets, and for Governments to explore new instruments for effective management of natural resources, and provision of infrastructure for low-carbon development.

Sound financial markets reduce entry barriers to green value chains in the transition

Lack of access to financial resources is one of the entry barriers into high-value sectors. However, industries driven by small enterprises have been found to grow faster in countries with higher levels of financial development (Beck 2011). Developing countries that have sound financial markets would easily attract investment funds, and be able to extend credit to investors including small and medium-sized enterprises with high-risk profiles. The role of financial markets will be critical in classifying financial assets for lenders and borrowers, introducing sophisticated green instruments for channelling investment capital to the transition, and fostering new and emerging niches in green finance and investment (UNEP, 2011a). However, financial markets cannot

perform these functions without an enabling policy for lowering the risks of new investments, and in the absence of public investment acting as the catalyst in fostering early stage investments or providing public infrastructure and services. Financial sector policies are also important in the transition process (Beck, 2011).

Domestic resources reduce financing risks associated with external funding

The initial huge cost of inclusive green economy investments will have to be borne by developing countries themselves. Countries will only benefit from the transition if it is accompanied by adequate finance projects with significant impacts on the economy, society and the environment. Such projects should be financed with both domestic and external resources. However, with declining real flows in official development assistance in recent years, domestic resources will have to be bolstered to meet initial investment costs of projects. Globally, development aid fell by 4 per cent in real terms in 2012, following a 2 per cent fall in 2011. Despite exceptional support to some countries in North Africa after the “Arab Spring” in 2011, bilateral aid to sub-Saharan Africa was \$26.2 billion, while aid to the continent fell by 9.9 per cent to \$28.9 billion, (OECD, 2013a⁴⁵).

If done strategically, green economy projects financed by domestic resources would reduce financing risks and costs associated with external funding. Since the public sector can only provide a limited proportion of the necessary investment a combination of public and private funding is required to foster investment in the key sectors and in strategic ones such as environmental technology, new energy systems, environmentally sensitive infrastructure and information technology (European Commission, 1997).

Domestic financing enhances mapping of development priorities and resources

Domestic resource mobilization can have positive benefits particularly if the funds realized are channelled to productive sectors. Mobilizing domestic financial resources for inclusive green economy projects is an opportunity for policymakers to identify

bottlenecks in public finance that impede appropriate and effective use of public funds. It is also an opportunity to link the transition to specific development targets such as infrastructure development, social development and environmental protection.

Most African countries have considerable fiscal policy space to raise tax revenue. An average tax yield of about 14.3 per cent of GDP is low compared to Africa’s GDP of \$1.591 trillion in 2013⁴⁶. Green taxes based on a growth model can raise average tax yields, but caution should be exercised when attempting to raise additional funds through fiscal reforms. Generally taxes have distortionary effects on investment and the economy, particularly if the existing tax system is inherently inefficient. Hence, new green taxes should not be introduced solely for mobilizing domestic resources but rather for correcting market failures or reducing distortionary effects of existing taxes, improving economic performance and distribution of income, while protecting the environment (Goulder, 1994; Ciaschini, et al., 2009).

Creation of investment opportunities

An efficient and well-functioning financial system is crucial in channelling investment funds to the most productive uses and in allocating risks to those who can best bear them, thus boosting economic growth, and improving opportunities and income distribution (Demirgüç-Kunt et al., 2008). New investment opportunities from the transition will increase pressure to obtain funds and could jump-start a vibrant economy if the domestic financial system is able to fund projects of all sizes. However, in most African countries the banking sectors are either too small or risk-averse and capital markets too immature to support the initial investments and future projects required for the transition.

A green economy financing strategy that channels funds through domestic financial markets could strengthen financial services and investment in developing countries. With appropriate green investment policies for pooling financial resources from individual savers, donors and other financial institutions, financial markets can help overcome investment indivisibilities and allow exploiting scale economies (Beck, 2011). Financing inclusive green

⁴⁵ <http://www.oecd.org/dac/stats/aidtopoorcountrieslipsfurtherasgovernmentstightenbudgets.htm>.

⁴⁶ <http://data.worldbank.org/region/sub-saharan-africa>.

economy projects through the domestic financial system could also mitigate the effects of information and transaction costs, which often impede private sector growth. It could also contribute to the development of the financial system.

The transition could benefit the small and medium-sized enterprises drafted in to implement the initial green economy projects. Since these enterprises dominate the informal sector in sub-Saharan Africa offering up to 75 per cent of the non-agricultural jobs, availability of investment funds to inclusive green economy projects would promote private sector growth and could help reduce poverty (OECD, 2013c). Structural reforms are in themselves signals to the financial sector that investment funds should be channelled to new growth sectors of the economy. However, tailor-made financial schemes are required for small and medium-sized enterprises to access resource-efficient technologies, drive cost efficiencies, and create competitive advantages (UNEP, 2012a).

Promoting growth in neglected sectors

The transition is opening investment windows in sectors that previously were unattractive. For instance, an increasing number of investors are targeting the agriculture sector in Africa, and this could help improve the continent's food security, agricultural productivity and trade competitiveness. A growing number of private equity funds are already springing up to finance agricultural production in Africa. Since 2005, over 53 private equity funds have raised, or are in the process of raising capital to invest in the agricultural sector in Africa, nearly half of which are managed on the continent (Silici and Locke, 2013). The Comprehensive Africa Agriculture Development Programme (CAADP) has estimated that with limited investments, crop intensification would account for about 75 per cent of the growth in crop production in sub-Saharan Africa until 2030 (NEPAD, 2003). Hence, green economy investments in the sector could help improve land management and avert land degradation that might accompany crop intensification.

Public sector-led investments in natural resources are critical particularly in sectors that have peculiar challenges in attracting private sector participation. Publicly guaranteed financing of such sectors

is critical to attract private entrants into the sector although the businesses will be operated by the private sector. The challenges facing inclusive green economy projects include high costs of initial investment including technology; lack of visibility or marketability of projects; lack of market access for products; and structural issues requiring intervention from Government or other investors. Involving the private sector from the outset will increase the potential for growth and could expand the role of public sector investment banks in attracting private finance to support green economy projects.

About \$3.2 billion was invested in 98 private equity investments in 2013 with opportunities being explored in consumer-driven sectors, and those benefiting from commodity-led and infrastructure-led growth. A number of private equity funds are targeting infrastructure, for example Convergence Partners who announced a first close of \$145 million on an infrastructure fund for information and communications technology, and Harith General Partners which was fund-raising for an infrastructure fund targeting \$1.2 billion in 2013 for projects across the continent. Other niche sectors are the usually oversubscribed renewable energy sector, particularly wind and solar, and the usually lower-valued natural resources sector. Investments in energy and natural resources totalled \$747 million in 2013 in sub-Saharan Africa. There have been 27 private equity transactions from 2010 to 2013 in the energy sector with an aggregate value of \$1.2 billion. Another fund managed by the Blackstone Group plans to invest \$3 billion in the next few years to build hydroelectric plants in Ethiopia, Rwanda and the United Republic of Tanzania (EY, 2013).

Fostering investment in sectors that have the greatest potential

Public-private partnerships and international cooperation involving Governments and internationally renowned private sectors could facilitate the transfer and diffusion of green technologies and capacities, as well as investment funds to sectors that would otherwise not attract such level of attention from investors. It is for the latter reason that Governments need to pay more attention to the role of foreign direct investment in influencing economic, social and environmental outcomes of recipient economies. In

particular, since foreign direct investment is profit driven, it is incumbent upon Governments to foster investment in sectors that could have the greatest social and environmental rewards from the transition.

Foreign direct investment is raising the volume of available capital in developing countries and is associated with the transfer of new technologies, skills and increased productivity. FDI in green sectors can accelerate the transition and enhance environmental performance of new investments. FDI targeting extractive sectors (e.g. mining, oil, forestry) merit priority attention in view of their environmental, economic and social importance, hence the need to harmonize investment and environmental policies. By extension, FDI flows are critical in channelling capital, technology and skills to productive and internationally competitive real sectors, hence the need for complementary green economy and finance policies. FDI can reduce or increase pressures on the environment, as compared with domestic investment, depending on geographical location and whether regulatory, technology or scale effects are considered (OECD, 2002).

7.3 Trends and gaps in financing

7.3.1 Funding requirements and gaps

Although no comprehensive assessment of the costs specific to the transition for Africa exists, UNEP estimates that about \$1.3 trillion per annum will be needed to finance the transition to a green economy in developing countries by 2050 (UNEP, 2011a) which is reasonably close to the incremental investment required to achieve sustainable development targets in developing countries, set at \$1.1 trillion per annum between 2000 and 2050 (UNDESA, 2012).

The UNEP estimates were based on costs required to meet sectoral targets in energy, manufacturing, transport, buildings, waste, agriculture, fisheries and water, and forests. Accordingly, the additional investments in green economy in developing countries were estimated at 1.2 per cent of global GDP per annum (or \$0.78 trillion in 2010). These amounts must be considered in their right context, as the ag-

gregates based on sectoral figures may be underestimating the resources gap. For instance, about \$2 billion is needed annually just to compensate for deforestation and degradation opportunity costs, while \$22 billion is required annually for sustainable development of water resources.

With regard to sector-specific based estimates or incremental adjustment costs in the region, the cost of putting Africa on a low-carbon growth pathway ranges between \$9 and \$12 billion per year, while the incremental cost of climate change adaptation is between \$13 and \$19 billion, if proper actions are not taken now (AfDB, 2011).

In the agriculture sector, an investment of about \$8.55 billion per annum is required annually to comply with the national investment plans for agriculture of the Comprehensive Africa Agricultural Development Plan⁴⁷. This should be revisited and analysed further, particularly if it will require \$198 billion per year from 2011 to 2050 to transition towards green agriculture globally, and about \$125 billion per year until 2030 of gross investment in green primary agriculture in developing countries (UNEP, 2011a; WEF, 2012b).

The region also requires massive investment in infrastructure (transport, energy, ICT, and water and sanitation) to strengthen the platform for sustained inclusive green growth. The infrastructure requirement has been projected at about \$93 billion per annum (ECA, 2012). A shift to green infrastructure could require additional spending – an upper-end estimate puts this in the order of \$350 billion per year (OECD, 2013b; WEF, 2012a).

Energy infrastructure is a top priority in Africa, where in 2011 about 80 per cent of the population still did not have access to electricity. The key to energizing the

⁴⁷ The Comprehensive Africa Agriculture Development Programme was endorsed at the African Union Heads of State Summit as a NEPAD programme in July 2003. Built around four pillars, namely (i) extending the area under sustainable land management and reliable water control systems; (ii) improving rural infrastructure and trade-related capacities for market access; (iii) increasing food supply, reducing hunger, and improving responses to food emergency crises; and (iv) improving agriculture research, technology dissemination and adoption, the overall goal of the programme is to “help African countries reach a higher path of economic growth through agriculture-led development, which eliminates hunger, reduces poverty and food insecurity, and enables expansion of exports”. See <http://pages.au.int/caadp/about>.

green economy is public-private partnership investment in large-scale low-carbon energy projects under the framework of the African Power Vision, African Clean Energy Corridor, Power Africa initiative, and the small island developing States' Lighthouses Initiative, within the overall United Nations Sustainable Energy for All initiative^{48,49,50}. Renewable energy investments could expand energy access in Africa, where the number of people without access to electricity is projected to rise to 645 million, while those without clean cooking facilities will rise to 881 million by 2030 from 696 million in 2011 (International Energy Agency *World Energy Outlook 2013*). The projected annual shortfall in green investments to drive low-carbon energy supply and energy efficiency in developing economies is \$350 billion annually (\$1 trillion globally) over the next 30 years (UNEP, 2011c).

According to global estimates, the level of public investment required to shift to the global supply of clean energy is in the range of \$116–139 billion if the private sector can invest about \$558–\$581 billion. According to Bloomberg New Energy Finance, the debt-to-equity ratio of clean energy asset projects is assumed at 70:30, meaning that public investment would need to increase to close the gap (WEF, 2012a). Based on climate change mitigation targets, a total additional investment in low-carbon technologies and energy efficiency (not only renewable energy) of \$18 trillion is needed in the period 2010 to 2035, of which investments in renewables by 2020 were estimated at \$1.7 trillion under the 450 parts per million scenario (UNEP, 2011a).

The costs aggregated over several key sectors, and over time, imply that most African countries may not afford the green economy transition through

⁴⁸ The African Power Vision is part of the Programme for Infrastructure Development in Africa. See <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/PIDA%20brief%20Energy.pdf>.

⁴⁹ The African Clean Energy Corridor was initiated by the International Renewable Energy Agency. It provides the framework for mobilizing investments to substantially increase deployment of renewable energy in Africa, reducing carbon emissions and dependence on imported fossil fuels, leading to a more sustainable and climate resilient economic growth.

⁵⁰ The small island developing States' Lighthouses Initiative aims to mobilize \$500 million of investments in small island developing States, deploy significant quantities of renewable power plants, including 100 MW of new solar photovoltaic power systems and 20 MW of new wind power, and support the States to develop renewable energy road maps. See <http://www.irena.org/DocumentDownloads/ENERGY-SIDS-Lighthouse-Initiative.pdf>.

normal budget outlays. Hence a mixture of domestic and international resources, including public and private, will be critical for the transition. The financial resources needed for the transition are meant to be catalytic and to support investments, particularly those that could not be carried out otherwise. The funds could also support large-scale research that demonstrates the tangible investment opportunities that exist in transitioning the continent to inclusive green economies.

7.3.2 National green economy plans and funding facilities

One of the most pressing issues for Africa is to enhance domestic resource mobilization to finance investments in strategic sectors to stimulate productivity, create employment, provide people and enterprises with basic services, and contribute to efficient natural resource management. Several instruments and arrangements have been proposed for enhancing domestic resource mobilization including the newly incorporated Africa50 Infrastructure Fund (NPCA and ECA, 2014). The proposals also include establishment of an African credit guarantee facility; promotion of Africa-owned private equity funds; deepening of African bonds markets; securitization of African diaspora remittances; establishing strategic development sovereign wealth funds; establishment of regional stock markets; and public-private partnerships (box 19).

It is important to realize that the financing requirements for the green economy are additional strains on scarce domestic resources, hence the need for the transition to be properly planned and managed. It is therefore critical that countries should at least elaborate policies, strategies and programmes, accompanied by a comprehensive estimate of the funding required for the transition. The inclusive green economy strategies must be embedded in national development plans and should include a financing strategy. The strategy should also elaborate measures aimed at ensuring economic and financial stability particularly with regard to private investment flows. Given the importance of domestic resource mobilization to complement external resources, fiscal reforms may be necessary to enhance revenue and macroeconomic performance.

Box 19: Africa50 Infrastructure Fund incorporated by the African Development Bank in September 2013

The Africa50 Infrastructure Fund was set up in response to the call in 2012 by African Heads of States in their Declaration on the Programme for Infrastructure Development in Africa for innovative solutions to facilitate and accelerate infrastructure delivery in Africa. The Africa50 is a new delivery fund focusing on high-impact national and regional projects in the energy, transport, ICT and water sectors. The fund will operate two business segments, namely:

- (i) Project Development aimed at increasing bankable infrastructure projects through increased funding and availing skilled legal, technical and financial experts to projects from an early stage of development, and sharing costs with member Governments and developers and recovering its funding at financial close or through a carried interest in the project; and
- (ii) Project Finance which will deliver the financial instruments required to attract additional infrastructure financing to the continent. These will include a) bridge equity, b) senior secured loans, c) refinancing and secondary transactions, d) credit enhancement.

Africa50 is targeting \$3 billion in equity capital. Depending on funding needs and the project pipeline, it will augment its financial capacity by raising debt in the international capital markets. Expected to be run as a commercial institution, Africa50 will seek to preserve and grow its capital base as well as provide a return to shareholders. It will have three broad groups of investors: i) African countries, ii) AfDB and other major development financiers, iii) institutional investors such as sovereign wealth and pension funds.

Sources: <http://www.africa50.com/about-us/financials/> and <http://www.africa50.com/about-us/faq/>

Some countries in the region have already adopted green economy strategies and plans. The national green economy plans are essential for creating enabling conditions and funding activities identified as green growth sectors. Burkina Faso, Ethiopia, Gabon, Ghana, Kenya, Morocco, Mozambique, Rwanda, South Africa, Tunisia, among others, have developed green economy policy frameworks. These policies are necessary to provide the overall strategic direction and a clear, predictable and stable environment that creates the confidence required for investments to support the transition (Kim, 2015). Beyond the intentions expressed in the inclusive green economy policies, a financing mechanism is necessary for ensuring take-off and sustainability of the identified programmes. For example, Ethiopia, Rwanda and South Africa have set up financing mechanisms for mobilizing domestic public and private funds, and external resources from partners.

Ethiopia: Climate-Resilient and Green Economy Facility

Ethiopia has to raise \$150 billion to finance its Climate-Resilient and Green Economy Strategy over 20 years, with 2010 as the starting point⁵¹.

⁵¹http://www.oecd.org/dac/environment-development/Wondwossen%20Tadesse_Ethiopia%20Climate%20Resilient%20Green%20Economy.pdf.

The CRGE Facility is the main vehicle through which the strategy will be financed. The strategy, which aims at limiting the greenhouse gas emission level in Ethiopia to 150 metric tonnes CO₂ equivalent in 2030, instead of 400 metric tonnes CO₂ equivalent in a business-as-usual scenario, has four main pillars (agriculture, forestry, energy, and industry, transport and buildings). The facility has two accounts, a national account at the Ministry of Finance and Economic Development and an international account held at the UNDP Multi-Partner Trust Fund office. The percentages of required major investments have been identified as: clean energy including supply 15-26 per cent, clean transport 16-17 per cent, green buildings 10 per cent, agriculture 8-10 per cent, water resources management 8-10 per cent, waste management 8-10 per cent, sustainable fisheries 8-10 per cent, and forestry 2-3 per cent .

Rwanda: National Climate Change and Environment Fund

Rwanda has developed a national climate change and environment fund, known by the abbreviation FONERWA. The fund is embedded in and seeks to support transformational changes elaborated in Rwanda's Green Growth and Climate Resilience Strategy. The United Kingdom Department for In-

ternational Development provided initial support in setting up the fund between 2012 and 2014 under the oversight of the Ministry of Natural Resources.

FONERWA is the primary mechanism through which Rwanda programmes, mobilizes and disburses national and international environment and climate finance. Funds are distributed to public and private sector beneficiaries to implement projects that support national sustainable development goals. The projects must fall within conservation and sustainable natural resources management; research and development and technology transfer; environment and climate change mainstreaming; and environmental impact assessment. The fund will raise about \$100 million per year from domestic sources (including environmental fines and fees, proceeds from forestry and water, and budget allocations from line ministries) and external sources (including bilateral and multilateral partners). The private sector could participate through grants and project co-financing in short-term (less than 1 year) and investment (equity) in long-term projects (more than 5 years)⁵².

South Africa: Green Fund

South Africa established the Green Fund in April 2012, and refers to it as a national fund to support the country's transition to a green economy. The fund is one of the targeted public finance instruments established on the principle of evidence-based policy and strategy development. It operates under the overall framework of the 2010 National Strategy for Sustainable Development, New Growth Path, Green Economy Accord 2010, National Climate Change Response Strategy 2010, and the National Development Plan 2011, all of which identify green economy as one of the five strategic sustainable development priorities for the country. The fund had an initial allocation of 800 million rand over a three-year period for the establishment of a new public sector environmental finance programme.

The South African Department of Environmental Affairs oversees the Green Fund, but the fund manager is the Development Bank of Southern Africa that houses the investment and secretariat

teams responsible for management of the fund. The Green Fund Management Committee and the Government Advisory Panel provide overall oversight that includes approval of all project proposals (Mohamed, 2014). There are three thematic windows of the fund: green cities and towns; low-carbon economy; and environmental and natural resource management. By March 2013, the fund had received applications valued at 1.6 billion rand, indicating a huge demand for green projects across the country.

Fund for the Green Economy in Central Africa

Central African States have set up a fund for the green economy to promote the timber economy in the subregion (CEEAC, 2012)⁵³. The Democratic Republic of the Congo has so far committed \$3 million for its establishment beginning in 2015, with pledges from other member States. The fund will boost the support that partner countries are already providing to combat illegal logging while also encouraging good forest governance in a subregion whose combined timber economy is only second to the Amazon in Brazil. The fund will also help in preparing the countries to meet timber export market requirements, such as the Forest Law Enforcement, Governance and Trade process, European Union Timber Regulations and Voluntary Partnership Agreements, the United States Lacey Act, and the Australian Illegal Logging Prohibition Act. The fund will also be used to develop private sector capacity, particularly small and medium-sized enterprises and individual artisans making handicrafts within the timber industry, and the development of domestic, subregional and regional timber markets.

7.3.3 International funding mechanisms

There are several international funding mechanisms that support aspects of the green economy. They range from multilateral climate financing frameworks supporting low-carbon development to green bonds, official development assistance

⁵²http://www.rema.gov.rw/rema_doc/FONERWA/fonerwa_brochure_web.pdf

⁵³ La Communauté Économique des États de l'Afrique Centrale (CEEAC) comprises ten member States: Angola, Burundi, Cameroon, Central African Republic, the Congo, Chad, Democratic Republic of the Congo, Gabon, Equatorial Guinea; and Sao Tome and Principe.

and private flows that channel resources to small and large-scale projects that have desirable green economy or green growth aspects. Most of these funding mechanisms were designed for purposes other than financing the green economy transition, hence it is up to policymaker ingenuity to identify, match and access such mechanisms for the green economy strategies of their respective countries. Also, some of the financing mechanisms related to UNFCCC might change after the twenty-first session of the Conference of the Parties in Paris in December 2015.

(a) Multilateral climate financing frameworks

The availability of financial resources for low-carbon development depends on developed countries meeting their commitments as stated in various international agreements including the Copenhagen Accord, which commits developed countries to providing \$100 billion per annum to developing countries by 2020⁵⁴. These resources can be accessed by business initiatives that are aimed at reducing the emission of greenhouse gases. The business must result in verifiable reductions in emissions validated by an approved third party. Green economy projects similarly entail an environmental benefits package, but distinctively emphasize high economic and social returns, in addition to lowering emissions and other environmental impacts. Some of the prominent climate finance initiatives are the Global Environment Facility, Climate Investment Funds, and the United Nations REDD/REDD+ programme.

Global Environment Facility

GEF serves as financial mechanism for several conventions including the Convention on Biological Diversity, United Nations Framework Convention on Climate Change, and international waters and land-related conventions. It was established to

provide new and additional grants and concessional funding to cover additional costs associated with transforming a project with national benefits into one with global environmental benefits. Since it was established in 1991, the facility has allocated \$12.5 billion invested directly, \$58 billion in co-financing, and 3,690 projects in more than 165 countries (GEF, 2014).

Climate Investment Funds

The Climate Investment Funds (CIF) are also a financing facility that supports the implementation of major multilateral environmental agreements (UNCSD, 2012). The Funds are a partnership among multilateral development banks and include four key programmes that help 48 developing countries pilot low-emissions and climate-resilient development, namely: the Clean Technology Fund, Forest Investment Programme, Pilot Programme Climate Resilience, and the Scaling Up Renewable Energy Programme. The total amount pledged by 14 countries to the CIF trust funds (Clean Technology Fund and Pilot Programme Climate Resilience) is \$6.5 billion (table 11). Sub-Saharan African countries benefiting from CIF include Burkina Faso, the Democratic Republic of the Congo, Ethiopia, Kenya, Liberia, Mali, Mozambique, the Niger, Nigeria, South Africa, United Republic of Tanzania and Zambia. Egypt, Morocco and Tunisia are other African countries accessing the fund.

United Nations REDD/REDD+ programme

The REDD/REDD+ programme is another important source of funding for sustainable development projects. The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, REDD/REDD+, was launched in 2008 and brings together the Food and Agriculture Organization of the United Nations, UNDP and UNEP. The funds from this programme could easily reach \$30 billion per annum, but African beneficiaries are few (figure 11).

The REDD/REDD+ programme currently supports 21 partner countries in Africa but only five countries, namely the Democratic Republic of the Congo, Nigeria, the Congo, United Republic

⁵⁴ According to the Copenhagen Accord, "The collective commitment by developed countries is to provide new and additional resources, including forestry and investments through international institutions, approaching \$30 billion for the period 2010 to 2012 with balanced allocation between adaptation and mitigation. Funding for adaptation will be prioritized for the most vulnerable developing countries, such as the least developed countries, small island developing States and Africa. In the context of meaningful mitigation actions and transparency on implementation, developed countries commit to a goal of mobilizing jointly \$100 billion dollars a year by 2020 to address the needs of developing countries". <http://unfccc.int/resource/docs/2009/cop15/eng/107.pdf>.

Table 11: Pledges to Climate Investment Funds

Country	\$ million equivalent
Australia	135
Canada	97
Denmark	38
France	300
Germany	813
Japan	1,200
Korea	3
The Netherlands	76
Norway	194
Spain	152
Sweden	92
Switzerland	20
United Kingdom	1,414
United States	2,000
Total	\$6.5 billion

Source: <https://www.climateinvestmentfunds.org/cif/finances>.

of Tanzania and Zambia have benefited from full national programmes⁵⁵. Apart from the financial flows to the beneficiary countries, the programme is aimed at reducing forest loss and degradation. Beneficiary countries are required to quantify market-quality emission reductions at either the subnational or national level. This includes setting credible baselines (known as reference scenarios) showing that deforestation has not simply shifted from one place to another (known as leakage) and making certain that the emissions reductions will be permanent (Daviet, 2009).

(b) Green bonds

A number of green markets have emerged as a result of increased public and private investments in the green sector, particularly in the renewable energy sector which recorded \$211 billion in new investment in 2010 (UNEP, 2012b). Green bonds are becoming a popular choice of tool for financing projects with sizeable environmental gains⁵⁶. Since

2006, over \$15 billion has been raised through green bond issuances worldwide (Morel and Bordier, 2012). The most attractive feature about green bonds is their focus on environmental benefits, which may include reducing vulnerability to environmental changes, for example those occasioned by climate change.

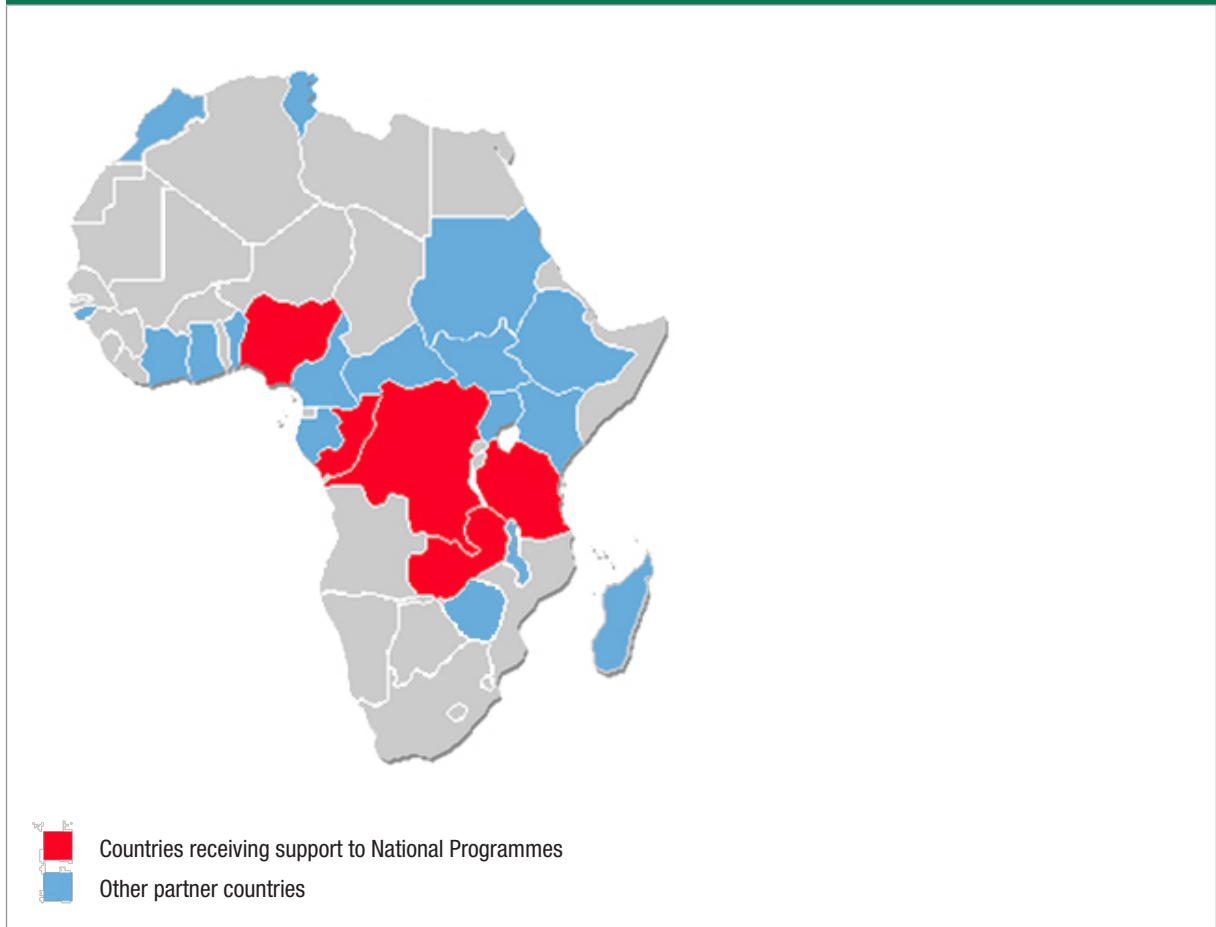
The World Bank has its own green bond facility inaugurated in 2008. Since then, the Bank has issued over \$9 billion in Green Bonds through 125 transactions and 18 currencies⁵⁷. The eligible projects classified as mitigation or adaptation projects are selected by the Bank's environment specialists and must meet specific criteria for low-carbon development. Examples of eligible mitigation projects are: solar and wind installations; funding for new technologies that permit significant reductions in greenhouse gas emissions; greater efficiency in transportation, including fuel switching and mass transport; waste management (methane emissions) and construction of energy-efficient buildings; and carbon reduction through reforestation and avoided deforestation. Examples of eligible adaptation projects are: protection against flooding (including reforestation and watershed management); food security improvement and

⁵⁵ <http://www.un-redd.org/AfricaRegionalActivities/tabid/131890/Default.aspx>.

⁵⁶ A bond is a debt security, which specifies terms by which the issuer (borrower or debtor) agrees how much he owes the holders (lenders or creditors), and the terms include the interest (coupon) and how the interest will be repaid together with the principal at a later date (maturity). The majority of green bonds issued to date are "climate bonds" intended to raise money for climate change mitigation or adaptation, including clean energy, energy efficiency, mass transit and water technology. Thus, green bonds by their nature lend themselves to financing inclusive green economy projects.

⁵⁷ <http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html>.

Figure 11: Coverage of United Nations REDD programme in Africa



implementing stress-resilient agricultural systems (which slow down deforestation); and sustainable forest management and avoided deforestation.

Some African countries have issued or are also in the process of issuing green bonds, for example, South Africa. The process of issuing such financial instruments requires a strong financial system to regulate and manage the interests of both issuers and investors in the green bonds. The underdeveloped financial system on the continent is therefore a limiting factor to the success of green bonds. However, countries need to go beyond raising finance through market instruments and consider other avenues through which the private sector could support initiatives to foster green economy in Africa. For example, corporate social responsibility initiatives could raise resources to support local initiatives that promote the inclusive green economy or aspects of sustainable production and consumption.

Corporate social responsibility involves the corporation's environmental impacts, carbon footprint, resource use and toxicity of its products, and how the company relates to its consumers and non-consumers, including rivals. It is an investment that requires resources to implement, both as an input in product design and innovation, and in marketing and expanding the value chain. For the green economy, the approach taken by the private sector in their corporate responsibilities could have implications for product design and quality, and for wider social outcomes. Corporate responsibilities are more than just pro-poor philanthropy initiatives as they could help empower local communities, and enhance poverty reduction activities carried out in conjunction with non-governmental organizations or directly with government agencies.

(c) Official development assistance

Countries that have not yet formulated green economy policies and funding strategies are financing their sustainable development plans through the traditional domestic and external channels including official development assistance. With growing concerns that ODA to developing countries has not been forthcoming in amounts that are needed, developing countries in various international forums have been pushing for full compliance with the Monterrey Consensus of the International Conference on Financing for Development, reaffirmed by the Doha Declaration on Financing for Development and the Addis Ababa Action Agenda, which called for 0.7 per cent of donor country gross national product to be provided in ODA to developing countries, with 0.15-0.2 per cent to least developed countries. If implemented to the letter, development assistance committee countries could deliver as much as \$150 billion from their gross national income, a small amount considering what African countries are projecting as their requirements to transition to a green economy.

The expected normalization of policy interest rates in the United States and sovereign debt and structural fragilities in the Eurozone will continue to have broader negative implications for ODA. Although bilateral net ODA to least developed countries reached \$30 billion in 2013, the overall share allocated to these countries has been declining, with aid flows increasingly focusing on middle-income countries. Also, there has been growing focus by donors on climate financing, with most of such financing being counted as ODA (United Nations, 2015a). Hence, other arrangements such as South-South and triangular cooperation will be critical in channelling investment, technical assistance and ODA to green projects in the region. Although no evidence exists of such arrangements at the moment, Governments in the region could explore other options such as guaranteeing investment loans in key sectors, public and private co-financing arrangements, venture capital and other lending instruments. There is also need to explore appropriate policies that could channel diaspora remittances into inclusive green economy projects.

(d) Private investment flows and foreign direct investment

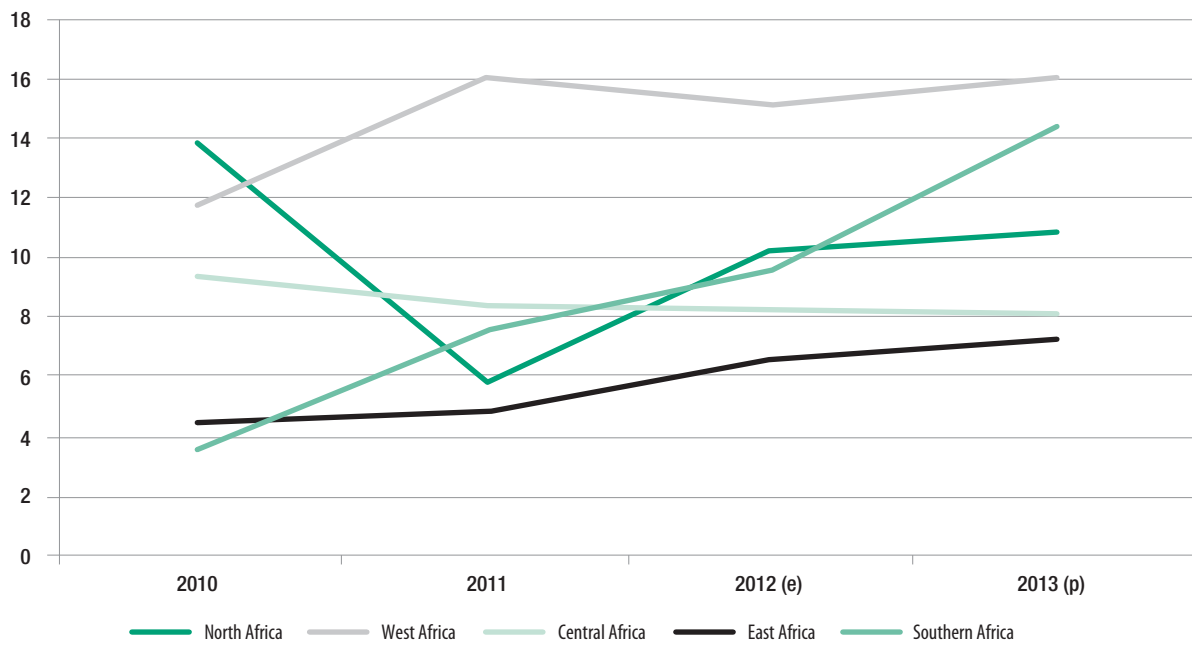
Private capital flows and bilateral investment treaties are going to play an important role in financing green economy projects in Africa. African countries are also deploying sovereign wealth funds to fund sustainable development programmes. Globally, there are well over \$6 trillion in sovereign wealth funds but it is very difficult to identify the flows that are going to sustainable investments.

Foreign direct investment to Africa is growing at a phenomenal rate particularly for Southern Africa (Angola, Mozambique and South Africa being major destinations). FDI inflows to Africa grew to \$50 billion in 2012, a rise of 5 per cent over the previous year (UNCTAD, 2012). While West Africa attracted the most in terms of FDI volume (figure 12), only four countries dominated, with Ghana, Guinea, Nigeria and the Niger having a resource sector attracting an estimated 88 per cent of total FDI to the subregion. Nigeria's greenfield project, which is aimed at increasing oil production, attracted nearly \$2 billion in 2012.

There are significant intra-African greenfield investments taking place around natural resource-based activities in the region. African investors represented 7.7 per cent of total announced greenfield projects in Africa in 2012, and there are many significant home-grown investors in many other sectors as well. This shows potential for domiciled African investors to participate or even lead in transforming the funding prospects for the continent. However, most of the large investments are from a handful of countries that are also major recipients of foreign direct investment. For example, of the \$27.3 billion total intra-African greenfield investments between 2003 and 2012, South Africa accounted for 45 per cent. Mauritius (\$7.8 billion), Egypt (\$7.8 billion), Kenya (\$6 billion) and Nigeria (\$5.4 billion) were the other significant sources of greenfield investment funds (*African Economic Outlook 2013*).

Transnational corporations from developing countries are also actively engaged in Africa, and increasingly coming under competitive pressure

Figure 12: Foreign direct investment to subregions of Africa (\$ billion)



Source: African Economic Outlook Website.

from emerging markets. Malaysia with a foreign direct investment stock of \$19 billion in Africa in 2011, South Africa (\$18 billion), China (\$16 billion) and India (\$14 billion) are the largest developing-country sources of FDI in Africa. Destination sectors range from agribusiness, mining, wholesale and retail, to health services and finance.

7.4 Challenges and opportunities

7.4.1 Challenges

Financing requirements for the transition are enormous

Although there is no comprehensive estimate of resources required to transition to a green economy, the indicative estimates based on sectoral requirements and incomplete data are quite enormous. For instance, the green investment gaps for low-carbon energy supply and energy efficiency at the global level are based on CO₂ emission reduction targets that exclude considerations such as resource efficiency across sectors. On this basis, it is projected that \$1 trillion annually is required over the next thirty years to enable the world's energy infrastructure to maintain and extend the supply of power to more people and to finance the transition to a low-carbon, cleaner energy infrastructure.

The projected annual shortfall to drive this low-carbon transition in developing economies alone is \$350 billion (UNEP, 2011b). If other aspects of green economy financing are factored into the equation, then the funding gap would be huge. But that is just one of the challenges. An important challenge most countries face is how to mobilize domestic resources and allocate them to deserving economic sectors to stimulate investment in the green economy without compromising other development priorities.

Inefficient domestic resource mobilization and allocation system

It is difficult to mobilize public resources in developing countries due to competing demands on the usually limited public pool of resources. One of the most pressing issues for Africa is to channel existing resources into the strategic sectors to stimulate productivity, create employment, provide people and enterprises with basic services, and contribute to efficient natural resource management. Countries that have not developed their green economy road maps or policy frameworks are losing out because investors may not know how to approach such countries with lucrative green economy projects. Countries should be clear in terms of the direction they want to take with respect to green economy investment. Appropriate, clear and consistent national policy frameworks will be critical in mobilizing domestic resources.

Mobilizing private sector investment funds is also challenging due to persistent risks. Among them are political and policy risks associated with regulatory changes, civil unrest and conflicts, and macroeconomic risk associated with exchange rate fluctuations and high volatility of commodity prices. While some investors may not be concerned with these risk factors, operational and technological bottlenecks such as inadequate supporting infrastructure and performance-related risks when revenues are lower than expected may be unacceptable for the funds investors are expected to pump into the green economy (WEF, 2012a).

Perception of high risks associated with huge capital investments in green projects

Generally green economy projects have perceptions of high risks because of the huge initial outlays that may necessitate longer payback periods. Green projects may be unattractive to investors and financial institutions with short and medium-term planning horizons. Unfortunately, this tends to be the dominant outlook due to the typical short-term nature of assets held by banks and other financial institutions across the world. The intertemporal nature of financial contracts makes the financial system one of the most institution-sensitive sectors of the economy, and it may seem that financial institutions are not favourable to inclusive green economy projects. The financial sector depends as much as contractual institutions on property rights protection (Beck, 2011). It is therefore the duty of the State to address the market, institutional and policy failures or barriers that make inclusive green economy investments unattractive. Countries should also aim to increase the scale of such projects in order to reduce transaction costs for private sector investors.

Limited access to international finance

The recurring problem of unfulfilled pledges and commitments means that the cumulative cost of implementing sustainable development in Africa, including the transition, is rising fast. To implement sustainable development, a total global funding level of \$100 billion (plus or minus 50 billion) per year has been estimated (United Nations, 1992). For Africa, the cost had risen to about \$200 billion at the time the United Nations Conference

on Sustainable Development was being held in Rio de Janeiro in 2012. Regardless of the perceived misalignment between donor funding and developing countries' needs, it is incumbent upon developing countries to take the lead in developing inclusive green economy strategies that attract private and public funding, from both domestic and international sources. A comprehensive green economy strategy with bankable projects is a strong marketing tool to private investors and bilateral and multilateral donors. International donor resources could complement the initial low level private and domestic resources currently being channelled to wider green economy sectors in Africa.

Fragmented approaches to funding

The multiplicity of funding mechanisms is a challenge for developing countries as the available options offer fragmented and often insufficient funding for the sustainable development needs of the region. There is a need for coordination and harmonization of the various international funds to ensure that developing country needs are being met efficiently and in a cost-effective and transparent manner. There is also a need to ensure that international funding stimulates private sector development in recipient countries. While the effective deployment of international support needs the presence of a vibrant private sector to provide services and fill gaps, the lack of private sector investments in key sectors is a challenge even where donor support is forthcoming. For instance, despite agriculture being important for growth in many developing countries, only 6 per cent of investment in agriculture in developing countries is from private sources, compared with 55 per cent in developed countries (WEF, 2012a).

Underdeveloped capital markets

African capital markets are traditionally narrow and illiquid, making the cost of capital relatively more expensive than in developed countries. The demand for innovative investment instruments such as green bonds and sovereign wealth funds is both an opportunity and challenge for developing countries. The underdeveloped state of financial markets in the region is due to a number of issues and raises the question of whether countries should first develop the capacity of their financial markets

to stimulate competition and meet the needs of the private sector and individuals, or strengthen financial regulations to bolster capital markets. Financial services could also be procured from more developed markets in the region, an option that may improve regional financial integration while lowering transaction costs.

Traditional foreign direct investment unsuitability for the inclusive green economy

The green investments being attracted by traditional foreign direct investment and sovereign wealth funds are difficult to identify. On the other hand, green bonds offer the most reasonable form of investments that support the transition. The downside of green bonds however is that the green premium (benefits) is reduced by the additional cost of a monitoring system certifying that the proceeds from the green bonds are actually being used for the intended purpose (i.e. proof of environmental benefits). Also, country reputation matters to some investors when assessing their risk in the investment. Third parties (underwriters) such as the World Bank or regional development banks may reduce the reputation risks at the expense of other financial benefits such as liquidity and forgone benefits of housing the bonds in private sector banks of the region.

Liquidity issues on green bonds arising from the small volume of transactions may increase costs and act as a deterrent to investors. Private placements of issuances by the World Bank, the European Investment Bank and other regional banks are compounding the problem since by their very nature, private issuances do not catalyse development of a secondary market for the bond and may restrict use of the bonds by private companies and individuals. It will take restructuring of the multilateral banks' internal approach for the wider public to participate in green bonds markets. There is also a need to re-evaluate the usefulness of private placement of issuances. A trend is also emerging of concentration of investments in a few sectors contrary to the objective of the transition based on a vibrant, diversified economy. For instance, most green bonds are in renewable energy and energy-efficiency initiatives.

7.4.2 Opportunities

Untapped domestic resources of Africa

Africa can kick-start the transition from its own domestic financial resources. With a resource potential of over \$500 billion in tax revenues, \$168 billion in mineral worth, \$400 billion in international reserves, \$40 billion in diaspora remittances, \$60 billion in banking revenues and over \$1.2 trillion in stock market capitalization, Africa could finance most infrastructure and development programmes from domestic resources. However, this will require strong commitment to good governance, effective institutions, responsive policies and appropriate means of implementation (NPCA and ECA, 2014).

Recommendations of the High Level Panel on Illicit Financial Flows from Africa, such as the proposed private sector contributions, and various levies on insurance premiums, imports, international travel and tourism, could have a positive bearing on domestic resource mobilization. The Africa50 Infrastructure Fund launched by the African Development Bank is also an opportunity for the region to deliver on high-impact national and regional projects in the energy, transport, ICT and water sectors. With a targeted \$3 billion base equity capital, the growth of the fund should attract some of the African sovereign wealth funds held elsewhere.

Renewed commitment to international development financing

During the third International Conference on Financing for Development, heads of State and Government and high representatives reaffirmed "a strong political commitment to address the challenge of financing". They also reaffirmed the 2002 Monterrey Consensus and the 2008 Doha Declaration, and committed to reinvigorating and strengthening the financing for development follow-up processes to ensure that commitments are implemented and reviewed in an appropriate, inclusive, timely and transparent manner (United Nations, 2015b).

The Addis Ababa Action Agenda, among others, also urged national and regional development banks to play a key role in financing development, particularly in credit market segments in which

commercial banks are not fully engaged, such as sustainable infrastructure, energy, agriculture, industrialization, science, technology and innovation, and financing micro, small and medium-sized enterprises. Member States also committed to developing domestic capital markets particularly long-term bond and insurance markets, and building financing capacity at the subnational level, improving revenue administration, tax policy and tax collection. The Agenda also called for scaling up international support and making it more effective, including concessional and non-concessional financing (United Nations, 2015b).

International resources could enhance African readiness to access green economy finance

There is an opportunity for the international community to plan and coordinate support to Africa based on the inclusive green economy priorities of the beneficiary countries and gaps in funding. Permitting countries to decide priorities for the transition within the realm of their own development planning is critical for the success of donor interventions in Africa. Inclusive green economy strategies and programmes in several African countries therefore present developed countries with renewed opportunities to fulfil their pledges to the region. Private investors perceive policy as a signal of opportunities in key sectors earmarked for development. However, policies should be matched with domestic and international support including private and public finance.

Since international public finance is subject to the same limitations as official development assistance, the available international support must be used to crowd in the private sector and local finance. The Addis Ababa Action Agenda also called for ODA and international public finance to catalyse additional resource mobilization from other sources including public and private (United Nations, 2015b). Countries should use international finance for the inclusive green economy to create an enabling environment for the private sector to invest, rather than crowding out the local private sector as is the case in some publicly funded investments. International finance should also be used to support systems for navigating the multiple interna-

tional sources of funds and to prepare the national systems to use international and domestic finance for low-carbon development and the transition. In this regard, developing countries can be supported in four main ways: by developing national capacity to plan for finance; capacity to access different forms and types of finance at the national level; capacity to deliver finance and implement activities; and capacity to monitor, report and verify financial expenditures and associated results and transformative impacts (UNDP, 2012)⁵⁸.

Increased prospects for the establishment of subregional bond markets

Domestic financial markets can grow if they offer a wider range of services and products and targeted financial solutions with reduced risk and lower cost of capital for green economy projects. It is expected that private capital will supply more than 80 per cent of the investment required for the transition to a low-carbon economy (UNEP, 2011b). The private sector therefore stands to benefit from a dynamic and growing financial sector. As a self-perpetuating risk reduction strategy, green investments could be promoted over conventional ones through better policy frameworks and a shift in incentives and behaviour (WEF, 2012a).

The annual trading volume in carbon markets reached \$122 billion in 2009, and was instrumental in reducing emissions by around 120m-300m tonnes in the first three years of the European Union Emissions Trading System (UNEP, 2011c). Developing countries should therefore find ways to tap into this huge market either through direct participation or through carbon offsetting projects such as REDD/REDD+ and others.

The huge potential of green bonds to flourish should be examined against the global bonds market that dominantly relies on secondary transactions for maintaining liquidity and market value. As of 2010, the global bonds market was worth \$95 trillion, while in 2012 climate-themed bonds were up to \$174 billion, of which only \$7.2

⁵⁸ UNDP (2012) defined climate finance readiness as the capacity of countries to plan for, access, deliver, and monitor and report on climate finance, both international and domestic, in ways that are catalytic and fully integrated with national development priorities and achievements of the Millennium Development Goals.

billion were labelled green bonds (Sustainable Prosperity, 2012). Although the equity and bond markets worldwide experienced a sharp sell-off in mid-2013, these were temporary setbacks caused by unconventional monetary policies adopted in major developed countries and ramifications of the unwinding of quantitative easing announced by the United States and the European Central Bank in 2013.

Private investment flows to Africa on the rise

Private investment flows to Africa are growing, predominantly in the natural resource sectors. These natural assets are estimated to account for 24 per cent of total wealth in sub-Saharan Africa and their value is expected to rise with each additional dollar of investment. The renewable energy market is the fastest growing green economy sector with great potential to benefit the continent. The sector attracted \$557 billion of capital between 2007 and mid-2010 (UNEP Sustainable Energy Finance Initiative 2010). In the United Republic of Tanzania, the Kilimo Kwanza (Agriculture First) strategy will attract \$2.1 billion of private investment and \$1.3 billion of public resources over the next 20-year period (WEF, 2012a). Thus, Government working together with key financial markets actors can ensure investments are channelled to priority green sectors.

Policies and strategies reformed in line with inclusive green economy principles

The need to keep investors interested in inclusive green economy projects is an opportunity for policymakers to focus their energies on enhancing policies to improve the investment climate. It requires, among other things, political support, a stable macroeconomic and legal environment, and transparent, fair and effective regulation mechanisms to promote business. There is therefore a need for differentiated strategies to engage with the various types of private sector actors who will inevitably be involved in the green economy (AfDB, 2012; European Commission, 2014). It is therefore critical that green economy funds are channelled through the private sector or in a manner that will stimulate private sector development. For instance, the South African Government in its 2011 National

Strategy for Sustainable Development and Action Plan targeted employment creation and industrial development to boost economic and environmental benefits. Financial resources amounting to approximately \$1.2 billion were earmarked for green industrial development. Other resources for green economy initiatives identified under the strategy include \$2.5 billion from the Development Bank of South Africa, \$10 billion from the private sector and \$80 million from the National Treasury (Kag-gwa et al., 2013).

7.5 Conclusions and recommendations

7.5.1 Conclusions

Adequate financial resources are needed to foster inclusive green growth in key strategic sectors that are set to drive growth and the transformative agenda in Africa. The transition to an inclusive green economy will entail huge investments that call for new and additional resources. The required resources could easily translate into trillions of dollars, hence the need for cost estimates that are country-specific and linked to long-term development plans. A green economy strategy hinged on national development plans would clearly identify priority areas for investment (and disinvestment) and map the associated mix of funding sources required. It would also address incentives, fiscal measures and other policy measures needed for the transition.

Investments in the green economy are needed to spearhead the transition, particularly in sectors previously neglected or underinvested, and to foster more inclusive benefits from sectors with the greatest appeal. A sound financial architecture integrating financial markets from developing countries could reduce entry barriers to global green value chains. Sustained financing of green economy projects will further increase growth prospects and broaden opportunities for job creation, reduction of income inequalities and elimination of poverty (United Nations General Assembly, 2013). Although the funding requirement for the transition is enormous, African countries have demonstrated

a desire to increase resource mobilization. Some countries that have already adopted national green economy strategies or plans have also established funding mechanisms to accelerate the transition.

Domestic resource mobilization should be strengthened to reduce risks associated with external funding. Realignment of public finance with development plans, and enhanced mapping of domestic resources with priorities are not the only benefits. Domestic resources could be more supportive of investment particularly if the requisite funding for green economy projects is sourced from the domestic financial system. The impressive economic growth recorded by several countries in Africa should be used as a platform to provide financial stimulus to green growth sectors and to invest in infrastructure, health and other social services. However, inefficiencies in existing tax administration systems of most countries means that foreign financing will be needed in the interim, and will have to complement domestic resources gained from fiscal restructuring required to accommodate green economy financing.

International funding will also be critical in the transition to a green economy in Africa. Building capacity of countries to implement inclusive green economy strategies; reforming policies and institutions in readiness for the transition; promoting technology development and transfer to enhance the process; and assessing the benefits and costs of the transition will all require adequate financing. International finance could catalyse actions in line with these enablers, but may go beyond initial phases of conceptualization of green economy strategies, programmes and technical assistance to green projects in developing countries. Predictability of green funds is also important for investments, hence international support to developing countries should not only be enhanced, but also streamlined to reduce multiplicity and inconsistencies in funding approaches. There is also a need for effective deployment of international support through better targeting and matching of source and destination of funds, and better involvement of the local private sector in disbursing and implementing green economy projects.

Mobilizing resources through climate change adaptation and mitigation windows, official development assistance, innovative private funds, green bonds, and foreign direct investment targeting green sectors will remain critical in the transition. However, the perception of high risks associated with huge capital investments will need to be addressed through innovative means of combining various funding sources including private investment flows. Countries should also leverage the huge untapped domestic resources that offer hope in the face of limited access to international finance. Capital markets on the continent have generally been stable and resilient, and could offer a strong foundation for sub-regional bond issues targeting green investments.

The role of capital markets in mobilizing private investment funds to growth sectors should not be underestimated. Large-scale private financing of projects without the backing of domestic capital markets has also been observed in the region. Private investment in natural resource sectors in Africa is at an all-time high. With renewed commitment from countries to implement sustainable development objectives viewed within the framework of national development and inclusive green growth, there are now opportunities for better partnership between the private sector and Governments to forge green growth investment strategies that benefit both parties.

7.5.2 Recommendations

Mobilizing financial resources for the green economy transition should be considered a priority for bridging the trillion dollar funding gap worldwide. African countries should assess their financing options for the green economy through a process that should begin with the elaboration of inclusive green economy strategies and programmes, accompanied by comprehensive estimates of the resources required for implementing the programmes. Such estimates of the costs and benefits should be contextualised within the development trajectory of the countries concerned.

While international partners are called upon to provide catalytic finance for the initial investments required for the transition in developing countries, Governments should prioritize domestic resource mobilization to ensure the success of the transition. Active government support is needed to advance green investment at scale, but widespread fiscal weaknesses are pulling in the opposite direction. Fiscal reforms will have to be cautiously taken within the context of improving the tax administration system and enhancing domestic resource mobilization. Such reforms should also be used to close the domestic resource gaps by eliminating leakages and inefficiencies in resource utilization.

The role of capital markets in mobilizing private investment funds to growth sectors should not be underestimated. Private investment in natural resource sectors in Africa is at an all-time high. Countries should have a strategy for tapping into private domestic resources to finance the inclusive green economy transition. In this regard, deepening financial markets and private sector development should be part of the financing strategy.

Non-traditional financing instruments should be considered during the transition, but emphasis should be on developing a stable flow of resources to key sectors, within the framework of national development. In this regard, concessional loans and private funds should be considered as sources for green financing in Africa. Proliferation of green bonds is a welcome development; however, funds administered by third

parties elsewhere should have secondary instruments traded on local bourses to boost liquidity and the private investment climate generally.

The impressive economic growth experienced in several African countries should be a launch pad for wealth creation and economic diversification. To achieve a broader and inclusive economic diversification and to further galvanize economic growth, there is a need to channel public and private investments to complementary services and manufacturing sectors, while retaining a significant portion of the national income to support green economy investments. Infrastructure and human capital investments, in particular, are critical in the transition to a green economy.

The international community should address the fragmentation of funding mechanisms for sustainable development in developing countries. The multiplicity of instruments, facilities, eligibility criteria and other conditionalities constitutes an important challenge to developing countries that have to develop bankable projects for various benefactors. The green economy strategies and programmes of some countries in the region offer a window of opportunity for developed countries to channel their official development assistance and other technical assistance funds to green projects. This approach to development funding has better moral persuasion than untargeted budget assistance to developing countries.

References

- African Development Bank (2011). Framework Document on the Proposed Africa Green Fund.
- (2012). Green Growth: Creating an Enabling Environment. Available from <http://www.afdb.org/en/news-and-events/article/green-growth-creating-an-enabling-environment-9254/>.
- Beck, T. (2011). The role of finance in economic development: Benefits, risks, and politics. European Banking Centre Discussion Papers No. 2011-038 and No. 2011-141. Available from <http://www.unitus.it/dipartimenti/distateq/garofalo/SSRN-id1974471.pdf>.
- La Communauté Économique des États de l'Afrique Centrale (2012). Déclaration des ministres de la CEEAC sur le développement et la promotion de l'économie verte en Afrique centrale. Brazzaville, 16 May 2012.
- Ciaschini, M., R. Pretaroli, F. Severini, and C. Soccia (2009). Environmental tax reform and double dividend evidence. Seventeenth International Input-output Conference in Sao Paulo, Brazil. Available from https://www.iioa.org/conferences/17th/papers/1068331088_090529_162656_167.PDF.
- Daviet, F. (2009). Beyond carbon financing: The role of sustainable development policies and measures in REDD. Climate and Forests Series. World Resources Institute. Available from http://pdf.wri.org/beyond_carbon_financing.pdf.
- Demirgüç-Kunt, A. (2008). Finance and economic development: The role of government. Available from http://siteresources.worldbank.org/DEC/Resources/Finance_and_Economic_Development.pdf.
- Demirgüç-Kunt, A., T. Beck, and P. Honohan (2008). Finance for all? Policies and pitfalls in expanding access. World Bank Policy Research Report. Washington, D.C.: World Bank.
- Economic Commission for Africa (2012). Unleashing Africa's potential as a pole of global growth: Issues paper. Meeting of the Committee of Experts of the 5th Joint Annual Meetings of the AU Conference of Ministers of Economy and Finance and ECA Conference of African Ministers of Finance, Planning and Economic Development.
- European Commission (1997). The role of financial institutions in achieving sustainable development. Report by Delphi International and Ecologic BMGH.
- (2014). Strengthening the Role of the Private Sector in Achieving Inclusive and Sustainable Growth in Developing Countries. Issue paper for consultations on proposed Commission Communication.
- Ernst & Young (2013). Private equity roundup Africa. Available from [http://www.ey.com/Publication/vwLUAssets/EY_-_Private_equity_roundup_-_Africa/\\$FILE/PE%20roundup%20Africa%202014_FR0117.pdf](http://www.ey.com/Publication/vwLUAssets/EY_-_Private_equity_roundup_-_Africa/$FILE/PE%20roundup%20Africa%202014_FR0117.pdf).
- Global Environment Facility (2014). Behind the numbers: A closer look at GEF achievements.. Available from http://www.thegef.org/gef/sites/thegef.org/files/publication/GEF_Behind_the_Numbers_April25a-2014-CRA-lo_1.pdf.
- Goulder, L.H. (1994). Environmental taxation and the "double dividend": A reader's guide. NBER Working Paper No. 4896. Available from <http://www.nber.org/papers/w4896>.
- Kaggwa, M., S.S. Mutanga, G. Nhamo, and T. Simelane (2013). South Africa's green economy transition: Implications for reorienting the economy towards a low-carbon growth trajectory. South African Institute of International Affairs. Occasional Paper No. 168.
- Kim, J.A. (2015). Building inclusive green economies for Africa's sustainable development. Bridges Africa, vol. 4, no. 6.
- Mohamed, N. (2014). The Green Fund: Establishment, Process and Prospects. Green Fund Secretariat Policy Brief 1. South Africa Department of Environmental Affairs. Available from www.sagreenfund.org.za.
- Morel, R., and C. Bordier (2012). Financing the transition to a green economy: their word is their (green) bond? ClimateBrief No. 14. Available from http://www.cdclimat.com/IMG/pdf/12-05_climate_brief_14_-_finan

- cing_the_transition_to_a_green_economy_their_word_is_their_green_bond.pdf.
- New Partnership for Africa's Development (2003). Comprehensive Africa Agriculture Development Programme.
- NEPAD Planning and Coordinating Agency and Economic Commission for Africa (2014). Mobilizing domestic financial resources for implementing NEPAD national and regional programmes and projects Africa looks within.
- Organization for Economic Cooperation and Development (2002). Foreign direct investment and the environment: Lessons from the mining sector. OECD Global Forum on International Investment.
- (2013a). Outlook: Aid to poor countries slips further as governments tighten budgets. <http://www.oecd.org/dac/stats/aidtopoor-countrieslipsfurtherasgovernmentstighten-budgets.htm>.
- (2013b). How to unlock investment in support of green growth. Issue Note for the Green Growth and Sustainable Development Forum, 5-6 December, Paris.
- (2013c). Putting Green Growth at the Heart of Development. Summary for Policymakers.
- Silici, L, and A. Locke, (2013). Private Equity Investments and Agricultural Development in Africa: Opportunities and Challenges. Future Agricultures Working Paper 062.
- Sustainable Prosperity (2012). Economy-wide and emerging issues: Green Bonds. Policy Brief June 2012. Available from <http://www.sustainableprosperity.ca/sites/default/files/publications/files/Green%20Bonds.pdf>.
- United Nations (1992). Agenda 21. United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3 to 14 June 1992.
- (2009). Doha Declaration on Financing for Development.
- (2011). Working towards a Balanced and Inclusive Green Economy: A United Nations System-wide Perspective. United Nations Environment Management Group. Accessed from http://www.fao.org/fileadmin/user_upload/sustainability/pdf/GreenEconomy-Full.pdf.
- (2015a). World Economic Situation and Prospects 2015. United Nations, New York.
- (2015b). Addis Ababa Action Agenda of the Third International Conference on Financing for Development (Addis Ababa Action Agenda). Final text of outcome document adopted at the third International Conference on Financing for Development, Addis Ababa, 13–16 July 2015.
- United Nations Conference on Sustainable Development (2012). Finance for the transition to a green economy in the context of sustainable development and poverty eradication. Rio 2012 Issues Briefs.
- United Nations Conference on Trade and Development (2012). World Investment Report for 2012.
- United Nations Department of Economic and Social Affairs (2012). Issue 1: Development cooperation in the light of sustainable development and the SDGs: Preliminary exploration of the issues. Rio+20 working papers. Available from: <https://sustainabledevelopment.un.org/content/documents/761workingpaper3.pdf>.
- United Nations Development Programme (2012). Green economy in action: Articles and excerpts that illustrate green economy and sustainable development efforts. Accessed from http://www.un.org/waterforlifedecade/pdf/green_economy_in_action_eng.pdf.
- United Nations Environment Programme (2011a). Towards a green economy: Pathways to sustainable development and poverty eradication.
- (2011b). Modelling global green investment scenarios: Supporting the transition to a global green economy. http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER_13_Modelling.pdf
- (2011c). Finance: Supporting the transition to a green economy.
- (2012a). The business case for the green economy: Sustainable return on investment. Accessed from <http://www.unep.org/greeneconomy/Portals/88/documents/partnerships/UNEP%20BCGE%20A4.pdf>.
- (2012b). Briefing Paper on Finance. UNEP Green Economy Initiative.

United Nations General Assembly (2013). Growth-driven quality jobs key to reducing poverty in post-2015 era. United Nations Meetings Coverage and Press Releases GA/11512, 23 May 2014. Available from <http://www.un.org/News/Press/docs/2014/ga11512.doc.htm>.

World Economic Forum (2012a). The green investment report: The ways and means to unlock private finance for green growth.
(2012b). Financing Green Growth in a Resource-constrained World: Partnerships for Triggering Private Finance at Scale.

Annexes

Annex 1: Institutions supporting the inclusive green economy agenda at the subregional, regional and global levels

Subregional level

Through various programmes, regional economic communities have, with varying degrees of success, encouraged multi-stakeholder participation, built institutional linkages and sought the balanced integration of the three dimensions of sustainable development⁵⁹. Over the years, regional economic communities have put in place various programmes on the environment, agriculture, natural resources, energy, peace and security, governance and socio-economic development. Invariably, these individual programmes are anchored in long-term strategies that constitute the main regional development framework.

The Economic Community of Central African States (ECCAS) General Secretariat is currently working with its stakeholders on natural resources economy and structural transformation, and towards finalizing the establishment of a green economy system, including a green economy fund.

The Economic Community of West African States (ECOWAS) member States have widely recognized the importance of additional investment for a transition to a green economy in a sustainable manner to meet future growth. ECOWAS has established a Regional Centre for Renewable Energy and Energy Efficiency, which will contribute to improving access to modern, reliable and affordable energy services, energy security, and the reduction of energy-related greenhouse gas emissions and climate change impacts on the energy system.

The East African Community (EAC) recognizes that the green economy offers an opportunity for the integration and strengthening of the economic, environmental and social dimensions of sustainable

development. EAC has several policy frameworks with a strong focus on energy (e.g. the Regional Strategy on Scaling up Access to Modern Energy Services in the East African Community (2006); Power Master Plan; EAC Post-Rio+20 Plan of Action).

As a follow-up to the United Nations Conference on Sustainable Development, the Southern African Development Community (SADC) is also developing a regional strategy and action plan for the green economy. The strategy and the action plan include provisions to strengthen institutions and effectively implement development goals, with concrete recommendations for better governance that fully integrate the inclusive green economy at the local, national and regional levels.

Regional level

(a) *African Union*

The African Union through various summit decisions has committed to strengthening institutional frameworks for sustainable development. Planning and coordination is facilitated by the African Union Commission, the NEPAD Planning and Coordination Agency and regional economic communities with the support of ECA, the African Development Bank and various development partners. This continental body has spearheaded a number of initiatives including reforms to address the development challenges of the continent. Key initiatives include the Lagos Plan of Action for economic development of 1980, the Abuja Treaty of 1991 and the New Partnership for Africa's Development of 2001.⁶⁰ More recently, the Assembly of Heads of State and Government of the African Union, at its twenty-fourth ordinary session, held in Addis Ababa in January 2015, adopted Agenda 2063, through a people-driven process for the realization of the vision of the African Union for "an in-

⁵⁹ The following eight regional economic communities have been recognized as such by the African Union since 2006: SADC, ECOWAS, EAC, COMESA, the Arab Maghreb Union, the Community of Sahel-Saharan States, ECCAS, and IGAD.

⁶⁰ <http://www.iag-agi.org/IMG/pdf/agenda-2063-c9fa.pdf>

tegrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the global arena”.

NEPAD integrates the three dimensions of sustainable development through its various programmes. Agenda 2063 is seen as an endogenous, shared strategic framework for inclusive growth and sustainable development, and for Africa’s transformation over the next 50 years. Central to the Agenda is the need to harness the continent’s rich natural resources in a sustainable manner that also ensures that its people derive benefits from such resources. Agenda 2063 is considered an important continental framework that provides a sound basis for the inclusive green economy agenda and sustainable development in Africa.

As regards a continent-wide framework for an inclusive green economy, the fifth special session of the African Ministerial Conference on the Environment launched the African Green Economy Partnership to provide more coordinated support for the green economy in the region. The Partnership brings together organizations such as the African Union Commission, African Development Bank, UNEP, ECA, ILO and the NEPAD Planning and Coordinating Agency. Its main objective is to provide coordinated and consolidated support to African countries in assessing, designing and implementing inclusive green growth strategies and approaches for building an inclusive green economy that ensures a resource-efficient and low-carbon development path, and contributes to sustainable livelihoods, poverty alleviation and sustainable development.

The NEPAD Planning and Coordinating Agency is a technical body of the African Union mandated to facilitate and coordinate the implementation of Africa’s priority programmes and projects. To this end, the Agency has been coordinating the implementation of the Environment Action Plan which is the continent’s framework for environmental sustainability adopted by African heads of State in 2003. The overall objective of the Action Plan is to complement the relevant African environmental processes, including the work programme of the African Ministerial Conference on the Environment, and to build African capacity to implement regional

and international environmental agreements and effectively address African environmental challenges within the overall context of the implementation of NEPAD. The African Green Economy Partnership was adopted within the framework of the NEPAD Environment Action Plan and the NEPAD Agency was mandated by the Ministerial Conference to coordinate and facilitate its implementation. A working group of the Partnership comprising key institutions has been established to coordinate and provide technical back-up support to African countries on green economy matters.

(b) African Development Bank

The African Development Bank strategy for 2013 to 2022, under the title “At the Centre of Africa’s Transformation”, prioritizes two objectives inclusive growth and gradual transition to green growth. In recognition of the significant opportunities to improve well-being that exist across Africa, the Bank’s ultimate goal is to facilitate sustainable economic growth, improve human well-being and social inclusion, and to protect the environment.

The Bank defines green growth as “the promotion and maximization of opportunities from economic growth through building resilience, managing natural assets efficiently and sustainably, including enhancing agricultural productivity, and promoting sustainable infrastructure”. Ongoing work on green growth includes: articulation of a corporate framework to guide decision-making internally, the Green Growth Framework; awareness and capacity-building internal workshops to facilitate understanding of the concept amongst staff; partnerships and cooperation a variety of relationships have been cultivated with OECD, Green Growth Best Practice initiative (GGBP), Green Growth Knowledge Platform, Global Green Growth Institute and others.

The African Development Bank has been mainstreaming the green growth concept at country level with technical assistance being provided to Kenya, Madagascar, Mozambique, Rwanda and Sierra Leone. Green growth is also being progressively mainstreamed in country strategy papers and scoping work is under way in Cape Verde, Morocco and several other countries. In addition, the Bank hosts

a number of financing instruments that can support lowering of upfront investment costs and reduction of risk for private sector participation to facilitate the transition to green growth. These include the Africa Water Facility, Sustainable Energy Fund for Africa and the Multilateral Climate Investment Funds. In 2013, the Bank launched the Africa50 Infrastructure Fund to finance infrastructure projects, which is set to raise \$100 billion. The fund provides opportunities to assist African countries in the transition to low-carbon pathways and to leapfrog to more efficient technologies across all sectors.

(c) Economic Commission for Africa

As a regional arm of the United Nations, the Economic Commission for Africa was specifically mandated by the United Nations Sustainable Development Summit and the United Nations General Assembly to integrate sustainable development into its own work programme and assist African States and regional and subregional organizations to integrate the three dimensions of sustainable development in a balanced manner. The United Nations Conference on Sustainable Development in 2012 gave a direct mandate to United Nations regional commissions to “support developing countries upon request to achieve sustainable development including through, inter alia, green economy policies in the context of sustainable development and poverty eradication, in particular the least developed countries” (Outcome document “The future we want”, paragraph 68).

The restructuring of ECA in 2013 has led to internal reorganization and better programmatic linkages. A Green Economy and Natural Resources Section was established within the Special Initiatives Division, which also comprises the African Climate Policy Centre, African Minerals Development Centre, and New Technologies and Innovations Section. The main objective of the Green Economy and Natural Resources Section is to contribute to the body of knowledge and enhance understanding on the implications of the green economy paradigm for the transformational agenda in Africa. The section’s initial areas of focus are: examining the implications of the transition to a green economy in the context of Africa’s transformation agenda; investigating green economy as a tool to realizing a new social contract in Africa; assessing

planning tools and methodologies to support integrated assessments for inclusive green economy and green growth policies; and green economy as an instrument to harness Africa’s natural resources for its transformation and sustainable development. In delivering its mandate, ECA brings together a wide range of actors to deliberate on its work and related matters. Key partners are the African Union Commission, NEPAD Planning and Coordination Agency, regional economic communities, African Development Bank, other United Nations entities, development agencies and civil society.

(d) United Nations Environment Programme

UNEP Green Economy Initiative has several components with the overall objective of providing analytical and policy support for investing in inclusive green sectors and in greening environmentally unfriendly sectors. Through advisory services UNEP provides policy advice, technical assistance and capacity-building in support of national and regional initiatives to transform and revitalize economies. UNEP is working on the inclusive green economy in several African countries, including Burkina Faso, Egypt, Ethiopia, Ghana, Kenya, Mali, Morocco, Namibia, Rwanda, Senegal and South Africa. Under the Poverty-Environment Initiative⁶¹, UNEP also supports country-led efforts to mainstream poverty-environment objectives into national development and subnational development planning, from policymaking to budgeting, implementation and monitoring (e.g. in Burkina Faso, Kenya, Mali, Rwanda, United Republic of Tanzania).⁶² UNEP is also a founding member of the United Nations Partnership for Action on Green Economy. In addition to its support at the macro level, UNEP is supporting the development of green business in six pilot African countries through the SWITCH Africa Green Project and building capacity on green economy planning and implementation at the subnational level for five pilot African countries through the Operationalizing Green Economy Transitions project. The UNEP Regional Office for Africa plays a leading role in promoting environmental sustainability and green economy transition in the region.

⁶¹ Jointly with UNDP.

⁶² <http://www.unpei.org/>.

e) *United Nations Development Programme*

Working with partners and United Nations Country Teams, UNDP is responding to country demand to support a range of inclusive, environmentally sustainable development work through an integrated programmatic approach. This programmatic approach draws on the multidisciplinary expertise of UNDP across the social, economic and environmental strands of sustainable development including biodiversity and ecosystem services, energy and climate change, governance, poverty reduction and gender equality. UNDP works to strengthen capacities for long-term integrated planning within and across sectors that leverage multiple benefits and consider institutional contexts; to address policy trade-offs across social, environmental and economic policies with a focus on gender equality, youth, indigenous and marginalized groups; to integrate poverty-environment linkages and resilience issues into national planning systems; to promote solutions for sustainable management of ecosystem services; and to support low emission, climate-resilient development measures and better access to efficient and sustainable energy solutions. UNDP prioritizes partnerships and South-South collaboration, bringing together Government, civil society, and private sector actors.

Global level

The Partnership for Action on a Green Economy, a joint initiative of UNIDO, UNEP, ILO and UNITAR, is a response to the Rio+20 outcome document, “The future we want”, which calls for implementation of the green economy as one of the vehicles for sustainable development. PAGE aims at facilitating the shifting of countries’ policies and investment towards the creation of green assets, such as clean and low-waste technologies, resource efficient equipment and infrastructure, well-functioning ecosystems, green labour and good governance. The initiative is currently active in six countries: Burkina Faso, Ghana, Mauritius, Mongolia, Peru and Senegal.

The Sustainable Cities Programme seeks to support both the missions of the United Nations Human Settlements Programme (UN-Habitat) and UNEP. It aims at building capacities in urban environmental planning and management. The Programme targets urban local authorities and their partners. At the local level the programme supports partners in cities to apply the Environmental Planning and Management process. In promoting urban environmental governance processes the Sustainable Cities Programme works closely with the UN-Habitat Global Campaign on Urban Governance.⁶³

The International Labour Organization Green Jobs Programme is active in turning into reality the potential of an inclusive green economy to contribute to more and better employment and reduce poverty. Green jobs bring about an integrated response to the global challenges of environmental sustainability, economic growth and social inclusion. At the local level, the programme supports capacity development of constituents and partners through training and knowledge sharing.⁶⁴

The Green Growth Knowledge Platform is a global network of international organizations and experts that identifies and addresses major knowledge gaps in green growth theory and practice. It was established in January 2012 by the Global Green Growth Institute, the Organization for Economic Cooperation and Development, UNEP and the World Bank, but since then has expanded to include diverse groups of partners. By encouraging widespread collaboration and world-class research, GGKP offers practitioners and policymakers the policy guidance, good practices, tools and data necessary to support the transition to a green economy⁶⁵.

UNEP and UNDP's work on green economy extends to other developing regions of the world.

⁶³<http://www.unhabitat.org/programmes/sustainablecities/aboutus2005.asp>.

⁶⁴http://www.ilo.org/global/topics/green-jobs/WCMS_213842/lang-en/index.htm.

⁶⁵<http://www.greengrowthknowledge.org/about-us>.

Annex 2: Examples of policy instruments and their application to the green economy

Policy instrument	Description and purpose	Examples, possible applications of the green economy
Subsidies	<p>Subsidies can be defined as “direct payments, tax reductions, price supports or the equivalent thereof from a Government to an entity for implementing a practice or performing a specified action” (Gupta et al., 2007). Subsidies may be given to induce investments and behavioural changes. They include direct payments, monetary grants, price supports, donations of goods and fiscal incentives in the form of tax reductions.</p> <p>In the case of direct payments or grants, for example, an economic entity receives an amount of money which is supposed to induce the recipient to undertake a specific action bound to that payment. In the absence of the payment, the action is presumably not undertaken, or not to the desired degree. Tax reductions aim at relieving economic agents from the tax burden (or parts of), thus expecting them to undertake more of the taxed action.</p>	<ul style="list-style-type: none"> • Retrofit schemes to improve energy efficiency in homes • Supporting research and development for green and energy-efficient technologies; VAT exemption can be granted for research and development expenses of companies. • Subsidies for solar energy purchase and cost of installation, afforestation of degraded land, research and introduction of new cultivars or organic crops • Subsidies or tax reduction on installation of water supply, desalination and irrigation systems in areas threatened by droughts • Price support to promote the cultivation and sale of particular crops, e.g. climate-adapted or resilient crops • Accelerated depreciation allowances • Favourable interest rates for green investments
Taxes and fees	<p>Taxes are monetary payments by economic agents to the state which do not necessarily trigger any direct service in return. Fees or levies, on the other hand, have to be paid in exchange for a service by the state or for the use of (usually) state-owned facilities. Taxes are needed to generate government revenue and these revenues finance public expenditures, including green public investments.</p> <p>In most cases, private behaviour does not lead to an optimal outcome – for environmental quality or efficient resource use. In such cases taxes can be used to direct private behaviour towards an optimal behaviour. A tax on goods or a factor of production leads to an increase in the market price. By raising prices on less sustainable or green products, taxes can be effective in influencing green behaviour. Taxes help to internalize negative externalities and let the market play the critical role of changing production and consumption patterns towards a green economy.</p>	<ul style="list-style-type: none"> • Carbon tax, levied in accordance with the carbon content, with the aim to encourage using fewer carbon-intensive products and to reduce energy consumption. • Energy taxes are imposed on the use of certain forms of energy, e.g. on fossil fuels. In most cases the tax base is the physical unit of consumption. Normally the tax aims at reducing energy use, either by enhancing efficiency or by decreasing the energy consuming activity itself. • Effluent charges – levied according to the quantity and quality of discharge of polluting substances • Product charges levied on products that pollute the environment. The tax could be based on the product characteristic, e.g. mercury content • Tax differentiation to result in favourable prices for green products and investments • User charges – e.g. payments for collective treatment of wastes • Control and authorization charges

Policy instrument	Description and purpose	Examples, possible applications of the green economy
Loans	Financial assistance or incentives to encourage or support the purchase and installation of green products, energy saving technologies, green technologies	<ul style="list-style-type: none"> • Consumer loans such as green car loans encourage the purchase of cars that demonstrate high fuel efficiency • Low-interest loans for solar systems • Green home equity loans • Loans for installation of recycling systems • Grants and “concessional” access to funds, e.g. in UNFCCC and the Convention on Biodiversity
Risk and loss financing	Generally deals with the financial burden imposed by disasters and other events. Risk financing instruments are purchased or organized by persons or a community at risk purposefully and in anticipation of risk. Loss financing is arranged by people, Governments and the state (could be ad hoc), after an event. Insurance and other risk financing instruments are designed to promote the reduction of climate-related risks, to aid in the recovery process thus reducing indirect disaster losses, and to create an environment for exploiting opportunities. Governments can also oblige economic agents whose activities present a risk to insure against any responsibility for damage to third parties, the state, or the local authorities.	<ul style="list-style-type: none"> • Insurance e.g. property insurance, agricultural insurance for crops, business insurance, sovereign insurance, intergovernmental risk pools • Weather derivatives • Catastrophe bonds • Community funds
Negotiable permits	A system of negotiable permits fixes the total emission or pollution permissible within an area. Each polluting entity is required to obtain an emission permit conforming to emission standards. Emission trading schemes allow emissions to operate under a multi-source emissions limit and trade is allowed in permits adding up to that limit. The initial distribution of permitted levels may be based on historic levels of emission. Resource extraction concessions can also be issued and traded.	<ul style="list-style-type: none"> • Emission trading schemes • Carbon markets
Payment for ecosystems services	<p>Payment for ecosystem services (PES) is a voluntary transaction where a well-defined environmental service is being bought by at least one buyer from at least one provider if that provider secures the provision of the service (Wunder, 2005).</p> <p>One of the main features of PES is that the polluter-pays principle is replaced by the beneficiary-pays principle. Those who are interested in a specific environmental service compensate those actors who would have otherwise degraded the service by alternative usage. By providing compensation to the steward of an environmental service, it can strengthen the ecosystem service provisions at scales and levels.</p>	Forest, wetlands, biodiversity, watershed protection services provided can weaken the effects of a changing climate, e.g. by positively influencing the water balance or by dampening the consequences of extreme events

Policy instrument	Description and purpose	Examples, possible applications of the green economy
Purchasing schemes	Purchasing schemes are designed to provide a financial incentive for consumers to purchase green products.	<ul style="list-style-type: none"> • Discount coupons or direct discounts at the payment point can help consumers become readily acquainted with new or eco-friendly products. • Reward points for green purchases, e.g. in exchange for tickets to events
Restrictions and prohibitions	If a process, product or activity is not deemed as green or presents risk to the environment, strict measures can be imposed in an effort to reduce or eliminate, or provide a disincentive. When the likelihood of the perceived risk is too great, a total product or process ban may be necessary.	<ul style="list-style-type: none"> • Bans targeted at manufacturers, e.g. on the use of certain chemicals in products • “Reverse listing” – highlighting substances or processes permitted rather than those prohibited • Taking and trading measures e.g. hunting and collecting restrictions, import/export restrictions • Land use restrictions e.g. zoning and protected areas • Targets or limits on material consumption or resource use
Standards	Similar to restrictions and prohibitions, standards are prescriptive norms that govern products and processes or set actual limits on the amount of pollutants or emissions produced.	<ul style="list-style-type: none"> • Process standards – specifying design requirements or operating procedures for installations such as factories, or methods e.g. hunting, fishing • Product standard – for products created or manufactured e.g. setting minimum performance or energy efficiency standards • Emission and quality standards • Best practice and best technology available standards as an exercise of due diligence
Deposits	A system of mandatory deposits to provide an (dis)incentive for a certain action. Deposit refund systems add a surcharge to the price of potentially polluting products. The surcharge is refunded when the product or residual is returned to the collection agent.	<ul style="list-style-type: none"> • Mandatory deposits on glass or plastic containers to encourage their return or recycling
Green public procurement (GPP)	Green public procurement (GPP) is another major channel through which institutions and policies can foster a greener economy. GPP is a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured. The rationale is that Governments and other non-private entities spend sizeable shares of GDP on building infrastructure and procuring goods and services, so that these values and volumes are sufficient to trigger markets and transform supply chains and administrations towards greener economies. Green public procurement also sends messages to consumers that Governments are also doing their part in promoting the green economy.	<ul style="list-style-type: none"> • Regulations and guidelines to support environmental and economic policy implementation through public procurement are embedded in policies such as product specifications; energy-efficient procurement policies; overarching green procurement strategies; climate protection or other environmental and sustainability policies • Public contracts, service concessions, public-private partnerships

Policy instrument	Description and purpose	Examples, possible applications of the green economy
Certifications, quality marks and labels	<p>Certification schemes are aimed at sustainable use of natural resources and biodiversity. Certification identifies goods and services that potentially reduce adverse environmental and social impacts. By highlighting green products, certification may increase the market value and share for farmers and producers. Certification schemes may include: multi-stakeholder agreement on what constitutes best or acceptable practice or process; auditing to enforce or assess compliance; source tracking; and product labels.</p> <p>Product labels promote pro-environmental purchases by providing the consumer with product environmental information or information about its impact on the environment. A label may be affixed to the packaging itself, or on accompanying documentation.</p>	<ul style="list-style-type: none"> • Forest certification in which stakeholders agree and commit to defined management standards, accreditation of certifiers and labelling of products from certified forests • Labels – to provide assurance and guarantee that an independent outside party has determined that a product meets all environmental criteria • “Green” or “eco-labels” to incentivize green behaviours
Corporate reporting	<p>Reporting by companies on their corporate sustainability measures to inform consumers of their social and environmental values and practices beyond the sustainability characteristics of individual products.</p>	<ul style="list-style-type: none"> • Global corporate reporting • Green or environmental statements on products
Publicity and marketing	<p>Publicity and marketing tools aim at influencing consumer behaviour and can also be used to offer alternative perspectives on consumption e.g. health effects of smoking.</p>	<ul style="list-style-type: none"> • TV, radio, posters, online and social media advertising or providing information about green products or services
Peer rating and comparative evaluations	<p>Individuals as well as corporate entities are often very influenced by their peers and other people’s experiences. Peer rating provides a way to influence consumers and firms who may be indecisive about the purchase of a particular product, new green technology or service.</p> <p>Comparative evaluations encourage green behaviour or motivate individuals to improve their own behaviour by allowing for comparative assessments of one’s own behaviour with the performance or behaviour of others.</p>	<ul style="list-style-type: none"> • Reviews of green products or services • Comparative information on energy bills benchmarking one’s own energy consumption compared to the performance of others
Endorsement	<p>As a behavioural change tool, endorsements are designed with the idea that consumers are easily influenced by other consumers and celebrities. They can come in the form of a product label or publicity endorsed by a celebrity or by other consumers.</p>	<ul style="list-style-type: none"> • Celebrity endorsement of organic products or energy-efficient technologies • Endorsement label on products • Endorsements or installation of green products or technologies by big corporate entities • Goodwill ambassadors

Policy instrument	Description and purpose	Examples, possible applications of the green economy
Nudge-type tools	<p>Nudges aim at influencing green behaviour by leading individuals to make better choices. Nudge-type tools impose no mandates and instead, with strategic combinations of framing, informing, and encouragement, nudge tools can inspire voluntary decisions to “go green”, eat healthier and consume more sustainably.</p>	<ul style="list-style-type: none"> • Defaults on computers to double-sided printing and by utility companies to receiving paperless bills.
Social protection and labour market policies	<p>Policies to foster the transition to a green economy will affect employment across a range of activities with potentially wide impacts. Some employment will be substituted, e.g. if there is strong shift from fossil fuels to renewable. Certain jobs may be eliminated without direct replacement, e.g. an outright ban on the production of certain materials. Some existing jobs in metal works, construction, electrical may be transformed to support greener technologies, processes and standards.</p> <p>But the inherent inclusive nature of a green economy must have a strong focus on the social dimensions, that will ensure deliberate measures are taken to support labour markets with the right policies and institutions for job security, decent employment, social protection, livelihood support and diversification arrangements to address any job losses or temporary displacements as a result of transition policies. In particular, social protection instruments will ensure the provision of services and transfers to prevent people from falling into poverty or to assist them out of poverty. Social protection measures prevent damaging coping strategies and promote resilience through livelihood diversification and security. Transformative social protection measures address social relations that underlie social, economic and political vulnerabilities.</p> <p>Carefully crafted social protection and livelihood security schemes for the rural poor in the form of public work programmes can also preserve and restore natural capital.</p>	<ul style="list-style-type: none"> • Public work programmes, guaranteeing a certain amount of paid work per year to every household that wants to volunteer for public works in water conservation, irrigation and land development, creating long-term livelihood opportunities for farmers. • cash transfers, e.g. unconditional cash payments, child support grants • asset restocking and sale of assets, access to credit • Social safety nets and funds • Social protection floors • Universal health and pensions • Nutritional and feeding programmes • Livelihood support and diversification programmes via skills development, microfinance and assisted migration • Compensation measures, such as micro-insurance and crop insurance.

