8.
LEGAL AND POLICY FRAMEWORKS FOR CLIMATE-FRIENDLY ENERGY GENERATION IN AFRICA: ENERGY SECURITY FOR FUTURE DEVELOPMENT

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1 Energy and Climate Change: Current Status in Africa

As affirmed in its 2014 report, the Intergovernmental Panel on Climate Change (IPCC), under the United Nations Framework Convention on Climate Change (UNFCCC), the effects of climate change, which are already being experienced on all continents, are likely to increase substantially unless greenhouse gas emissions are brought under control.[2] The heavy reliance on fossil fuels such as petroleum, coal and natural gas for energy is now recognised as one of the primary causes of anthropogenic climate change, given the amount of resulting carbon dioxide and greenhouse gas emissions.[3]

Consequently, climate change mitigation efforts have rightly been focused on the energy sector, in a bid to shift towards more climate-friendly sources of renewable energy including bioenergy, hydro-powered energy, and geothermal, wind and solar energy.

While the gap between demand and supply of energy has over the last few decades been narrowing in most developing countries, the gap has continued to widen in Africa, raising concerns over energy security prospects in view of future development.[4] Africa continues to grapple with critical challenges which are undermining its capacity to meet its energy demands to power its economic development. As at 2013, Africa is now home to half of the world's population without electricity.[5]

Most African countries continue to rely on non-renewable forms of energy, particularly

1 The author would like to acknowledge the assistance received from her research assistant Cynthia Liavule.
2 IPCC (2014:852 and 858).
3 Fischer Kuh & Gerrard (2012:143).
4 UNIDO (2009:1).
5 REN21 (2014:93).

coal, gas, petroleum and crude oil. Traditional biomass is the major source of energy in Africa, accounting for approximately 70–90% of the energy supply in most countries, despite the environmental, social and health problems associated with it.[6] In the Democratic Republic of Congo and Tanzania, for instance, 94% of the population continue to rely on traditional biomass for cooking, with Kenya at 83% and Nigeria at 75% of the population.[7]

1.1 Potential for Renewable Energy in Africa with a Focus on Solar Energy

Renewable energy technologies rely on natural resources that can be replenished, and thus include bio-energy, geothermal energy, hydropower, wind energy and solar energy. Africa is not lacking in renewable energy sources. It is estimated that the continent has a potential to generate 1 800 TWh per year from hydro power, which is about 12% of the world's hydropower potential.[8] East Africa alone has a potential geothermal capacity of 15 000 MW, while sub-Saharan Africa has an additional power generation capacity of 170 GW, which is more than double its current supply.

Solar energy is among the fastest growing renewable energy sectors globally. The global solar photovoltaic (PV) market in 2013 made a new record, installing more capacity than other renewable technology, second only to hydropower technology.[9] Furthermore, in the same year, solar technology received the greatest share of global investment in renewable energy for the fourth year running. The increasing investment demonstrates the appreciation of the potential of solar energy to supplement the energy mix.

Africa and more specifically sub-Saharan Africa is home to the highest solar radiations in the world, with the potential estimated at about 6 kWh per square metre per day. This constitutes a potential source of energy not just for Africa, but for the rest of the world. This has been confirmed by satellite-based studies conducted by the German Aerospace Centre, which affirms that less than 0,3% of the total desert areas of the Middle East and North Africa (MENA) region have the potential to house solar thermal power plants to generate the energy needed to meet present and future demands of the region and of the EU. Renewable energy thus has the potential to help Africa accelerate the transition from traditional energy sources to modern climate-friendly energy, particularly in rural areas which in most of Africa continue to be underserviced.

Given this potential of renewable energy in improving energy security while mitigating greenhouse gas emissions, governments in Africa are adopting renewable energy technologies to foster national development. Investment in renewable energy in Africa and the Middle East has been growing steadily from US$0,5 billion in 2004 to US$10,4

6 UNIDO (2009:8).
7 REN21 (2014a:138).
8 Appleyard (2014).
9 REN21 (2014a:47).

billion in 2012 with a slight drop to US$9 billion occurring in 2013.[10] Among the leaders on the African continent in terms of investment in renewable energy is South Africa, which recorded an investment of US$4,9 billion. In 2013, Kenya became the second largest investor in Africa at US$249 million, followed by Mauritius and Burkina Faso.[11]

Despite the growing investments by African countries, the most significant investors in solar energy globally are largely from other continents such as Asia, which in 2013 surpassed Europe after its decade-long leadership of the solar energy market. The performance of Asia in the solar energy sphere is attributable to the huge investments in China and Japan, which together with the United States were the three top installers in 2013. China alone accounted for almost a third of the global installations, managing to triple its capacity to approximately 20 GW.[12]

Most investments in solar energy technology in Africa have taken the form of small-scale energy systems mainly solar PV systems and the solar thermal energy systems for heating, drying and cooking. Solar home units are the most common application of the systems, with South Africa and Kenya boasting the highest number of documented installed capacities of solar PV systems. Egypt, Mozambique, Tunisia, Zimbabwe and South Africa have all invested in solar thermal systems for water heating. However, the markets in African countries face challenges of lack of standards, resulting in poor quality products and installations. Few countries in Africa have large-scale solar energy plants. South Africa is the only country among the global leaders in the solar energy market. In 2013, the largest solar energy facility in Africa, which is in the country, came on line.[13]

1.2 The Challenges in Unlocking Africa's Potential

While the level of investment in renewable energy is increasing, the gains made are still marginal and Africa is still a long way off providing clean energy to all. To unlock its renewable energy potential, Africa has to contend with some of the challenges undermining the growth of the sector.

1.2.1 Costs and Pricing

A key primary challenge in adopting renewable energy and especially solar energy is the high initial investment outlay these technologies require. Undoubtedly, in the long run, lower fuel and operating costs often result in renewable energy being cost competitive. However, higher initial costs may make it impossible to install the renewable energy and this thus leaves its potential unlocked. This is because renewable energy technologies often require heavy financing to generate comparable capacity to other conventional

10 (ibid.:68).
11 (ibid.:70).
12 (ibid.:47).
13 (ibid.:48).

forms of energy generation. The high costs coupled with the low purchasing power have hindered the growth of the renewable energy market.

Apart from the heavy initial costs, subsidies on fossil fuels have resulted in an un-level fiscal playing field that has rendered renewable energy less competitive. A recent report of the International Monetary Fund estimated that in 2011 post-tax subsidies on fossil fuels globally amount to approximately US$1,9 trillion a year, which constitutes 2,5% of the global GDP.[14] Most of these subsidies are granted by the developing world on the justification of reducing poverty levels. About US$480 billion was spent globally on direct subsidies granted by governments for the price of petroleum, natural gas, coal and electricity in the same year.[15] Apart from these direct subsidies, fossil fuels enjoy indirect subsidies due to the failure of governments and markets to take into account the associated external costs in their pricing. Such costs include the cost of environmental pollution caused by greenhouse gas emissions. The failure in pricing of fossil fuels has placed renewable energy at a competitive disadvantage.

1.2.2 Lack of Financing

As noted, earlier, the total global investment in the renewable energy sector has been growing since 2004. However, Africa's share in this investment is marginal. In 2012, of the US$268,7 billion invested globally in renewable energy, only about US$4,3 billion was invested in Africa.[16] For the same period, only 1,5% of the total solar trade came to Africa and even then most of this was directed primarily to South Africa. In 2013, only South Africa and Kenya were included in the top tier for their investment in renewable energy in general and geothermal energy, respectively.[17]

Foreign financing has provided a reprieve to the renewable energy sector. However, this form of financing has not been without its challenges. Donor investments in renewable energy from agencies such as Global Environment Facility have focused efforts on the rural poor. This has led to the perception in Africa that renewable energy, such as solar energy technologies, is for the rural poor who are often not supplied by the centralised grids servicing urban centres. This perception, it is argued, has led to a lack of interest by middle class investors in solar energy, thus undermining any potential for local investment in renewables.[18]

1.2.3 Market Barriers to Renewable Energies

Most renewable energy projects and initiatives in Africa have tended to focus on the rural areas where demand for energy is high and the supply very low. Consumers or

14 IMF (2013:13).
15 (ibid.:9).
16 Hankins (2013).
17 REN21 (2014a:16).
18 Hankins (2013).

investors in this area often lack access to the credit necessary to invest in renewable energy. The lack of certainty with respect to the market for renewable energy renders these investments risky, thus reducing the capacity of renewable energy investors to access long-term credit facilities.

Further, in many African countries, power utilities enjoy a monopoly on electricity production and distribution. The absence of a supportive legal framework renders it impossible for new entrants into the renewable energy field to sell power either to the utility or independently to third parties. Moreover, even where such utilities are willing to negotiate power purchase agreements, they use their status as a monopoly to enter into one-sided and often commercially non-viable agreements.

1.2.4 Lack of Supportive Policy and Legal Frameworks

The above-mentioned challenges facing the renewable energy sector are ultimately problems of a lack of a supportive policy and legal framework that would include the institutional and economic instruments necessary to drive the sector.

These challenges are not peculiar to Africa, but rather explain the slow uptake of renewable energy technologies worldwide. It is only in the last two decades that the global market for clean energy has transformed to vibrancy. Arguably, the turn-around in countries with a booming renewable energy sector has been the development of supportive legal and policy frameworks. The shift to renewable energy can only occur where there is a supporting policy and a legal regulatory environment that foster information and technical capacity, and financial incentives to boost the renewable energy sector.

The next section seeks to identify how policy and legal frameworks have been used to transform the renewable energy sector. A critical analysis of the extent to which the policy and legal regulatory frameworks of African countries provide the necessary support to grow the renewable energy sector is also conducted.

2 Policy and Legal Frameworks for Climate-friendly Energy Generation

International law often sets the trend for development of national laws, as is evidenced in the realm of international human rights law. However, in the case of international environmental law and more specifically in the case of climate change law, this has not been the trend. The challenges in achieving global consensus on specific and ambitious targets for the reduction of greenhouse gases have resulted in regional policy and legal frameworks, constituting a better basis for development of national frameworks. The European Union has demonstrated this in so far as environmental law and even climate change policy and legal frameworks are concerned.[19]

19 Oberthür & Kelly (2008:38–39).

An overview of the international legal and policy framework for renewable energy follows.

2.1 International Legal Framework for Renewable Energy

As is the case with most international environmental law instruments, the international framework for renewable energy is composed largely of normative provisions that are contained in non-legally binding instruments. The 'soft law' instruments relating explicitly to renewable energy are few and thus often recourse must be had to general principles, rules and norms in environmental and sustainable development international laws to support renewable energy. There is for instance, no multi-lateral treaty dealing with renewable energy, but rather rules, principles and policies that have been adopted both by states and non-state actors in relation to renewable energy. The regulatory effectiveness of such soft law instruments has been questioned in the wider context of international environmental law, though in the absence of binding instruments these instruments serve as guidelines for regional and national policy and regulatory frameworks, and to this extent a brief overview of the same is undertaken in this section.

The dearth of explicit references to renewable energy in international instruments does not indicate the lack of an appreciation of the importance of renewable energy and its crucial role in the pursuit of sustainable development. The Report of the World Commission on Environment and Development (the Brundtland Report) dedicated an entire chapter to the subject of energy, in recognition of the fundamental relation between future development and energy security. Energy security in turn can only be guaranteed if energy sources are 'dependable', safe and environmentally sound'.[20] The report's reference to the nexus between energy, economy and development demonstrates the crucial nature of energy in the balance of interests for achieving sustainable development. While recognising the 'untapped potential' of renewable energy in achieving energy security, the report points to the need for national legal and policy frameworks to remove or reduce the economic and institutional constraints holding back renewable energy, for example the hidden subsidies for energy sources that are not climate-friendly.

Agenda 21 makes a modest attempt at providing an international policy directive in relation to renewable energy.[21] It points out that the constraints hindering the development of environmentally sound energy supplies should be removed so as to achieve sustainable development, and proposes certain activities for achieving this.[22]

Through the Johannesburg Plan of Implementation, over 118 countries demonstrated their commitment to implementing renewable energy laws and policies.[23] Arguably, the Johannesburg Plan of Implementation is the most extensive soft law instrument on renewable energy, given its clear provisions in support of renewable energy

20 UN (1987).
21 UN (1993:9.12(a), 9.12(d), 9.12).
22 (ibid.:9.9 and 9.11).
23 UN (2002:9(a), 9(g), 38(f)).

development, implementation, technology issues and commercialisation.[24] Further, the plan is lauded for its delinking of economic growth from environmental degradation, which assumption it is argued in this article is the root cause of the lack of political will in embracing climate-friendly energy sources in Africa.

The Plan of Implementation of the World Summit on Sustainable Development (WSSD) (paragraph 20(e)) made various policy recommendations for governments in relation to diversification of energy and specifically the use of renewable energy. The Beijing Declaration on Renewable Energy, an initiative of 78 governments, constitutes a positive initiative towards the use of renewable energy, though with little legal force.

While no convention on renewable energy exists, certain provisions in some international environmental law conventions make reference to renewable energy. The United Nations Convention on the Law of the Sea (UNCLOS), in recognising the sovereign right of countries to exploit their resources, includes the right to produce energy from renewable sources including wind and oceans.[25]

The United Nations Framework Convention on Climate Change (UNFCCC) arguably constitutes an inexplicit attempt at a multi-lateral treaty promoting renewable energy.[26] Although, it makes no explicit reference to renewable energy, the UNFCCC promotes renewable energy by seeking to reduce the emission of GHGs, particularly from fossil fuel production. In spite of potentially constituting an international legal instrument for renewable energy, the regulatory force of the UNFCCC is limited. The UNFCCC does not contain legally binding obligations on states demonstrating the challenges faced at the global level in achieving consensus in relation to climate change adaptation and mitigation obligations.

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol) represents an attempt to set legally binding targets in relation to the reduction of GHG emissions. Article 2(a)(1)(iv) explicitly makes reference to renewable energy, requiring states to research and promote the use of renewable forms of energy. Indirectly, the attempts to set targets for GHG reductions contribute to the development of renewable energy, as countries seek to find more climate-friendly energy sources. The experience of the first set of targets demonstrates the need for a more comprehensive framework for the reduction of GHGs. The difficulty in achieving a consensus on the fate of the successor of the Kyoto Protocol suggests a grim prospect of using the international legal framework for climate change to drive renewable energy.

24 Bruce (2013).

25 The Convention was opened for signature 10 December 1982 (1833 UNTS 3) and entered into force on 16 November 1994.

26 The United Nations Framework Convention on Climate Change was opened for signature on 9 May 1992 (1771 UNTS 107) and entered into force 21 March 1994, Articles 2 and 4 UNFCCC.

The United Nations General Assembly (UNGA) declared 2012 the Year of International Sustainable Energy for All.[27] The United Nations Secretary General, in an attempt to get countries to set clear policy goals in relation to renewable energy, recommended the adoption of a global energy strategy. The bottom-up approach of this proposal seems to constitute a concession that a global commitment on sustainable energy is unlikely and that it may be more effective to begin at regional or national levels and eventually achieve overarching international goals.

2.2 Regional Legal Frameworks for Renewable Energy in Africa

Early energy policies relating to renewable energy in Africa were driven by challenges in energy security rather than environmental considerations. The oil crises of the early and late 1970s led to the establishment of departments and ministries of energy in many African countries in the bid to establish and promote sound energy policies. In recent years, the growth in the renewable energy sector and investment opportunities has led to the adoption by many countries of some form of renewable energy policy. By 2014, at least 35 African nations had adopted a renewable energy policy with about 37 countries having one or more renewable target.28

Policy development and coordination at the regional level in Africa is the task of the African Union (AU) and the New Partnership for Africa's Development (NEPAD). These have formulated the AU/NEPAD African Action Plan, and, with the African Development Bank, the Programme for Infrastructure Development in Africa (PIDA) Priority Action Plan in a bid to grow the energy sector. Further, the various regional blocs in Africa, such as the East African Community of West African States (ECOWAS), the Southern African Development Community (SADC) and the East African Community (EAC), have also developed regional energy action plans, which include plans on growing the renewable energy sector.

2.2.1 The Economic Community of West African States (ECOWAS)

The various regional economic blocs in Africa have also recently addressed renewable energy issues more keenly. In the west, the Economic Community of West African States (ECOWAS) in 2010 established the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE). The ECREEE in 2012 issued two landmark policies, the Renewable Energy Policy (EREP) and the ECOWAS Energy Efficiency Policy (2013) both of which were adopted by member states in 2013. The regional policies are commendable in so far as they seek to set clear long- and short-term targets in relation to renewable energy. The EREP, for instance, provides for both off-grid and grid-connected renewable energy targets from the various sources with a 2020 and 2030 timeline.29 ECREE is playing an important role in facilitating the creation of legal and policy frameworks for the ECOWAS member states. The success of ECREE in West

27 UN (2011).
28 REN21 (2014b:54).
29 See ECREEE (2012:61ff.).

Africa has led to the development of similar initiatives in the southern and east African economic blocs.

2.2.2 The Southern African Development Community (SADC)

In the south, the Southern African Development Community (SADC) has a common Protocol on Energy which serves as a framework for energy cooperation among member states. SADC has several strategic plans dealing with energy development in the region, including the SADC Energy Cooperation Policy and Strategy, the SADC Energy Action Plan, the SADC Energy Activity Plan, the Regional Infrastructure Development Master Plan, and the Energy Sector Plan. Although not dealing solely with renewable energy, these energy plans make reference to renewable energy. The ongoing process of creation of the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) is expected to boost development and implementation of renewable energy policies in the region and in member states.

2.2.3 The East African Community (EAC)

As is the case with SADC, plans are underway to create the East African Centre for Renewable Energy and Energy Efficiency (EACREEE) in a bid to fast track the development of legal and policy frameworks for renewable energy in the East African Community Region. Currently, the region has several strategic plans on energy, but none dealing solely with renewable energy. The Regional Strategy on Scaling-up Access to Modern Energy Services, whose implementation is handled by the Renewable Energy Working Group, is an institution created to facilitate the implementation of modern energy generation.

2.2.4 The Common Market for Eastern and Southern Africa (COMESA)

The Common Market for Eastern and Southern Africa (COMESA) has initiated projects in the area of renewable energy. A baseline renewable energy database was developed as a means of fostering investment in sustainable renewable energy projects. The project also sought to improve commercialisation of renewable energy technologies by identifying and eliminating barriers to the sector.

Efforts are underway for EAC, COMESA and SADC to develop a tripartite renewable energy baseline database. The initiative is driven by the appreciation of the need to establish comprehensive baseline information on renewable energy value chains so as to identify opportunities for value addition, building capacity and highlighting the required policy and regulatory reforms to improve competitiveness of the identified value chains.[30]

30 See Terms of Reference for the Value Chain studies on the Renewable Energy and Bio-fuels Industry in EAC Region Project, available at procurement.trademarkea.com/terms_of_

Most of the Regional Economic Community (REC) policies on renewable energy have been developed in the last five or so years and it is still too early to evaluate their effectiveness in driving the growth of renewable energy in the region. Nevertheless, as noted in the case of ECOWAS, initiatives on renewable energy at the regional level have contributed to the development of national legal and policy frameworks for renewable energy.

The policy focus at the level of RECs has been on transnational infrastructure development for energy access. Multilateral and bilateral initiatives have, in some cases, influenced the development of national energy plans and this has led to the inclusion of renewable energy goals and initiatives. The Africa-EU Energy Partnership (AEEP) with its 2020 targets on energy access, energy security, renewable energy, and energy efficiency is an example of such initiatives.

The developments in the international legal framework have, to some extent, helped to drive regional policy direction in relation to renewable energy in Africa. Nonetheless, owing to the emphasis on the principle of common but differentiated responsibility in the context of the climate change framework, the obligation to reduce GHGs and thus turn to renewable energy sources in Africa has not been a major driver. Most regional renewable energy policies seem to be driven by the requirement of development partners that regions be included in energy plans, rather than by the conviction in the region of the need to shift to climate-friendly energy for sustainable future development.

2.3 National Policy and Legal Frameworks Driving Renewable Energy

The development of energy policies is premised on the assumption that a coherent, consistent and conducive legal and policy framework is central to the successful implementation of renewable energy. Renewable energy frameworks comprise national renewable energy and energy efficiency policies. Such policies ought to set clear mid- term and long-term targets. A regulatory framework in the form of an overarching law on renewable energy or provisions in other laws, regulations and standards is also an important component of a renewable energy legal framework. The implementation of the policies and laws are assured through the use of market or fiscal incentives and other economic instruments, such as tax exemptions, feed-in tariffs, investment subsidies, etc. An analysis of the components of a renewable energy legal and policy framework in the context of African nations demonstrates the status of the region.

reference/displayRecord?id=134&PHPSESSID=f6c5cd0937f6587ebd08fd9a85e25d66, last accessed 23 February 2015.

2.3.1 National Policy Frameworks for Renewable Energy

At the national level, renewable energy support policies are geared towards a multiplicity of objectives, including reducing the barriers to the deployment of renewable energy; providing a level playing field in the energy sector; catalysing the renewable energy industry development, building sustainable renewable energy markets and making renewable energy cost competitive. Further, such policies could help meet energy security demands, while mitigating climate change.

Most African countries have energy policies whose primary focus is to advance energy access. The reason for the focus is historical, as most early policies were driven by a response to the oil crises of the early and late 1970s. The period was marked by the establishment of departments and ministries of energy to promote sound energy policies. Reference was made to renewable energy technologies as an alternative source of energy, but this was an ancillary to their primary goal of addressing the issue of energy access. A further flurry of activity in terms of development of national energy policies occurred in the late 1990s and early 2000s in response to the high oil prices characterising the period.[31]

A review of the status of African countries with a clear policy on renewable energy demonstrates a picture analogous to a patchwork quilt. As at 2014, more than 80% of the ECOWAS member states all had policy documents in place that include clear provisions seeking to advance energy access. However, only Gambia and Nigeria had explicit renewable energy policy documents. A review of the countries in sub-Saharan Africa confirms that, as is the case with ECOWAS, most have energy policy documents albeit at varying levels of development, revision and implementation.[32] In some countries, the energy policies form part of an integrated set of development policies, as is the case in Rwanda. However, countries such as Ethiopia, Ghana and South Africa have more integrated energy policies.

Renewable energy in most African countries is provided for in the context of the wider energy plans and often in relation to rural electrification projects. Most of the rural electrification projects of ECOWAS member states, for instance, do not focus on renewable technologies per se, but rather the technologies are referred to in so far as they provide a means for improving energy access.[33]

The development of national energy policies in Africa seems to be reactionary as opposed to being the result of the conviction by African governments of the need for an energy policy framework, one of whose goals is to drive renewable energy. Most governments have sought to develop energy policies in order to access global financing, which often is pegged to the existence of a national policy on energy which includes renewable energy. For instance, at the regional level, energy policy development and coordination has been driven by the African Union working in collaboration with the

31 Karekezi (2003).
32 IEA (2014:73).
33 ECREEE (2012:155).

New Partnership for Africa's Development (NEPAD) and the African Development Bank.[34] In Kenya, the formulation of the National Energy Policy was driven by the government's need to access foreign investment to help improve energy access.[35]

The extent to which these policies are updated and implemented varies across nations. An evaluation of energy policies in the sub-Saharan region has confirmed that the existence of policies is not necessarily an indicator of success. Government and other stakeholder commitment is crucial for the effective implementation of the policy.

Apart from a national policy, an ideal renewable energy policy framework should include clear targets with realistic time frames. These renewable energy targets have served as an important tool for driving the sector at both the regional and national levels.

While most African countries have energy policies, fewer have clear targets relating to renewable energy, and even fewer have capacity-based targets. Only 37 countries on the continent have some form of renewable energy targets. Some of the countries with renewable energy targets include Egypt, Ethiopia, and all ECOWAS member states, except Burkina Faso and Gambia.[36] In sub-Saharan Africa, countries with renewable energy targets include Ethiopia, Ghana, Mozambique, Senegal, Tunisia and South Africa.[37] The existence of renewable energy targets is a step in the right direction, but the mere inclusion of targets is not sufficient. Egypt, for instance, has clearly defined targets on renewable energy, but is yet to develop a comprehensive strategy on how to attain these targets.[38]

2.3.2 Renewable Energy Laws and Regulations

Apart from a clear renewable energy policy with clear targets, a good framework for renewable energy should have supportive and strategic legislation. The law should incorporate strategic elements that facilitate the implementation of policy and targets set. It should also establish the institutional frameworks necessary for implementation and monitoring for compliance.

2.3.3 Renewable Energy Support Instruments

The renewable energy legal and policy framework is implemented through various support instruments which fall within three broad categories: regulatory instruments, fiscal instruments and public finance measures. Different countries in Africa have adopted a mix of these instruments as a means of implementing their policy and laws on renewable energy. An analysis of the instruments and the extent to which they have been adopted in African countries demonstrates that in many cases their use continues to be limited.

34 IEA (2014:73).
35 GRN Kenya (2004).
36 ECREEE (2012).
37 IEA (2014).
38 *GIZ* (2012).

2.3.3.1 Regulatory Instruments

Price-based Feed-in Laws

Price-based feed-in laws comprise laws, regulations or standards requiring centralised electricity distributors to connect independent power producers to their grid and purchase the energy generated at fixed tariff rates and for a pre-determined duration.

These tariffs are set by the relevant energy sector authority and seek to take into account factors such as cost differentials and externalities. These systems have been used in Europe in Germany, Spain and France.

Some form of feed-in tariffs has been implemented by several African countries, including South Africa, Kenya, Uganda, Ghana and Nigeria. Nevertheless, the implementation of the feed-in tariff mechanisms has not been without challenges. South Africa's feed-in tariff mechanism, adopted in early 2009, was marred by controversy from the outset, leading to its abrogation and replacement with a system of public competitive bidding in 2011.[39] The scope of Kenya's feed-in tariffs was originally limited, extending only to electricity generated from wind, biomass and small-scale hydropower. A revision in 2010 led to the extension to geothermal sources and solar electricity generation. The feed-in tariffs in Kenya have arguably not achieved their objective of boosting the market for renewable energy for various reasons. Firstly, the policy provides for maximum tariffs, which means that actual payments can be lower depending on the negotiations between power producers and the power utility, which, as is the case in most African countries, is a monopoly and thus has greater bargaining power. The feed-in tariff was established through a regulation as opposed to a statutory provision and thus there is uncertainty in terms of its security – a factor that deters investors.[40]

Net-metering

Net metering is a mechanism that allows renewable energy providers to gain credits from the electricity they use and subsequently to offset this against the electricity they use from the grid. This is a common incentive used in the solar energy sector, where a residential customer with a rooftop PV system may be allowed to feed into the grid the excess electricity generated to offset the amount of electricity used from the grid and thus to be metered only for their net energy use.

Few African countries have adopted net metering. Among ECOWAS member states, only Cabo Verde has a system of net metering. In 2015, South Africa's National Energy Regulator published a draft proposal of a net-metering system.

39 (ibid.).
40 (ibid.).

Quantity-based Renewable Energy Portfolio Standards

Quantity-based renewable energy portfolio standards require that a minimum share of power or a minimum level of installed capacity is obtained from renewable energy. In some instances, this option has taken the form of tradable quota systems under which electricity suppliers of more than a pre-determined quantity of power are obliged to supply a certain proportion of electricity from renewable sources. Such a scheme thus provides a market for renewable energy producers. Renewable energy portfolios have been used in Australia, Denmark, Italy and the Netherlands, as well as some states in the United States of America. There is at present no African country with developed renewable energy portfolio standards.

Trade Renewable Energy Certificates

Trade renewable energy certificates are certificates of proof of production of a particular quantity of renewable energy and which can be traded. Renewable energy certificates are common in the United States of America. South Africa has a trade renewable energy certificate system through which credits from renewable energy can be traded in an open market.

2.3.3.2 Fiscal Instruments

Fiscal incentives for renewable energy can take a variety of forms, including tax exemptions, deductions, tax credits, preferential tax treatment or a deferral of a tax liability. Some of the incentives used by governments to drive their renewable energy sectors include investment tax exemptions for renewable energy projects. The reduction or exemption from import duty of renewable energy products is another form of fiscal incentive employed to foster renewable energy. Governments have also resorted to reduction of related consumption taxes for renewable energy products. For instance, the reduction of exemption from value added tax (VAT) or energy tax. Few African countries provide a wide array of fiscal incentives for renewable energy technologies. Where these are present they often take the form of capital subsidies, grants or rebates on renewable energy technology or tax exemptions of certain renewable energy products or the reduction in taxes relating to renewable energy products.

2.3.3.3 Public Finance Measures

The shift to renewable energy is a costly exercise with initial outlays being high and the return on these investments often being long term and uncertain. As a consequence, investors in renewable energy often find it difficult to source financing from commercial financiers. African governments have thus sought to increase the commercial viability of renewable energy projects by offering capital subsidies, rebates, low interest loans, and, in some cases, loan guarantees.[41]

41 (ibid.).

The funding for renewable energy technologies has been offered by governments directly through state-owned banks or indirectly through subsidies granted to commercial banks. International development banks such as the Asian Development Bank and the African Development Bank have also provided funding for renewable energy projects. International climate funds are also a possible source for funding. Certain countries such as Tunisia and South Africa provide capital subsidies as a means of fostering renewable energy. Among ECOWAS countries, only Ghana and Nigeria provide some form of capital subsidy, grant or rebate.[42]

Apart from providing capital subsidies, some African nations such as Egypt, Morocco and South Africa have adopted public competitive bidding systems. These systems allow governments to sponsor competitive bidding for the acquisition of renewable energy and the awarding of long-term power purchasing agreement contracts to the lowest bidders.

2.4 Inherent Problems in Renewable Energy Frameworks

A further challenge facing the legal and policy frameworks for renewable energy in African countries is their ad hoc nature. Shifting policies in the renewable energy sector do not provide the security and certainty necessary for investors seeking to commit capital in the renewable energy sector. A case in point is the National Energy Regulator of South Africa's (NERSA) move in 2011 to review tariffs that had been set in March 2009. In 2013 Kenya imposed a 16% value added tax (VAT) on imported solar products, but retracted this in May 2014. Such shifts in policy result in uncertainty in markets for renewable energy and thus hinder investment in the sector.

In addition to the problem of shifting policies, most renewable policy measures in Africa are not backed by clear renewable energy plans.[43] As a result, the initiatives fail to have the intended effect of growing the renewable energy market owing to the absence of a coherent and coordinated approach across sectors. In some countries, the pressure to develop laws and implement economic instruments to support renewable technologies is not driven by a conscious and pre-determined national plan, but rather by the need to demonstrate the existence of the laws and policies in order to access global funds earmarked for renewable energy projects.

Apart from legal and policy measures, robust institutions with technical capacity are required effectively to implement a framework for renewable energy. These include experts, if not in development, at least in testing, operation and maintenance of renewable energy technologies. The absence of strong institutions with the technical capacity to drive the renewable energy sector is a major hindrance to the effectiveness of legal and policy frameworks for renewable energy.

42 UNIDO (2009), ECREEE (2012) and REN21 (2014:60).

43 UNIDO (2009:16).

An analysis of the performance of the electrical power generation utilities of most African countries demonstrates some of the challenges contributing to the inefficient use of energy. Most of the power utilities are centralised corporations whose commercial viability is not a priority, given the urgent need to provide access to the poor who are a majority. The lack of sufficient capital undermines the capacity of these utilities to operate efficiently. Recent reforms in the power sectors of most African countries have resulted in hybrid markets where independent power producers complement the state-owned utilities. The implementation of these hybrid markets poses challenges in policy, regulation, planning and procurement and thus fails to contribute to efficient investment decisions.[44] The challenges facing the energy sector have adversely affected efforts at embracing cleaner forms of energy.

3 Beyond Legal and Policy Frameworks: Africa's Challenge in Growing Renewable Energy

The foregoing section demonstrates that, as of 2014, most African countries had a legal and policy framework for renewable energy which incorporates some form of supportive instruments. Nevertheless, these frameworks are in many cases still at a nascent stage and thus the jury is still out as to how effective they will be in driving the renewable energy sector, while ensuring that the countries meet their energy demands in a bid to achieving sustainable economic development.

The existence of a legal and policy framework for renewable energy does not per se guarantee that a country will have a robust renewable energy sector. Other extenuating factors may explain the reason why, despite the great potential of renewable energy in Africa and the strides made in developing legal and policy frameworks, the sector has yet to thrive.

In Africa, governance challenges relating to corruption, inadequate regulatory and legal frameworks, weak institutions and poor transparency and accountability have been identified as factors hindering the growth not just of the renewable energy sector, but also of the wider energy sector. Context-specific complexities also play a part in undermining laws, rules and regulations designed to foster particular socio-economic outcomes.

3.1 Lack of Political Will and Conviction

The main challenge hindering growth of renewable energy is arguably the lack of political will in embracing clean energy, though this is by no means a problem peculiar to Africa. Globally, the shift to renewable energy and the implementation of initiatives that reduce the GHG emissions caused by fossil fuels has been an uphill task. Even among developing countries, nations have continued to focus efforts on cleaning the conventional energy generation modes as opposed to substituting these for renewable energy.

44 Eberhard et al. (2008).

In Africa, this despondency about implementing change is exacerbated by the fact that even the non-renewable energy resources are to a large extent still underutilised and thus the urgency to reduce GHG emissions has not been perceived as urgent. The need to meet the energy demand required to end poverty and achieve economic development is perceived as a more pressing need. The underutilisation of even the non-renewable energy resources in Africa is the result of a myriad of factors, including lack of access to modern energy services particularly in rural areas, poor infrastructure, low purchasing power and the over-reliance on traditional biomass to meet domestic energy needs.[45]

Further, the experience with renewable energy technologies in Africa has not always been positive, as can be attested by the number of failed renewable energy projects on the continent.[46] These negative experiences have contributed to the apparent lack of conviction of the sustainability of renewable energy projects in the context of meeting Africa's energy demand.

3.2 Energy Security or Climate-friendly Energy: A Sustainable Development Issue

An analysis of national energy policies and the supporting legal frameworks of most African countries demonstrates that these place greater emphasis on energy access and security. Consequently, renewable energy technologies are supported in so far as they can help boost energy supply particularly in rural areas.[47] This approach is in contrast to that in other European countries where environmental considerations and a commitment to reduce GHGs has led to the conviction of the need to substitute conventional fuels with more climate-friendly sources of energy. Germany's Energy Plan (the Energiewende), for instance, was developed in the 1980s as a reaction against the adverse effects of nuclear power, environmental destruction and climate change.[48]

The difference in factors driving legal and policy frameworks for renewable energy in Africa and other developed nations brings to the fore the issue of common but differentiated responsibility, which has characterised the implementation of the climate change framework laws at the global level. In Africa, the main driver for renewable energy is access, with environmental benefits viewed as an ancillary. Underlying this approach is the conviction that Africa's contribution to greenhouse gas emissions is relatively insignificant and thus the onus of bearing a share of the responsibility in mitigating the adverse effects of these emissions should not be borne by the continent. Further, the 'differentiated responsibility' is premised on the recognition that in developing countries the first and overriding priorities are economic and social development and eradication of poverty.[49]

45 UNIDO (2009:8).
46 Brent & Kruger (2008).
47 UNIDO (2008:Module 9).
48 Swedish Agency for Growth Policy Analysis (2014).
49 The United Nations Framework Convention on Climate Change was opened for signature

An inexplicit presumption underlying the common but differentiated principle is the conviction that economic and social development across nations follows a linear trajectory. The concession to developing countries in relation to use of greenhouse gas-emitting fuels suggests that these fuels are viewed as a necessary evil in achieving economic development. Such a view is premised on the assumption that developing nations will, as a rule, follow the same path that developed nations did. The slow uptake of renewable energy in Africa is to a great extent a reflection of the extent to which this linear development presumption is considered valid.

Development theories supporting a common linear trajectory for all nations have been disproved by modern development theories and also by experience. An appreciation of this reality could help result in the paradigm shift necessary to sustain the political will required to bring about the revolution in the energy sector towards climate-friendly energy for energy security and sustainable future development. In the absence of this shift, the balance of the ingredients of sustainable development will continue in the case of Africa to lean more heavily towards social and economic development over environmental sustainability.

The extent to which the World Bank's notion of 'inclusive green growth' will provide an effective framework for shifting this paradigm in Africa is yet to be seen. The notion is premised on the case that a greening growth is not only necessary, but is also efficient and affordable.[50] The application of the inclusive green growth framework to achieve sustainable development would ideally lead African governments to develop policy, law and supportive mechanisms to leverage private investments – which will not only impact positively on the poor, but will also contribute to the development of the green economy.

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