

Climate Change and Just Energy Transition in Africa

Kagiso Innocent Makalela

University of Mpumalanga, Nespuit, The Republic of South Africa

Phuti Ignatius Moloto

Molotopi150@gmail.com, Polokwane, The Republic of South Africa

In order to achieve the climate change in the African countries, the governments both nationally and internationally have the opportunity to implement their climate and sustainability goals more coherently. Such coherent requires the coordination of interdependent policies across different policy fields, sectors, and actors. The purpose of this study was to explore how governments in African countries design and implement synergic solutions to both international agendas. Therefore, this paper is pure conceptual and has followed the secondary data and solicits salient data arguments on climate change and just energy transition in Africa. There are challenges in overcoming environmental, economic, and social burdens of the coals being phased out, especially related to jobs and inequality (SDGs 8, 10) and water, energy, food, and land nexus (SDGs 2, 6, 7, 15). Countries with different political, social, and economic backgrounds strive to manage such a transition. African countries when designing just energy transition pathway such as ensuring inclusiveness in designing making thoroughly assessing social, economic, and environmental impacts and adequately coordinating accurate actors the local, provincial, and national level. The key concepts of “energy justice” and “just energy transition” have become highly prominent in recent years. Previous studies have addressed the issues of energy justice (Sovacool & Dworkin, 2015; Jenkins et al., 2016); we understand “energy justice” as a goal of achieving equity in the global energy system by taking into account social, economic, environmental and political effects of participating in this system.

Keywords: climate change, just transition energy, coal phase out and SDGs climate

Introduction

The aims of just energy transition in Africa are to mobilise African own energy resources potentials, bringing energy to the top of national and regional agenda, and taking approaches that put Africa directly on to innovative, low carbon energy development pathways, avoiding fossils fuel lock-in now failing most industrialised and emerging. Africa needs to industrialise to meet the aspirations of its people and to highly quality jobs and prosperity for all. Huge opportunities lie in the industrialisation to the continent own needs beyond expect led strategy. During the COVID-19 pandemic lockdowns, energy demand in most of significantly reduced commercially and industrial electricity use (Johnson et al., 2021). However, while the economic impact of the pandemic was severe, the experience offers the opportunities for countries in Africa to make transitional changes and structural adjustment in how energy is generated and stored. The exacerbating impacts of climate change

Kagiso Innocent Makalela, MDEV, Department of Development Studies. University of Mpumalanga, Nelspruit, The Republic of South Africa.

Phuti Ignatius Moloto, Ph.D., Dr., Molotopi150@gmail.com, Polokwane, The Republic of South Africa.

across the continent emphasize the need to transition from fossil fuel-based, regional economy to one power by clean energy. African is extremely vulnerable to the impacts of climate change because of its low adaptive capacity.

Furthermore, the continent is dependent on shrinking natural resources. Therefore, increasing in clean energy will help African economics address the consequently and long term socio-economic impacts of the COVID-19 pandemic and ongoing climate crisis. About 600 million Africans do not have access to electricity although the continent is richly endowed with energy resources to meet current future demand. With the current demographic urbanization and economic trends, Africa needs to sharply lift its modern electricity production and consumption, which has important implications for its climate commitments. These policies challenges call for a close examination of the issues, balancing sustainable development and climate resilience and with the transition to a just energy system at one center (Morgan, 2016). Africa, the second largest continent, has a wide range of climates that ranges from the hyperacid to the very humid. Africa vulnerability to climate viability is generally well acknowledged. Africa vulnerability to climate change largely depends on its current and future adaptive capabilities.

Literature Review

Climate Justice System Change and the Just Transition

The climate justice movement is part of new cycle of global resistance seeking to push back neoliberal globalization while advancing systematic alternatives. Four important conditions are facilitated in emergence. First as failure of a reform agenda through the climate action network inside, United Nations (UN) climate processes. More ground was being considered by progressive avail society until 2007. In Bali a breakaway was formulated through the call for climate action (Bond, 2012). Second was the increasing just in the balance of forces within the climate negotiating favoring green neoliberal and capitalist solution green wash of the United Nations (UN) climate summits prompted the need to develop an alternative (Angus, 2010; Bassey, 2012; Tokar, 2010). The attempt by Bolivia in 2010 at the Cochabamba summit highlighted the fact that only one state in the interstate system was willing to champion a more radical climate just. This attempt by Bolivia also came short while due to the contradictions in Bolivia. Climate change is one of the pressing issues of our time with greatest impacts being felt by poor and marginalised people living in developing countries, and particularly children. While children have done very little to cause the changing climate, they will inherit its problems. This puts them in the precarious situation of having to cope with both current and future impacts from increasing climate shocks and stresses. Yet the decision makers create policies and programmes for climate change adaptation, children concerns are rarely part of the discussion even though children will benefit most from increased knowledge, resources, and funding (Bartlett, 2008; Manjengwa, Feresu, & Chimhowu, 2012).

Energy in Africa Today

Forth Industrial Revolution (4 IR) Technologies have elevated the capabilities and possibilities of improvement and efficiency in energy sector. Around half total population (548 million people) were without access to electricity in 2018 (IEA, 2020; The World Bank, 2017). In the same year 900 million people on the African continent relied on traditional use of bio mates such as charcoal and firewood as their primary source of energy for cooking. In most of these people live in sub-Saharan Africa. Meanwhile African businesses from micro enterprises to agriculture to industry are held back by lack of a reliable, affordable energy supply. Unless

these challenges are addressed in a concerted manner, they will only intensify as estimates indicate that the population will increase by one billion people in sub-Saharan Africa and almost 100 million in Northern Africa by the year 2050 (The World Bank, 2019). For Africa to harness the political of renewable energy a systematic approach is required. Innovative power generating technology such as renewable power systems combining two or more technologies for example floating solar photovoltaic and pumped hydrogen storage as well as offers grid renewable energy systems combined with innovative enabling technological such as green hydrogen (The World Bank, 2019). Kenya is one of the most successful cases of renewable energy development in sub-Saharan Africa.

Kenya electricity access rate increased massively from percent in 2000 to 63% in 2017 (The World Bank, 2018) and at the end of 2018 Africa largest wind power project Lake Turkana Wind Power Project. In order to achieve a universal access to modern energy services while contributing to climate change mitigation, a strong and integrated low carbon sustainability strategy is required (Ouedrago, 2013). Although the implementation of such policies requires large initial capital investments, they are crucial to ensure both universal access to modern energy services which will be sufficient to fuel continued socio-economic development without the emissions of greenhouse gases. Sound energy efficient policies across will certainly lead in term to significant next savings (Stern, 2010; Sathaye & Gupta, 2010; IGCS, 2014). Also renewable energy promotion will provide economic, social, environmental, and co-benefits. These include reduced health impacts from GHG emissions and improved livelihoods from services associated with renewable energy industries as well as decreases in imports of fossil fuels (IGCS, 2014).

Energy Justice: Evaluative and Normative Contributions

To tackle the important of question and challenges of energy transition, the concept of energy justice as a strand of academic research bringing together philosophy and energy studies grew in prominence in recent years (Haffron & McCauley, 2018). Some questions that this strand addresses include procedural concerns such as a lack of appropriate representation in decision making, how an approach can lend to major trade-offs, and how it can generate unequal distribution of costs and benefits in energy systems (Sovacool & Dworkin, 2015). Jenkins et al. (2016) bring together these overcharging concerns of energy justice and present them as three tenants of justice which is a conceptual framework that includes an evaluative and a normative dimension:

- Distribution justice investigates emerge, for example, communities affected by the closure of or coal fired power station (SDGs), and represents a call for the distribution of benefits and ills on all members of society regardless of income, race, etc. (Jenkins et al., 2016, p. 176), hence referring to effects on all SDGs and how those affect different groups. It poses the evaluative and normative questions: Where are the injustice? How should we solve them?
- Recognition based justice considers which parts of society are ignored or misrepresented in policy decisions, for example, ethnic minorities or aging populations, how to avoid related injustice and loss of valuable knowledge of marginalised groups (SDGs 5 and 10). It poses the questions: Who is ignored? How is ignored? How should we recognise.
- Procedural justice explores access to decision making process and the degree of engagement between decision makers and communities through local knowledge mobilisation, information disclosure, and better institutional representation (Jenkins et al., 2016).

The Crisis of Power Supply at Eskom

Load shedding was first introduced by Eskom in 2007 as an emergency measure. But in the past few years it has developed into a near permanent situation. So far, the average South Africa has experienced 6.2 hours without power per day in 2023. It is important to provide historical overview of the crisis at Eskom. Smith (2008, p. 22) contends that Eskom bashing has become a national pastime. Load shedding has entered our daily parlance—if not our daily diet. But the current load shedding nightmare is more than just about Eskom; it is mixed in a decade of haggling, administrative incompetence, strategic blunders, and political obfuscations.

This was reported in 2008. Today, in 2023 reporting of this nature continues—Creamer Media’s Engineering news (see www.Engineering.co.za). For example, devote a while subsection of its website to the writing of articles pertains to load shedding. At this stage Eskom was blocked of building power stations that would have averted the energy crisis South Africans experience today. Eskom was expected to produce 70% of the country electricity of the country this did not materialise.

The Mail & Guardian (2009) confirmed Smith’s (2008) sentiments are maintaining that Eskom did not invest in its infrastructure and has sold electricity at sub-economic prices. South Africa, the Mail & Guardian (2009) contends, has benefited from cheap electricity. This situation proved untenable Eskom has effectively run financially unfeasible operation and disallowed the accumulation of any wealth for the capital investment (Kessides, 2020, v-vi; Mail & Guardian, 2009). Furthermore, it was felt that Eskom mismanaged coal supplies, plunged the country into wide scale blackouts, disrupted the mining industry, and shut out meaningful competition (Kessides, 2020; Mail & Guardian, 2009).

Human Rights in the Mining Industry

Critical materials used to manufacturing batteries and solar energy technology such as cobalt and copper are mined in Africa. The Democratic Republic of Congo (DRC) and 15-30% of Congolese cobalt is produced in artisanal and small scale mining operations (Baumann, 2022). Thousands of children mine cobalt in the DRC is under hazardous conditions, and the DRC government and mining companies fail to protect mine workers from human rights abuses. A just energy transition requires a sustainable supply of critical materials produced in such a way that it respects the fundamental rights of minerals and other workers (Amnesty International, 2016).

Strategies and Policy Approaches for Inclusive Benefits

The transition to clean energy has the potential to bring numerous benefits to Africa including improved access to electricity, increased economic opportunities and reduce greenhouse gas emissions (International Renewable Energy Agency, 2019a). It is important to ensure that these benefits are distributed fairly and that marginalised groups and vulnerable individuals are not left behind. In order to achieve this a just and inclusive policy approach is needed. According to International Renewable Energy Agency (2019a), there are strategies that can be pursued to transition to clean energy in Africa which include the following:

- Increasing the deployment energy technologies such as solar panels and wind turbines which can provide a source of electricity to communities that are connected to the grid.
- Renewable energy technologies can also create jobs and economic opportunities, particularly in rural areas which can help to improve the livelihoods of marginalised, communities.

- Promoting energy efficiency: Energy efficiency measures can help reduce the overall demand for energy which can in turn reduce the need for fossil fuel generator. This can be achieved through a variety of means, such as implementing building codes and standards that require the use of energy efficient applications and equipment, providing incentives for the use of energy efficient technologies and promoting the adoption of energy efficient behaviours.
- Promoting the use of clean cooking solutions in Africa: Traditional cooking methods such as open fires and inefficient stoves are major source of air pollution and greenhouse gas emissions on the continent. Promoting the use of clean cooking solutions such as improved stoves and clean fuels can help reduce the emissions and improve public health.
- Supporting capacity building and technology transfer in Africa in order to fully transition to clean energy: Many countries on the continent are lacking technical expertise and infrastructure need to embrace clean energy technologies fully.

Russia-Ukraine War and Energy Security: A Lesson for Africa

From the Russian and Ukrainian & US-China wars it can be seen that the impact that occurred was the strength possessed by each country which had an impact on problems that occurred before (Cheng, 2022). Russians crude oil and condensate outputs are 10.5 million barrels per day, accounting for 14% of the global supply (Farzinvash, Najjar-Ghabel, & Javadzadeh, 2019). Russia has oil and gas producing facilities, although the majority of them are in Western and Eastern Siberia (Kontorovich, 2015). What is seen in one situation might be considered unfair in another. According Hirsch, Matthes, and Funfgel (2017), it is more challenging to implement a just transition in countries that have weak social support systems and heavy reliance on fossil fuel production that it is in countries that have robust social support systems and diverse industrial basis (Zinecker et al., 2018).

African clean energy transition should not only entail replacing fossil fuels with renewable but also developing new, efficient, and flexible power systems fed by renewable energy sources and decentralised (including off-grid) facilities to minimising conditions wherein high demand must be satisfied by fossil fuels. While African energy investment needs are significant, the additional demands connected with a shift to low carbon energy may be viewed as realistic and pragmatic. The Russia and the Ukraine conflict has caused energy prices to skyrocketing in the European Union (EU), which is heavily reliant on Russian oil, and coal (Besson, 2022). Germany relies on Russia for roughly half of its natural gas and coal and more than one-third of its oil. Germany's term action is to increase the use of coal-fired power plants.

This shows that Africa, which faces problems of economic development and growth, energy security, and affordable access, must feature in its clean energy transition. From the Russian-Ukrainian and US-China wars, it can be seen that the impact that occurred was the strength possessed by each country which had an impact on problems that occurred before (Cheng, 2022). Ukraine is on both sides with Pro-Europeans in the west and Pro-Russians in the east. These two countries were once a part of the Soviet Union but after the Soviet Union collapse (Berglund & Karasimeonov, 2019). Ukraine declared its independence on August 24, 1991. After Russia and Ukraine officially become independent countries (Marple, 1993), the two established diplomatic relations on February 14, 1992, followed by various agreements and cooperation in 1997. Furthermore, the bilateral relations between the two countries experienced ups and downs, including in the change of leadership that brought Ukraine

to the West, which resulted in the economic field; it also caused a dispute between the two countries namely regarding the gas supply in 2006 (Stegen, 2011).

End Poverty in All Its Forms Everywhere

Increased power generator capacity can help eliminate poverty through many channels, and it is important to distinguish its macro and micro impacts (Lockwood & Pueyo, 2013). Increased electric power capacity can indirectly reduce poverty at a macro level by promoting economic growth. The energy industry boots economic growth in two ways. First energy is a vital economic sector that provides jobs and creates value by producing transmitting, and distributing energy across an economy (Alam et al., 2018). Second, the energy industry effects spread throughout the economy. Energy is a necessary component in producing almost all goods and services in an economy and supports economic activity (Oda & Tsusita, 2011). Several factors, such as employment productivity, health, and education can, explain the relationship between access to electricity, and poverty alleviation. The most recent research of energy and poverty emphasises that connection between the two (Khandker, Samand, Ali, & Barnes, 2012).

Poverty limits to power and energy consumption, restricting opportunities for education and economic growth, for example, often prohibitive connection fees can prevent homes from connecting to the electricity grid (Columbeanu & Barnes, 2013). Although access to electricity has gradually increases in 2016, only 60% of Cameroons population had access to electricity compromising only 21.3% in rural areas which compared with 92% in urban areas (The World Bank, 2020). Energy poverty is a challenge faced by both students and teachers across sub-Saharan Africa at home and in school.

Access to electricity supports education by improving household incomes which directly affect family ability to afford tuition. In 2010 11.4 million pupils repeated a primary grade in sub-Saharan Africa representing more than one-third of the global total (United Nations Educational Scientific & Cultural Organisation, 2020). In Rwanda lack of electricity has been a major problem to education and many schools in rural areas do not have electricity which limits the ability to teachers to use instructions materials and technology (World Bank Group, 2022). Most African countries are expected to benefit in terms of job creation from the energy shift (IRENA, 2019). The sector workforce in terms of direct forms jobs is already comparable to traditional power grids and utilities in Nigeria and Kenya where the job creation impact is expected to grow in the next few years by 70% in Kenya and over 100% in Nigeria.

Synergies Between Clean Energy and Sustainable Development Goals

The United Nations 2030 Agenda for Sustainable Development, also known as the Sustainable Development Goals (SDGs), is a global framework for achieving a better and more sustainable future for all. It aims to end poverty, protect the planet, and ensure peace and prosperity for all people, particularly those in developing countries. While the SDGs have the potential to address some of Africa's needs, one of the main criticisms of the SDG is that they have an ethnocentric approach, projected by Western countries, and do not adequately consider the specific needs and context of different regions and cultures (Cheever & Dernbach, 2015). The goals and targets are often based on the values and priorities of the Global North, rather than the realities and principles of the global south. This can lead to a one size which fits all approach that does not adequately address the complex and diverse challenges facing Africa. For example, the goal of universal access

to electricity and modern energy sources is important for Africa, where many people still live without access to electricity. However, the goal does not adequately consider the specific energy needs and context of different countries in Africa (Matikainen, 2019). One way to ensure that the SDGs are more active in addressing Africa needs is to involve Africa stakeholders in the implementation processes (Industrial Renewable Energy Agency, 2019).

Promote Inclusive and Sustainable Economic Growth, Employment and Decent Work for All

Energy is an indispensable force driving all economic activity (Alam, 2006). Reliable energy could increase production capacity globally for steering greater economic growth. Although there is no way when energy is scarce, it imposed on strong constraint on the growth of the economy, but when energy is abundant, its effect on economic growth is much reduced (Stern et al., 2020). The lack of reliable electricity makes it impossible for many industrial to reach production capacity. Almost 80% of industrial enterprises in Cameroon face output losses ranging from 16 to 50% due to power outages. It was reported in Tei Mensah (2016) that a 1% increase in power outage reduces production in Cameroon by 0.6-1.1%. According to the country national electricity demand forecast (MINEE, 2006), electricity consumption in Cameroon will double by 2030 and according to the ministry of economy planning and regional development reports, power outages would reduce Cameroons GDP by 5%.

Therefore, responding to the urgent need for energy is sustainable way to stimulate economic growth through industrial production. Burundi access to electricity has also been a major challenge for economic development (The World Bank, 2019), which aims to optimize the social effect of distributed renewable energy addressing issues at the individual, institutional, and policy levels. The energy value chain is a significant source of job opportunities. A just energy transition would use people with various skills sets, degrees of expertise, and backgrounds. The African economic development rate in 2013 was insufficient to guarantee sufficient job opportunities for its fast energy growing population (International Labour Organization, 2013). The Industry Renewable Energy Agency (IRENA) shows that the renewable energy sector might provide up to 30 million jobs by 2030 (up from 11 million in 2018) and up to 42 million jobs by 2050.

Conclusion

The development of the strategic environment in the world, such as the Russian-Ukraine conflict, has an influence on the administration of the state in terms of demography, geography, natural resources, ideology, politics, economy, socio culture, defence, and security. Therefore, every country needs to study and asses the development of its strategic environment in the global regional and national scope so that the country needs to study and can formulate appropriate strategies and policies for its national interest. The low intensity war carried out by Russia against Ukraine is to be carried out to minimise damage to unarmed civilians and cause global inflation in the food and energy sector. An increase in energy prices will to an increase in prices of all commodities. Efforts to overcome this issue require additional policy maneuvers in strengthening the state fiscal policy and equitable subsidies based on the theory of incremental policy to overcome future conditions of increasing uncertainty of complexity.

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