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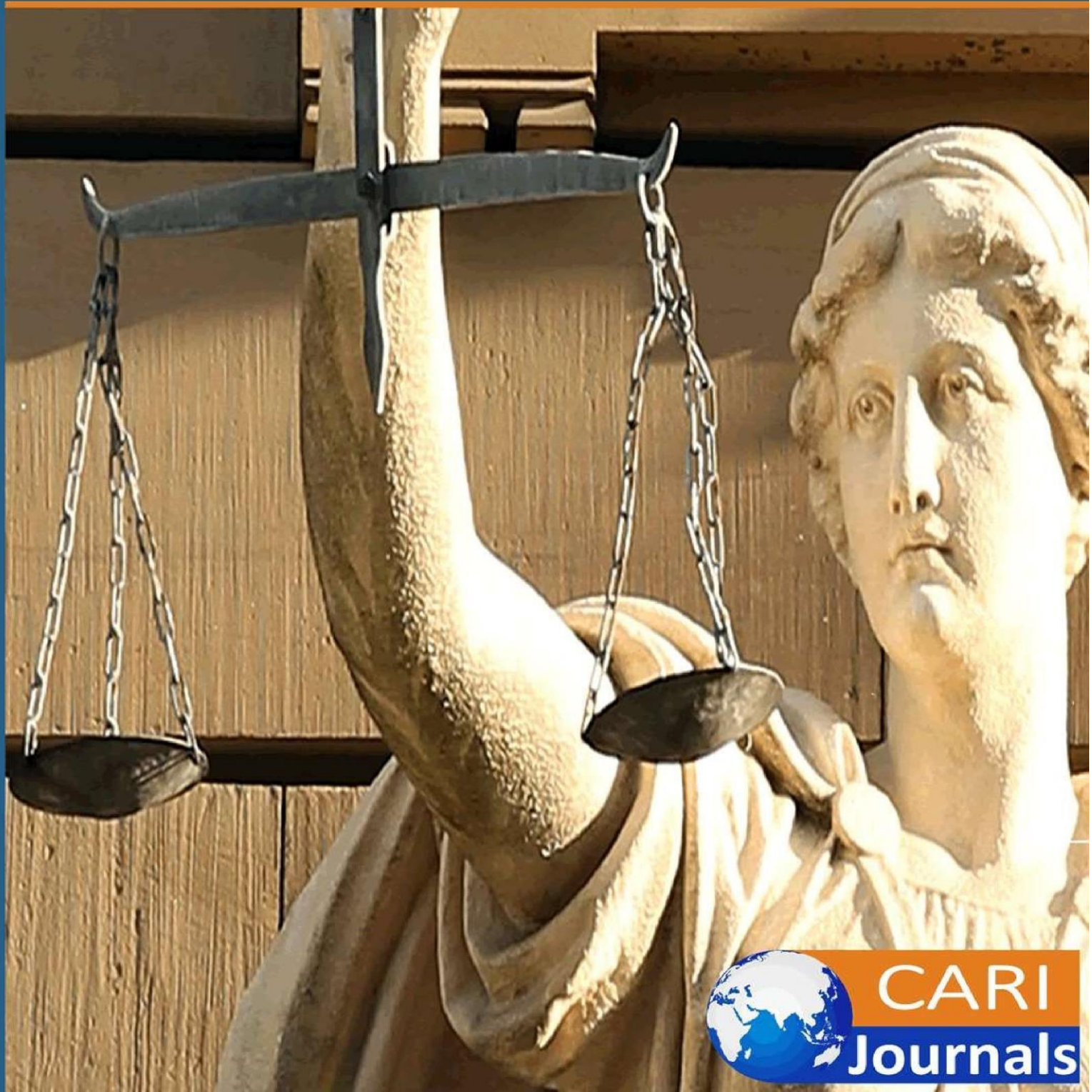

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Green Economy in South Sudan

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Abstract

Purpose: The purpose of this study was to examine and contribute to the understanding of the complexities surrounding green economy concept in South Sudan. The study relied much on Malthus theory.

Methodology: The study used qualitative research methodology where an interview guide and focused group discussion were used to gather data which was then coded in themes. A sample of 150 respondents were selected using purposive sampling technique. These included the Members of Parliament, Technical staff from the Ministry of environment and forestry, local government and community members. Members of parliament were chosen because parliament's role was to allocate funds to government projects and hence a political goodwill for green economy. The researcher further reviewed case studies and articles for a better understanding of the complexities of green economy.

Findings: Key findings showed that although the Ministry of Environment and Forestry had a policy on green economy there was no framework regulation for operationalization of the policy implementation. The study further found out that due to lack of regulations, there was no budget allocation for green economy hence, left to donors and NGOs.

Unique Contribution to Theory, Practice and Policy: The study therefore recommended for stringent regulations to be enhanced and budget allocations for green economy. The study further recommended for the involvement of private investment partners in green economy whose focus was on growing wealth that will support wellbeing. The wealth in this case is not merely financial but includes the full range of human, social, physical and natural capitals as it further promotes equitable distribution of opportunity outcomes, thus reduces disparities between people while giving sufficient space for wildlife and wilderness.

Key Words: *Renewable Energy, Resource Efficiency, Sustainable Development, Environmental Risks, Green Economy*

Introduction

The word green economy was introduced in the academic world by the underlying ideas of the book "*Blue print for a green economy*" by David Pearce et al, (1989). The main key argument developed was the current price system results in an allocation of resources in the economy that is biased against the environment. Environmental assets and services are treated as inputs for production and they are overvalued in some core sectors and undervalued or not valued in other sectors which results in inefficient consumption of natural resources as well as environmental degradation. Similarly, the costs of pollution are generally not paid by the polluters but are transferred to the public. Thus, the correction of price system faced by the agents in the economy would lead to more favourable environmental outcomes.

UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP, 2010). In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. (UNEP, 2010). It also means that the ability to produce the clean energy which also allows technologies and production processes with the products that consume lesser energy and carbon content. The concept of green economy is also linked to the green growth and natural capital with the interaction of environmental systems. A green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services Energy is crucial in the fight against poverty, as it is among the greatest drivers of development. Ancient and modern civilizations rose on the back of energy. From captive humans to coal and oil, energy has played a central role in human progress, as it enables mass production of goods and services.

A paradigm shift in transitioning to a new form of energy defines human progress as well as its quality of civilization (Nhial & Gai, 2018) However, a step in achieving this progression does not happen until a society fully recognizes the heavy economic, social and environmental costs arising from the energy form it is using. While oil and coal are far more efficient than rudimentary energy forms, they also come with bouts of economic, social, and environmental costs. When a society is not prepared for a change that society can continue to stick with what it has and knows best. This is true of South Sudan, as it seems to stick to oil, a form of energy that is not able to meet its needs in an efficient and sustainable manner. The country must prepare as there is an opportunity for it to transition to an efficient and renewable energy, and this can happen when it fully recognizes the costs associated with the exploitation of fossil fuel and embarks on a full transition to renewable energy. It is with this in mind that this study tries to examine green economy in South Sudan.

Background of the study

While the Republic of South Sudan has a policy on green environment under the Ministry of environment and Forestry (RSS 2011) minimal efforts have been made in consistent with national legislation and World Bank guidelines. The objective of Environmental sustainability management

was to ensure that activities under the Ministry projects protect human health; enhance positive environmental and social outcomes; prevent or mitigate negative environmental impacts as a result of either individual projects/programs or their cumulative effects; and prevent or compensate any loss of livelihood (RSS, 2018). These efforts have been hampered by frequent violence and conflicts and budget constraints.

Transitioning to renewable energy would be a cost-saving strategy for future humanitarian programming. The above definitions emphasize on reductions in carbon emissions and pollution, improvements in energy and resource efficiency and minimal or no loss of biodiversity and ecosystem services. A key aspect of a green economy is its emphasis on sustaining natural capital to secure green growth and long term prosperity (Adenle, 2020). Natural capital comprises the biosphere as a whole, including ecosystems and biodiversity and is an indispensable enabler of economic growth and human well-being. In a long term it can be defined as an economy that results in improved human well-being and reduced inequalities, while not exposing future generations to significant environmental risks and ecological scarcities. In a consolidated green economy consumers value the range of benefits basic needs, material usage, health and environmental aspects that are associated with the goods and services. It is therefore an enabling component of overreaching goal of sustainable development (Sharma, 2022)

For example, solar energy infrastructure offers cleaner, cheaper, and long-lasting electricity generation and creates a new pro-peace asset. It would be a broader opportunity for South Sudan to escape its development path, one that does not depend exclusively on the petroleum sector. Natural resource extraction has been the primary strategy for generating government revenue, but it has not served South Sudan well. Rather than relying solely on the construction of mega-dams and a national grid to electrify the country, a scenario that seems many years away even in the best-case scenario, given the conflict and economic crisis, solar power offers an easily scaled solution that works on and off the grid, in rural and urban settings. An investment in renewable energy would provide tangible, de facto evidence to civilians and politicians alike of the country's opportunity to leapfrog older technologies and embrace a green development path that takes full advantage of technological developments and broader global political and investment interest in environmentally friendly strategies as averred by Adenle (2020)

Statement of the problem

Partly due to the civil wars since 1955-1972, 1983-2005 & 2013, 2016 - present, energy infrastructure remains very underdeveloped in South Sudan. Despite a peace agreement in 2015 and 2018, which has been revitalized recently, conflict has impeded the country's effort in transitioning to renewable energy (Mozersky, D, (2018)). Oil is currently the lead source of electricity in major towns. However, oil is not the right form of energy to meet South Sudan's rising energy demand due to high costs of fuel and generator repair, sporadic diesel fuel supply, inefficiency and unsustainability and detrimental health impacts on people and environment. The country has a huge energy potential in form of hydro power, wind, and solar, which should be

developed to meet its rising energy demand (Liu et al., 2013). The installed capacity based on different sources show that only 30 MW had been installed by 2010 (Whiting et al., 2015). Of the 30 MW, 22 MW was operational until 2015 when the 12 MW in Juba ceased to operate. However, this barely meets the basic need levels set by the United Nations, let alone advanced thresholds such as productive and modern society thresholds. Indeed, the country faces an energy crisis, as it is currently fronting constraints to generate adequate power to drive social and economic development. On average, for example, a threshold of 50-100 KWh is needed per a person a year to meet the basic energy needs of cooking, heating, lighting, communication, healthcare and education, which the country is not able to meet now (Whiting et al., 2015, UN, 2010).

Advanced thresholds include 500 KWh per a person per a year to carry out agricultural work such as pumping water for irrigation, producing fertilizer, mechanizing farming, processing, and supporting transport and a 2000 KWh/person/year to operate more domestic appliances for cooling, heating and private transportation (Whiting et al., 2015, UN 2010). These thresholds have been set to meet the UN's goal of universal access to modern form of energy by 2030 and they are important in guiding South Sudan's energy policy. Studies by Whiting et al., (2015), Liu et al., (2013), World Bank, (2012, 2013), Deng, (2013) and Ranganathan & Briceno–Garmendia, (2011) demonstrate a pitiful state of energy in South Sudan; however, little is empirically known currently of the condition of energy in Juba in particular and South Sudan in general following the war and economic crisis in the last 4 years. This study therefore aims at examining the green economy in South Sudan with regards to renewable energy and offer suggestions for adoption by the stakeholders.

Research Objectives

The major objective of this study was to contribute to a comprehensive understanding of the complexities surrounding green economy concept in South Sudan.

Research Questions

The following research questions guided the study to understand the in-depth of the complexities of green economy in South Sudan

- What role does South Sudan have in enabling green economy?
- What is the importance of green economy to the economic development of South Sudan?
- What can South Sudan do to embrace green economy in sustainable development?
- How can South Sudan involve private investments in Green Economy?
- What are the challenges of green economy in South Sudan**?**

Related Literature Review

Green Economy

Green Economy focuses on growing wealth that will support wellbeing. The wealth in this case is not merely financial but includes the full range of human, social, physical and natural capitals. It

further promotes equitable distribution of opportunity outcomes, thus reduces disparities between people while giving sufficient space for wildlife and wilderness.

From a theoretical point of view, the link between economic progress and the environment has been widely treated. Preserving the environment is considered to be the key issue in the debate on the economic link between the environment and growth. According to the traditional economic theory, there is an accepted trade-off between environmental protection and economic growth (N.Haussam et al, 2023). Besides the traditional economic theory, Malthus also tried to study the relationship between environmental resources and population growth. The study stated that incorporating the environmental constraints in the economic model showed that growth in food production simultaneously can no longer support population growth (N.Haussam 2023).This may be interpreted as a set of issues about the environment's carrying capacity, which could be traced back to the beginnings of the green economy. Many researchers commented on this theory and argued that the risk of minor variations generating destructive harm implies that concentrating primarily on economic progress to meet environmental goals may lead to counter-productive consequences. For instance, in the light of biodiversity, increased investment in preserving species diversity would not be enough to resurrect endangered species. The limits theory explains the economy-environment relationship in terms of environmental degradation approaching a point beyond which development is badly affected and the economy contracts. Then, there is the additional theory which questions the presence of the turning points, and considers also the possibility that environmental deterioration continues to raise as the countries develop. This is identical to the new toxics opinion, as emissions of existing pollutants decrease with more economic progress, but new pollutants that replace them are increasing (N. Haussam 2023). A great paradox.

Now, over a decade later, the green economy is an established concept among policymakers. It is articulated by global institutions, regional organizations, and governments across the world. In broad terms, a green economy represents the possibility of reconciling economic growth and environmental protection. However, the green economy has been debated among academics, many of whom point to the ambiguity of the concept and what it entails (Bina 2013; Borel-Saladin & Turok, 2013; Brand 2012; Brockington & Ponte 2015; Brown et al. 2014; Bergius & Buseth 2019; Death 2015; Loiseau et al. 2016).

The emphasis placed on environmental protection which conventional growth does seem to achieve, makes the green economy discourse popular within politics and among states (Scoones, Newell & Leach 2015). To achieve its goal of reconciling economic, environmental, and social issues, the green economy is built around the idea that technology will improve the ecological efficiency of the economy and states are seen as the main actors to speed up this process (Hickmann & Lederer 2018; Hickel & Kallis 2020). Hence, Death (2015) notes that the green economy has re-legitimated the role of the state which is now seen as a crucial actor. In this context, South Sudan political class should take the lead for green economy to flourish.

Malthus Theory

Malthusianism is a theory that population growth is potentially exponential, according to the Malthusian growth model, while the growth of the food supply or other resources is linear, which eventually reduces living standards to the point of triggering a population decline. This event, called a Malthusian catastrophe has been predicted to occur if population growth outpaces agricultural production, thereby causing famine or war. According to this theory, poverty and inequality will increase as the price of assets and scarce commodities goes up due to fierce competition for these dwindling resources. This increased level of poverty eventually causes depopulation by decreasing birth rates. If asset prices keep increasing, social unrest would occur, which would likely cause a major war, revolution, or a famine. Societal collapse is an extreme but possible outcome from this process (Galor, 2005).

Malthus suggested that while technological advances could increase a society's supply of resources, such as food, and thereby improve the standard of living, the abundance of resources would enable population growth, which would eventually bring the supply of resources for each person back to its original level. Some economists contend that since the Industrial Revolution in the early 19th century, mankind has broken out of the trap. Others argue that the continuation of extreme poverty indicates that the Malthusian trap continues to operate. Others further argue that due to lack of food availability coupled with excessive pollution, developing countries show more evidence of the trap as compared to developed countries. A similar, more modern concept, is that of human overpopulation.

Global perspective of green economy

Buseth, (2021) argues that narratives have been embedded in Malthusian thinking that focuses on resource scarcity and overpopulation. Other studies show that green economy in Africa has awakened old theories of modernization. This was especially evidenced in the agricultural sector across Africa in which technological fixes are central to alleviate poverty, feed the world and protect the environment (Death 2016; Death & Tobin 2017). Scoones et al. (2015) noted that greenness was often presented as if it were an attribute of a technology itself, and as if the technology had agency in economic transformation. Consequently, the green economy is used to justify large scale investment by labelling them as green (Bergius et al. 2018; Bergius & Buseth 2019; Death 2016; Death & Tobin 2017).

Brockington and Ponte (2015) argued that the move towards a green economy in African countries, was viewed by some states as rather distrusting since it might imply a threat to growth opportunities. Despite this, developing national strategies under the name of a green economy seems to be more common in the global South than in the global North (Brockington & Ponte, 2015). This argument was reflected in Khan et al, (2021) article of greening economies in Nordic countries. Nordic countries have not published national green economy strategies dedicated to transitioning to a green economy although they use other related concepts such as bio-economy or circular economy. Another discussion was whether adopting a green economy agenda leads to

green conditionality (Death 2016). This opens for discussions of power relations between donor and recipient in terms of ownership and accountability. Views by Vuola et al. (2020) on greening economies in Cambodia and Lao PDR. They showed that green economy policies are formulated to fit the interests of donors and are most often framed as opportunistic. Both countries emphasize economic growth over environmental and social protection and trade-offs were often ignored in the documents.

Green growth and poverty alleviation

According to the OECD (2013), emerging evidence suggests that green growth in developing countries can lead to poverty reduction, economic growth, reduced vulnerability to climate change and natural disasters, greater energy security, and more secure livelihoods for those directly dependent on the use of natural resources. The fact that proponents of green growth believe that it has the potential to deliver win-win outcomes that can achieve simultaneously several desired policy outcomes in developing countries is one of its most attractive features. Strand and Toman (2010) point out potential tradeoffs between short-term macroeconomic goals, such as economic stimulus and job creation, and long-term environmental goals, such as mitigating resource scarcity, greenhouse gas reductions and environmental improvement. Barbier (2012b) further emphasizes the tradeoffs between local and immediate versus more global and long-term benefits inherent in key green growth policies. For example, the implementation of regulations on energy conservation is likely to be easier and imply fewer tradeoffs than the introduction of pricing policies on natural resources or the introduction of a global carbon tax.

Environmental regulation could reduce conventionally measured output growth, if other growth-benefiting efficiency gains or technology changes are discouraged or not possible. In addition, any shift from growth to green growth will have distributional implications on wealth and income. These implications of the shift from growth to green growth are especially relevant to South Sudan and developing countries. As pointed out by Dercon (2012), if green growth is to have relevance for low and middle income economies, it must also be compatible with the most important development objective for these countries, which is poverty alleviation. Thus, even if the adoption of green growth policies increase overall economic output or welfare, it is still important to identify those policies that will favor or hurt the poor, to ensure that the shift from growth to green growth leads to poverty alleviation.

For example, Dercon (2012) argues that environmental pricing and regulation may negatively impact the poor as consumers, and would require countervailing, specific social protection measures to compensate for price rises. The poor as producers may also be affected negatively, as they may not have sufficient access to the wealth nor the human capital required to substitute for more expensive energy or other natural resources. As the latter become more valuable, it may promote rent capture by the rich. Low-carbon and other environmental investments may require more technology and capital-intensive growth, which is unlikely to favor the poor. Finally, public

green subsidies and investment may crowd out pro-poor programs, such as health care, education and agricultural.

Against this backdrop, It is important to analyse discourses of green economy since the way in which we think and talk about the environment changes over time and the consequences this implies for politics and policies are crucial. How to deal with issues such as pollution, climate change, nuclear energy and forests have created conflicts and debates as different sides interpret these issues in different ways. These conflicts and debates can be understood as competing discourses of environmental concerns as averred by N.Haussam, 2023). The double complexity of environmental issues and the policies that surrounds them means that ecosystems and human social systems, each complex in their own way, are encountered by governments when decisions about how to deal with environmental problems are to be taken. This in turn creates multiple policy alternatives on how to respond to certain issues, hence several different discourses.

Importance of green Economy

More job opportunities

Despite visible economic growth in Africa, it is still one of the most underdeveloped countries in the world and still struggles with high unemployment rates. What makes matters worse is the majority of the population in Africa are young people who, if given a chance, can contribute positively to the economy. A green economy can benefit the youth in South Sudan because it creates jobs. With a green economy, there can be more innovative business ideas and a discovery of a new market that will need a skilled workforce (Sharma, 2022) This opportunity allows more people the chance to start their own businesses and hire people, and also the opportunity to find jobs. More jobs and businesses mean societal stability, which can positively impact the economy (Mozersky, D. 2018)

Takes care of the environment

Apart from fighting pollution, moving to a greener economy can help take care of the environment. While the damage isn't reversible, we can stop or slow any additional harm. This can tackle global warming, loss of biodiversity, deforestation, and desertification. This means that we can still use natural resources in the future and that future generations have a chance to live in a sustainable and habitable environment (Adenle, 2020). This also means that animals will be able to live, and future generations have the chance to see well-known animals that originate from South Sudan, and animals that make Africa what it is today.

Infrastructure Development

Infrastructure development and sustainability are two things that matter to us. We believe that without sustainable development, we won't get Africa to where it needs to be, nor will we help people residing here. Investing in sustainable infrastructure is an effective way to address Africa's biggest issues: infrastructure gaps, climate change, decaying ecological infrastructure, and the

social challenges that threaten the future of human health and well-being. Through investments from the public and private sector, we can work towards achieving a green economy. We collaborate with civil society, governments, and more to support the common goal of creating integrated growth strategies, which are sustainable and promote equitable well-being through funding energy generation (N.Haussam, (2023). To do this, we ensure that all transitions go towards creating a renewed and inclusive economy. One that embodies resilience, regeneration, transcends current trajectories and improves the quality of life for people.

Preservation of natural resources

Natural resources play a huge role, and so does a well-kept environment. Without these, we can experience health complications, job loss and a weak economy as averred by Jean- Luc and Biplove Choudhary, (2017) This is why it is vital that we, as a country, work together to create a better Africa for all. Creating a green economy isn't difficult, but it may be challenging. A green economy has been in the pipeline for too long and needs to start becoming a reality in South Sudan

Methodology

The study used qualitative research methodology where an interview guide and focused group discussion were used to gather data which was then coded in themes. A sample of 150 respondents were selected using purposive sampling technique. These included the Members of Parliament (50), Technical staff from the Ministry of environment and forestry (40), local government (30) and community members (30).More members of parliament were chosen because parliament's role was to allocate funds to government projects and hence a political goodwill for green economy. The researcher further reviewed case studies and articles for a better understanding of the complexities of green economy.

Discussion of Findings

Lack of Legal policy regulation

The study sought to find out if the government of South Sudan had a policy on green economy. More than 75% of the respondents did not even understand what green economy was. On further explanation, majority said they were not aware of any regulations and policy towards green economy. A small percentage of 25% who were mainly from the technical side of the Ministry of environment were affirmative that there was a policy but its implementation was not backed with regulations for operationalization despite the country being a signatory to the Vienna and UNEP protocols. This was slightly in contrast with the findings of the OECD, (2013), that emerging evidence suggested that green growth in developing countries can lead to poverty reduction, economic growth, reduced vulnerability to climate change and natural disasters, greater energy security, and more secure livelihoods for those directly dependent on the use of natural resources. The fact that proponents of green growth believe that it has the potential to deliver win-win outcomes that can achieve simultaneously several desired policy outcomes in developing countries

is one of its most attractive features that South Sudan should consider urgently for ratification of regulations for implementation**.**

Inadequate funding for green economy

The study sought to find out funding strategies for improvement of green economy in South Sudan. Majority of the respondents (80%) decreed reduced or lack of funding for green economy due to global financial constraints. South Sudan is dependent on oil and the conflicts in the Sudan where the pipeline is located has reduced the oil flow hence shrinking budget projections. 20% of the respondents opined that even before the Sudan wars, there was little or no funding for green economy as the focus was on building peace and infrastructure. N.Haussam (2023) avers that despite a peace agreement in 2015 and 2018, which has been revitalized recently, conflict has impeded the country's effort in transitioning to renewable energy. Oil is currently the lead source of electricity in major towns. However, oil is not the right form of energy to meet South Sudan's rising energy demand due to high costs of fuel and generator repair, sporadic diesel fuel supply, inefficiency and unsustainability and detrimental health impacts on people and environment. The country has a huge energy potential in form of hydro power, wind, and solar, which should be developed to meet its rising energy demand hence the need for funding. (Liu et al., 2013).

Enabling green economy

The study sought to find out what the country could do to embrace green economy. 50% of the respondents opined that the government should finance green economy in order to improve the wellbeing of south Sudanese through job creation. 30% said that the government should involve private investors in the green economy in order to jumpstart the failing economic development and 20% felt that a department responsible for green economy under the Ministry of Environment should be established to spearhead campaigns and create awareness of green economy in South Sudan. This was in line with the findings of N.Haussam, (2023), that, through investments from the public and private sector, we could work towards achieving a green economy through collaboration with civil society, governments, and more to support the common goal of creating integrated growth strategies, which are sustainable and promote equitable well-being (N.Haussam, (2023). To do this, we should ensure that all transitions go towards creating a renewed and inclusive economy that embodies resilience, regeneration, transcends current trajectories and improves the quality of life for people.

Insecurity

The study sought to find out how South Sudan could change to green economy especially the use of solar panels and wind energy as opposed to fossil fuels. Majority of the respondents feared the issue of frequent conflicts which lead to looting and vandalisation of properties as the major challenge to investors in green economy. Most of them recited the vandalisation of the solar street lights by security forces during the conflicts of 2013 and 2016 which have not been replaced to-date. On enquiry of what to should done to avert this crisis, majority further said only peace can

bring about sustainable development in South Sudan. This was synonymous to the Malthus theory which explains the economy-environment relationship in terms of environmental degradation approaching a point beyond which development is badly affected and the economy contracts. Then, there is the additional theory which questions the presence of the turning points, and considers also the possibility that environmental deterioration continues to raise as the countries develop.

Conclusion

Environmental regulation could reduce conventionally measured output growth, if other growth-benefiting efficiency gains or technology changes are discouraged or not possible. In addition, any shift from growth to green growth will have distributional implications on wealth and income. These implications of the shift from growth to green growth are especially relevant to South Sudan and developing countries. As pointed out by Dercon (2012), if green growth is to have relevance for low and middle income economies, it must also be compatible with the most important development objective for these countries, which is poverty alleviation. Thus, even if the adoption of green growth policies increase overall economic output or welfare, it is still important to identify those policies that will favor or hurt the poor, to ensure that the shift from growth to green growth leads to poverty alleviation.

Recommendations

Stringent regulations

A shift to a green economy will generate economic benefits which involve certain risks and benefits with costs associated with it. A potential advantage of South Sudan would be exploring of untapped export markets. Certain significant markets such as bio fuels, renewable energy such as solar panels and wind turbines are driven by export markets or by a combination of foreign demand and domestic capacity development in respect to domestic environmental standards. Secondly, the authorities and ministries concerned with renewable energy must provide that institutional character to ensure a wider use and spread of renewable energy not only in South Sudan but in all developing countries by allocating a large portion of public expenditures for scientific R&D in the field of green economy, designing special programs to raise the quality of labor based on intensive training on advanced technologies for the various green sectors, and raising their skills. Also, issuing and developing policies for the transition towards a GE to encourage public spending and foreign direct investment to generate new economic sectors and investment opportunities for the private sector hence, contribute to increasing job creation potentials, especially for the poor and vulnerable groups is considered a crucial step.

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