

Climate Change Governance and Ecosystem Sustainability in Sub-Saharan Africa

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ABSTRACT

This study assesses whether climate change governance has improved ecosystem sustainability in Sub-Sahara Africa (SSA) from 2012 to 2021. It relied on the African Strategy on Climate Change (ASCC), May 2014 for the assessment and adopted the ecosystem approach (EA) for analysis. The study discovered that the ASCC May 2014 was quite elaborate, yet does not explicitly, address the issues bothering ecosystem sustainability (ES). Rather, efforts and considerations were organized around climate change mitigation financing and development, which motive was to perpetuate the exploitation of the continent's natural resources. It also discovered that many of the policies and frameworks intended to mitigate climate change and adaptation have not been adequately implemented due to bad governance. The study, therefore, recommends that future African strategic policies and frameworks on the environment cum engagements with climate change governance actors such as development partners, regulators, and other stakeholders either on the global, regional, or national levels should be properly directed to enhance ecosystem sustainability. In addition, such outcomes should be implemented adequately to safeguard the livelihoods of the millions of indigenous people in the SSA.

Keywords: T Climate Change Governance, Ecosystem Sustainability, Sub-Saharan Africa.

INTRODUCTION

Worldwide, climate change governance actors and stakeholders such as scientists, regulators, development partners, civil society, and local communities have come to terms with the fact that the earth has been warming faster than estimated before and that humans are to be blamed for most of the change in the last decades [1], [2]. Available scientific studies revealed that "since the 1880s, the earth's near-surface temperature has increased by 0.85°C due to the increase in greenhouse gases (GHGs), affecting the globally averaged combined land and ocean surface temperature data as calculated by a linear trend showing the warming of 0.85 [0.65 to

1.06] and 2°C from the period 1880 to 2012 [3], [4]. The earth's warming rate relating to future global climate change consequences was earlier projected as follows:

- (i) "Average air temperature will rise between 1.8°C and 4°C from 2090 and 2099, higher than it was between 1980 and 1999;
- (ii) Increase in surface temperature will be greater over land than over the ocean;
- (iii) Sea ice and snow cover will continue to contract and shrink because of melting due to high temperatures (increased ocean temperatures have been recorded at depths of at least 3,000m since 1961);
- (iv) The sea level will rise by 1.8–3.1 mm per year between 1990 and 2100;
- (v) Droughts will become longer and more intense due to higher temperatures and reduced precipitation;
- (vi) Precipitation levels will become more variable; and
- (vii) Extreme events – such as tropical cyclones, heavy precipitation, and high-temperature extremes – will become frequent" [5].

These experiences point to the fact that climate variability and change have come to stay with humanity [6]. Available reports blamed the trend of climate change on past, present, and future emissions of GHGs, and cautioned that if it is unchecked, will "push 39.7 million people into poverty by 2050" [7]. In addition, it can "destroy the hard-won development gains of the UN and its development partners" [6]. The impacts already are widespread and significant on sectors including agriculture, energy, and human health, as well as, affecting 'the terrestrial and marine ecosystems, water resources, among others [8]. Such sectorial indicators of climate change occur mostly in fragile, or vulnerable states in Sub-Saharan Africa (SSA) than in any other part of the continent [9], [10], [3]. The situation in the region is caused by high dependence on ecosystems goods and services for survival. In other words, the climate change impacts experienced in the SSA are "aggravated by the interaction of multiple stresses", such as widespread poverty, and weak adaptive capacity among others [11].

Recent studies have shown that the worst-hit region of climate change events in the continent is the SSA [10], [3]. It has also been proven that the region's natural ecosystems and livelihoods are the most impacted [10]. Climate change, which is mostly, triggered by human interactions through the processes of modernization and globalization; has severely transformed the region's natural ecosystems [12, [13]. No doubt, the twin processes of modernization and globalization had played significant roles in Africa's path to development; nevertheless, they have equally, contributed to various forms of developmental challenges in the region, such as rising pressures and consumption levels, access to, or limited financial resources and markets, as well as the stark disparity between the rich and the poor, and contestation for, and use of natural resources by different stakeholders, particularly from the 21st Century [14], [15], [16]. In addition, Africa's developmental woes include complex governance issues, environmental degradation, ecological resources depletion, and technology crises, among others [11]. These developmental indicators simply underscore the fact that in the future, climate change impacts in the form of extreme weather conditions (stifling heat, intense rains, powerful storm surges, sea-level rise, flooding, etc), will be more intense in the region and people in diverse ways than ever before. It implies that there will be a high degree of environmental degradation, deficiency in agriculture (fisheries and food), water, health, infrastructure, transportation, and other socioeconomic deficiencies in the region.

Most importantly, the rising temperatures and sea levels, and rainfall anomalies will continue to inundate low-lying areas and threaten the existence of coastal settlements, as well as the livelihoods of millions of indigenous people in the region [17]. Climate change-related natural events between 2012 and 2021 include; the devastating cyclones Idai and Kenneth; the outbreak of locust in eastern Africa, droughts in southern and eastern Africa, desertification, herders and farmers' conflicts in the Sahel, and mass migration of millions of people in Africa [18]. Going further, climate change events have continued to expose the coastal/marine ecosystems (mangroves and coral reefs, as well as the fisheries and tourism sectors of the economy) into incredible dimensions in the region including increases in biodiversity loss and general well-being of millions of indigenous people in the region mostly, those living in low-lying areas, or flood plains, and those that depend on the ecosystems for survival. Climate variability and change affect agricultural production (food security) in the semi-arid region of SSA due to the reduction of the length of the planting season, which forces marginal output or production. The reduction in yield in some countries of the region in 2020 was 50%, while estimates of crop net revenues fall in 2021 were as much as 90%, and the most affected were small-scale farmers [19].

The extreme conditions of climate variability and change have generated some form of argument and consensus among scholars and development practitioners all around the globe regarding the African continent. One of such areas of argument and consensus this study assesses is climate change governance and ecosystem sustainability in the SSA. It does so while making exceptions from the African Strategy on Climate Change (ASCC) articulated by the African Ministerial Conference on the Environment (AMCEN) in 2014, which cut across diverse actors at the global, regional, and national levels.

Statement of the Problem

Studies have shown that the SSA is host to several climate change hotspots [20], [21]. The region is also noted for its strong physical and socio-ecological effects of climate change, and its intersection with large populations of poor and vulnerable communities [22]. Available records also indicate that since 2012, parts of Africa have witnessed severe climate-related crises such as environmental degradation, drought, flooding, food insecurity, conflicts, as well as refugee issues in Nigeria, Niger, Burkina Faso, Mali, Chad, Mauritania, Senegal, and The Gambia of West Africa [20], [23], and drought in the Horn of Africa in 2017, Tropical Cyclone Idai and Tropical Cyclone Kenneth (the strongest storm to ever hit Africa) in 2019, as well as the worst outbreak for decades of swarms of desert locusts across East Africa in 2020 [24], [3].

Climate change not only affects the Sahel region but also the subtropical regions of the continent. For example, it causes a decrease in annual rainfall of about 30 percent in the subtropical region, contributing to an increase in aridity in the Sahel, and an increase in sea level and flooding, particularly on the coast of Kenya, and the banks of large inland lakes (e.g., Lake Victoria) in eastern Africa, and on the coasts of Madagascar and Mozambique in southern Africa, as well as on the coast of West Africa [25]. Going further, rainfall in West Africa is regular, inundating major cities such as Niamey in 2019 and Abidjan in 2020, thereby increasing the already vulnerable livelihoods of the indigenous people and coastal communities [3]. Such climate change conditions have continued to mount pressure on more than 300 million people in the SSA [26], especially those who depend on ecosystem goods and services for survival,

facing adverse conditions of poverty, inequality, food insecurity, conflicts, displacement, among others [3], [10].

In the light of such indicators, this study assesses climate change governance and ecosystem sustainability concerns in the SSA, and it is based on the African Strategy on Climate Change 2014 [8]. The intention is to underscore whether climate change governance has enhanced ecosystem sustainability in the Sub-Saharan African region.

Objective of the Study

Assesses climate change governance and ecosystem sustainability in the SSA.

THEORETICAL UNDERPINNING

The study applies the ecosystem approach (EA) to underscore whether climate change governance has enhanced ecosystem sustainability in the SSA. The EA's adoption was based on the conviction that since it is an inclusive paradigm that engenders environmental management, or resource conservation [27], it will enable us to demystify climate change pressures on ecosystems with emphasis on climate change governance and ecosystem sustainability.

The EA emerged formally as a dominant and inclusive framework in the 1990s [27], first in appreciation of the growing complexity of the traditional management efforts that were organized around particular uses, and separate governance regimes; second; as a response to resolve the conflicts arising among users and the inadequacies of the traditional sectoral mechanisms in "sustaining the flow of healthy ecosystems and the provision of goods and services" [28]. Going further, the study explained that the practice of ecosystem-based management requires both the environment and the associated human population, which must be addressed simultaneously [28]. Accordingly, its primary concern must be to integrate the necessary changes in human behavior that are required to sustain, and/or restore the desired quality of the world ecosystems [28]. In other words, it integrates ecological, socioeconomic, and institutional knowledge and priorities through diverse stakeholder participation [29].

The EA also recognizes independent human communities (e.g., plant and animal communities), and their interactions with their physical environment, as well as the formation of distinct ecological units called ecosystems [28]. These units, which provide the basis for all life and humanity, typically cut across existing political and jurisdictional boundaries and, thus can be subjected to multiple management systems [28]. What this implies is that, since climate change risks are occasioned by many human actions and extend across jurisdictional boundaries, such risks of functioning important ecosystems should be shared by multiple jurisdictions [28]. Going by that, the ecosystem-based management approach requires that strategic planning, implementation, and reassessment procedures should consider the principles of good cultural practices as it concerns particular places [28]. As a result, ecosystem-based governance should consider integrating the best available scientific knowledge and sharing it transparently and equitably, through the adoption of democratic instruments in the area of planning, implantation, reassessment, and decision-making [28]. By such critical thinking, the adoption of the EA in this study is quite relevant as it underscores the impact of climate change on natural ecosystems, especially their inability to produce livelihoods for human populations, which can

only be addressed through climate change governance (actors and instruments) relating to the region.

CLIMATE CHANGE GOVERNANCE AND ECOSYSTEM SUSTAINABILITY

Climate change governance and ecosystem sustainability, the two variables in this study could not be fully underscored without first exploring the causes of climate change and its impacts on the SSA. In that wise, the study articulates that climate change governance involves measures aimed at addressing climate change impacts on the earth and its inhabitants, and ecosystem sustainability advocates for the retention of the naturalness of fast depleting ecosystems through conservation efforts. Therefore, it will be quite ridiculous not to think that climate change alters the naturalness of ecosystems and engenders climate change governance.

Climate change comes from a variety of human sources but mostly from the emission of greenhouse gasses (GHGs). It results from carbon dioxide emitted from the combustion of fossil fuel, and methane produced from power generation, transportation, mining, and agriculture, among others, which increase the heat-retaining capacity of the lower atmosphere [9], [30], [31]. Available records show that collectively, the 'G20 nations account for 78 percent of all GHG emissions' [32]. Whereas, the 'top four emitters' are China, the United States of America, the European Union (EU), and India; which jointly contribute over 55 percent of the total global emissions over the last decade, excluding emissions from land use such as deforestation [33].

Climate change influences seasonal temperature ranges and weather patterns and events, which adversely, affect the health of ecosystems and biodiversity [31]. The impacts are more severe in parts of Africa, "mostly forest ecosystems and biodiversity; causing a variety of species to shift, changing plant productivity, and adding more pressure on the food chain and medicinal sources" [31]. For example, climate change in the last two decades has deprived humanity of both the tested and non-tested existing medicinal plants that have value to human health [13]. A study [34], confirmed that of the approximately 400,000 plant species on earth, only 1 percent have been tested for their medicinal content. Another key finding of the study [34], was that climate change causes changes in the life cycle of plants as they also undergo seasonal changes. It implies that if climate change alterations are not checked, cycles of planting and harvesting seasons are prolonged, and Africa will continue to experience food insecurity and crises. The fact is that most countries in the SSA are heavily dependent on, and are victims of unsustainable exploitation of ecosystem resources. It mounts huge pressure on the ecosystems and exacerbates their depletion, especially biodiversity loss in the region. In addition, such human pressures intensify climate change with attendant consequences: rising temperature and sea levels, which further causes regular and ruthless natural disasters, including severe droughts, fires, floods, and storms, among others [17], [13]. Going further, climate change interrupts the supply of safe drinking water, and food (nutritional security), along with other economic activities in the SSA [25], [13]. Climate change destroys ecosystems that the local people depend on for livelihood (e.g., income generation, food, shelter, and medication, among others).

Climate Change Governance

Three main issues can be identified in climate change governance, namely; 'climate variability, climate change, and governance'. Climate variability refers to the commonly observed everyday weather condition, and yearly climate departures such as rainfall, severe storms (hailstorms),

flooding, and droughts, among others [8]. Whereas, climate change is a “state of the climate, or in its variability that persists for an extended period (typically, decades or longer), manifesting changes in the traditional patterns of everyday weather and climate conditions, including extreme events such as high/low temperatures, droughts, hailstorms, floods, among others [8]. While governance, which is a slippery subject with diverse meanings, definitions, and understanding [34], [35], [12], can be generally, referred to as the steering and guiding principles of society such as the collective actions of the ruling and the ruled (i.e., the actions from within or outside the various components of the state aimed at the ultimate good of society). Governance thus connotes the machinery through which the ills of society are addressed to achieve common goals [36], [37]. Going further, governance in its widest sense has increasingly, been interpreted to include the political, institutional, and cultural frameworks by which, the diverse interests and choices of the government and citizens are coordinated and controlled [38], [39].

In that vein, climate change governance entails ‘formal institutions exercising governmental power and authority’ aimed at minimizing climate change and risks on the planet [40]. Climate change governance involves the setting of standards to address national, regional, and global climate change risks on ecosystems, socioeconomic livelihoods, and communities [8]. Such governance processes and actions involve “the development and enforcement of comprehensive” legislation, policies, and institutional, as well as management strategies at each level of climate governance [8]. Going further, it includes the harmonization of all sectoral and cross-sectoral arrangements and issues that may negate climate change governance efforts such as matters relating to compliance and accountability across the various levels of climate change governance [8]. Going further, climate change governance itself refers to policies and frameworks that constitute clear and concise priorities that address climate variability, climate change, and associated risks. It also transcends international borders [[10], and encourages different levels of engagement and treatment in the areas of mutual commitments relating to accountability, compliance to agreements, enforcement of mechanisms, and monitoring and reporting of climate change risks, as well as management programs, including building capacities to access climate change funds [8]. In that sense, climate change governance encourages information gathering and promotion of effective decision-making processes to guarantee environmental safety at national, regional, and international levels. This is where relevant climate change-related public and private institutions, and/or stakeholders across the globe must play significant roles, especially participation in interactive or engagement platforms aimed at rolling out various climate change mitigation plans, mechanisms/initiatives, and funding arrangements [3]. Some of such bodies/initiatives include the United Nations Framework Convention on Climate Change [UNFCCC]), the Kyoto Protocol, the African Ministerial Conference on the Environment (AMCEN), the Framework of Southern and Northern Africa Climate Change Programmes (FSNACCP), the Nairobi Work Programme, the Bali Action Plan, and the East African Community Climate Change Policy (EACCCP)” among others [8]. Based on the foregoing, this study assesses the issue of climate change governance and ecosystem sustainability in the SSA with emphasis on the ASCC 2014.

Ecosystem Sustainability

The phrase, ecosystem sustainability, consists of two outstanding words, or complex subjects (i.e., ecosystem and sustainability). The term ecosystem first appeared in a publication by British ecologist and author, named Arthur Tansley, in 1939 [41]. It also comprises two distinct

words, 'eco', which refers to a part of the world, and 'system' refers to the coordinating units [42]. It jointly refers to the living organisms in their habitat and functioning together with their surrounding environment as a single ecological unit [42]. In addition, ecosystems are naturally occurring assemblages of life and the environment. Life here refers to the biotic community, including plants, animals, and other living organisms, while the environment connotes the biotope encompassing the physical region of life [42]. They are also, in different sizes and shapes, which may be a whole forest or a small pond, and seen often separated by geographical barriers, like deserts, mountains, or oceans, or are isolated otherwise, like lakes or rivers [42]. Such as these borders are never rigid, and ecosystems also, tend to blend into each other, as a result, the whole earth can be seen as a single ecosystem, or a lake can be divided into several ecosystems, depending on the used scale [42]. Notwithstanding, the ecosystem is an open system, where it receives energy from an outside source (the sun), as input, fixes, and utilizes the energy, and ultimately dissipates the heat into space as output. This is to say that, life in the natural ecosystem is usually, well balanced among its members, and with their environment. It is because every ecosystem is characterized by a physical environment with biological components, such as a set of abiotic and biotic factors that interact with each other in their natural stage. However, human actions have grossly undermined such natural interactions in the last decades.

Sustainability, on the other hand, is a development agenda that integrates all political, economic, and social undertakings of man on the earth to meet the needs of society. However, it frowns on development that will compromise the integrity of the environment and the ability of future generations from meeting their own needs [43]. In other words, sustainability focus on "protecting the natural balance", and/or conservation of "basic natural processes in meeting the basic needs of certain communities and citizens of both the contemporary and future generations" [44], [45]. In that sense, sustainable development envisages ecological responsibility through the implementation of effective public policies in a transparent, and accountable manner, to conserve the quality of the natural environment and the livelihoods of people in a given country. In another sense, it connotes good governance, occurring in the political, social, economic, and natural spheres, that effectively combines the qualitative and quantitative transformation processes in the development of a given society. Going further, the term emphasizes positive changes in the socio-political, economic, and other levels of development of society with due diligence on the quality of the natural environment.

In essence, sustainability is a responsibility conferred on relevant formal and private climate change governance actors and stakeholders, such as national governments, regional institutions/agencies, civil society, and local communities in Africa, and the rest of the world, to ensure that the pursuit to meet the needs of the present generation, does not in any way, affect the integrity of the environment and the ability of future generations from meeting their own needs. In other words, it underscores the maintenance of the health of the natural environment, no matter the efforts of wealth creation, or provision of opportunities and prosperity for the SSA. In summary, sustainability strongly advocates visionary leadership and good governance for environmental integrity.

In that wise, ecosystem sustainability, which is also known as ecological, or environmental sustainability (ES), could be seen as a responsibility bestowed on climate change governance actors and stakeholders for the protection of world ecosystems and conservation of the natural

resources that supports the health and wellbeing of life in all communities. It includes all long-term arrangements for the maintenance or restoration of nature and the productive capacity of ecological systems amidst external stresses (e.g., climate change [46]). In other words, ES underscores the importance of conservation and improvement of the productive capacity of the natural environment, such as its water bodies, soil, ecosystems, and atmosphere, among others.

The ES concept is built on “four fundamental principles” [47]. They are adaptation/behavior, organizational levels, biodiversity, and energy flow [48]. These principles also are determined by four “interactive controls”, namely; climate, soil resource supply, major functional groups of organisms, and disturbance regime [49]. These elements govern all ecosystem interactions and processes [49]. Therefore, these cardinal principles must be considered if any ecosystem sustainability or conservation program must succeed. In other words, the program must ensure that the measures put in place should guarantee a reduction of negative human impacts, especially the insatiable exploitation of natural resources; which leads to the rise in the levels of GHGs, and deforestation, among others. It is to ensure that the natural environment and ecosystems are kept safe and continue to provide the required goods and services for mankind.

THE AFRICAN STRATEGY ON CLIMATE CHANGE

The African Strategy on Climate Change (ASCC) is a brainchild of the African Union (AU). It was formulated in May 2014 by AMCEN. AMCEN is a permanent forum of AU Ministers of Environment established in 1985 [50]. Key mechanisms of the form include the Nairobi Declaration on the African Process for Combating Climate Change (NDAPCCC), 2009 [50], and the ASCC, May 2014 [8], among others. The ASCC 2014 is an overarching directive to enhance the adaptive capacities and resilience of the AU Member States and their Regional Economic Communities (RECs) [8]. It is also to minimize their vulnerability by pursuing a low-carbon growth path dictated by the principles of the Green Economy, sustainable development, poverty reduction, and an oriented governance system. This is to be achieved through knowledge-based systems, planning, and the building of structures across national, regional, and international levels [8].

In addition, the ASCC is a robust treatment of climate change and development challenges in Africa. Consequently, AMCEN under the auspices of the AU was committed to improving climate data, information, and services. The first step was the endorsement of the climate strategy of the New Partnership for Africa's Development (NEPAD) in Addis Ababa, Ethiopia in 2006 [8]. It was to effectively address the challenges of climate change and sustainable development (e.g., disaster management) in the continent [8]. In addition, it underscores the collaborative efforts of relevant global and regional climate change governance agencies/actors for the development of Africa. Some of them are the IPCC, the UNFCCC, the Kyoto Protocol, the Nairobi Work Programme, and the Bali Action Plan [8].

Going further, the strategic plan aimed at achieving the sustainable development goals (SDGs) rooted in the Millennium Development Goals (MDGs) – poverty alleviation and reduction of climate change-related hazards [8]. The ASCC comprises a total of 47 goals. However, Goals 15 and 19 which though, not quite specific but related, are critically assessed to demystify the reality of climate change governance and ecosystem sustainability in the region.

Goal 15 emphasizes the strengthening of environmental governance instruments and effective mobilization of adaptation funds [8]. To achieve this goal, the strategic action plan must integrate both the market and non-market mechanisms towards generating the adaptation funds. It must also consider efficiency while allocating the funds; to projects, only that will reduce climate change risks [8].

Goal 19 on its part, insists that AU should provide leadership through its Specialized Technical Committees (STCs) in the area of negotiation and implementation of agreements on issues regarding biodiversity. Such commitments must include the Convention on Biodiversity (CBD), the United Nations Convention on Desertification (UNCCD), and land degradation, among others [8]. To realize this goal, stakeholders should provide the necessary support to the AU to track the decisions and their implementation [8]. In addition, AU should provide leadership for developing relevant/functional mechanisms through training, research, and communication (capacity building) to foster climate-resilient ecosystems [51], [8]. Going further, AU should provide the needed support for the development, improvement, and harmonization of common policies, and strategies regarding biodiversity recovery, and desertification, among others. Most importantly, such support must include conservation and sustainable utilization of biodiversity, especially within protected areas [8].

Accordingly, AMCEN 2014 advocates the integration of all climate change-related adaptation mechanisms (policies and strategies) into various national and regional development plans. However, such an integration plan must consider three broad issues:

- (i) Disaster reduction and risk management - must include early warnings, preparedness, contingency planning, emergency response, and post-disaster recovery;
- (ii) Sectoral planning and implementation - must involve key sectors such as water, coastal zones, health, infrastructure, biodiversity, forests, energy, urban management, and tourism, as well as taking into account, cross-sectoral implications); and
- (iii) Building economic and social resilience - through diversification of economies, reducing dependence on climate-sensitive sectors, and the use of indigenous knowledge and practices. as well as the strengthening of community organizations.

Achieving these goals in the SSA has been a far cry. A case in point was the effort of the Committee on Biodiversity (CBD). The CBD also called the Biodiversity Convention first opened for signatures of States at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993. Suffice to state that after twenty-eight years, Member States have yet to achieve the CBD's three main goals, namely; (i) conservation of biodiversity; (ii) sustainable use of its components; and (iii) sharing of benefits arising from genetic resources fairly, or equitably [8]. This mostly must come from "regions outside protected areas" [8]. In a clearer sense, the CBD has not been able to realize its primary goal of conservation of biodiversity and sustainable use of ecosystem resources and services through the medium of protected areas (PAs). The AMCEN 2014 also acknowledges the fact that biodiversity degradation through over-exploitation of ecosystems in the SSA, largely occurs outside protected areas, and has exacerbated in recent years, the impacts of climate change. Climate change reduces the limits of tolerance of ecosystem adaptive capacities. Hence, the need for the establishment of marine protected areas (MPAs) for sustenance and conservation of ecological

resources in the case of the Niger Delta, Nigeria [52]. More than that, climate change governance efforts (economic or political), which fail to adequately consider and address issues towards enhancing ecosystems' sustainability headlong are deemed inappropriate.

It is also a fact that Africa lacks adequate scientific knowledge to deal with climate change and risk management in the continent. A situation that tends to weaken the potential efficiency of decision-makers in developing suboptimal policies that could have benefited the scientific, economic, social, and sectoral dimensions of climate change. The ASCC 2014 is a weak policy on climate change governance because it was primarily hinged on climate mitigation financing (Goals 15 and 19 respectively) from global development partners and climate change governance actors/agencies such as the World Bank, the UN Framework Convention on Climate Change (UNFCCC), and its Kyoto Protocol, among others. These bodies provide financial and technical assistance as goodwill to countries affected by climate change and conflicts in the continent. As a result, the agenda was natural resource exploitation and development. No doubt, Africa is in dire need of development. Hence, it became a difficult task for the African Environment Ministers to determine the issues bothering ecosystem sustenance and conservation of natural resources in the continent in concrete terms.

Going further, a critical assessment of the ASCC 2014 points also to the fact that it is merely, a legislative framework crafted by the Ministers to enable the less and most vulnerable nations in Africa to have access to funds from the more endowed and wealthy nations for the development of their physical infrastructure. The point must also be emphasized that such funds are mostly, dictated by choice issues/projects, yet the funds are not free from conditions in most cases. For example, they are sometimes tied to the imperative of good democratic governance in all ramifications. Going further, it is also evident that such desires/funds have never served the intended purposes. A striking global example of this sort is the G20 member group's pledges on climate change mitigation measures, which over the years, have failed significantly, to keep global warming limits below the 1.5°C limit for the 21st Century [53]. A situation that had continued to suffocate the quality of life and the integrity of the environment.

Coupled with that, is the problem of bad governance in most countries in the SSA. The problem is that available legal and institutional systems, which could have enabled the reversal of the patterns of natural resource consumption *vis-a-vis* reducing the stresses of climate change are inadequately implemented in the continent as a result of bad governance. Bad governance is a condition that is demonstrated in various forms such as discrimination against minority groups, tribalism, nepotism, and corruption (embezzlement, and diversion of ecological funds into private uses), among others [54]. Going further, if the ASCC 2014 is a commitment to preventing climate change-related disasters, mitigating ecosystem depletion, and conservation of the natural resources of the continent, then good governance must be a major requirement. Good governance comprises "government effectiveness and regulation quality, political and economic stability, transparency and accountability, the application of the rule of law, as well as corruption control measures" [54]. In addition, good governance is closely linked with good leadership and genuine democratic structures. Going further, good governance guarantees the rule of law, freedom of expression, equality, protection of individual/minority rights, majority rule, separation of powers between the various arms of government, allows power change through honest elections, and provides the enabling ground for human inventiveness and development, among others. These tenets of good governance are still lacking in the continent,

yet human development is largely the result of human agency (choices and decisions) than a matter of chance. Hence, environmental consequences unattended as a result of blind choices and weak decision-making processes (bad governance) will continue to put more pressure on the environment and the sustainable development processes in SSA.

Improving the quality of climate change governance concerning ecosystem sustainability, and/or natural resource conservation in SSA requires the region to embrace good governance. In other words, good governance should be the most desirable priority of governments within the region. This is important because bad governance is affecting the management of the environment, causing far greater harm than good to the economies of African states than any other factor [54]. In addition, it is responsible for the brain drain in Africa [54]. Hence, good governance should be encouraged to allow the "return of African intellectuals and experts in the different vocations, especially in the domain of science and technology" [54]. This will engender climate change governance and ecosystem sustainability in the region. However, it is not only to use their "savoir-faire", but also an "investment of social capital" to achieve the much-cherished climate safety and development agenda of the continent [54]. It is the same way the subsequent return of the educated, and skilled individuals contributed to the development of the emerging economies of the Asian countries such as China, India, South Korea, Singapore, and Taiwan" [54].

CONCLUSION AND RECOMMENDATION

The previous sections of this study have been dealing with the subject of whether climate change governance had enhanced ecosystem sustainability or not in the SSA. The data used was the ASCC 2014, while the EA was adopted for analysis. At the end of the analysis, it was discovered that the ASCC 2014 was quite elaborate, but not explicit in enough concrete terms in addressing the concerns of ES in SSA, which the strategic policy itself, described as the region as the worst-hit region of climate change events in the continent. It also found that the strategic policies and framework heavily relied on global development partners and climate change governance actors and agencies for climate mitigation funds, which are often exploitative when underscored in the motives behind development in the aspects of natural resource accumulation, poverty elimination, technology transfer, and information sharing, as well as conflict management, among others. In addition, the assessment revealed that the AU's ASCC 2014 was carefully crafted to enable the poor and vulnerable African countries to benefit from the climate change mitigation pledges (funds and technical assistance) of the developed and wealthy countries and global development partners and agencies, and not to enhance ecosystem sustainability in the region. Lastly, it discovered that good governance in the area of climate change governance is lacking in the continent which is responsible for the worst climate change events and the lack of implementation of the ASCC 2014 and other relevant climate change and ecosystem sustainability-related legal regimes and institutional arrangements in the SSA.

In light of the foregoing, the study recommends that AU should continue to encourage quality and visionary leadership for the enthronement of good governance in the SSA, which is the most desirable platform for encouraging the return of the educated and skilled Africans in the diaspora to join hands in building indigenous measures for resilient ecosystems in the continent.

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