Research article	Vol.6, No.3| 10 July 2021| Journal of humanities and cultures studies R&D

EFFECTIVENESS OF GREAT GREEN WALL THROUGH COMMUNITY PARTICIPATION FRAMEWORK AT LOCAL CONTEXT IN THE FRONTLINE STATES, NIGERIA

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ABSTRACT

Desertification, land degradation, and drought constitute an environmental challenge that threatens the habitat of some of the globe's most impoverished populations located in the Sahara and Sahel zones. The prominence of the Great Green Wall (GGW) has brought the necessity for sustainable utilisation of agro-forest resources to the doorsteps of the AU's constituent States. No matter how audacious the initiative appears to be, every step taken by countries counts as a step away from practices that exacerbate desert encroachment. Poverty is inextricably linked to unsustainable environmental resource utilisation. Overcoming systemic drawbacks and integrating the objectives of GGWSSI into their policy implementation processes by participating countries are key steps that can provide the key for elevating the living standards of the world's poorest poor inhabiting the Sahara and Sahel zone.

Keywords: "Frontline States, Community, Development, Perception, Sustainability, Accessibility.

Introduction

Desertification constitutes an environmental challenge that threatens some of the globe's poorest populations' habitat – located in the Sahara and Sahel zones (Aigbokhaevbo, 2014). Climate change has exacerbated this challenge, leading to increased pressure to harmonize African regional and intervention strategies to contain the scourge of desert encroachment (Aigbokhaevbo, 2014). The "Great Green Wall for Sahara and the Sahel" Initiative (GGWSSI), aimed at planting a wall of trees across Africa to combat desertification, was hatched in 2002 by then-President Olusegun Obasanjo of Nigeria. In 2007, it was endorsed by African heads of State and government and heralded as the panacea for the adverse socio-economic and environmental malaise of desertification and expanded to embrace assisting local communities in embarking on sustainable

utilization and management of their forest, rangeland, and other environmental resources (Toure S. and Acquah P. 2006).

The implementation plan involves planting a 15-kilometer-wide transnational forest belt from Dakar to Djibouti. The vegetation band could be continuous or rerouted around obstacles like streams, rocky areas, and mountains to link uninhabited areas (Escadafal R., Bellefontaine R. et al. 2012). The trees are to act as natural windbreaks against sandstorms while improving soil fertility with their roots, preventing soil erosion and resisting desert encroachment. In this paper, the GGWSSI will be examined with the aim of analyzing endemic challenges to its efficacy in Africa's struggle against desert encroachment.

The Concept of the Great Green Wall

The Great Green Wall (GGW) is a concretized metaphor intended to sensitize the African continent regarding the need to formulate and implement arid-zone specific policies to amplify sustainable land management practices and identify long-term solutions to the challenges of desertification, land degradation and drought confronting the region (Dampha A. 2013). Reforestation is the natural antidote to soil erosion, drought, and desertification. Planting trees in the desert to create a protective wall of trees across the Sahel and Sahara zone was conceptualised as a natural way of halting the expanding desert frontiers.

To enhance the achievement of the primary goal of reducing soil degradation which facilitates desert encroachment, concerted global action was considered a necessity to promote synergies and optimal mobilization and utilization of resources, which would have posed significant challenges for component countries to accomplish (AMCEN/SS/IV/INF/3, 2010). The size of the challenge is enhanced by reports that "land use, land-use change and forestry (LULUCF) together with agriculture account for 31 percent of global greenhouse gases (GHGs) with developing countries as prime emitters" (Aigbokhaevbo, 2014).

In 2002, during the World Day to Combat Desertification and Drought event held in Ndjamena, Chad, the Great Green Wall concept emerged as a proposal to enhance the Pan-African effort to address the challenge of Sahara and Sahel desert encroachment. In 2005, it was approved at the conference of leaders, members and heads of State held in Ouagadougou, Burkina Faso, at the 7th Ordinary session of the Community of Sahel-Saharan States.

The realizations that two-thirds of the African continent (with a population of 250 million) is desert or dry land and that the inhabitants of these lands are either farmers, pastoralists or forest-produce gatherers dependent on goods and services provided by forests propelled the expansion of the action plan beyond tree planting (FAO, 2010) to the attainment of a land-degradation-neutral world following the objective of Rio +20. The expansion also embodied a recognition that linkages are needed at the national and cross-border level (for exchange of ideas and information) to tackle policy investment and institutional barriers that exacerbate natural-resource depletion and increase the risk of communal conflict and environmental degradation (Aigbokhaevbo, 2014). The GGWSSI was designed to be implemented over a period of 30 years, with each phase lasting for 10 years and projected budget estimates varying from US$ 1.6–2.4 billion (FAO, 2013).

Analysis of the GGWSSI

The primary objective of the GGWSSI is to strengthen the implementation of existing continental plans and other efforts to address the menace of land degradation and desertification in the Sahel and Sahara region to synergize such efforts and enhance their efficacy (AU, 2009) through the general awareness and acceptance of sound ecosystem management, reducing the inhabitants' vulnerability to climate change, improving food security and living conditions, and reducing drought and desertification. These efforts include the Comprehensive Africa Agriculture Development Programme, with its Regional Economic Communities and National Roundtables, as well as its Regional, Sub-regional and National Action Programmes to combat desertification (Aigbokhaevbo, 2014).

GGWSSI is geared towards planting drought-tolerant plant species, establishing water retention ponds, improving agricultural production systems, initiating income-generating activities and promoting infrastructural development to facilitate efforts to combat desertification.

Developed and developing countries have expressed optimism that if effectively implemented, the GGWSSI will be a transnational economic upgrade with great potential (UNCCD, 2010). It will enhance the soil and transform livelihoods, showcase sustainable land management, and provide the impetus required for other existing collaborative water management and rural development schemes to thrive.

However, this optimism has been disparaged on the basis that the inhabitants of the Sahel-Sahara zone are presently among the poorest of the poor in Africa due to their deteriorating resource base, fragile soils and high population pressure (Aigbokhaevbo, 2014). As such, the proposed patchwork affair with each country reforesting its segment after its fashion coordinated by the Pan African Agency of the GGW in Chad is insufficient to address desert encroachment in the zone (Bilger B. 2011).

It is further argued that a desert once established is hard to push back due to the high level of financial capacity and expertise required. All the more because African leaders do not have the requisite means to mobilize action by a billion tree-planting farmers, nor the money for the type of irrigation systems that were used to achieve results in Israel, as mentioned below. It is argued that the US$ 190 million that the Global Environment Facility allocated to the countries involved in the project can hardly take care of the cost of seeds. To these critics, the Great Green Wall in the desert is idealistic (Aigbokhaevbo, 2014).

Sahara's desert ecosystem contains diverse natural resources and a unique variety of forest and wildlife. In the Sahel zone, desertification is traceable to low, irregular rainfall estimated at 100–600 mm per annum and the human pressure on the ecosystem from poor arable and grazing patterns (Ibid, 20XX). The GGWSSI's effort will impose additional pressure on the Sahel and Sahara to be more productive, potentially with increased environmental consequences. The desert should be allowed to be self-regenerating by encouraging inhabitants to migrate to other zones to allow an uninhibited regenerating process. Unless this is done, the tree planting exercise will simply provide more trees doomed to be utilised by rural dwellers as fuel wood, medicinal plants, food and shelter, in their quest for socio-economic survival.

Instead of the grandiose project embarked upon to plant trees in the desert and the huge capital and manpower outlay required, it is argued that the fund ought to have been channeled into educating and equipping the local farmers in regeneration and livestock breeding practices that are less pasture-dependent than those they currently use. Tree planting alone will not halt the advance of the desert (Aigbokhaevbo, 2014).

Despite these grim projections, the GGW project is being implemented in several countries across the Sahel and Sahara zone, deriving its inspiration from Israel's experience in the 95-percent-dry, sub-humid, semi-arid to hyper-arid Negev Desert, which covers 60 percent of the country. In

Israel, although soil degradation and desertification also constitute an ever-present threat (CSD, 2017), over 260 million trees have been planted over the last 50 years in about 200 areas covering over 1,000 km2 largely in areas with a semi-arid climate as well as rocky, hilly terrain unsuitable for agriculture and where the risk of land degradation is high (Aigbokhaevbo, 2014). Almost 200,000 hectares (one-tenth of the nation's lands) are designated as woodland. Sixty thousand hectares have been planted, with 30,000 hectares in the process of being planted, while 110,000 hectares are to be left as natural woodland to enhance soil fertility in the Negev region.

Implementation of GGWSSI

The GGWSSI is supported by the United Nations Food and Agricultural Organization (FAO), the African Forest Forum, the Economic Community of West Africa, the United Nations Environment Programme, and the World Bank, amongst others. Burkina Faso, Chad, Djibouti, Ethiopia, Gambia, Mali, Niger and Nigeria have developed their plans on their own resources while Algeria, Egypt, Mauritania and Sudan are in the process of formulating theirs (Dampha A. and Tapsoba F., 2017). Several projects have been embarked on by countries in furtherance of the attainment of GGWSSI objectives. Some transboundary and country-specific projects include:

- Burkina Faso-Niger: Municipalities of Dori and Tilabery support to the transboundary Liptako-Gourma Authority for the implementation of the GGW;
- Nigeria-Niger: Integrated transboundary and shared ecosystem management;
- Gambia-Senegal: Participation of local authorities in integrated watershed management (restoration of socio-economic and environmental functions);
- Senegal: Ecotourism and management of communal protected areas;
- Algeria-Mauritania-Mali-Niger: Camel transhumance;
- Sudan-Ethiopia: Sustainable watershed management for improvement of livelihoods;
- Egypt-Sudan: Integrated ecosystem rehabilitation of transboundary area between Egypt and Sudan (Darb El Arba'ine).

This paper's examination of country-specific implementation of GGWSSI will look only at Nigeria and Senegal.

Nigeria

The states located in the region north of 10°N of the country, including Adamawa, Bauchi, Borno, Gombe, Jigawa, Kano, Katsina, Kebbi, Sokoto, Yobe, and Zamfara, are desertification frontline states. Some villages and major access roads have been buried under sand dunes in Katsina, Sokoto, Jigawa, Borno and Yobe states, with the siltation of water bodies affecting the livelihoods of approximately 35 million people (FAO, 2012).. It is estimated that the country is losing about 351,000 hectares of its landmass to desert conditions annually, and the conditions are estimated to be advancing southward at an annual rate of 0.6km per year (Federal Government of Nigeria. 2005).

In 1977, as part of its desertification control initiative, the government set up a national committee on Arid Zone Afforestation Programme (AZAP) to conduct an in-depth examination of desertification's problem to draw up a suitable program of afforestation to check desert encroachment (Hajara, 2015).

The GGWSSI, which was canvassed by President Olusegun Obasanjo and adopted by the African Union (AU), was a Trans-African application of a domestic initiative. Nigeria's Great Green Wall Strategic Action Plan (GGWSAP) is a five-year plan to improve the living standards of the impacted populace and reduce their vulnerability to climate change, enabling sustainable resource and land management; and providing climate resilient infrastructures (Aigbokhaevbo, 2014). GGWSAP is a tool to support domestic anti-desertification efforts such as a National Action Plan (NAP) to control desertification under the United Nations Convention to Combat Desertification (UNCCD) and the National Vision 2020. GGWSAP offers a broader perspective and an integrated and holistic approach to addressing the challenge of desertification. Participants are drawn from federal, State and local governments, community non-governmental organizations, and the private sector.

The National Council on Shelterbelt and Afforestation (NCSA) under the chairmanship of the Vice President, Namadi Sambo, is responsible for overseeing the implementation of GGWSSI in Nigeria, assisted by a National Technical Committee (NTC) and ministries constituted by the Minister of Environment.

The government principally funds the desertification program through National Budget Allocation and the Ecological Fund (The Nigerian voice, 2012). A National Desertification Fund has yet to be established. In an effort to boost the fight against desert encroachment and promote the

protection of the nation's forest belt, the federal government earmarked 10 billion Nigerian Naira (N) for the implementation of GGW programmes. In 2013, tree planting got N 129 million and wildlife conservation N 20 million (Obi, 2013). The government identified 46 local governments and 92 communities to ensure that 2,871,415 seedlings for forestry and orchards were planted (Adeosun O. 2014). One hundred and sixty-seven kilometres of shelterbelt and 113.5 hectares of orchards were also planted. In addition, 1,560 people were employed in this process and 146 youths trained as forest guards (Hajara, 2015).

In 2014, the government has mapped out strategies to encourage local farmers to engage in tree planting, forest protection and conservation. Other programmes focus on the stabilisation of 180 hectares of sand dunes in Borno, Yobe, Jigawa, Sokoto and Kebbi states. Additional programmes focus on the tools for improvement of livelihoods to reduce dependence on fragile lands, including vegetable gardens, the training of 2,200 youths in various skills and trades, and the provision of 860 improved wood stoves, 430,000 kerosene stoves and 215,000 solar stoves (Hajara, 2015).

President Goodluck Jonathan has budgeted a sum of N 3.93 billion for environmental preservation in the 2014 appropriation bill. The Ministry of Environment has introduced its "Green Village" development to combat drought and desertification in the 11 frontline states, valued at N 102.25 million; forest resource development management and tree planting nationwide, N 70 million; natural resource conservation and development plans for forest reserves, N 30 million; Great Green Wall Sahara Programme Funding, N 86–122 million; and the establishment of "ozone villages", at N 120 million (Wakil I. and Abutu A., 2014).

Despite these laudable efforts, concern has been expressed that, due to low levels of rainfall in the arid region and inadequate irrigation projects, the herdsmen who allow their herds to feed on "anything green" may render the efforts unproductive. For example, in Kebbi State, the Commissioner for the Environment lamented that 20–30 percent of trees planted have been eaten by cattle, owing to the absence of a protective fence around the shelter belt. In Borno State, Commissioner Habilah Aminani decried the insurgency challenge in his State, which has affected program implementation.

Senegal

Senegal has evolved a GGW Action Plan that includes an ecotourism project and management for the communal planting area. Eleven million native trees have been planted, contributing to the restoration of 27,000 hectares of degraded land in Senegal. At the same time, infrastructural development has helped reduce human and animal pressure on environmental resources (FAO, 2014).

The development and encouragement of vegetable gardens generate food and income for the populace. The Great Green Wall project in Senegal started in 2009 with a pilot project in Tessekere covering a 600-hectare pilot site in the northern part of the country. That site is presently dotted with acacia trees, which provide gum extracted from the bark, shade which has helped reduce ground-water evaporation, and carbon sinks (Hajara, 2015).

Resilient seeds, education on sustainable land management practices, and technical assistance are provided to the local farmers by GGWSSI interactive communication and experience-sharing with other communities is also promoted. Wild animals, including antelope, guinea fowl and hyena, have been observed returning to habitats abandoned due to environmental pressures (Bousetta, 2018).

The African Union Commission program, co-funded by the EU, GM-UNCCD and FAO, supported two projects in 13 partner countries in the region (including Senegal) between November 2010 and August 2013, with aims including a harmonised regional strategy for the GGWSSI, a capacity development strategy and action plan, and a Partnership and resource mobilisation platform. It remains to be seen how efficient and sustainable these initiatives will be in attaining the objective of containing desert encroachment.

Implementation Challenges

The major challenge confronting the GGWSSI is funding. At the national level, the initiative is expected to be implemented by individual countries from their national budgets. According to World Bank President, Jim Yong Kim, African countries are among the world's poorest poor and Nigeria, the initiator of the GGWSSI, is usually listed among the very poorest. Together, India, China, Nigeria, Bangladesh and the Democratic Republic of Congo account for two-thirds of the world's poorest people (Wakil I. 2014). As a result, financing of the GGWSSI could prove to be

too stressful for the participant countries' resources. This accounts for the wobbly start of the implementation process in some countries and the fact that others are yet to take off.

Economic conditions that cause deforestation in developing countries are the catalyst for soil degradation and desertification as people lack adequate land management resources. Unless these conditions are addressed, the GGWSSI could ultimately prove incapable of attaining its objective (Bousetta, 2018). It is anticipated that the GGW will pass through rural communities with varying landtenure systems, cultural planting traditions and plants. One key challenge could be sensitising them and obtaining their cooperation in embracing soil-fertility-enhancing crops and abandoning cultural farming practices that enhance soil degradation and desert encroachment.

Transhumance activities of herdsmen whose actions have contributed to soil degradation and desertification in the Sahara and Sahel region are also interfering with the reforestation and rehabilitation of rangeland. Their interference occurs as a result of grazing their animals on reforested land to the frustration of the GGWSSI.

Salinisation, which leads to the loss of cover crops, is an increasing problem, resulting from poor irrigation methods. Lack of water security constitutes an endemic challenge to the realization of GGWSSI. Efforts to improve water security in the desert through various oasis projects have not been far reaching enough.

The size of the area managed under the GGWSSI is large. Systemic lapses have plagued efforts to harmonize national and regional institutional frameworks. Improper management of resources and poor governance could pose the greatest challenge to GGWSSI.

The GGWSSI is a government-propelled initiative. Hence, the distrust with which leaders are treated as a result of years of frustrated expectations may cause the local populace to view the project with suspicion. Lack of transparency of project facilitators and corruption in the GGWSSI implementation process is already bedevilling in Nigeria's set goals. In light of the litany of abandoned projects initiated by most government agencies, the GGWSSI is seen as yet another government effort and thus does not generate enthusiasm (Ayobami A. 2012).

Poor knowledge of appropriate land management techniques and inadequate resources for the rural poor to access the requisite skill to sustainably manage their land are limiting factors that GGWSSI has to grapple with.

Conclusion

The farmers in the Sahel and Sahara zone have to be enlightened to modify their cultural method of farming to accommodate the utilisation of only methods suitable for a particular type of soil and crops that do not additionally stress the ecosystem. Deep-rooted crops are not suitable for the zone. Emphasis should be on planting cover crops and leguminous crops like groundnuts and cowpea (Breman H. and De wit C.T. 1983) to enhance soil fertility and reduce water evaporation rate from the soil.

Livestock breeding needs to focus on varieties that are less pasture-dependent. This constitutes a viable option to ease the pressure placed on range lands by herdsmen allowing their animals to feed. In Israel, the practice in spite of the abundance of grazing land, a large portion of total livestock rely on hay and other fodder to supplement range-land grasses should be embraced.

There is a need to boost farmers' awareness of the linkage between their unsustainable agrarian practices, desertification and poverty. This would propel their embracing of GGWSSI goals. The production of genetically improved crops would boost the region's productivity and reduce the pressure on the ecosystem to be more productive.

Ceremonial tree-planting activities by politicians should be replaced by constant interaction with the people promoting the shared goal of sustainable forest resources utilisation. This would significantly dilute the present notion of the GGWSSI as a government enterprise that enjoys no affinity with the people (Gangutia A. G. and Vicente E. M. 2012).

People's traditional knowledge used in tackling the menace of desert encroachment should be enhanced and tailored towards more productive realisation of GGWSSI to avoid antagonising rural

dwellers with the introduction of technologies or practices far removed from their agricultural practices.

More emphasis should be placed on enhancing the desert's self-regenerating capacity by diversifying the countries' economic base away from agriculture. This could provide the requisite platform for the attainment of GGWSSI goals. States should facilitate more capacity-building programmes.

Greater harmonisation of efforts to combat desertification within the region should be encouraged to prevent the current patchwork of effort that characterises GGWSSI implementation by participating countries instead of concerted and collaborative effort that was the initiative's vision.

To reduce the herdsmen's incidents feeding their herds in shelter belts, fencing some designated areas should be encouraged. Although this would render the project more expensive, it would guarantee the sustainability of the effort and attainment of set objectives.

For the GGWSSI to thrive, systemic weaknesses that render African countries susceptible to diversion of project funds must be addressed to ensure proper designation of funds to stipulated projects.

The survival of the desert population is linked to the unsustainable exploitation of available desert resources. These consumption patterns must change to accommodate the objective of GGWSSI, quite apart from tree planting. Cognisance has to be taken of the socio-economic survival of the populace tied to the decimated land. Paying lip service to the enormous responsibility, funds and technical expertise involved, without taking urgent steps to fulfil this responsibility, would almost certainly propel humans and animals to prey on the regenerated areas.

Tree planting, the avoidance of bush burning, and the sustainable utilisation of environmental resources should be instilled in the psyche of every inhabitant of the Sahara and Sahel zone, and beyond. They should become part of daily life and not be thrust upon those inhabitants. The Israeli example of tree planting by citizens as part of their regular routine should be followed. This would

dilute the notion of compulsion that locals could resist to show their discontent with poor government policies.

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