

Attenuation of the effects of desertification through sustainable development of Great Green Wall in the Sahel of Africa

Great Green Wall in the Sahel of Africa

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Abstract

Purpose – The purpose of this paper is to develop the Great Green Wall (GGW) Project initially financed by the United Nation's Global Environment Facility Trust Fund, is a Pan African proposal in greening the Sahel of Africa from West (Dakar) to the East (Djibouti). It aims at reducing poverty and soil degradation in this region, taking into account the effects of desertification and climate change on sustainability of livelihoods.

Design/methodology/approach – Several desertification attenuation projects in Nigeria are employing different methods for maximum benefits obtainable from the objectives of the particular projects. As noted above, however, the approach of GGW is to improve the alternative livelihoods of the people by their active participating in the implementation of the project. It is also noted that environmental impact assessment, community reconnaissance or needs assessments might be initial part of pre-project activities, thereby making the communities more aware and educated of the impending environmental problems.

Findings – Desertification has reached an alarming state in Nigeria. The frontline desert threatened States of Nigeria constitute 43 percent of the land mass of the country. With increased pressure of desertification, exacerbated by a period of prolonged drought of more than 20 years, climate change and human activities, it is becoming increasingly difficult to obtain sustainability in the management of the fragile lands and the region's ecosystem. Strategic interventions in combating the problem of desertification in Nigeria have attenuated some of the detrimental social, economic and environmental impacts on the affected communities. Programmes and projects have strengthened the resilience of the people, participating in sand dune stabilization, the Great Green Wall Sahara Sahel Initiative, including shelterbelt developments. Government has sustained inputs in environmentally friendly agriculture and also encouraged synergetic collaborative activities with international and national NGOs, international agencies and local institutions.

Originality/value – These results/activities give evidence of the increased public awareness of environmental degradation due to desertification and climate change in Nigeria; the realization in environmental stabilization needs with ready participation of the communities for improved livelihoods in environmental activities and arid agriculture as supported by the National Great Green Wall (NAGGW) program of the country; resulting in internalization of these projects supporting livelihoods for sustainability in the Sahel of Nigeria.

Keywords Change management, Climatic threats

Paper type Case study

Introduction

The purpose of developing the Great Green Wall (GGW) project initially financed by the United Nation's Global Environment Facility (GEF) Trust Fund, is a Pan African proposal in greening the Sahel of Africa from West (Dakar) to the East (Djibouti). It aims at reducing poverty and soil degradation in this region, taking into account the effects of desertification and climate change on sustainability of livelihoods. It also aims at tackling poverty and the degradation of soils in the Sahel-Saharan region, focusing on a strip of land of 15 km (9 mi) wide and 7,100 km (4,400 mi) long from Dakar to Djibouti (Global Environment Facility, 2013).

The concept of GGWI was initiated by the vision of a GGW to combat ecological degradation which was conceived in 2005 by the former President of the Federal Republic of Nigeria, Chief Olusegun Obasanjo, and in consultation, the idea was strongly supported by President Abdoulaye Wade of Senegal. The vision evolved into an integrated ecosystem management approach in January 2007, when the African Union (AU) adopted declaration



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137 VIII, approving the “Decision on the Implementation of the Green Wall for the Sahara Initiative.” In June 2010, Burkina Faso, Chad, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Senegal and Sudan signed a convention in Ndjamena, Chad to implement the GGW. AU considers GGW as a special Program, thereby recently upgrading it to the status of a Pan African Agency with its headquarters located in Nouakchott, Mauritania and administered by a Director General (Gadzama and Ayuba, 2016).

The problem of desertification in the Sahel of Nigeria

From the above, it could be seen that Nigeria takes development of GGW in its Sahel region very seriously and the purpose of this paper is to report on the development of GGW in the frontline desert threatened states of Nigeria which occupy some 43 percent of the land mass of the country in the far northern region. This area lies within the Sudano-Sahelian West Africa which stretches from Senegambia to Somalia in the East – a land mass located within latitudes 10°-14° North and longitudes 3° and 14° east (Gadzama and Ayuba, 2016). They are collectively regarded as “frontline states” because they mostly share common boundary with the Sahelian Niger Republic. Indeed, the northern borders are all Sahelian environment (Figure 1 and Table I). This zone generally known as Sahelian zone of Nigeria is defined as an area that receives between 200 and 800 mm of rainfall per year. These states have a population in excess of 35 million people. The frontline states include Bauchi, Gombe, Borno, Yobe, Kano, Jigawa, Katsina, Sokoto, Zamfara, Kebbi and Adamawa (Table I)

Desertification maps by FAO, WMO and UNESCO in 1977, show significant southward migration of Sahara desert. For it is known that the Sahara is moving southward at the rate of 0.6 km yearly; amounting to a loss of about 351,000 hectares of both crop and rangeland to desertification each year (Gadzama, 1995; Tiffen and Mortimore, 2002; Federal Government of Nigeria (FGN), 2004; Winslow *et al.*, 2004). This is evident in the sand dunes that have covered large expanse of agricultural farmlands, livestock grazing land with trees dying within the region and drying up of local oases (Building Nigeria’s Response to Climate Change, 2012). Between the period of 1976/1978 and 1993/1995, sand dunes increased by



Figure 1.
The Great Green Wall
Sahara Sahel
(GGWSS) initiative

Source: GEF (2013) and FRN/ME (2012)

Table I.
Frontline States of
Nigeria affected
by desertification

States	Land area		Number	Population	
	km ²	% of Nigeria land mass		% Population of Nigeria	Density/km ²
Bauchi	45,837	6.99	4,676,465	3.34	102
Gombe	18,768	2.03	2,353,879	1.68	125
Borno	70,898	7.67	4,182,649	2.97	58
Yobe	45,502	4.93	2,321,591	1.66	51
Kano	20,131	2.18	9,383,682	6.70	280
Jigawa	23,154	2.51	4,348,649	3.11	122
Katsina	24,192	2.62	5,792,478	4.14	160
Sokoto	25,973	2.81	3,696,999	2.64	67
Zamfara	29,762	3.22	3,259,846	2.33	110
Kebbi	36,800	3.98	3,238,628	2.31	56
Adamawa	36,917	4.56	3,168,101	2.26	51
Total/Average	393,168	42.56	49,591,159	35.19	98

Sources: Gadzama (2003, reviewed and upgraded)

approximately 17 percent from 820 to 4,830 km² according to Federal Ministry of Environment (FME) (2008). Some villages land major access roads have been buried under sand dunes in the extreme northern parts of Katsina, Sokoto, Jigawa, Borno and Yobe states. Also examples are the receding Lake Chad and increase in gully erosion that hitherto was not a major threat, now claiming about 18,400 km² (which was only 122 km² in 1976/1978) (FME, 2008; Musa *et al.*, 2008; Gadzama and Ayuba, 2016).

It has been estimated that between 50 and 75 percent of the 11 frontline states of Nigeria are under severe threat. The pressure of migrating human and livestock populations from these states are being absorbed by buffer states resulting in an intensive use and degradation of the fragile and marginal ecosystems of these areas, even during years of normal rainfall. The buffer states are reported to have about 10-15 percent of their land areas threatened by desertification (Gadzama, 1995; Tiffen and Mortimore, 2002; FGN, 2004; Winslow *et al.*, 2004; Gadzama and Ayuba, 2016).

The timely land use and vegetation cover studies by Forest Management, Evaluation and Coordinating Unit (FORMECU) of Federal Department of Forestry, for the periods 1976/1978 and 1993/1995 showed that the changes in vegetation during the interval period of 15 years (1978-1995), was staggering with 32 percent of the riparian vegetable cover removed by year 1995. Forest cover became less than 20 percent that of 1978, and that the present estimated forest cover for Nigeria is less than 10 percent, with increased distribution of alluvial and rock out crops, signifying degradation (Forest Management, Evaluation and Coordinating Unit, 1996). With increased population, it is not surprising that there would be intensive agricultural land use and land degradation.

Methodology

Many national and international agencies have participated in several desertification attenuation projects in Nigeria employing different methods for maximum benefits obtainable from the objective of the particular project. Specific methods will be cited for particular projects mentioned as appropriate. The approach in GGW is to improve the alternative livelihoods of the people by their active participating in the implementation of the project as earlier described. It is noted that environmental impact assessment or community reconnaissance and needs assessments were initial part of all pre-project activities as deemed necessary by each participating country. In rural and farming community-based projects (e.g. the North East Arid Zone Development Program (NEAZDP)) in Yobe State of Nigeria, both participatory rural appraisal (PRA) and rapid rural appraisal

(RRA) methods were employed (Gadzama, 2017). It is, however, observed by Yusuf (2014) that PRA may be more adequate method than RRA in study of inadequacy of environmental and infrastructural resources to “satisfy basic needs results in deprivation” among rural people where specific community is concerned. RRP could be used in selecting study sites over a wide area.

282 **Summary review of previous interventions against desertification in Nigeria**

- Early control efforts in the 1960s, 1970s and 1980s.
Efforts at desertification control in Nigeria started during the colonial era with effective rural participation (Gadzama and Ayuba, 2016). The colonialist focused attention on forest reservation. By the late 1970s and early 1980s, the focus shifted to establishment of large-scale monoculture plantations of exotic species (afforestation projects), as tree-planting campaigns, shelterbelts development (to roll-back the desert), etc. With the Forestry Policy of 2006, there was a paradigm shift from the monoculture plantation to community-based forestry programmes. This is in realization that local population must be brought on board in the planning and implementation of forestry projects as part of sustainable environmental awareness campaign program for future development.
- Frontline states’ realization of the threat of desertification in 1980s.
The collaborative efforts of the 11 northern states in the 1980s have been most appropriate and impressive. In realization of the serious situation of drought and desertification in the northern parts of Nigeria, the Military Governors of the 11 northern states, set up a Consultative Committee on Desert Encroachment to assess the extent of desert encroachment in the north, review the efforts made on anti-desertification and make recommendations on the situation both to regional and national levels. The Committee had toured all the affected states and submitted their preliminary but discouraging report. The general conclusion was that the northern states were in great danger, with average desertification of about 48 percent. In 1989 Sokoto, Katsina and Kano states, in collaboration with the Federal Government, had reported commendable achievements on the massive shelterbelt developments. These shelterbelts, as shown in Plate 1, are now satellite beacons in the zone which are immensely appreciated by the rural communities, especially the farmers that testify shelterbelts’ contribution to enhanced crop yields and multiple harvests in a year.
- Work of FORMECU.
FORMECU played a critical role in conducting inventory survey of natural forest and plantation resources in 28 states of the country, culminating in the production of forest management plans for each of the states involved and the development of forest information system to assist in the sustainable management of forests. More importantly, the work of FORMECU provided evidence of the serious vegetation changes and biodiversity loss particularly in northern part of the country, forewarning on threatening desertification.
- The NEAZDP, Funded by the Federal Government of Nigeria and European Union Assistance.
This commenced in February 1990 with the main objective of motivating and assisting the rural development, targeting at improving the standard of living of the rural population through proper resource use and management. The program covered an area of about 25,000 km² in the extreme northern part of Borno State (now Borno and Yobe States). The major components of this program include water

resources development and management (including irrigated agriculture), provision of micro-credit for off season economic activities, cottage industries, livestock fattening, rural banking and popularization of animal traction for land preparation activities in environmentally friendly system. The program was very beneficial to many communities in Yobe State that has presently continued to sustain its activities. Both PRA and RRA methods were utilized to establish acceptable bench marks before program implementation.

- UNEP/University of Maiduguri Community Sub-Regional Model Village Project.

This was a sub-regional project carried out under the name, Mega-Chad Project in developing appropriate rural technology options in harmony with environmental protection. In this regard, the University of Maiduguri (Center for Arid Zone Studies), in partnership with Federal Ministry of Environment of Nigeria, adopted a small town called Sabon Gari Nangere in Yobe State of the country in 1995 for environmental study trials in community acceptance and adoption of fabricated energy saving cooking stoves. The objective was to create partnership with the local communities in the Sahel, and through appropriate education and input of material, financial, intellectual resources and guidance, the communities would become self-sustaining in terms of undertaking good practices for improved livelihoods. This would indeed contribute to environmental conservation. Because of its community acceptance, the project was successfully replicated in four sub-regional Sahelian communities of Turba Gida (Niger Republic), Ngala (Nigeria), Zafaya (Tchad) and Makilingai (Cameroon) with good degree of acceptance/adoption of the rural technologies (fabricated clay stove, saw dust stove and solar cooker). The Mega Tchad Project which was financially supported by the Belgium Government through UNEP, utilized RRA techniques in selecting the model communities (Gadzama and Folorunso, 2011).

The Great Green Wall Sahara Sahel Initiative (GGWSSI) in Africa

In 2007, African Heads of State and Governments endorsed the GGWSSI (Figure 1) with the objectives of tackling the detrimental social, economic and environmental impacts of land degradation and desertification in the region (Gadzama and Ayuba, 2014). The initiative aims to support the efforts of local communities in the sustainable management and use of forests, rangelands and other natural resources in drylands. It also seeks to contribute to climate change mitigation and adaptation, as well as improve the food security and livelihoods of the people in the Sahel. The vision for the GGW has evolved into that of a mosaic of interventions of tree planting and addressing the challenges facing the people of Sahel.

The AU considers GGW as a special program, thereby recently upgrading it to the status of a PAGGW with its headquarters located in Nouakchott, Mauritania and administered by an Executive Secretary – for a term of three years, renewable once. The Out-going Executive Secretary is Mr. Abdulla Teah.

The program initially is financially supported by the GEF Trust Fund (\$81.3 million), by resources from Land Degradation, Biodiversity, Climate Change allocations and the Sustainable Forest Management Forest and REDD+ Incentive Program, and by the Low Development Countries Fund for Adaptation (\$19.5 million); providing initial sum of \$108.8 for the takeoff of this important program. Each participating country would contribute by linking national-level efforts across borders, they will tackle policy, investment and institutional barriers that exacerbate the effects of climate change and variability, leading to desertification and deterioration of the environment and natural resources and the risk of conflicts between communities. International Colloquiums are to be held to discuss possible barriers as well as share available knowledge on the vegetal species, systems of development, and GGW monitoring updates by the GGW Agency.

PAGGW

Although the main thrust of this paper is to discuss the progress of the National Great Green Wall (NAGGW) of Nigeria, it is proper in digression, to appraise the PAGGW progress which is considerable and encouraging. So far, there is increased consultation by member states through the PAGGW sessions holding at the headquarters in Nouakchott, Mauritania. At its Third Head of States and Governments Session held in August, 2015 some interesting proposals were made in support the PAGGW program:

- University of Toronto proposal for provision of clean, freshwater for people and support of agriculture by desalination of piped saline water from Atlantic and Indian Oceans at no cost to the GGW members.
- Presentation by Chinese Academy on the Taklimakan Desert on Chinese experience in establishing a Green Wall of trees to protect the Tarim Highway threatened by moving sand. There is the need to explore the possibility of adaptability of this experience and technology in establishing GGW in Africa.
- In order to strengthen the operations of the PAGGW, Council of Ministers recommend the substance of the annual due of 50 million CFA as statutory contribution of member states.
- Acceptance of the Sudan's proposal to implement a Carbon Bank which could play a great role in financing the GGW in the fight against poverty and climate change. Sudan is to host a high level training seminar for the experts of the Pan African GGW member states on the Carbon Bank Proposal. The commitment of Sudan is substantial as it proposes development of one of the longest NAGGW stretch of 1,500 kms long and 25 km wide according to Dr Hassan Abdul Gadir Hilal, Sudan Environment Minister.

The UN convention on climate change COP21 and the PAGGW

Even at the recent UN COP21 Convention on Climate Change held in Paris, there was visible support for GGW. The Sahelian countries Heads of States at the meeting were hosted by the President of France – François Hollande and had opportunity for consultation on this important program; that its success would provide improved livelihoods to millions of people living in the Sahel. The Republic of Chad continued to express deep concern over the disappearing Lake Chad with dire consequence on the two million people of the sub-region, including food insecurity and insurgency and migration to Europe. Evidently, there was renewed commitment to GGW by African Development Bank, GEF, World Bank, European Union, FAO, UNCCD, France, other partners and African leaders; the funds for APGGW were therefore boosted by US\$4 billion. Encouraging reports on GGW were also received:

- Senegal: planted 11.2 million trees and restored 25,000 hectares of degraded land restored with families already benefiting from the wall;
- Ethiopia: 15 million hectares of degraded land restored;
- Sudan: 2,000 hectares of land restored; and
- Nigeria: five million hectares of land restored with 2,000 jobs created.

NAGGW in Nigeria

For Nigeria, the GGWSSI is a community driven in outlook, as all the 11 frontline states, (Figure 1 and Table I) involving 46 local governments, running from Kebbi to Borno States, covering a distance of 1,500 km long by 15 km wide would be developed. As a rural-based

program, the communities are supervised to raise 60 million drought-resistant tree seedlings, to be planted for the establishment of contiguous shelterbelt across the states. More than 100,000 people in the rural areas will be employed, beside the 1,000 forest guards and 450 extension workers that will be required (Federal Republic of Nigeria/Ministry Environment, 2012). Nigeria's GGWSSI was launched by His Excellency, the President, Dr Goodluck Ebele Jonathan in Kebbi State in November, 2014.

As a follow up to the establishment of PAGGW and in respect to the initiative by the African Heads of States and Governments, the National Assembly of Nigeria in 2015, has passed an Act for the establishment of a special National Agency for the development of NAGGW in Nigeria in consultation with PAGGW. Already an office for NAGGW is located in Abuja, Nigeria and Director General – Mr Goni Ahmed is appointed for the National Agency of Nigeria.

Discussion and conclusion

The purpose of this paper is to report on what implementation progress has been made in Nigeria on the GGW since its launching in 2014 and in view of the change in government democratically; also to consider the developments at sub-regional levels of Northwest and Northeast Nigeria. It is with great anticipation that this is successfully being implemented to match the great shelterbelts in Jigawa and Kano States developed in the 1960s, which are now satellite beacons in the Sahel of Nigeria. These should be rehabilitated and integrated into the present shelterbelt development. Here, we would wish to commend the undertaking of the *Daily Trust* News Papers for its continued report on the progress of GGW in Nigeria, especially the incisive commentaries of Mr A. Abutu of the News Paper which immensely contributed to developing this paper.

Implementation of the GGW in the North West Nigeria

The launching of GGW in Nigeria was carried out in Kebbi State on November 14, 2014 and good progress has been achieved in the North West. Even before the creation of NAGGW, Sokoto State had re-enacted a bill for the purpose of desertification control in view of its detrimental effects on the communities. In Sabon Gari Local Government Area (LGA) at Unguwar Lalle community, for example, 6 km of shelterbelt, two hectares of orchards, and one hectare of community nursery have been established. Elsewhere in the Sattu, other community leaders praised the GGW project as this provides source of water for the people and their livestock. Because of its popularity, there is already disagreement as to where to site the project in Zamfara State.

In Katsina State, the GGW sites are located at Ganga (Daura LGA) and Misra (Mai'Adua LGA). Integrated program is being implemented to include shelterbelts, orchards and water resources. The Executive Governor of Katsina State, Alhaji. Aminu Bello Masari is very supportive of NAGGW as he says, "we can defeat desertification via collaboration." Implemented under the GGW in the State are 35 boreholes, over 27 km of shelterbelt, 60 hectares of orchard, distributed 42,000 date palm seedlings to communities and trained 400 women in various trades. Ten LGAs are involved. Report on GGW implementation activities in Kano and Jigawa States, where the great old beacon shelterbelts of 1960s are located, is currently scanty. It is Jigawa State that many plants seedlings were planted with good survival rates in Birniwa and Sule Tankarkar LGAs.

Implementation of GGW in the North East of Nigeria

It is expected that the insurgency activities in this part of the country would slow down the progress of GGW implementation in Borno State as the two LGAs – Abadam and Mobar hosting the GGW in the State are presently inaccessible due to Boko Haram attacks.

However, earlier efforts achieved development of 13 km shelterbelt, four community orchards, and drilled four boreholes. The 14,000 forest and 1,000 fruit tree seedlings grown had to be distributed to other locations not under heavy attacks. It is noted with concern that should peace prevail, GGW activities should be extended to Ngala and Gulumba LGAs that are greatly affected by desertification. In Adamawa State that is equally affected by the Boko Haram insurgency, progress has been slow. So far a total of 200 hectares of woodlots and orchards were established in Madagali, Michika, Mubi North, Hong, Song and Guyuk LGAs. Much progress has been achieved in Bauchi State, particularly the northern LGAs of Katagum and Azare that are prone to drought and desertification. Here, the youths have been preoccupied with making vast seedling beds for growing multi-purpose plants and creating woodlots and shelterbelts.

The Northwest and Northeast geo-political zones of Nigeria that are Sahelian, have the highest poverty rates in the country, with 77.7 and 76.3 percent, respectively, compared to the national average of 69.1 percent. The poor local people still meet their needs from the threatened natural environment by burning the bush for game, deforest for fuelwood, and overgraze the scanty vegetation by their livestock. Therefore, the GGW project which is succeeding, represent a special venture for stabilizing the environment and offers opportunity for improved livelihoods for inhabitants of the two zones. The present growing consensus among partner stakeholders is that GGW is not about afforestation and reforestation only, but about food and livelihoods, job creation, improved grazing facilities, fisheries and sustainable farming.

Gender issue and the GGW

Women are fully engaged in GGW. As observed earlier, women in the North had become very keen to participate in anti-desertification efforts as the degradation of the environment penalizes them in the domestic tasks especially in fuelwood supplies, water supplies (both quality and quantity) and have less access to cultivable land because of reduced availability. Worsening situation of any of these may lead to increase in poverty and even famine. Women therefore participated in desertification control schemes on a massive scale. The contribution of women in the tree planning programmes in Nigeria by the Better Life for Rural Women program was a commendable example of contribution in National Project (Gadzama and Folorunso, 2011). At regional level, it is expected the GGW will effect positively on women. Based on a real life scene – “Growing a World Wonder” in a film at the African (COP21) Pavilion in Paris showing Binta, a young Senegalese girl as she and her family manage their portion of the GG Wall; it shows the challenges they faced and how the project is already transforming their lives for the better; confirming the above benefit in Better Life for Rural Women.

In Nigeria, women have taken commanding roles as Ministers and Commissioners of Ministries of Environment at Federal and State levels. Indeed, it was a lady Minister that supervised the launching of GGW in Kebbi State of Nigeria. The present lady Minister, Mrs Amina Mohammed is a lady of very high profile, having served ably as Chief Executive Officer of Millennium Development Goals in Nigeria and recently, Special Assistant to Secretary General of the United Nations. Much is therefore expected of Nigeria’s Ministry of Environment and the implementation of NAGGW under her leadership.

Publicity concerning the project

Already commendation has been made to Daily Trust for its publicity of GGW, but a lot of energy must be invested to educate the public, especially in the Sahel region, on the real value of community participation in its activities as the Honorable Minister of Environment, in Paris COP21, has made a crucial remark that ownership by the communities is crucial to GGW success. The opportunity of the enhanced attention of the public due to the

visible inputs by the NAGWW should be matched by increased jingles especially in the prevailing local languages. Also there should be more briefings and engagement of journalists and news media personnel, as science communication in Nigeria is not yet developed (Makanjuola, 2012).

Some constraints to the rapid development of GGW

- The attacks by Boko Haram and the marauding cattle rustlers constitute major impediments to the project since insecurity creates unease in commitment and positive action.
- Although labor is available, the cost of training personnel is expensive, especially in unstable economy due to dwindling value of oil in the world market.
- It is challenging to synchronize activities in the large Sahel of Nigeria without compromising quality; therefore more trained staff and enhanced communication base is a real necessity.
- There is the need for close consultation between the National and the Pan African Agencies for continuous sharing of information, experience, technology and alignment of activities.
- Increase in population is real – 140 million in 2006 and now estimated at 180 million; exerting more pressure on demand for arable land that is not available; increase in intermittent conflict between land users – farmers and herders is expected.
- National adequate budgeting for GGW is necessary to sustain this essential and necessary project for land restoration and sustainable livelihoods.

Conclusion

- (1) In conclusion, it can be said that GGW is on its way to success as it is now called “Growing World of Wonder” at international level especially at the UN COP21 on Climate Change meeting held in Paris in 2016. Implementation of GGW is certainly evoking a sense of unity of purpose and determination among the governments and the people of the Sahel.
- (2) The success of implementing the project should stabilize and slow down land degradation and would improve livelihoods, which in turn, reduce migration, especially to Europe. GGW implementation over vast region of Africa (7100 km long by 15 km wide), is also enhancing cooperation and sharing of technical knowledge among African countries in attenuating environmental and other common problems.
- (3) It is, however, noted that the success of the program will depend not only on the political will of the governments, but also on the prevailing peace in this volatile Sahel region. With recent experiences of Boko haram in Nigeria and insurgents in Mali, these serious challenges could impede the progress of this vital project.
- (4) The GGW program is gender friendly as depicted a life scene “Growing World of Wonder” in a film showing the response of Binta, a young Senegalese girl, as the GGW was positively transforming her life and that of her family in Senegal.
- (5) It is noted that international agencies are prepared to support and participate in GGW development – University of Toronto proposition to pump in freshwater in support of the project; Chinese Academy wishing to provide technical support in developing the GGW Shelterbelt.

- (6) Republic of Sudan's innovative proposal is to host and train staff members of the participating countries on the Carbon Bank Proposal, providing additional source of funds as part of the financing strategy for developing and maintaining GGW.
- (7) Financial support for the GGW is both national and international with initial grant amount of US\$108.8 million by the UN (GEF Trust Fund). There has been renewed commitment by African Development Bank, GEF, World Bank, EU, FAO, UNCCD, other partners and the participating African countries to now boost the GGW funds up to US\$4.0 billion at the Paris meeting in 2016. As with Nigeria, each of the participating countries may plan to match the incoming external grants with internal counterpart funding. In support of this laudable project, needs for intense global and local efforts would be necessary to achieve and sustain its lofty dreams with tangible economic and environmental benefits to Africa.

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