



## A REVIEW OF AFFORESTATION EFFORTS IN NIGERIA

Kamal Mohammed IBRAHIM\*

Sulaiman Inuwa MUHAMMAD\*\*

---

**Abstract:** *In Nigeria, afforestation is of critical importance as the whole country has been ravaged by many environmental problems which can be managed through afforestation. Although the northern part of the country suffers the most from deforestation, the south-south parts of the country, as well as the relatively stable centres, are not spared the menace. The numerous benefits of afforestation include addressing environmental degradation, more especially desertification, deforestation, erosion and flooding as well as reducing the effects of climate change. Afforestation also aids in increasing supplies of forest products for local consumption and supporting of local enterprises, income generation from the sale of timber and non-timber products, enhancement of fuelwood availability, employment creation, and expansion of raw materials base for industrial development. Therefore, afforestation forms a background for important developments to take place particularly in land use practices, environment and natural resources management. However, little is known about past afforestation programmes in the country and the impacts they have had. This paper attempts at reviewing the previous afforestation programmes in the Nigeria, with greater focus on the northern part of the country as well as the achievements these programmes may have achieved.*

**Keywords:** *Afforestation, Afforestation Programmes, Deforestation, Nigeria and Northern Nigeria*

---

\*M.Sc. Research Student in Natural Resources Management and Climate Change Programme of the Bayero University, Kano, Nigeria

\*\*Phd Research Student in Ecology and Bio-Diversity Programme of the University of Malaya, Malaysia



## **INTRODUCTION**

Nearly 50% of the earth's land surface has been transformed by direct human action, with significant consequences on biodiversity, soil and climate (Oloyede, 2008). However, many studies have shown that Afforestation becomes more pressing in dryland environments such as Nigeria (Federal Ministry of Environment, 2013; Hassan, 2012; GGWI, 2013). Kalu (2014) believes that all forestry resources estates in Nigeria have been very highly depleted. The effects of deforestation and desertification are widely known. Likewise on the other hand, Afforestation and related tremendous positive environmental and social-economic impacts have been well documented (Geidam et al, 2014; FGN, 2012; Hassan, 2012; Kalu et al, 2014). Afforestation represents a very important and critical way of improving dryland environments. Nigeria is a typical dryland where you have the arid, semi arid, dry-sub humid as well as savannah zones.

The numerous benefits of afforestation include addressing environmental degradation, more especially desertification, deforestation, erosion and flooding as well as reducing the effects of climate change. Afforestation also aids in increasing supplies of forest products for local consumption and supporting of local enterprises, as well as improving the socio-economic background of people through income generating activities such as sale of timber and non-timber products, enhancement of fuelwood availability, employment creation through planting, weeding, tending, thinning, protection and harvesting of tree species and expansion of raw materials base for industrial development.

Inspite of all these, the challenges of deforestation and associated impacts still remain glaring in the country. Although more clearly seen in the far north and other frontline states in the country, their impacts are nevertheless, felt all over.

## **DEFORESTATION AND DESERTIFICATION IN NIGERIA**

By the late 19<sup>th</sup> Century, Nigeria had about 65 million hectares of rich tropical primary forests, with abundant flora and fauna. Now in the 21<sup>st</sup> Century, this area has been reduced to about 4 million hectares (Oloyode, 2008). Another study conducted by Nigerian Environmental Study/Action Team (NEST) showed that Nigeria lost 5 percent of its forest annually throughout the 1980s. Another report by Forestry Research Management, Evaluation and Coordination Unit (FORMECU) of the Federal Department of Forestry



indicated that Nigeria still loses an annual average of 350,000 hectares of forest cover (Ogbonaya, 2003).

Deforestation has many negative environmental problems. The main consequences of deforestation process in Northern Nigeria is desertification or desert encroachment (WEP, 2011; Jigawa, 2012; FME, 2013). These are also linked to social, economic and institutional. Other consequences of deforestation include reduced crop production or yield due to erosion of fertile topsoil. Rainfall and other weather patterns have become distorted and unpredictable. There have been delays in onset of rains and premature cessation of rains. Populations of wildlife or animal species have also become depleted due to the destruction of their habitats. (Oloyede, 2008). Studies have shown that some villages in the north of the country have become buried by the advancing sand dunes (Medugu et al, 2009; Oloyode, 2008).

Indeed, the Women Environmental Programme (WEP) in 2011 reported the effects of desertification on the Nigeria Nation as the most pressing environmental problem facing the Northern part of the country. They further recognized the fact that no fewer than 40 million people within the northern part of the country are faced with the threats of hunger and extreme weather conditions due to desert encroachment on arable lands and grazing lands. It was also observed that the Sahara desert is moving southwards at a rate of 0.6 kilometers per annum with the rate of 0.6 kilometers per annum. WEP (2011) have put the rate of deforestation been at 350,000 hectares per annum.

### **AFFORESTATION IN NIGERIA**

Among the human activities that have striking effect on the earth's environment is deforestation, which is compensated by corresponding afforestation and reforestation efforts. With nearly 50% of the earth's land surface transformed by direct human action, with significant consequences on biodiversity, soil and climate (Oloyede, 2008), there is urgent need to plant and grow more trees because of the numerous contributions which play significant roles in climate change, food production, medicine as well as employment and income generation. (Kalu et al, 2014).

It is expedient to direct forest management to the direction that will step down the current rate of deforestation in the country. Bandy (1994) has observed that a continuous trend forest exploitation will result in diminishing the remaining tropical forest by the end of the



21st century. The value of forest estate in Nigeria rests largely on the building up forest status through afforestation and reforestation on continuous basis. Generally, forest ecosystem has been constantly to strike ecological balance by trying to cope with the way in which human beings use natural resources, clear forestlands, harvest trees and contaminate the air, land and water.

Thus, afforestation and reforestation form a background to the important development taking place in the forestry landscape in the country, particularly land use practices including forest and land allocation, exploitation and environmental conservation. Sustainable afforestation and tree planting programme are imperative in Imo State like many other States in Nigeria. (Kalu et al, 2014).

## DEFORESTATION AND AFFORESTATION IN NIGERIA DRYLANDS



**Figure 1: Map showing the Agroecological Areas of Nigeria (Source: IITA, 2015)**

Nigeria, along with one-half of the world's countries have portions or all of their land in dryland environments. These lands and their sub-humid margins represent one-third of the earth's surface and are the home to nearly 40 percent of the world's population (White et al. 2002). Africa, including Nigeria is particularly vulnerable to desertification (Penny, 2009). It is here where land and environmental degradation is occurring at alarming rates, often leading to desertification, and threatening the livelihood of more than 1 billion people. Drylands are diverse in terms of their climate, soils, flora, fauna, land use, and people. No



consistent characterization or practical definition of drylands can be made because of this diversity. One binding feature of all dryland environments, however, is their aridity (Ffoliott et al, 2003).

Many reports have shown close correlation between the drylands and the locations of areas that are likely to be affected by desertification (El-Baz et al, 1991; Ffoliot et al, 2003; Jigawa, 2013; Medugu et al, 2009). This correlation is often explained by the fragile dryland environments undergoing aeolian and fluvial erosion, soil salinization, and loss of vegetation by overgrazing by livestock, over cutting of fuelwood and trees, and other excessive uses of the land and natural resources by people.

Medugu et al (2009) reports that Northern Nigeria experiences widespread land degradation, mainly attributed to deforestation. Increasing agricultural intensity and livestock over-grazing, combined with increasing demands for fuel-wood have led to a rate of deforestation estimated to be 3.5 per cent per year, one of the highest in the world. Livestock densities are high, the majority owned by the nomadic Fulani, who retain large herds for security. Soils in the region are ferruginous tropical soils, generally of poor structure and low fertility (Nasiru and Majid, 2007). The hot and dry climate causes bare, un-vegetated soils to easily heat up, especially during the dry season resulting in soil baking coupled with high-evaporation rates, the soil becomes powdery and easily blown away by the wind (Nasiru and Majid, 2007). Thus, in the absence of vegetation, wind and water erosion on exposed soils have extremely detrimental effects, limiting plant growth and productivity. In the far northern areas, increasing sand dune formation is also evident.

The United Nations Environment Program (UNEP) has estimated that 35 million km<sup>2</sup> of the dryland regions of the world, an area approximately the size of both North and South America, are affected by desertification or the threat of desertification (FAO, 1989; UNEP, 1992). Nearly 25 million km<sup>2</sup> of this area has been classified as exposed to either high and very high desertification risk. Equally important is the fact that 30,000 km<sup>2</sup> are reduced to a state of “uselessness” every year, a loss that is expected to continue into the future unless remedial actions are taken. Destruction of the impacted lands’ productive capacity brought about by desertification costs the world more than \$75 billion each year.

Nasiru and Majid (2007) reports that the Sahara desert is moving southwards at a rate of 0.6 kilometre yearly. If left unchecked, it will affect much of northern Nigeria. Medugu et al



(2009) also reports that about 50 million people in Northern Nigeria are suffering from the effects of desertification and the menace is posing a serious threat to the nation's economy, food security and employment.

In 2002, at least, 50,000 farmers in about 100 villages scattered along the desert fringes of the northern state of Yobe, one of the eleven states affected by desertification are reported to have abandoned the year's farming season due to sand dunes. The dunes have covered a large expanse of agricultural farmlands, oasis and ponds (Olori, 2002). The dunes are threatening life-supporting oasis, burying water points and in some cases engulfing major roads in the affected areas. Trees planted by government as shelter belts to check the advancing dunes are withering due to lack of attention (Medugu et al, 2009).

Yobe State Ministry of Environment reported in 2002 that productive and mass land occupied by the dunes has increased from 25,000 hectares to more than 30,000 hectares, with its negative impact on food and livestock production. Considering a conservative production of five bags of 100 kilograms of grain of millet or sorghum per hectare in the area, it means the 30,000 hectares destroyed by the dunes is capable of producing over 150,000 bags of millet. With an average grain requirement of one bag of 100 kilograms of millet per family of four per month, it then follows that 150,000 bags can support 12,500 families of four or 50,000 people per year (Olori, 2002).

In Jigawa State also, the area of land used for intensive agriculture increased from 36.8 to 69 per cent and undisturbed forest decreased from approximately 1.1 to 0.01 per cent from 1978 to 1992 (Westaneys and Woodley, 1998).

Borno State also affirmed that some bore holes dug by government to provide water have dried up due to acute drought aggravated by the effects of desertification in the state (Olori, 2002).

It is in realization of this that governments of the world are making concerted efforts in combating desertification. For proper planning and sustainable development, many factors more especially the inadequate and variable rainfall, coupled with the occurrence of prolonged periods of droughts of dryland regions that must be recognized (Jackson, 1989; Ffoliott et al (2003).

From all the above discussions, I believe that desertification is perhaps the greatest problem facing people of drylands.



## **PAST AFFORESTATION PROJECTS EFFORT IN NORTHERN NIGERIA**

We can broadly classify the periods of Federal afforestation activities in Northern Nigeria into three (3) viz:

### **a) 1930 – 1970 Period**

No documented report of afforestation projects in Northern Nigeria can be found until in 1937 when an Anglo-French Commission investigated reports in response to major concerns about the possible southward shift of the Sahara desert into Nigeria in the 1930s. In efforts to tackle this, Border emirates were directed to embark on tree planting to stop the encroachment (FGN, 2012). Thousands of seedlings were raised and distributed at nominal prices. In the 1940s also, a small action programme in the form of a tree planting campaign was launched. The bad situation of the affected areas further prompted the establishment of shelterbelts in the northern fringes in the 1960s (FGN, 2004).

### **b) 1970 – 2000 Period**

The catastrophic Sahelian drought of 1972/73 made the Federal Government realize the impacts and need for afforestation and thus, jolted the government into a more focused approach and action. Since then, the Government of Nigeria has regarded challenge of land degradation and desertification as inimical to national sustainable development that must be addressed.

In 1974, the World Bank on behalf of the International Bank for Reconstruction and Development entered into talks with the Federal Military Government of Nigeria for the First Forestry Project (US\$31 million, Ln. 1679-UNI, March 1979). This reports the Bank's first involvement in the sector. Its major objective was the establishment of 22,600 ha of Gmelina plantations in Ogun and Ondo States. When the loan closed in mid-1986, a year behind the original closing date, the project had achieved about 70 percent of the appraised planting targets in Ogun and Ondo States. Subsequent reports show it was be considered quite successful (WB, 1986; JIGAP, 1998).

In 1977, the Nigerian Government established a National Committee on Arid zone afforestation to address the problem of desertification. Various other schemes were embarked upon since then to improve the arid zone eco-system and human livelihood in these areas. In spite of these efforts, desertification is still very active (APCU, 1997).



In 1987, the Forestry II project was established based on the successes of the Forestry I project. Like the previous project, it was also World Bank funded and targeted towards Afforestation programme, including shelterbelts establishment and farm forestry components. In response to rapid deforestation and desert encroachment back then, the programme was principally focused towards the seven Northern states. This later became the eleven frontline states due to later states creation.

Forestry II lasted for 9 years and was rounded off in 1996. From available records, the programme was perhaps, the most successful afforestation project in Northern Nigeria (JIGAP, 1998; Medugu et al, 2009; WB, 1998)

Since the termination of the Forestry II programme, various efforts have been continued in the frontline states aimed at checkmating the scourge of desertification. For example, the Nigerian Government also formulated the Nigerian Forest Action Programme (NFAP) in 1997 through articulated planning and involvement of all stakeholders in the forestry sector (FAO, 2003). The policy reform packaged in the NFAP led to the setting up of two committees, i.e. the national committee on the review of forestry and the wildlife legislation and the national forest policy review committee. The former has presented a bill to the national assembly, while the latter visited South Africa and Malaysia to put in proper perspective in their input to the new forestry policy, respectively. Greater emphasis is now placed on community participation in forest management.

**c) 2000 - Date**

Shortly after assuming office in 1999, the former President, Chief Olusegun Obasanjo initiated the development and approval of the blueprint on national forestry programmes which ran from the years 2000-2003, with an approved budget of N11.25 billion (then \$112.5 million) to execute the programme (Medugu et al, 2009).

Later on, Obasanjo still concerned about the rapid rate of desertification and the attendant loss of biodiversity and human travails as well as suffering in the desertified areas directed the Federal Ministry of Environment in the year 2000 to establish a green belt stretching from Kebbi State in the North-West to Borno State in the North-East. The Ministry has already prepared a national action plan to combat desertification in line with the UNCCD. Some nurseries were also established to raise seedlings towards the take-off of the green belt project.



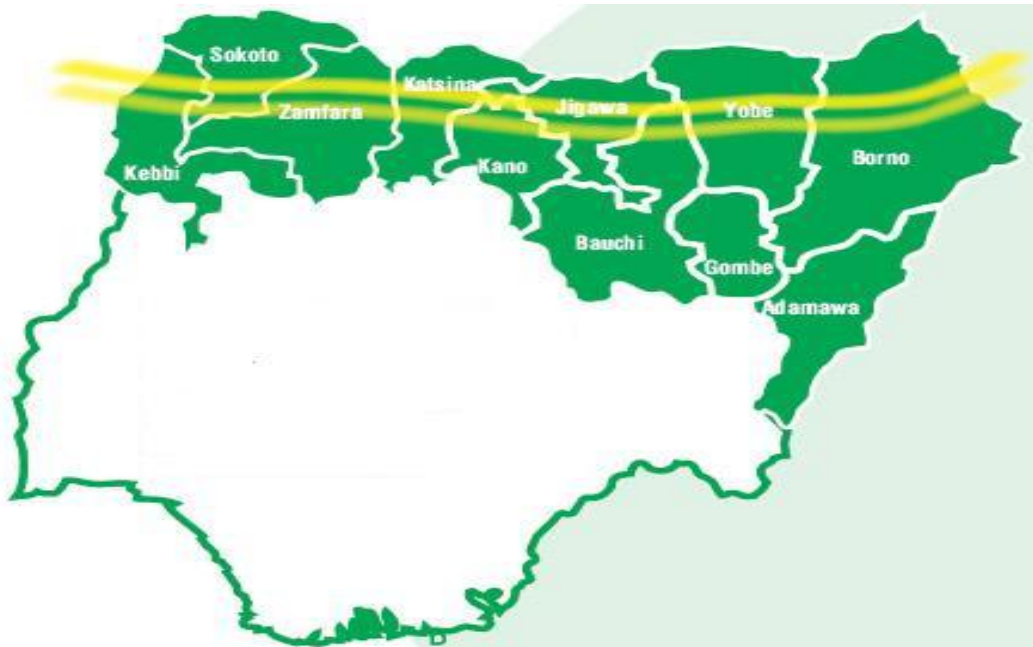


In 2008, Late President Yar'adua was quoted as saying that climate was a major contributing factor to desert encroachment due to global warming, and urged Nigerians to plant trees in order to cool the earth. According to him, land degradation and desert encroachment have constituted a bottleneck in the development of the affected areas of the country. The president said the government was committed to sustainable afforestation programme for the mitigation of the effects of climate change. In view of the magnitude of the problem of desertification, it becomes very necessary to commit both human and financial resources in order to rescue Nigerians from the scourge.

Still with President Yar'Adua's resolve, a stakeholder's forum was held on 19 January 2004, involving the governors of the frontline states, relevant ministers, the military and representatives of the legislative bodies on the way forward in the establishment of the green belts like shelterbelt for afforestation. Shelterbelt development and management and erosion management and prevention have to be understood as holistic and consensual efforts, at promoting sustainable development in our degraded ecosystem. The council should develop programmes that will be packaged with other developmental schemes that will improve skills and family income, create jobs, provide social amenities, empower the vulnerable groups especially women, youths, the aged and even the destitute.

More importantly, it should also aim at poverty reduction, in line with national economic empowerment and development strategy, which is the bedrock of the reform agenda of the Nigerian Government. This is also in line with the UN millennium development goals, which commit the international community to halve, by the year 2015, the proportion of people living in absolute poverty as well as the proportion of people suffering from hunger.

Presently, at the National level, a Great Green Wall for the Sahara and Sahel Initiative in Nigeria is also on course. The Great Green Wall project is a recent regional attempt in Africa to focus on addressing desertification in a more coherent manner. The initiative was originally conceived as a thematic project, focusing on creation of a wall of trees of some 15km wide and 7,775 km long from Dakar to Djibouti, through 11 northern African countries, and eleven frontline Nigerian states (FGN, 2012; Daily Trust, 2015).



**Figure 2: The Frontline States of the 'Great Green Wall Afforestation Programme'**

**d) State Governments Initiatives**

It is worth noting that many state governments made efforts at afforestation activities in their various domains. However, these activities were majorly hinged on the Federal government initiatives. To compliment Federal Government policies and activities that affected their states, many states embarked on the distribution of seedlings to members of the public free of charge. This seedling distribution was further complemented by the awarding of monetary rewards to outstanding farmers and communities. Tree planting campaigns were also intensified by governments in the affected states (Kalu et al, 2015; Medugu et al; 2009; JG MoE, 2013). Similarly, governments have embarked on both structural and non-structural methods to check the impacts of environmental degradation. There is a deliberate effort made at distributing cooking stoves to replace the use of firewood. Governments have also embarked on massive construction of drainages, public enlightenment campaigns against unwarranted bush burning and indiscriminate felling of trees as well as application of environmental impact assessments on public and private projects. The eleven frontline states are also engaged in the establishment of *Jatropha* plantations in forest reserves to provide bio-fuel and also to replenish the soil. In addition, there is the random planting of eucalyptus tree species for sand dune fixation as well as for poles and desert encroachment.



## **CONCLUSION**

Afforestation Programmes in Nigeria have a relatively short history with just 78 years of history. Although the different governments, beginning from the pre-independence and post independence periods have made modest attempts, it can be seen that these were mainly spurred in response to stark environmental disasters and remedial actions were taken.

However, if these programmes had been deliberately planned from the early beginning and efficiently sustained, many of the environmental problems currently facing the country may have been effectively mitigated.

## **REFERENCES**

1. Adams A, Bala I, Anih A, Muhammad AB and Tsafe AR. (2015). Ecological Implications of tree Planting in Kafin Hausa Local Government Area of Jigawa State, Nigeria. *International Journal of Current Research in Science and Technology*. Volume 1, Issue 3 (2015), 25-32. ISSN: 2394-5745.
2. Adesina, F.A and Gadiga, B.L. (2014). The Role of Shelterbelts in Vegetation Development of Desert Prone Area of Yobe State, Nigeria. *Journal of Geography and Geology*; Vol. 6, No. 4; 2014. ISSN 1916-9779 E-ISSN 1916-9787. Published by Canadian Center of Science and Education.
3. Aduradola, A.M. and Oladoye A.O. FWM 403: Silvicultural Techniques Lecture Notes of the Department of Forestry and Wildlife, University of Agriculture, Abeokuta.
4. APCU (1996), Impact Assessment of Afforestation Component of Forestry II: World Bank Assisted Project, Final Report, Afforestation Programme Co-ordination Unit, Kano.
5. Sheabrook, WC and Paylore, P. (1973). World Desertification: Causes and Effects. University of Arizona Office of Arid Land Studies. Arid Lands Resources Information Paper No. 3. Tuckson.
6. FAO. (1989a). Arid Zone Forestry: A guide for Field Technicians. FAO Conservation Guide 20, Rome, Italy.
7. FAO. (1989b). Role of Forestry in Combating Desertification. FAO Conservation Guide 21, Rome, Italy.



8. FAO (2003). Experience of Implementation National Forestry Programmes in Nigeria, Sustainable Management Programme in African ACP Countries: EC-FAO Partnership Programme (2000-2003), Food and Agricultural Organization, Quebec, available at [www.fao.org/docrep/fao/005/ac918e/ac918e00.pdf](http://www.fao.org/docrep/fao/005/ac918e/ac918e00.pdf).
9. Federal Government of Nigeria (2012). National Strategic Action Plan for the Implementation of the Great Green Wall for the Sahara and the Sahel Initiative. Federal Ministry of Environment, Abuja, Nigeria.
10. Federal Ministry of Environment- FME (2013). Assessment of Desertification in Borno, Yobe and Jigawa States. MIREC Solutions International Ltd, Abuja.
11. Ffolliot F, Dawson OJ, Fisher JT, Moshe I, Fulbright TI, Al Musa A, Johnson WC, Verburg P. (ed). Dryland Environments.
12. Geidam A.A., Redzuan M. and Abu-Sama A. (2012). Assessment of Participation in Afforestation Programme and Relationship to Empowerment. International Journal of Academic Research in Business and Social Sciences August 2012, Vol. 2, No. 8. ISSN: 2222-6990.
13. Hassan, B. (2012). The Presidential Initiative on Afforestation: Prospects and Challenges. Being a Presentation at the Stakeholder Forum/ Eco-Fair at the State Secretariat Conference Hall, Katsina.
14. Jigawa State Afforestation Programme- JIGAP. (1998). Interim Project Completion Report of the Activities of JIGAP Second Forestry Project. Mallam Madori, Jigawa State.
15. Jigawa State Afforestation Programme- JIGAP. (2015). Second Forestry Project. Unpublished Project Brief by the JIGAP Head Office Mallam Madori. Jigawa State.
16. Jigawa: The Making of a New World. (2013). Landmark Developments in Jigawa State between 2007-2013. Diametrics Limited. Abuja.
17. Kalu C., Edet, D. I. and Chukwuenye, C. E. (2014). Assessment of Afforestation and Reforestation Efforts by Forestry Department, Ministry of Environment, Imo State. Journal of Research in Forestry, Wildlife and Environmental Volume 6, No. 2 September, 2014. ISBN: 2141 – 1778.



18. Medugu N.I.; Majid, M.R.; Johar, F. and Choji, I.D. (2009). The Role of Afforestation Programme in Combating Desertification in Nigeria. *International Journal of Climate Change Strategies and Management*. Vol. 2 No. 1, 2010, pp. 35-47.
19. Muir, K and Casey, J. (1989). Institutional Responsibility for Social Forestry in Africa: Lessons from Zimbabwe. *Journal of Social Development in Africa* (1989) 4, 2, pp. 27-37.
20. Nasiru, M.I. and Majid, R.M. (2007). Combating Drought and Desertification in Nigeria: A Brief Evaluation of Government Policies. *Jurnal Alam Bina*, Vol. 9 No. 4, pp. 95-110.
21. Olori, T. (2002). Desertification Threatens Economy, Food Security. Proceedings of the World Summit on Sustainable Development, IPS-Inter Press Service, Johannesburg.
22. Oloyede, I.O. (2008). Afforestation and Reforestation: The Unilorin Experiment. Presentation at the High Level Technical Workshop on Afforestation and Climate Change in Africa. Organised by the Centre for Human Security of the Olusegun Obasanjo Presidential Library (OOPL) & Nigeria Tree Planters from December 15 – 17, 2008.
23. Penny, R (2009). Desertification and Deforestation in Nigeria. *Land Use, Land Cover and Earth Sciences Vol V*. Cape Town South Africa.
24. Sanusi A; Apampa S, Sotinrin A (2013). Socially Inclusive Sustainable Development in a Climate-Stressed Northern Nigeria: Case Study of Jigawa State. Heinrich Boll Foundation Nigeria.
25. Westaneys, C. and Woodley, E. (1998). Afforestation and Social Forestry in Northern Nigeria: A success story in Desertification/Land Degradation Control. *Saving the Drylands Award 1998*.
26. United Nations Environment Programme. Nairobi.
27. Women Environmental Programme- WEP. (2011) Report of the World Desertification Day as Marked. WEP Conference Hall, Abuja on the 17 June, 2011.
28. World Bank. (1986). Second Forestry Project. Report and Recommendation of the President of the International Bank for Reconstruction and Development to the



Executive Directors on a Proposed Loan in an Amount Equivalent to US\$71 Million to the Federal Republic of Nigeria.

29. CGIAR Dryland Systems Research Program. (2013). Dryland Agricultural Production Systems. New Research Approaches to Improve Drylands Agriculture to Deliver a More Prosperous Future. Publication of the the International Center for Agricultural Research in the Dry Areas (ICARDA Addis Ababa, Ethiopia. ISBN: 92-9127-283-3.
30. Figure 1- Map showing the Dryland Areas of Nigeria from the International Institute for Tropical Agriculture (IITA) from [http://:www.iita.com](http://www.iita.com). Accessed on 13/05/2015.
31. Figure 2- Map showing the 'Great Green Wall' Afforestation Programme in Nigeria. Source: Great Green Wall Initiative Office, Abuja, Nigeria.