

## An Appraisal of the Strategies Implored by Government to Combating Drought and Desertification in the North-East Geo-Political Zone, 2004-2014

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### Abstract

This paper appraised the strategies put in place by Nigeria government to combat drought and desertification in the North-east geo-political zone of Nigeria and establishing the situation at present, which is more of a rhetoric than practical. It also established the absence of the citizens input in the programs which as a matter of fact constitutes a major reason for perceive failure of the strategies.

Literature on concept of drought, and desertification as well as the nexus between the two phenomena were reviewed. The study adopted the survey design approach. Population of the study was the North-east geo-political zone of Nigeria comprising six states: Adamawa, Borno, Bauchi, Gombe, Taraba and Yobe. Purposive sampling technique was used in the selection of sample size comprising of six local councils from Adamawa, Bauchi and Gombe states; the reason being that they share common characteristics on the challenges of drought and desert encroachments. Cluster sampling technique was adopted in selection of 1,200 respondents of which 72.6% response rate was recorded. The research instrument used were a structured and validated questionnaire complemented by a structured interview schedule.

The study finding reveals that the strategies adopted by government in combating drought and desertification has a major defect in that it is not citizen oriented (since evidences from the survey points to the fact they were unaware of government programs on combating drought and desertification in their area). The study, thus recommended that for strategies of combating drought and desertification to work in the North-east geo-political zone of Nigeria or any other place in Nigeria, citizens' input into such strategy must be a top priority. That way, they will evidently adopt and own them and off cause protect than where necessary.

**Keywords:** Drought; Desertification; Strategies; North-east

### Introduction

Environmental issues have persistently constituted major challenges that have apparently defied intervention efforts by various governments of Nigeria. Among these environmental issues are the persistent encroachment and relentless degradation of arable lands by desert encroachment and drought in 11 states located of the northern part of Nigeria. It is estimated that Nigeria is currently losing about 351,000 hectares of its landmass over rampaging desert conditions annually, and such conditions are advancing southwards at the rate of about 0.6 km per year. The situation according to seems to be worst in the North-east geo-political zone where, in Yobe State, producing and mass land occupied by sand dunes has increased from 25,000 hectares to more than 30,000 hectares and continuing.

The efforts of successive Nigerian governments to control the menace seem to have been unyielding. In 1989, Nigerian Government in the bid to tackle environmental challenges ravaging the country developed a policy on environment titled national policy on environment (NPE). The policy document took care of all areas of environmental challenges including the issues of drought and desertification. In pursuant to a successful implementation of this aspect of the environmental policy, Nigerian government also signed up to the convention on combating desertification (CCD) in 1995. However, since the policy came into existence, the challenge of drought and desertification has continued to degrade the Nigerian environment, especially North-east geo political zone of the country.

This situation raised questions on what might possibly be wrong with aspect of the national policy on environment dealing with mitigation of drought and desertification, making it unable to effectively manage the situation. Thus, this research work is designed to appraise the

implementation strategies so far adopted by government, with the view to combating the twin menace. The focus will be to establish reasons for the perceived failure of the strategies, while making recommendations on what can be done better toward a lasting solution [1,2].

### Purpose of the Study

The purpose of this study, is to evaluate the effectiveness of the implementation strategies adopted so far by Nigerian Government in combating drought and desertification in the North-east geo-political zone.

### Research Question

1. What is the concept of Drought?
2. What is the concept of Desertification?
3. What is the Nexus between Drought and Desertification?
4. Are there Strategies aimed combating drought and desertification which government has deployed to combat the twin menace in the North-east geo-political zone?

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Received November 18, 2016; Accepted April 05, 2017; Published April 07, 2017

Citation: Nwokocha CO (2017) An Appraisal of the Strategies Implored by Government to Combating Drought and Desertification in the North-East Geo-Political Zone, 2004-2014. Review Pub Administration Manag 5: 205. doi:10.4172/2315-7844.1000205

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5. How effective are these strategies adopted so far by government to combat drought and desertification in the North-east geo-political zone?

### Scope of the Study

This study was conducted in the North-East geo-political zone of Nigeria. The period covered by the study was 10 years (2004-2014). This reorganized the UN convention which Nigeria adopted in 1995 and was rectified in December, 2000. Thus, taking cognizance of the mandatory 3 years gestation period, any meaningful examination of the implementation strategies would have to start from 2004. The research was conducted focusing on three states out of the six states of the North-east geo-political zone of the country; the reason was based on issues of insurgency situation in the North-East Geo-political zone of Nigeria.

### The Concept of Drought

Nwokocho [3], noted the absence of a universally accepted definition of drought by scholars, this he said is attributed to the numerous variety of sectors affected by drought. Thus, drought is seen as having a diverse geographical and temporal distribution and the demand placed on water supply by human-use systems [1]. Drought manifests in about all climatic zones. Nevertheless, its characteristics differ from one zone to another. More because, Drought is viewed to be a temporary aberration; varying in aridity, which is restricted to low rainfall regions and is a permanent feature of climate change [2,3].

Several work has been carried out on the issue of drought and according to [1,4], drought is one of the most important natural disasters that show its influences slowly by time. It ranks amongst the deadliest natural disasters that occurs within our universe, destabilizing social and economic life of people. It has also been noted that the frequent occurrences of drought in any region of the world could be because an adverse effect for the social backwardness and general poor quality of life especially among the less privileged people in rural areas of Africa. NOAA, (2008) described Drought as a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry [5-8].

Jibrin et al. (2013) aggregated the effects of Drought in Nigeria to include: low or no crop yields resulting in low food security index; mass famine; death of livestock; low groundwater levels resulting in dry wells (which needed to be dug deeper and deeper to obtain water for drinking); drying of lakes and dams; loss of biodiversity and impoverishment of ecosystem; acute shortage of water for domestic use and for livestock; decline in GDP; migration into urban areas; separation of families; and increased indebtedness. Aiguo [8] submitted that the consequences of drought are relative to coping capabilities. This is true based on the fact that people living in regions with advanced irrigation systems, such as those in developed countries, can mitigate the impacts of drought far better than farmers in Africa and indeed, other developing countries. These are countries that often have little or no tool to combat droughts and other natural disasters [9,10].

### The Concept of Desertification

UNECA, (2008) defined Desertification as a process of land degradation in arid, semi-arid and dry sub-humid areas, resulting from various factors, including climatic variations and human activities. Land degradation manifesting itself through soil erosion, water scarcity, reduced agricultural productivity, loss of vegetation cover and biodiversity, drought and poverty. World Ecology Report (2009) viewed

Desertification as a permanent decrease in biological productivity of dryland areas. Andrea [10] sees it as the process whereby vegetation is cut down without any simultaneous replanting for economic or social reasons. Again, it can be seen as the spread of desert-like conditions of low biological productivity due to human impact under climatic variations [5]. Pierce in Burmamu (2013) described desertification as the collective expression of numerous forms of land degradation.

Desertification is one of the central problems that pose very real and severe challenges to the sustainable development of the dryland's ecosystem [6]. The effects grow on a global scale. World Ecology Report (2009) has it that drylands comprise 41% of the earth's land area and are home to roughly 2 billion people, or 34% of the earth's population. Currently, over 250 million people in more than 100 countries are directly affected by desertification and more are at risk. Omar et al. [6] considered Sub-Saharan Africa to be more affected by Desertification than other region in the world. This is because Africa has 66% of her total land area as arid or semi-arid thus making it venerable to natural sources that necessitates desertification. The reality of desertification is that not only is it harmful to the earth and its inhabitants, but it is also expensive. Research shows that the world loses US\$42 billion to desertification and its effects [7]. Nigeria the most populous black nation of the world is losing 1,355 square miles of cropland and rangelands due to desertification each year. This problem affects each of the 11 states of the northern Nigeria. Nigeria loses approximately 320,000-351,000 hectares of land per year, which causes mass displacement of local communities in the North. At least 35 million people are facing threat of hunger and economic problems due to present scale of desertification.

Shehu (2014) laments that the worst hit by this situation are some states in the North-East. The situation in Yobe State indicates that, productive and mass land occupied by the dunes in the state has increased from 25000 hectares to more than 30,000 hectares with its attendant negative impact on food and livestock production. More than five million livestock in Yobe State are under serious threat due to the deterioration of pastures occasioned by seasonal droughts and desert encroachment. A report by Adamawa State Ministry of Agriculture in 1994 indicated that more than 15,000 hectares of land in the state suffered from serious desertification related problems [8,9].

### The Nexus between Drought and Desertification

Drought and desertification are two phenomena that cannot be divorced from each other. When drought affects an area over a long period of time involving months and years, it beings to constitute very serious environmental, social and economic challenges. Although drought is a natural phenomenon, and can be exacerbated by human activities that are not adapted to the local climate, land degradation is the process of turning fertile land into less or non-productive land. When drought challenges persist, such land area comes to the level of being desertified. Indeed, land degradation and desertification are complex phenomena driven by un-adapted human activity in combination with land and climatic constraints. Unsatisfied land use, including; monocultures, and unsustainable land management practices, such as deforestation, unsuitable agricultural practices and overexploitation of water resources), may cause land degradation that can be further heightened by drought.

Climate change is expected to increase frequency, duration and severity of droughts in many parts of the world. Such changing conditions add to already stressing land use globally and especially in the world's fragile drylands. This may lead to an accelerated rate of land degradation and desertification which, in turn, is likely to increase poverty.

## Methodology

This study adopted the survey design. Population of the study was the North-east geo-political zone of Nigeria comprising six states: Adamawa, Borno, Bauchi, Gombe, Taraba and Yobe. Purposive sampling technique was used in the selection of sample size comprising of six local councils from Adamawa, Bauchi and Gombe states; the reason being that they share common characteristics on the challenges of drought and desert encroachments. Cluster sampling technique was adopted in selection of 1,200 respondents of which 72.6% response rate was recorded. The research instrument used were a structured and validated questionnaire complemented by a structured interview schedule.

## Strategies Used in Combating Drought and Desertification in the North-East Geo-Political Zone

The Nigerian government in her bid to address the challenges of drought and desertification on the North-east deplored the following strategies:

1. Awareness programs on drought and desertification
2. Yearly tree planting campaign
3. Community development programs involving planting of trees
4. Enforcement of laws restricting community dweller from engaging in discriminate falling of tress
5. Provision of irrigation dams for farmer
6. Maintenance of the dams for optimal use.

The focus of this paper however, was to find out how effective the implementation of these strategies have been in the last ten years. Thus, a survey was carried out carried out in the North-east geo-political zone.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	54	6.2	6.2	6.2
	Disagree	133	15.3	15.3	21.5
	Not Sure	121	13.9	13.9	35.4
	Agree	302	34.7	34.7	70.0
	Strongly Agree	261	29.9	29.9	100.0
	Total	871	100.0	100.0	

Source: computed from Researcher's Field survey

**Table 1:** Respondents on Awareness efforts of Government has not massively engaged the people of the North-east in awareness program on drought and desertification.

		Frequency	Percent %	Valid Percent %	Cumulative Percent %
Valid	Strongly Disagree	28	3.2	3.2	3.2
	Disagree	117	13.4	13.4	16.7
	Not Sure	165	18.9	19.0	35.6
	Agree	372	42.7	42.8	78.4
	Strongly Agree	188	21.6	21.6	100.0
	Total	870	99.9	100.0	
Missing	System	1	.1		
	Total	871	100.0		

**Table 2:** Respondents on yearly planting of trees is not part of the ongoing campaign on desertification in the North-east.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	119	13.7	13.7	13.7
	Disagree	118	13.5	13.6	27.2
	Not Sure	301	34.6	34.6	61.8
	Agree	248	28.5	28.5	90.3
	Strongly Agree	84	9.6	9.7	100.0
	Total	870	99.9	100.0	
Missing	System	1	.1		
	Total	871	100.0		

Source: computed from Researcher's Field survey

**Table 3:** Respondents on the Host community's involvement in the tree planting exercise of government.

## Findings

Table 1 shows that government has not massively engaged the people on being aware of government programs on drought and desertification. Thus, the inability of the people benefiting from such program or being able to ask questions when necessary actions are not carried out by the operators as stated by government. From the table, 47.6% of respondents, representing 563 persons, either agreed or strongly agree to the statement government has not massively engaged the people on programs on drought and desertification. Those who disagreed or strongly disagreed formed the 21.5% of respondents which equals to 187 persons. However, 13.9% representing 121 persons were not sure of what the situation is.

Table 2 shows that yearly tree planting campaigning is not part of the ongoing campaign against Drought and Desertification in the North-east zone of Nigeria. On the table 16.6% of respondents representing 145 persons either strongly disagreed or disagreed to the statements that yearly tree planting campaign is not part of the campaign organized against Drought and Decalcification in the North-east. Those who strongly agreed or agreed to the statements are 64.3% of the respondents representing 560 persons. However, 18.9% respondents representing 165 persons were not sure. In the absence of replacement for trees cut-down either officially approved by the forestry authorities or indiscriminate actions of the citizens, the activities of government at combating drought and desertification will obviously appear ridiculous. From the foregoing it is evident that the trees that are meant to protect the zone from the scourge of drought and desertification is not properly managed. Thus when there is no concerted effort at replacement of the trees or better still proactive action to keep at planting in other to beef up the environment against. The activities of the drought and desertification would rather be encouraged.

Table 3 shows that the host communities of the trees planted by government were not involved in the exercise. The result on the table shows that 17.3% respondents either strongly disagreed or disagreed on the statement that the host communities of the tree planted by government to prevent desertification which represents 150 persons. Those who either strongly agreed or agreed represents 66.2% of respondents, accounting for 477 people. However, 16.3% were not sure, representing 142 persons. The implications being that citizens do not see the trees as something that they need to protect, more so that enough awareness on government activities on drought and desertification is not properly passed on to them. There is also the issue of poverty that is ravaging the zone. Thus, in the struggle to find means of lively hood, citizens have no choice but cut-down the trees and burn them into charcoal and sell them or use them privately to cook their meal or do otherwise.

Table 4 shows that host communities of trees planted by government for the resistance of desertification are not aware of laws prohibiting the cutting down of trees in the communities. The table indicates that respondent who either disagreed or strongly disagreed formed 21.1% which accounted for 236 persons. Those who either agreed or strongly agreed formed 47.7% of respondents accounting for 465 persons. However, 25.1% of respondents which consists of 219 persons were not sure. Evidently, although there are existing laws prohibiting indiscriminate or unauthorized cutting down of trees, it seems not to be in operation in the north-east. Farmers who were interviewed during the field work revealed that it is a common practice for the people in the zone to cut-down trees to serve the different needs of the people. This shows that implementations of these laws are none existent or that implementers are compromised.

Table 5 shows that government has not been consistent in the provision of dams for farmers in the North-east zone. The table of respondents shows that 50.2% consisting of 437 persons either strongly disagreed or disagreed to the statement that government has continually provided irrigation dams for farming in the North-east zone. While a 29.5% respondent consisting of 257 persons either agreed or strongly agreed that government has continually provided irrigation dams for

farming zone. Those who were not sure consist of 20.1% respondents accounting for 175 persons. However, while interviewing farmers in the zone, they revealed that the provision of dams is not the real challenge being faced by farmers, but the need to provide irrigation channels from the dams to the various farm lands in the nooks and cranny of the farm lands within the zone.

Table 6 shows that the Dams that exist in the zone are not maintained as at when due. This shows in the response of respondents. Respondent who either strongly disagree or disagree to the statement that have continually been maintained by government as at when due consist of 54.5% of the total respondents amounting to 473 persons. While 24.4% amounting to 215 persons respondents either agreed or strongly agreed to the statement. However, 20.8% consisting of 181 persons were not sure. Again, while interviewing farmers in the zone, what was obviously not maintained were the channels of irrigation that move water from the Dams to the farm lands. The effect is that crops on farm lands struggle to make produce. This then leads to shortage in food coming from this zone to other parts of the country.

### Effectiveness of the Strategies Adopted by Government to combat Drought and Desertification

#### Awareness of drought and desertification or the programs of government

Information is no doubt key to combating drought and desertification. However, empirical evidence points to the fact that the way government has managed awareness creation on the twin menace in Nigeria especially in the north-east, has limited effect on the people as established on Table 1. The result shows that 61.5% of respondent on the table noted that government awareness activities in relation to programs on drought and desertification, does not get to them neither do they know about it. This supports the agreement of Olagunju (2015), that government is yet to raise enough awareness on drought and desertification, which he further said will provide people with the understanding of the causes and consequences of the phenomena so as to stop all possible actions that encourage the situation thus prevent further degradation of the soil.

Interestingly, responses from the interview conducted with government officials claim that awareness on threat of desertification had been raised through sustained radio and television jingles, print media campaigns, seminars, conferences and workshops. Yet, response from respondents on the knowledge of the awareness as shown above does not reflect this assertion. Interview sessions with, some leaders of farmer's cooperatives informed us that the last time a warning on the threat of drought and desertification was given to their communities was in 2009 while others could not remember. The implication on the people is that they will not be able to protect themselves from the scourges of the menaces since they might not be able to read warning signs as metrologies would do. However, the actions of the people toward the programs of government can be negative since they were not aware [10-15].

#### Tree planting and the ongoing campaign on desertification

One of the strategies of combating drought and desertification is the planting of shelter-belt trees across the Sahara. These trees are meant to mitigate the effect of desertification on the zone. Seedlings of the trees are meant to be distributed to local farmers in the zone to plant. However, result 64.3% (560) shows that most of the farmers within the zone are not aware that the Tree planting is a part of ongoing campaign aimed at combating desertification in the North-east. This

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	61	7.0	7.0	7.0
	Disagree	175	20.1	20.1	27.1
	Not Sure	219	25.1	25.2	52.3
	Agree	227	26.1	26.1	78.4
	Strongly Agree	188	21.6	21.6	100.0
Total		870	99.9	100.0	
Missing	System	1	.1		
	Total	871	100.0		

Source: computed from Researcher's Field survey

Table 4: Respondents on awareness on laws prohibiting the cutting down of trees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	66	7.6	7.6	7.6
	Disagree	371	42.6	42.7	50.3
	Not Sure	175	20.1	20.1	70.4
	Agree	147	16.9	16.9	87.3
	Strongly Agree	110	12.6	12.7	100.0
	Total	869	99.8	100.0	
Missing	System	2	.2		
	Total	871	100.0		

Table 5: Respondents on the continuous provision dams for farmers in the North-east.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	166	19.1	19.1	19.1
	Disagree	308	35.4	35.4	54.5
	Not Sure	181	20.8	20.8	75.3
	Agree	91	10.4	10.5	85.7
	Strongly Agree	124	14.2	14.3	100.0
	Total	870	99.9	100.0	
Missing	System	1	.1		
	Total	871	100.0		

Source: computed from Researcher's Field survey

Table 6: Respondents on the maintenance of Dams by government as at when due.

goes to support the argument of Makinde [13] who submitted that communication is an essential ingredient for effective implementation of public policy. If awareness is not properly created on the activities of government, how then will the farmers get to know and be part of the tree planting exercise? This again can aid indiscriminate falling of the trees since the people are not involved [14-19].

### **Host community's involvement in the tree planting exercise of government**

As part of policy implementation strategy is the involvement of host communities in the tree planting processes. But result of the survey carried out in the North-east geo-political zone of Nigeria, showed that 82.5% (619) respondent opined that the communities where not involved the tree planting exercise of government. This no doubt negated the position of Omolo [15] Dibe [11], and Weatherby et al. [19] who argued that citizen participation is inevitable in policy implementation. Thus, advocating that citizens of communities hosting government projects must be involved in such project. This is important as it gives communities involved a sense of ownership and thus help to make them ensure the survival of such project.

### **Awareness on laws prohibiting the cutting down of trees**

Effective policy implementation strategies include also provision of requisite laws that will deter offenders from acting in a manner capable of destroying or limiting the effectiveness of such Policy or strategies put in place. Sample of citizens of the North-east established that although such laws might exist, they are not aware of it. This is evident in the indiscriminate cutting down of trees in the area. From the survey, 72.8% (684) respondent opined that they are either not aware of the laws or are not sure of its existence. Either way, this shows that government have not been able to enforce the laws on indiscriminate cutting down of trees or have not educated the people enough. This supports the submission of Ogunwale [16] that Policy makers and executing officials need to look beyond capacity building; policy must entail building right political attitude and sense of dedication to ensure enforcement of conservation policies in Nigeria. There is also the role of education that is missing as most of the citizens are not aware of the laws and invariably act in a manner inimical to the environment.

### **Continuous provision of dams for farmers in the North-east**

The provision of dam for the irrigation of the zone especially farm lands are part of the implementation strategy adopted by the government to fight desertification in the North-east. From the survey respondent 70.4% (614), it is evident that although government have provided dams for irrigation. It has not been consistent in its provision, meaning that areas that are in need of the provision of the dam, has not gotten it. The provision of irrigation dam is key to the fight against desertification, thus inadequacy of it or the absence will only mean further degradation of the environment by drought and desertification. The challenge here is not strategizing or formulating a policy that will address drought using irrigation dams, that has been taken care of the challenge now is implementation. This substantiates the submission of Ozumba [17] pointed out that implementation is the sum total of the activities and choices required for the execution of a strategic plan and without it the policy is as good as not existing.

### **Maintenance of dams by government as at when due**

Sequel to provision of dam for the control of drought, government is also obligated as part of policy strategy to maintain the dams. The result of survey carried out on issues of maintenance of the dam revealed that

75.3% (654) respondent, are of the opinion that government have not been maintaining the dams where they are available and in some cases the citizens are not sure since they might not have seen government presence in their area, especially in relation to creating a dam for them. A farmer who pleaded to be anonymous, revealed that most of the dams proposed to be constructed by government were still on proposal level and that those constructed were left uncompleted. We further interviewed a senior policy implementation strategist with the department of drought and desertification amelioration department, while commenting on the subject of abandoned projects, (dam projects) said "Government could not continue those projects due to lack of funds" This confirms the submissions of Dick, (2003); Ikelegbe, [12]; Ugwuanyi and Emma, [18], That the issues of requisite manpower to manage the various intuition of government saddled with responsibility of implementing policies as well as poor funding are at the base of program or project abandonment by government.

### **Conclusion**

The research conducted has shown that the strategies so far adopted by government in combating drought and desertification has been more of rhetoric than reality. The research has also revealed that citizen participation is key to effective implementation of any strategies adopted by government to combat drought and desertification in the North-east or any other part of the country ravaged by the twin menace. Government have the obligation to adopt the hybrid approach of policy making and implementation where all parties to an issue that require policy prescription and implementation are involved. Thus, giving a sense of ownership to all the stakeholder, (Policy makers, implementers and host communities of project or programs of government).

Education is also key to the amelioration of drought and desertification in Nigeria, especially in the North-east geo-political zone. Thus, there is need for serious citizen education on the challenges, this has to be done using the local chiefs and farmers leaders who will endeavor to go house to house or call a community meeting and use the local dialect to talk to the people. This is because most of the citizens drastically affected by desertification are local farmers who are most often on the farm; they do not listen to the radio which often is the tool government use to disseminate information.

Lastly the struggle by the people to find means of livelihood or survival is what leads to deforestation, over cultivate, as well as overgrazing of the green areas by livestock. As vegetation is destroyed, communities migrate in search of greener pastures, over population occurs, since where they are going to, there are people living there already.

Hence government needs to re-assess the enforcement of laws prohibiting the cutting down of trees. This will assist in curbing indiscriminate cutting of trees by the citizens

### **Recommendations**

1. The federal government should as a matter of urgency, set up a monitoring and evaluation team on implementation of the strategies put in place to combat drought and desertification Northern Nigeria with the aim of finding immediate solutions to the ravaging menace.
2. The federal government through the ministry of environment has the obligation to call for a review of the strategies in operation at the moment. This is important in order to properly accommodate the views of beneficiaries who are the citizens of the affected areas.
3. Programs and projects designed by the Federal government on

combating drought and desertification must be given priority attention with respect to disbursement of funds.

4. The state government of the drought and desert affected states should engage the farmers within the communities to set up joint taskforce with government agencies in other to police and enforce Laws guiding deforestation and the use of irrigation dams in Nigeria.

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