MPRI-EDIR | INTERNATIONAL JOURNAL OF EARTH DESIGN AND INNOVATION RESEARCH
VOL. 02 NO. 1 OCT-2023 ISSN: 1116 - 2759

ASSESSMENT OF AWARENESS AND INVOLVEMENT OF FOREST COMMUNITIES IN REDD + PROGRAMME IN NASARAWA STATE, NIGERIA

ELIAS GYOBE NAPOLEON[1], IDRIS NASIRU MEDUGU[2], ADAMU TANKO OGAH[3] AND ABUGU NKECHINYERE ANTHONIA[4]

[1&3]Geography Department, Nasarawa State Univerity Kefi. [3]Nasarawa State University Keffi/ NASRDA. [2&4]INstitute for Built Environment, Nasarawa State Univerity Kefi.

Keywords:
Awareness,
Involvement,
Forest,
Communities,
REDD +

Abstract

Awareness and involvement of locals or project affected persons are paramount to the success of Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) programme. The numerous prospects of REDD+ cannot be harnessed in Nasarawa state without adequate awareness and involvement of forest communities whose livelihoods depend on forest. Thus, assessment of awareness and involvement of forest communities in REDD + Programme in Nasarawa State, Nigeria currently lacking in literature was carried out. Two research hypotheses i. "There is no significant awareness of REDD+ Programme in forest communities in Nasarawa state' ii. "There is no significant involvement of forest communities in REDD+ Programme in Nasarawa state" were tested at 95% confidence level. Two hundred (200) heads of households in forest communities were randomly selected for data collection using questionnaire and interview methods. Data were analysed using mean, standard deviation and t test. Results show that the null hypotheses (H_O) "there is no significant awareness of REDD+ Programme in forest communities in Nasarawa state was rejected while the H_O "there is no significant involvement of forest

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communities in REDD+ Programme in Nasarawa state" was accepted at 95% confidence level. Thus, there is high level of awareness which is significant at 95% confidence level but insignificant involvement of the forest communities. Therefore, forest communities in Nasarawa state are aware of the REDD+ programme but not adequately involved. Thus, more inclusion of the forest communities to increase sense of belonging and improve positive impacts of the REDD+ programme was recommended.

Introduction

The Reducing Emissions from Deforestation and Forest Degradation program (REDD+), has become the first international community's real attempt to create a global forest governance system which would impact countries on national, regional and local scales (Bayrak and Marafa 2016). According to Bayrak and Marafa (2016), the first discussion on Reducing emissions from deforestation in developing countries was in 2005 by the Coalition of Rainforest Nations. This pproramme initially limited to avoided deforestation (RED) and later incorporated avoidance of forest degradation (REDD). However, at COP 13 in Bali, Indonesia other issues such as sustainable management of forests, enhancement of carbon stocks and improved forest protection were inculcated thereby making it Reducing Emissions from deforestation and forest degradation plus (REDD+).

Currently, there are two main multilateral organizations championing REDD+, they are United Nations Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) and the Forest Carbon Partnership Facility (FCPF) of the World Bank. Other actors in REDD+ implementation are governments, private actors, and NGOs (Sunderlin, *et al.,* 2015). However, no country of the world operates REDD+ on a national level yet (Minang *et al.,* 2014; Bayrak and Marafa 2016). Nigeria had launched the Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategy towards reducing the problem of deforestation in the country with the support of the UN-REDD programme, as well as technical assistance from other bodies such as the Food and Agricultural Organisation (FAO); the United Nations Development Programme (UNDP); and the United Nations Environment Programme (UNEP). The strategy seeks to curb climate change by bringing an end to the destruction of forests while promoting sustainable forest management (Asiyanbi, 2016).

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Therefore, to enhance the level of effectiveness of REDD+ project implementation, there should be high level of awareness in the communities.

Forest Carbon Partnership Facility **Annual Report 2022 has shown that** Nigeria's National REDD+ Secretariat is already using the strategy as a tool for high-level policy engagement and advocacy, capacity building, and fund raising. The REDD+ strategies have been adopted for effective coordination and collaboration to address drivers of deforestation in Nigeria holistically (Abbah and Idoko, 2011as cited in Asiyanbi, 2016). One of the targets in the implementation of REDD+ as a climate change mitigation programme is to ensure that REDD+ activities do not impose negative impacts on the people particularly the local communities (Forest Carbon Partnership Facilities and FGN, 2019).

Many studies confirm that forest-dependent communities are not sufficiently involved in current REDD+ projects (Sunderlin, *et al.,* 2015; Minang *et al.,* 2014; Bayrak and Marafa, 2016). Adekugbe *et al.,* (2020) assessed the socio-economic characteristics and level of awareness and perception on Reducing Emissions from Deforestation and Forest Degradation Programme (REDD+) by rural communities in Akure Forest Reserve, Nigeria. The result showed that the level of awareness of the key informants about REDD+ was very high (83.3%) while it was very low at the local community level with only 35% of the respondents being aware of the REDD+ project among which 23.3% found it beneficial.

According to Adekugbe *et al.,* (2020), low awareness of REDD+ resulted in low participation and in some cases, awareness of the REDD+ initiative was so low that it was difficult to elicit respondents' willingness to participate. Odey and Okeyim (2014) investigated community participation and government vision towards the conservation and management of ecosystem in Cross River State of Nigeria. They reported that "community participation in the Management of the environment, awareness creation through environment quality, reforestation, sustainable harvest of flora and fauna, enactment of environmental legislations and establishment of forest and game reserves are significantly related to the conservation and management of ecosystem".

Fasona *et al.,* (2019) had recommended empowerment including financial incentives, monetary rewards, and support for alternative livelihoods for households; business support loan for major forest resource users; and provision of basic social amenities for communities are the major incentives required to enable them fully partner with government for forest and woodland management. According to Lange (2017), full and complete involvement of local

communities into forest governance is the only way to reach conservation and sustainable development of tropical forests. Many REDD+ initiatives follow standards that require varying degrees of community participation (Odey and Okeyim, 2014; Koromah, 2020). However, the organizations implementing REDD+ have found it challenging to obtain full local participation, including identification of true communities' representatives (Koromah, 2020). Some factors such as age, economic status of the household, and the proportion of firewood and fodder needs contributed by private land affect forest communities' knowledge of REDD+ goal (Pandit, 2018).

Though, Reducing Emissions from Deforestation and Forest Degradation together with conservation, sustainable management of forests, and enhancement of carbon stocks (REDD+) is a globally accepted strategy put forward by the UNFCCC for mitigating climate change (William, 2013; Asiyanbi *et al.,* 2017; Saeed *et al.,* 2017; Olaniyan *et al.,* 2021). However, the numerous prospects of REDD+ cannot be harnessed without adequate awareness and involvement of forest communities whose livelihoods depend on forest. Despite, abundant studies on the awareness of REDD+, majorities were done outside Nigeria (Lawlor, Madeira, Blockhus and Ganz, 2013; Awung, 2015; Koromah2020; Adekugbe, *et al*., 2020; Uisso, Chirwa, Ackerman and Mbwambo, 2022). Though, few were domicile in Nigeria, they were carried out in Cross River and Ondo States (Odey and Okeyim, 2014; Isyaku, 20221) and none was done in Nasarawa state. Thus, this study bridged this gap as it assessed the awareness and involvement of forest communities in REDD + programme in Nasarawa State, Nigeria. The following null hypotheses were tested at 95% confidence level: i. "There is no significant awareness of REDD+ Programme in forest communities in Nasarawa state' ii. "There is no significant involvement of forest communities in REDD+ Programme in Nasarawa state".

Materials and Methods

The Study Area

Nasarawa state is located in the northern central Nigeria between latitude 7° 45' 00" and 9° 35' 00" N of the equator and longitude 6°.45'03" and 9° 45'03" E of the Greenwich meridian. It has an approximate land area of about 27,271.50 square kilometres. It shares boundaries with Abuja Federal Capital Territory (FCT) in the west, Kaduna state in the north, Kogi and Benue states in the south, Taraba and Plateau states in the east respectively (Figure1).

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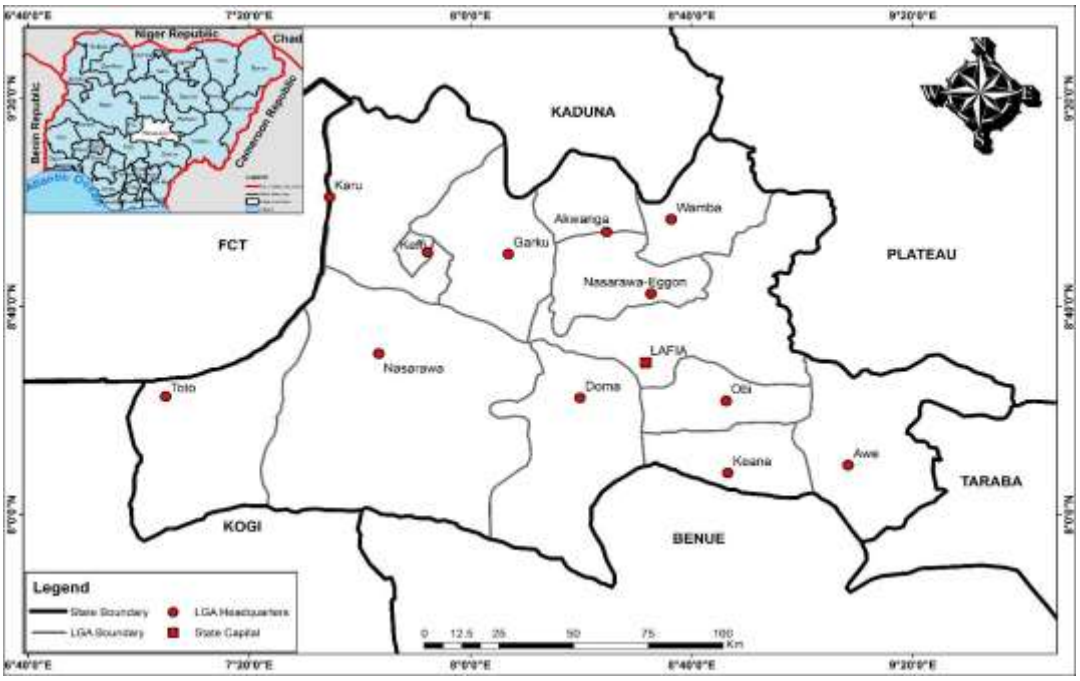

Figure 1: Nasarawa State
Source: Reproduced from McMillian Atlas-Nigerian Administrative Map (2018)

Nassarawa State is within the tropical sub-humid climate with two distinct sea sons. The wet season lasts for five months (May –October). The dry season lasts for seven months between (November-April). Annual rainfall range from 1100 mm to 2000mm.About ninety per cent (90%) of the rain falls between May and September, July and August are the wettest months (Olufemi, 2021). The Nasarawa state is characterized by Guinea savannah and the floristic composition is heterogeneous with a variety of species made up of small trees (scattered), interspersed with shrubs, grasses and arable crops (Ekpo, *et al*., 2021).

Farming is the main occupation of the people of Nasarawa state and crops produced include melon, cassava, yam, rice, maize, guinea corn, beans, soya beans, sugar-cane, banana and millet. The people of Nasarawa state in addition to farming also engaged in other economic activities such as logging, furniture making, fuel wood and charcoal production, trade, art craft other businesses and services. However, the economic activities in the forest communities dominated by farming, lumbering and sales of timber, charcoal production and fuel wood extraction. Having seen that there is rapid population in Nasarawa state and that there economic activities are primary base and forest dependent, it is worthy to say that there is likelihood that REDD+ will affect the people's livelihoods if they are not informed and involved in the REDD+ programme.

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Methodology

Data were collected from both primary and secondary sources but mainly from primary sources using instruments such as questionnaire and interview. Two hundred (200) heads of households in forest communities were randomly selected for data collection. Multistage sampling was used for the collection of data for the study. Purposive and systematic sampling techniques were used to select sample. Firstly, three LGAs (Wamba, Obi and Toto) out of thirteen (Karu, Keffi, Kokona, Nasarawa, Toto Akwanga, Nasarawa-Eggon, Wamba, Lafia, Keana, Doma, Awe and Obi) were purposely selected for the study based on the locations of REDD+ pilot sites. After which ten communities were also purposely selected based on proximity to the forests (Table 1). Then, systematic random sampling was used to select households to sample. Two housing unit interval was used to select households to administer questionnaire. Data were analysed using mean, standard deviation, ANOVA and t test.

Table 1: Sample Size

S/N	LGA/ Pilot Site	Community	Estimated Population in 2018	Projected Population in 2023	No. of Households	Sample Size
Wamba/Marhai Pilot Site						
1		**Marhai**	1540	1659	220	25
2		Masange	1256	1353	179	20
3		Andohor	1261	1358	180	21
Obi/ Obi Pilot Site						
4		Atabla	1400	1509	200	24
5		**Obi**	2243	2417	320	36
6		Abagu	1751	1887	250	27
Toto/Zono Pilot Site						
7		Sere	833	898	119	12
8		Gbadugu	840	905	120	17
9		Dere	700	754	100	14
10		Ugya-Sambo	330	478	13	4
		Total	**12154**	**13218**	**1701**	**200**

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Results and Discussions

Awareness of REDD+ Programme by Forest Communities

Table 2 presents the respondents' awareness of REDD+ programme in the forest communities. The awareness of REDD+ programme by forest communities as shown in Table 2 are as follows: 81.57% ±5.58 are aware while 18.43% ± 31.05 are unaware. This suggests high level of awareness of REDD+ Programme by forest communities. This result has positive implication on the REDD+ Programme in Nasarawa state. The implication of the high (81.57% ±5.58) level of awareness is presume a plus to the success of the pilots sites which in turn is a prerequisite to expansion of the programme in Nasarawa state and beyond.

Table 2: Awareness of REDD+ Programme by Forest Communities

Question		Are You Aware of REDD+ Programme in Your Community?	
Community		**Aware**	**Not Aware**
Pilot 1			
Marhai	25	72.00	28.00
Masange	20	80.00	20.00
Andohor	21	80.95	19.05
Pilot 2			
Atabla	24	87.50	12.50
Obi	36	86.11	13.89
Abagu	27	85.19	14.81
Pilot 3			
Sere	12	75.00	25.00
Gbadugu	17	88.24	11.76
Dere	14	85.71	14.29
Ugya-Sambo	4	75.00	25.00
Mean		**81.57**	**18.43**
SD		**5.58**	**31.05**

Source: Field Survey, 2023

The mean values were tested using two tailed student t test (Table 3).The t test result shows significant variation between the percentage of respondents who are aware of REDD+ Programme and those that are not aware, as calculated t value of 6.97 is greater than the critical t value of 0.00. Thus, the Ho that there is no significant awareness of REDD+ Programme in forest communities in Nasarawa

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state is rejected at 95% confidence level. Therefore, there a significant awareness of EDD+ Programme in forest communities in Nasarawa state at 95% confidence level.

Table 3: Paired Samples Test for Awareness of REDD+ Programme

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Awarel - Un Aware 2	55.76	27.70	7.99740	38.15	73.36	6.97	11	.000

This Result corroborates other studies that have reported high awareness of REDD+ Programme in forest communities (Cubo, 2018; Koromah, 2020). Cubo (2018) reported 60% awareness of REDD+ Programme in Nepal. Similarly, Koromah, (2020), reported high awareness of REDD+ Programme Gola forest reserve in Sierra Leone. High level of awareness of a programme by the host communities promotes the success of the programme especially if the awareness is coupled with full participation. In short, awareness to increase knowledge on REDD+ Programme benefits is one of the major strategic ways to promote the success of REDD+ (UN-REDD, FAO and UNDP, 2022). There have been awareness and engagement programmes on the REDD+ in Nasarawa State from the onset (Plates 4.1-4.3).



Plate 1: Joint Consultation at the Nasarawa Geographic Information System (NAGIS)

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Source: Forest Carbon Partnership Facilities and FGN (2019)



Plate 2: Consultation at Zono Forest Reserve, Nasarawa State.
Source: Forest Carbon Partnership Facilities and FGN (2019)



Plate 3: REDD+ Consultation at Keffi on January 23, 2018
Source: ***Terzungwe (2018)***

Source of Information on REDD+ Programme by Forest Communities

Result in Table 4 shows the source of information on REDD+ Programme by forest communities as follows: traditional ruler 40.00% ± 11.22, religious leader 19.31% ± 6.24, town crier 10.28% ± 4.72, mass media 6.53% ± 4.27, public outreach campaign 13.06% ± 7.35, civil society organisations 5.42% ± 4.52, education and training

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program 3.75% ± 4.41, others 1.67% ± 2.02. The result implies that traditional ruler is the highest source of information on REDD+ programme by forest communities followed by education and training program, public outreach campaign, town crier, mass media, Civil Society Organisations (CSOs), religious leader and others such as social media. Since only 6.53% ± 4.27 of the respondents learnt about the REDD+ programme in Nasarawa state suggests poor publicity. Mass media is an important medium that will ensure the necessary awareness around all REDD+ activities reaches all.

Table 4.: Source of Information on REDD+ Programme by Forest Communities

Community	Traditional Ruler	Education and training **Program**	Town crier	Mass Media	Public outreach campaign	Civil Society Organisations (CSOs)	Religious Leader	Others
Pilot 1								
Marhai	33.33	22.22	11.11	0.00	22.22	0.00	11.11	0.00
Masange	31.25	18.75	12.50	0.00	18.75	6.25	12.50	0.00
Andohor	29.41	23.53	11.76	0.00	23.53	0.00	11.76	0.00
Pilot 2								
Atabla	33.33	19.05	14.29	0.00	23.81	0.00	9.52	0.00
Obi	25.81	19.35	16.13	6.45	19.35	3.23	9.68	0.00
Abagu	30.43	17.39	17.39	0.00	26.09	0.00	8.70	0.00
Pilot 3								
Sere	33.33	22.22	11.11	11.11	22.22	0.00	0.00	0.00
Gbadugu	26.67	13.33	13.33	6.67	13.33	13.33	6.67	6.67
Dere	33.33	8.33	16.67	8.33	16.67	8.33	8.33	0.00
Ugya-Sambo	66.67	33.33	0.00	0.00	0.00	0.00	0.00	0.00
Mean	**40.00**	**19.31**	**10.28**	**6.53**	**13.06**	**5.42**	**3.75**	**1.67**
Standard Deviation	**11.22**	**6.24**	**4.72**	**4.27**	**7.35**	**4.52**	**4.41**	**2.02**

ANOVA was used to test for variation on the sources of information on REDD+ programme by forest communities (Table 5).

Table 5: ANOVA for the Sources of Information on REDD+ Programme

Source of Variation	Sum of Squares	Degree of Freedom	Mean SS	F Ratio
Between Group	143.6	7	46.22	3.09
Within Group	121.6	7	14.96	
Total	**265.2**	**14**		

Calculated F= 3.09

F-table at 0.05 =2.21

Critical F= 2.21

Decision:

Since the calculated F value of 3.09 is greater than the critical F value of 2.21, H_o "There is no significant variation on the utilization of the various sources of information dissemination to forest communities on REDD+ at 95% confidence level is rejected. Thus, there is a significant variation on the utilization of the various sources of information dissemination to forest communities on REDD+ at 95% confidence level. Therefore, those that learnt about the REDD+ programme from their traditional ruler is significantly higher than those that heard from others sources (education and training program, public outreach campaign, town crier, mass media, Civil Society Organisations (CSOs), religious leader and social media).

This agrees with the fact that traditional rulers are recognized as the mouth piece of the community and their representative. Traditional rulers are usually the first people to be consulted for any development project or programme and they in turn relate to their people. The consultation for REDD+ programme in Nasarawa state initiative involved the traditional rulers. Education and training program for youth as ambassadors of REDD+ programme in Nasarawa state is has also helped in awareness creation (Nasarawa Mirror 23 September 2022).

Involvement of Forest Communities in REDD+ Programme in Nasarawa State

Table 6 present the result for the involvement of forest communities in REDD+ programme in Nasarawa State.

Table 6: Involvement of Forest Communities in REDD+ Programme in Nasarawa State

Question		Involvement in REDD+ Programme	
Community		**Involved**	**Not Involved**
Pilot 1			
Marhai	25	31.00	69.00

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Masange	20	39.00	61.00
Andohor	21	39.95	60.05
Pilot 2			41.00
Atabla	24	46.50	53.50
Obi	36	45.11	54.89
Abagu	27	44.19	55.81
Pilot 3			41.00
Sere	12	34.00	66.00
Gbadugu	17	47.24	52.76
Dere	14	44.71	55.29
Ugya-Sambo	4	34.00	66.00
Mean		**39.99**	**59.43**
SD		**6.05**	**8.93**

Source: Field Survey, 2023

Table 6 shows that 39.99% 6.05± of respondents are involved in REDD+ Programme in Nasarawa State while 59.43%±8.93 are not involved. This implies low involvement of forest community in REDD+ Programme in Nasarawa State. This was tested using student t test. The mean values of those that are involved those that were not involved were compared using two tailed student t test (Table 7). The t test result shows significant variation between the percentage of respondents who are involved in REDD+ Programme and those that are not involved.

Table 7: Paired Samples Test result for Involvement of forest communities in REDD+ Programme

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	involved 1 – not involved 2	-18.86000	11.76196	3.71946	-27.27400	-10.44600	-5.071	9	.001

Decision:

Since the calculated t value of -5.071 is less than the critical t value of .001. Thus, the Ho that there is no significant involvement of forest communities in REDD+

Programme in Nasarawa state is accepted at 95% confidence level. Therefore, involvement of forest communities in REDD+ Programme in Nasarawa state is insignificant at 95% confidence level. The insignificant involvement of forest communities in REDD+ Programme in Nasarawa state aligned with the report of Koromah, (2020) who posited that the organizations implementing REDD+ have found it challenging to obtain full local participation, including identification of true communities' representatives. It also agreed with Pandit, (2018) that forest communities are neglected in REDD+ programme. Similarly, a World Bank sponsored research has shown poor involvement of forest communities in Costa Rica, Ecuador, and Mexico (FONAFIFO, CONAFOR and Ministry of Environment, 2012). It has been lamented that formal authority over REDD+ typically rests with the Ministry of Environment cooperation for decision making at the detriment of the host communities. This result falls short of the advice of Lange (2017). Lange (2017) had advised that full and complete involvement of local communities into forest governance is the only way to reach conservation and sustainable development of tropical forests.

Interview with the local community also portray low involvement of major forest resources users (charcoal producers, loggers and hurters). A resident of Awe community, disclosed that the implementing focus is on achieving the conservation aspect of the project, therefore, their choice of local partner is based on those that can quickly help meet the technical objective of the project without meeting bureaucratic principles. The selection of the customary traditional leaders gives full control decision-making processes, as it does not allow the representatives to make significant decisions, such as how the project should be implemented. However, it elevates their positions in the local communities through the decision-making and control of resources thereby increasing their various forms of capital. As a result, customary traditional leaders may not only have possession of the resources but will be able to use them at their advantage. To Mr. Umar in Obi community, REDD+ programme is like empowering the elites at detriment of the vulnerable. Another respondent hinted that traditional leaders are more concern about enforcing the restriction after partaking in benefit sharing. Their main intension is to continue sharing benefits derived from the programme without caring about difficulties the forest resources users incure from the restriction the interviewees lamented.

A Respondent who represents his community (Dere) share his view on their involvement as follows: REDD+ implementing team decides how things should be

done before consultation with the locals. Consequently, they simply consult for formality sake they implement the programme according to their laydown policy. Thus, the top-down approach suppresses their involvement in decision making and implementation. "In all our meetings, representatives of all communities were only informed about the programme objectives and benefits" says the Dere representative.

Area of Involvement in REDD+ Programme in Nasarawa State

Table 8 presents result for area of involvement in REDD+ programme in Nasarawa State.

Table 8: Area of Involvement in REDD+ Programme in Nasarawa State

Question	Area of Involvement in REDD+ Programme					
Community		Ministries Departments and Agencies (MDAs)	Civil Society Organizations (CSOs)	Non-Government Organizations (NGOs)	Community Based Organizations (CBOs)	Community Groups
Pilot 1						
Marhai	25	53.3	11.68	23.35	4.24	7.44
Masange	20	45.3	13.68	27.35	5.24	8.44
Andohor	21	44.35	13.91	27.825	5.36	8.56
Pilot 2						
Atabla	24	37.8	15.55	31.1	6.18	9.38
Obi	36	39.19	15.20	30.405	6	9.2
Abagu	27	40.11	14.97	29.945	5.89	9.09
Pilot 3						

Sere	12	50.3	12.43	24.85	4.61	7.81
Gbadugu	17	37.06	15.74	31.47	6.27	9.47
Dere	14	39.59	15.10	30.205	5.95	9.15
Ugya-Sambo	4	50.3	12.43	24.85	4.61	7.81
Mean		44.3125	14.069	27.84375	5.435	8.56
SD		5.88	1.47	2.94	0.74	0.74

Source: Field Survey, 2023

Table 8 shows the area of involvement in REDD+ Programme in Nasarawa State as follows: Ministries Departments and Agencies (MDAs) 44.31%±5.88**,** Civil Society Organizations (CSOs) 14.07% ±1.47, Non-Government Organizations (NGOs) 27.84% ±2.94**,** Community Based Organizations (CBOs) 5.44% ±0.74**,** Community Groups 8.56% ±0.74. This suggests that area of involvement in REDD+ Programme in Nasarawa State is mainly in MDAs followed by NGOS and CSOs, while community groups and CBOs are the least area of involvement. The implication is that most people that involved are privileged ones who educated and employed by the government sectors but less privileged whose livelihoods depends directly on the forest are less involved. The least involvement in as community groups and CBOs agreed confirmed the low involvement of forest communities. Fasona *et al.*(2019) have similarly shown that community groups are least considered in existing government's forest policies. According to Fasona *et al.*(2019), government focus is majorly on revenue generation and less on forest regeneration. Moreover, it falls short of the IUCN calls for better involvement and participation of local communities to reach equity and effective conservation of forest. Indigenous rights are vital for good governance and sustainable management of forest. The result also negates the recommendation of FAO (2016), that strong involvement of local communities in long-term co-management arrangement protected areas makes them effective.

This result is in tandem with Koromah (2020) who posited that project implementers' choice of empowering non-elected institutions as representatives of the local people in natural resource management initiatives has undermined opportunities for the inclusive public participation in decision making, thus,

leading to an inequitable distribution of benefits among the target population. The findings reveal that decision-makers i.e., the project implementers and non-elected local elites used their positions of power within the social field to gain control of the forest management system. As a result, benefits shared during such initiatives do not fully compensate the local people for the loss of livelihood opportunities.

Conclusion and Recommendations

Awareness and involvement of locals or project affected persons are paramount to its success. Data analysis for the forest communities awareness and involvement in the REDD+ programme in Nasarawa state show that there is high level of awareness which is significant at 95% confidence level but insignificant involvement of the forest communities. Therefore, forest communities in Nasarawa state are aware of the REDD+ programme but not adequately involved. Thus, more inclusion of the forest communities to increase sense of belonging and improve positive impacts of the REDD+ programme was recommended. This is because low involvement of forest community in REDD+ Programme in Nasarawa State can deprive them of certain benefits and make the programme unacceptable to them.

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EDITOR-IN-CHIEF
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