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Incentives for collaborative governance of natural resources: A case study of forest management in southwest Nigeria



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ARTICLE INFO

Keywords:

Status of forests
Effectiveness of forest policies
Stakeholders' participation
Incentives for collaborative governance
Southwest Nigeria

ABSTRACT

The present arrangement of natural resource governance in Southwest Nigeria encourages unhealthy competition in forest exploitation and drives deforestation and forest degradation. An inclusive and collaborative forest governance arrangement will incentivize local communities to assume greater responsibilities and make stronger commitments to managing forests and woodlands. In this study, using social survey instruments, we engaged households, major forest resource users, community leaders and senior government officials in forestry and environment departments across the six states of southwest Nigeria. The results show that there is a general agreement among all the stakeholders that the forest and woodland resources are highly degraded, deforested, depleted and over exploited with government focusing mainly on revenue generation and less on forest regeneration. Majority of the respondents do not think the existing forest policies are effective and achieving their targets to reduce deforestation, forest degradation and enhance better management of natural resources. Only the metrics related to revenue generation received positive ratings. Nineteen (of the 25) metrics dealing with good, inclusive forest governance and management practices received negative ratings. Majority of the forest users' and community leaders have never been involved in any aspect of forest management. 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. The state forestry departments should be reformed to be independent and self-accounting. This will enable them to pursue forestry revenue based on sustained yields, plan and execute sustainable forest programmes and projects and closely engage with other stakeholders outside the government.

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<https://doi.org/10.1016/j.envdev.2019.04.001>

Received 30 March 2018; Received in revised form 18 March 2019; Accepted 3 April 2019
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1. Introduction

Renewable natural resources such as forest support human well-being on the earth. According to [FAO, \(2017\)](#), sustainable forest ecosystem is vital in enhancing food security by “supporting the four dimensions of food security -food availability, access to food, food utilization and stability over time” ([FAO, 2017](#) p.1). It also provides the ecosystem services that enhance the continued production of fresh water for agricultural and domestic needs ([MEA, 2005](#); [Munang et al., 2011](#)). In relation to land resources, natural resources governance may be described as the “rules, processes, and structures through which decisions are made about the use of and control over natural resources and encompasses both statutory, legal, policy and customary institutions and framework involved in resource management” ([ANRC-AfDB, 2016](#), p.10). The natural resources governance arrangement and initiatives at the local levels are critical to reducing resource conflicts and encourage community participation in resource management and sustainable use of natural resources. Poor natural resource governance, according to [Fasona and Ogunkunle \(2018\)](#) “drives conflicts and create the tragedy of the commons with concomitant composite environmental, social and human security challenges” (p.23). Recognition of the role of the local communities and providing the enabling environment for them to participate in natural resource management is critical to sustainable management of natural resources such as the forest ecosystems ([Folke et al., 2002](#); [Fabricus and Koch, 2004](#)).

Globally, agriculture accounts for about 73% of all deforestation, while other major drivers including timber extraction and logging, fuelwood collection and charcoal production, uncontrolled fire and livestock grazing account for the balance ([Hosonuma et al., 2012](#); [FAO, 2016a](#)). According to [FAO \(2016a\)](#), Africa has the highest continental deforestation rate (about 2.8% compared to global average of 0.13%) and local small scale activities including fuelwood collection and charcoal constitute the major forest degradation drivers. Nigeria has the world's highest deforestation rate of about 5% ([FAO, 2016a](#)). According to [FAO \(2016a\)](#), Nigeria is one of those few countries that recorded “a net loss in both forest and agriculture area” from 2010 to 2015 (p.18). Thus, Nigeria's high deforestation rate, apart from conversion of forest to agriculture, may not be unconnected to the prevailing natural resource governance regime that is substantially skewed in favour of managing natural resources as common pool resources with little exclusivity.

The role of governance and ownership of natural resource management cannot be overemphasized. [Grafton et al. \(2004\)](#) have noted that “the ownership of property rights over natural assets and the nature of these rights have very important implications in terms of environmental sustainability and outcomes” (p.37). [FAO \(2016b\)](#) also noted that “information on who owns the forest and who has forest management rights is critical in tracking environmental, social and economic development” ([FAO, 2016b](#), p.38). While about 74% of the global forest area was publicly owned and 19% private in 2010 ([FAO, 2016a, 2016b](#)), about 80% of forests and woodlands in Nigeria are located in the so called “free areas” ([Oyebo et al., 2010](#), p.10). The ‘free areas’ refer to land outside the government forest reserves and protected areas. They are often called ‘community lands’ or ‘community forests’. However, in reality, the communities cannot harvest the trees here without government permission and do not exercise much control over them for two major reasons.

Firstly, the land governance and tenure regime in Nigeria is skewed in favour of the government. All lands (and the natural resources on them) belong to the state.¹ Rural communities have access to communal lands through the customary land tenure which guarantees usufructuary rights to be legalized by the customary right of occupancy. This right has to be conveyed formally through the issuing of the certificate of occupancy. Nearly all communal lands in Nigeria are not formally titled and registered ([Adeniyi, 2015](#)). The lands thus lack the “formal representation to make them fungible assets” ([De Soto, 2000](#) p.55). As in most other countries of Africa, the lands have undefined boundaries, unclear rights and titles, and undocumented transactions which often result in disputes and conflicts ([AUC-ECA-AfDB African Union Commission Economic Commission of Africa African Development Bank \(AUC-ECA-AfDB\) Consortium, 2011](#); [Peters, 2006](#)). Thus, the ‘free areas’ lack legal recognition as community owned forests and the associated elements of communal management. The lack of legal recognition of community lands, coupled with the absence of a national land-use plan and lack of engagement of social institutions at community levels result in lack of direction on the use of common pool resources by different actors and stakeholders. The recognition of customary or informal tenure rights would have provided local communities with a strong motivation to be actively involved in forest resources management. Clear ownership and management rights are vital for good governance and sustainable management of forest. Under the right conditions strong involvement of local communities in long-term co-management arrangement makes them effective in managing protected areas ([Ostrom and Nagendra, 2006](#); [FAO, 2016a](#)).

Secondly, the community lands in Southwest (SW) Nigeria substantially belong to individual families within the communities who decide on what to do with the land and the natural resources therein within their limited rights ([Adeniyi, 2015](#)). The communities and families do not see the natural resources as communal resources, but as common pool resources with little or no exclusivity. Such resource governance arrangement falls short of Elinor Ostrom's eight design principles of enduring community rights as enunciated in [Grafton et al. \(2004\)](#) which are: (i) well defined boundaries (ii) defined rules of exploitation (iii) flow of benefits from resource commensurate with costs of users (iv) community rights well adapted to the local institutions and resource circumstances (v) recognition of community rules by outside authorities (vi) monitoring and enforcement and sanction procedures (vii) participation by most individuals affected by resource use in rules setting, and (viii) effective dispute resolution mechanism among resource users (p.55).

More often, the ‘strong-man’ of the family (not necessarily the head, but sometimes the most deviant) can override family decisions, albeit illegally, and appropriate the resources without recourse to collective family decisions. The implication is that the so

¹ The Land Use Act of 1978 (Land Use Act Cap L.5, 2004), upheld by Chapter VIII, Section 315(5) of 1999 constitution.

called community lands and forests are much more deforested and degraded than the government reserves (Oyebo et al. 2010). The benefit from the natural goods and services is not enjoyed across the different community strata or by all the actors that depend on the resource in one way or another. Grafton et al. (2004) refers to this as “Pareto efficiency where it is not possible to make somebody better off without making someone else worse off” (p.40). This breeds resource conflicts, subtle exclusivity and human insecurity (Fasona et al., 2016).

It has been established that community forest management is an interesting mitigation option to reduce carbon emissions. Community forest management is at the core of the REDD+ implementation (Skutsch and Murdiyarso, 2006; Pelletier et al., 2016). This paper, however, argues that the present forest resource governance arrangement in SW Nigeria whereby community forests are regarded as ‘free areas’ encourages unhealthy competition in forest exploitation and further drives deforestation and forest degradation. The paper also argues for a more collaborative arrangement between the governments, communities and other stakeholders in managing forest resources. An inclusive forest governance regime should strongly incentivize local communities to assume responsibilities, participate and make commitments to sustainable forest and woodland management (FAO, 2016a). The objectives of the paper therefore are to investigate the extent of participation in forest management activities by communities, forest resource users and households; evaluate the effectiveness of government policies and regulations on forest management, and determine the incentives and supports required for collaborative forest management.

2. Governance of common pool resources and stakeholder interests

Natural resource management involves resource identification and determining who has the right to use the resources and who does not (Salvati and Marco, 2008). The concept of access to common pool resources (or commons) is useful for understanding natural resource governance and management regimes and their impacts on resource sustainability. This is also linked to the concept of property rights well enunciated by Grafton et al. (2004). Common pool resources include the resources held in common by a group of people, all of whom have access and who derive benefit with increasing access (Hardin, 1968; Burger and Gochfeld, 2000 p.126). Burger and Gochfeld (2000) describe them as open access resources that are free to everyone with no well-defined property rights. One person's use of the resource thus reduces the ability of the other to either use or enjoy it. The tragedy of non-exclusivity to common pool resources has been enunciated in the thesis of the tragedy of the commons expounded by Garret Hardin (1968) and he predicted that the eventual fate of all common (pool) resources was over exploitation and degradation. This may have captured the scenario in the much more degraded (compared to the government forest reserves) ‘free areas’ in SW Nigeria where the land and forest is substantially perceived as common pool resources. Hardin, however, did not consider cooperative and collaborative governance, where all stakeholders agree on management options that could benefit all actors, preserve collective interests, and lead to wise use of common pool resources to ensure sustainability. According to Ostrom and Nagendra (2006), there are strong evidences to suggest that local communities, if well incentivized, are capable of creating robust institutional arrangements for governing local resources sustainably.

The stakeholder theory which is ‘a tool used to comprehensively integrate stakeholders in decision-making processes’ (Freeman et al., 2012: 1) is useful for instituting collaborative natural resource governance framework. Stakeholders' engagement is now a common practice in the wide spectrum of agencies involved in natural resource management and planning (Brody et al., 2003). It includes participation in the decision making process to ensure joint ownership and shared responsibility. Stakeholders range from the ordinary poor community dwellers to those organized groups with vested interests including governments, civil society organizations, researchers and academics, natural resource consultants, etc. Prell et al. (2009) believes the increasing use of stakeholder analysis in natural resource management reflects a growing recognition that stakeholders can and should influence environmental decision making and management of natural resources as shared resources for sustainability and shared prosperity of all.

Reed (2008) in an extensive review of stakeholders' participation for environmental management identified eight features of best practice for a successful stakeholders' engagement in natural resource management. These practices include: (i) provide a culture of empowerment, trust, and equity (ii) include stakeholders as soon as possible (iii) systematically represent stakeholders (iv) clearly define objectives (v) use contextually relevant methods (vi) skillfully facilitate engagement processes (vii) integrate local and scientific knowledge, and (viii) institutionalize participation (p.2422–2426). A good stakeholders' engagement can create a sense of inclusiveness and ownership, while poor stakeholders' engagement can result in multiple deficits including failure to harness expertise across sectors and exclusion of local communities (Atela et al., 2016). The thrust of the stakeholders' engagement is co-governance arrangements of commons where rights to govern natural resources are extended to a large number of actors (Agrawal, 2007). Poor stakeholders' engagement could explain the poor involvement of local communities in forest management activities in SW Nigeria.

3. Materials and methods

3.1. Study area

The SW region of Nigeria is roughly defined by latitudes 6° 00' N and 9° 15' N and longitudes 2° 45' E and 6° 00' E. It covers about 76,852 km² (i.e. 8.5% of Nigeria landmass) and consists of the six states of Ekiti, Lagos, Ogun, Ondo, Osun and Oyo (Fig. 1). The region has a population of 32, 566, 010 (i.e. 20% of Nigeria's population) as projected for 2011 (NBS, 2012) and a density of about 423 ppkm².

The climate is tropical, characterized by a sub-humid Koppen's A_w climate with distinct wet and dry seasons (Kottek et al. 2006).

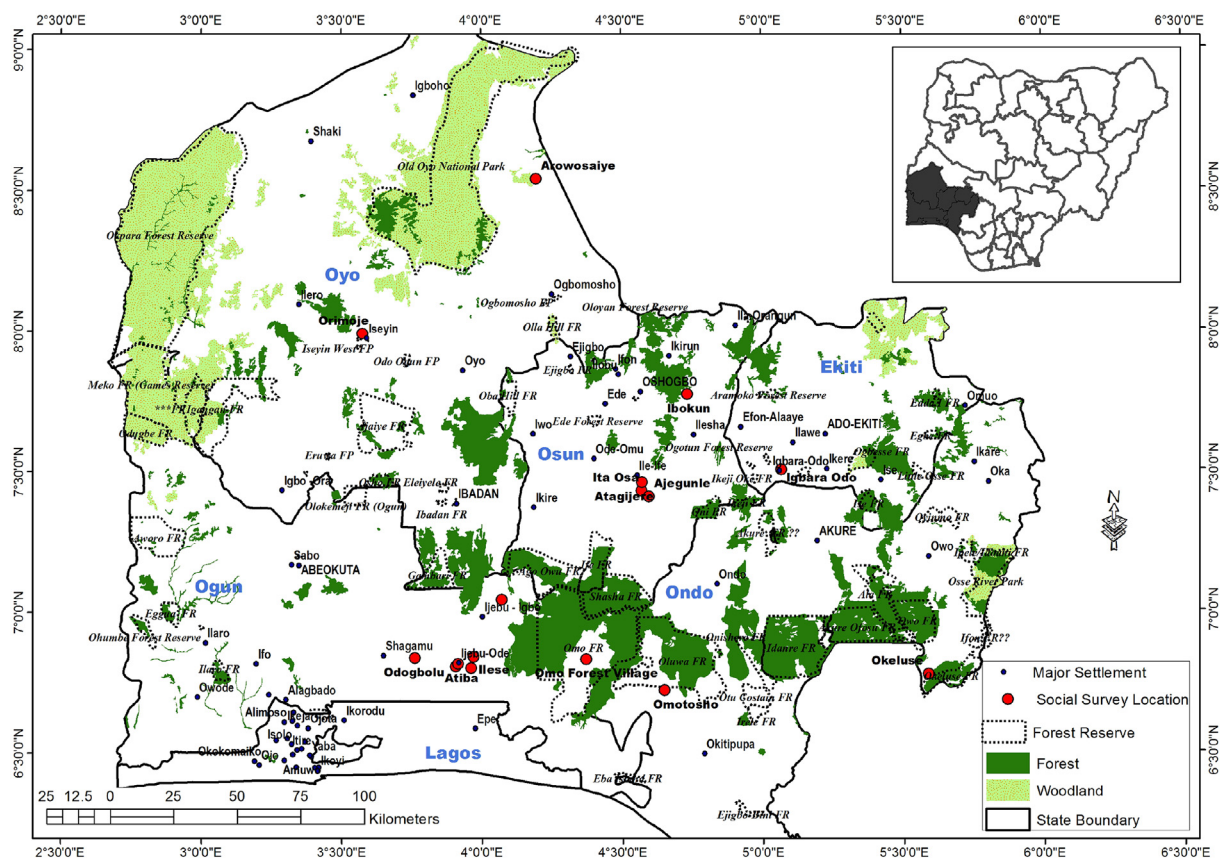


Fig. 1. The Southwest Nigeria showing the sampled communities and major forest and woodland areas and forest reserves. Source: Adapted from the original data generated in 1995/96 by the Forestry Resources Mapping, Evaluation and Coordinating Unit (FORMECU), Ministry of Environment, Nigeria.

Average temperature is about 27 °C. Rainfall is bimodal with mean annual range between 900 mm and 3000 mm. Like the rest of the West Africa, mesoscale climate processes predominate and account for over 75% of total rainfall received (Omotosho and Abiodun, 2007). Although about 60% of the SW Nigeria is covered by undifferentiated basement complex geological formation, the coastal areas and river floodplains are covered by recent alluvium and coastal plains. The Ewekoro, Ilaro and Abeokuta sand stone formations dominate the immediate areas outside the coast (Jones and Hockey, 1964). Elevation ranges from about 2 to 5 m along the coast to above 600 m around the Idanre and Efon - Ijesha ridge systems. Hydrologically, the SW Nigeria falls within the Nigerian hydrological zone six, dominated by the western littoral systems including Yewa, Ogun, Oshun, and Osse basins.

The mangrove forest, rainforest and savanna ecological zones straddle the SW Nigeria from west to east. Thus, the main land-cover types include cropland, mangrove, swamp forest, primary and disturbed forests, forest plantation, savanna woodland, grassland and urban areas. The region is the most urbanized area of Nigeria and has perhaps the largest remaining tracts of moist lowland rainforest dominated by the Omo-Shasha-Oluwa forest complex. The Omo-Shasha-Oluwa forest complex consists of three large and contiguous forest reserves – Omo (in Ogun State), Shasha (with Ago Owu and Ife forest reserves in Osun State) and Oluwa (in Ondo State) as shown on Fig. 1. A computation from the Forestry Resources Mapping, Evaluation and Coordinating Unit (FORMECU) vegetation and land-use data of 1995/96, which is the only available national land-use and vegetation data in public domain (FAO, 2014), suggests that cropland and fallow account for about 67% of the land-cover categories. Others include rainforest (11.4%), savanna woodland (9.7%), swamp forest (4.4%), grassland (2.6%), forest plantation (1.3%), and urban (2.3%).

3.2. Methods

The activities reported in this paper are part of a larger study on land-use change and carbon emission (LUCCE) in SW Nigeria. This paper therefore focuses on the forest governance regimes from the perception of households (who are community members), community leaders, major forest resource users and senior government officials in forestry and natural resources departments. While field data collection for households and forest resource users was done in 17 purposively selected communities scattered across 11 local government areas (LGAs) in five of the six states, community leaders were sampled in 10 in communities. The targeted/selected communities are those with high concentration of agriculture and forest-dependent activities (saw mills, lumbers, wood/plank

Table 1
Sampled communities and number of questionnaires administered.

SN	Name of Community	State	LGA	Households	Forest Resource Users	Community Leaders	Total	percent
1	Igbara-Odo	Ekiti	Ekiti South	12	5		17	9.7
2	Omo (Area J4)	Ogun	Ijebu East	5	3	1	9	5.1
3	Araromi -Oke-Ode	Ogun	Ijebu North	4			4	2.3
4	Atiba	Ogun	Ijebu Ode	3	1		4	2.3
5	Ejinrin road	Ogun	Ijebu Ode	7	3		10	5.7
6	Adefisan	Ogun	Ijebu Ode	4		1	5	2.9
7	Ilese	Ogun	Ijebu Ode	4	7		11	6.3
8	Odogbolu	Ogun	Odogbolu		2		2	1.1
9	Omotosho	Ondo	Okitipupa	12	8	2	22	12.6
10	Okeluse	Ondo	Ose	16	7	3	26	14.9
11	Atagijere	Osun	Ife East	1	4		5	2.9
12	Ita-Osa	Osun	Ife East	8	6		14	8.0
13	Ajgunle	Osun	Ife East	3			3	1.7
14	Ibokun	Osun	Obokun	14	3	1	18	10.3
15	Orimoje	Oyo	Iseyin	3		1	4	2.3
16	Abaletu Sawmill	Oyo	Iseyin	3	5		8	4.6
17	Arowosaye	Oyo	Ori're	9	3	1	13	7.4
Total				108	57	10	175	100.0

Source: Authors.

marketing, log transportation, timber contractor, and charcoal and fire wood sellers). These were mostly rural and peri-urban communities (some at the fringes of major urban areas). For the households and major forest users, after the selection of the communities, the choice of the respondents was purely random. Lagos State was excluded from the household, community leader and forest user survey because of its cosmopolitan nature. However, all the six states were included in the government key informant survey. The main field survey was carried out from 4 to 13 December 2017 with follow-up on government officials to retrieve questionnaires stretching to February 2018.

The field survey instrument used were structured questionnaires which were pre-tested during the reconnaissance survey carried out on 30 and 31 August 2017 in Eyekose (Oke-odan area) and Erifun (Ilaro area) of Ogun State. Four different questionnaires were designed to capture responses from households, forest resource users, community leaders and government officials respectively. In all 108 households, 57 forest resource users, 10 community leaders and 26 government officials in the forestry and environment departments were engaged during the field survey (Tables 1 and 2).

Ogun state has the highest percentage of respondents to the government key informant survey with about 35%. This is followed by Ekiti (19.2%), Lagos and Ondo states (15.4% each), Oyo (11.5%) and Osun (3.8%). The forestry sector dominates the survey at 61.5%, followed by natural resources at 23%. The middle to upper level officers (officer 1 and deputy directors) account for about 60% of the respondents.

The questionnaire for households consists of three sections with 33 questions and 282 sub-questions. The forest users' questionnaire consists of two sections with 23 questions and 77 sub-questions. The community leaders' questionnaire consists of 20 questions and 95 sub-questions, and the government key informant questionnaire consists of 28 questionnaires in three sections and 223 sub-questions. (The questionnaires are made available via Elsevier data files).

The coding and processing of the data were done within IBM SPSS Statistics 20 (www.spss.com). The contingency tables were consolidated and analyzed for frequencies and percentage responses. While 54.6% of the respondents to the household survey were male, 45.4% were female. For the forest users' survey, 75.4% were male and 24.6% female. For both survey, at least 85% of the respondents are married and have mouth to feed while the rest are either single, widow/widower or separated. The virile youth within age bracket 31–45 years dominated the respondents (Fig. 2).

For both groups, at least 40% have lived in the community for over 20 years, while at least 70% have lived there for over 10 years. Seventy-four percent of the forest resource users have been in the business for over 10 years and belong to one of the trade associations (saw-miller association, wood/plank seller association, farmers association, etc.). Respondents with secondary education

Table 2
Government key informant survey (n = 26).

State	Percent	Designation	Percent	Sector/Department	Percent
Ogun	34.6	Permanent Secretary	3.8	Afforestation	3.8
Oyo	11.5	Director	11.5	Agricultural services	3.8
Lagos	15.4	Deputy Director	26.9	Nature Conservation	3.8
Ondo	15.4	Officer 1	30.8	Forestry	61.5
Osun	3.8	Officer 2	19.2	Natural resources	23.1
Ekiti	19.2	Not indicated	7.2	Non-Governmental Organization	3.8
Total	100.0	Total	100.0	Total	100.0

Source: Authors.

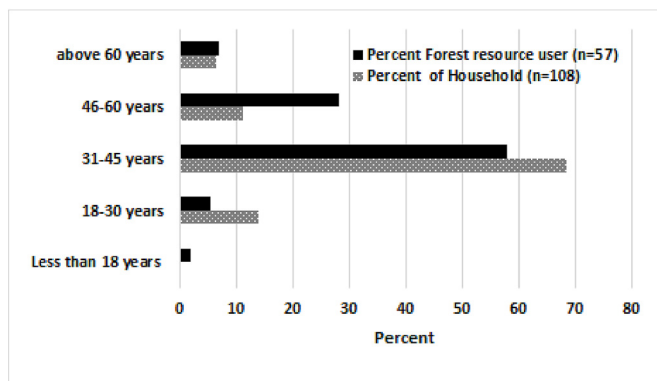


Fig. 2. Age category of respondents.

dominate the survey with 50% and 42% for household and forest resource users respectively (Fig. 3).

4. Results and discussion

4.1. State of forests and woodlands in southwest Nigeria

The words used to describe the state of forests and woodlands by majority of those who should know - senior government officials in forestry and natural resources departments - include: declined, deforested, degraded, depleted, over exploited, threatened, encroached, poorly managed, lack of government interest, and too much emphasis on revenue generation while neglecting other benefits from the forest. Only about 15.4% think the forest is being appropriately managed. Excessive logging for revenue is not limited to the government forest reserves. Conversations with community and family members during the fieldwork revealed that economic trees crops (especially *Cola* spp.) and the few standing timber inside cocoa plantations are also targeted for logging with concomitant collateral damage to those tree crops. The problem of excessive emphasis on revenue generation seems to pervade forest management in most low income countries. Forests are exploited by the state and individuals to generate revenue with little re-investment in forestry improvement, leading to loss of forest area (FAO, 2016a).

According to field data, the major duties of the government officers include forest resources management including monitoring, conservation, regeneration and regulation of forest resource utilization. Other secondary duties include rural social responsibility and education and revenue generation for the government. However, for most of the SW Nigeria states, revenue generation from forest and woodland resources is now a primary responsibility with forestry departments given annual revenue targets. In addition, the forestry departments also claim to support the communities through environmental education, provision of seedlings and employment opportunities and sustainable livelihoods for community members in the forest reserves.

Table 3 shows the perception of households, community leaders and government departments’ respondents on the state of land-use change in the last 20–30 years compared to the present.

The perception on changes in the major ecosystems and land-use categories is consistent. Majority of all the surveyed groups

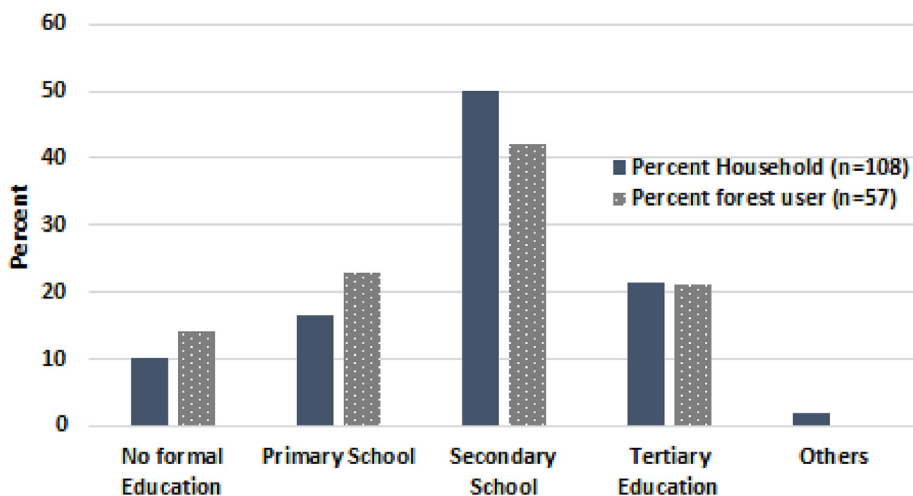


Fig. 3. Education level of respondents.

Table 3

Perception of households, community leaders and government agencies respondents on land-use change in the last 20–30 years compared to the present (by percent of respondents).

Land-use category	Households (n = 108)			Community Leaders (n = 10)			Government Agencies informants (n = 26)			
	Increasing	Decreasing	No change	Increasing	Decreasing	No change	Increasing	Decreasing	No change	No response
Agriculture/cropland	68.5	29.6	1.9	60.0	40.0		53.8	26.9	7.7	11.5
Forest Land	7.4	92.6			100			88.5		11.5
Forest Plantation	8.3	90.7	.9		90.0	10	7.7	80.8		11.5
Woodland	9.3	87.0	3.7		90	10.0		84.6	3.8	11.5
Wetland	13.0	56.5	30.6		80	20.0	3.8	69.2	15.4	11.5
Grassland	21.3	66.7	12.0	30.0	60.0	10.0	34.6	42.3	7.7	11.5
Water	29.6	47.2	23.1	20.0	40.0	40.0	3.8	57.7	15.4	19.2
Bare Surfaces	54.6	30.6	14.8	40.0	40.0	20	57.7	23.1	7.7	11.5
Urban Areas	92.6	5.6	1.9	90.0	10.0		73.1	15.4		11.5

Source: Authors.

(households, community leaders and government officials) believe agricultural and urban lands have been increasing, while forest, forest plantation, woodland, and wetland have been decreasing. At least 40% of all the participants across the groups think water is decreasing. For bare surfaces, majority of respondents in the household and government departments groups think it is increasing, while only 40% of the community leaders think bare surface is increasing and 40% also think its decreasing. At least 60% of households and community leaders and 42% of government informants think grassland is decreasing.

Although there is no official recent land-use/land-cover data to compare with these perceptions, they are generally consistent with what has been observed across Nigeria. Oyebo et al. (2010) observed decline in natural forest, increase in area that transitioned into degraded forest, increase in woodland/shrub/grassland, and slight decline in agricultural lands (increase in some states and decrease in others) and increase in urban lands across the six SW States between 1976 and 1995. These perceptions also appears to be consistent with preliminary results from the assessment of land-cover changes within the forest reserves and protected areas in SW Nigeria (currently being carried out as part of the LUCCE project). The preliminary results suggest that undisturbed primary forest area within the reserves declined from about 3266.3 km² in 1986 to 1026.2 km² in 2006 and a mere 6.7 km² in 2016.

The major proximate and underlying drivers of land-use change and deforestation in Southwest Nigeria include lumbering and polewood extraction, fuelwood and charcoal production, crop cultivation, urban growth, animal grazing and transportation, population increase and poverty. The teleconnection effect and response to economic opportunities with regards to cash crops and commercial arable crops, high local and export demands for wood, and lack of alternative livelihoods substantially drive land-use change and undermine the resilience of the people (Fasona et al., 2018). In the ‘free areas’ communities currently find it easier and cheaper to open-up new or additional land for farming than improving the management of the land they are already using.

Table 4 shows the one way analysis of variance (ANOVA) for responses by households and government departments across the SW States on the status of land-use change in the last 20–30 years compared to the present.

For the households, there was no statistically significant difference between groups as determined by one-way ANOVA for ‘increase’ in some land-use categories ($F(4, 40) = 1.060, p = .389$), and ‘no change’ in some land-use categories ($F(4, 40) = 1.358, p = .266$). However, there was a statistically significant difference between groups as determined by one-way ANOVA for ‘decrease’ in some land-use categories ($F(4, 40) = 3.507, p = .015$). This suggests that there is no statistically significant difference in the way the different households across the sampled communities perceive increase and no changes in some land-use categories across SW Nigeria in the last 20–30 years compared to the present. However, there are some significant differences in agreeing whether some land-use categories are actually decreasing.

Table 4

ANOVA Table for perception of status of Land-use across the States.

ANOVA (Household)						ANOVA (Government Agency)					
Land-use status		Sum of Squares	df	Mean Square	F	Sig.	Sum of Squares	df	Mean Square	F	Sig.
LU_increase ^a	Between Groups	264.667	4	66.167	1.060	.389	71.467	4	17.867	6.714	.000
	Within Groups	2495.778	40	62.394			106.444	40	2.661		
	Total	2760.444	44				177.911	44			
LU_decrease ^a	Between Groups	826.533	4	206.633	3.507	.015	45.022	4	11.256	4.404	.005
	Within Groups	2356.667	40	58.917			102.222	40	2.556		
	Total	3183.200	44				147.244	44			
No change ^a	Between Groups	40.756	4	10.189	1.358	.266	30.879	4	7.720	20.527	.000
	Within Groups	300.222	40	7.506			14.667	39	.376		
	Total	340.978	44				45.545	43			

Significance of 0.000 is due to rounding to the third decimal.

^a LU_increase = increase in land-use category; LU_decrease = decrease in land-use category; No change = No change in land-use category.

Table 5

Perception on effectiveness of government policies and regulations on forest management by government key informants from agencies (by percent of respondents; n = 26).

SN	Policy Thrust:	Effectiveness					No response
		Not effective	Low	Moderate	High	No effect + Low effect	
Economic/Revenue Generation Goals							
1	Registration and licensing of Property hammer		3.8	42.3	46.2	3.8	7.7
2	Annual Renewal of logging license			38.5	46.2	0.0	15.4
3	Appraisal of logging activities	7.7	23.1	34.6	26.9	30.8	7.7
4	Illegal felling of trees	7.7	23.1	30.8	30.8	30.8	7.7
5	Illegal farming in forest reserves	7.7	19.2	15.4	50.0	26.9	7.7
Environmental Goals							
6	Minimum tree girth	34.6	30.8	26.9		65.4	7.7
7	Annual allowable tree cut	42.3	15.4	23.1	3.8	57.7	15.4
8	Promotion of farming systems based on natural adaptations to reduce forest and woodland destruction	23.1	19.2	42.3	7.7	42.3	7.7
9	Strengthening forest protection to ensure adequate vegetation cover in critical areas	23.1	42.3	7.7	11.5	65.4	15.4
10	Cultivating fast growing tree species needed to accelerate forest regeneration	7.7	53.8	23.1	7.7	61.5	7.7
11	Establishment of private and community woodlots	11.5	38.5	34.6	7.7	50.0	7.7
12	Promoting ecosystems compatible agroforestry	23.1	42.3	15.4	11.5	65.4	7.7
13	Establishment of grazing reserves to prevent vegetal destruction by herd animals	69.2	15.4	3.8	3.8	84.6	7.7
14	Nursery establishment for local tree species	15.4	46.2	23.1	7.7	61.5	7.7
15	Development of community - owned forest	19.2	53.8	7.7	7.7	73.1	7.7
16	Illegal burning of forest and woodland	26.9	26.9	19.2	19.2	53.8	7.7
Social Goals							
17	Development of forest working and management plans	23.1	30.8	34.6	3.8	53.8	7.7
18	National income accounting system which include the degradation and depletion of natural resource stock	38.5	23.1	7.7	15.4	61.5	11.5
19	Increased support for NGOs and community tree planting programmes	11.5	57.7	15.4	7.7	69.2	7.7
20	Reducing percentage contribution of fuel wood consumption in the domestic, agric and industrial sectors	34.6	46.2	11.5		80.8	7.7
21	Encourage use of alternative sources of energy	30.8	46.2	11.5	3.8	76.9	7.7
22	The involvement of communities and institutions in forest and woodland management and control	26.9	34.6	23.1	7.7	61.5	7.7
23	Setting a proportion of revenue as forest trust fund for regeneration	57.7	11.5	15.4	7.7	69.2	7.7
24	Report on annual forest regeneration activities	11.5	50.0	19.2	11.5	61.5	7.7
25	Report on maintenance of established plantations	15.4	46.2	19.2	11.5	61.5	7.7

Source: Authors.

For government agencies, there were statistically significant difference between groups as determined by one-way ANOVA for 'increase' in some land-use categories ($F(4, 40) = 6.714, p = .000$), 'decrease' in some land-use categories ($F(4, 40) = 4.404, p = .005$) and 'no change' in some land-use change categories ($F(4, 40) = 20.527, p = .000$). This suggests that there is a significant difference in the way the government informants across the states perceive changes in land-use across the SW Nigeria in the last 20–30 years compared to the present. This difference is likely because apart from the overall national policy on forestry, each of the states has their own laws and guidelines governing forestry activities within their jurisdiction. In addition, some of the states may have believed they are more proactive and doing better than others in managing their forests and woodlands.

4.2. Effectiveness of government policies on forestry

Although about 77% of the key informants from the government sector agreed that there are existing policy documents on forests and woodlands to guide their management, most of the respondents do not think these policies are effective and achieving their targets, which is primarily to reduce deforestation, forest degradation and enhance better management of natural resources. Table 5 shows the assessment of the effectiveness of forest governance tools in the policy documents by the people who manage the forests and woodlands i.e. the government officials. The metrics or variables used in the survey were derived from the National Forest Policy (FGN, 1999).

The survey results show that the performance is not encouraging. The most performing are those policy variables dealing with or related to revenue generation (and monetary penalty for violations) including: registration and licensing of property hammer (a hammer with a timber mark assigned to an operator), annual renewal of logging license, appraisal of logging activities and penalty for illegal felling of trees and farming in forest reserves.

The policy thrusts dealing with environmental and social goals are adjudged to fall between not effective and low effectiveness by more than half of the sampled population. These include development of forest working and management plans, minimum tree girth, annual allowable tree cut, strengthening forest protection to ensure tree cover in sensitive areas, promoting national income

Table 6
ANOVA Table for perception of government agencies on policy effectiveness.

		Sum of Squares	df	Mean Square	F	Sig.
Policy not effective	Between Groups	85.472	4	21.368	7.902	.000
	Within Groups	324.480	120	2.704		
	Total	409.952	124			
Policy is effective	Between Groups	80.288	4	20.072	7.644	.000
	Within Groups	315.120	120	2.626		
	Total	395.408	124			

Significance of 0.000 is due to rounding to the third decimal.

*No + less = not effective plus less effective; Moderate + high = moderately and highly effective.

accounting that incorporates natural capital, increase support for NGOs and communities, and cultivating fast-growing tree species to accelerate forest regeneration., among others.

These results are consistent with the description and general observation of the forests and woodland noted in the earlier section, especially as regards the overemphasis on revenue generation and poor management of the forests and woodlands. This perhaps, is a major reason for the high rate of deforestation, depletion and degradation of forests in Nigeria. The results are also consistent with observations in the wooded savanna by [Adedayo et al. \(2013\)](#) and [Fasona et al. \(2014\)](#). These authors noted that while the strategies to improve natural resources management, climate change conditions, rural livelihoods and food security are well articulated in the national policy and programme documents, evidences from the field suggest a disconnect between the policies and the true situation on ground.

The failure to translate forest and natural resource policy intentions into actions at the local levels can also be connected to the overall land governance issue in Nigeria. As noted elsewhere, by the constitution of Nigeria, all lands belong to the state. By virtue of the Land Use Act (LUA) of 1978 (which is also upheld by Chapter VIII, Section 315 (5) of 1999 constitution and Land Use Act Cap L.5, 2004), every land in Nigeria belongs to the government. Section 1 of the LUA clearly stated that: “*Subject to the provisions of this Act, all land comprised in the territory of each State in the Federation are hereby vested in the Governor of that State.* Through that proclamation, the state government controls the land-use and vegetation. So the forest policy or any natural resource policy developed by the Federal (national) government does not really have any effect on how the state government manages and administers the forest and woodland estates. Thus, there are subtle differences in how some of these indicators fare across the six states of the southwest.

[Table 6](#) (generated from further analysis of [Table 5](#)) is the result of the one way ANOVA to test if there is any significant difference in the perception on the effectiveness of government policies and regulations on forest management by government key informants across the states.

There were statistically significant difference between groups as determined by one-way ANOVA for ‘*Policy not effective*’ ($F(4,120) = 7.902, p = .000$); and ‘*Policy effective*’ ($F(4,120) = 7.644, p = .000$). This result suggests there is a significant difference across the states on the perception on effectiveness of government policies and regulations on forest management. The Tukey's HSD Post Hoc test also suggests that some states differ from the others. This again may be adduced to differences in forestry management programmes, plans and policy implementation across the states.

4.3. Involvement in forest management activities by communities and forest resource users

The lack of government-community partnership and incentives for community-driven initiatives has been noted as a driver for lack of successful implementation of programmes that are aimed at improving rural livelihoods in Nigeria ([Adedayo et al., 2013](#)). This is also true of forest resource management in SW Nigeria. [Table 7](#) shows the responses of community leaders and forest resource users to 17 activities relating to involvement in forest management. These activities include involvement in tree planting and afforestation, creating awareness about forest and woodland protection and danger of illegal tree felling, planting indigenous multi-purpose tree species, creating woodlots, farming and burning in the government reserves, use of alternative sources of energy, and dialogue and training on different aspects of forest management.

Majority of the forest users' and community leaders have never been involved in any of these forest management activities. Some of the few who had ever been engaged in forest management practices do so on personal ground and at personal cost. Only very few claimed to have done so through the efforts of NGOs and government agencies. The message is that the overwhelming majority of the community and forest resource users have never been mobilized to participate in forest and woodland management activities. This is consistent with the earlier expounded position that the vast ‘free areas’ (or so called community lands) are generally regarded as common pool resources that belongs to everybody and yet belongs to nobody. This sets in the tragedy of the common where everybody wants to use the resources and nobody is willing to pay the cost which his/her use of the resources imposed on others. This lack of governance may partly explain why the forest and woodlands in the so called community lands are much more degraded and deforested than in the government controlled forest reserves ([Oyebo et al., 2010](#)).

Ninety-seven percent of the forest users' group agreed that neither the individual nor their association has ever been rewarded or compensated for good forestry management practices. Only 3% claimed to have ever been rewarded in-kind by the government. Twenty percent of the community leader claimed to be actively involved with government in the protection of forest, woodland and wetland. This is likely to be in Omo-Shasha-Oluwa forest where some of the few villages inside the forest complex are periodically

Table 7

Forest Resource users and community leaders' involvement in forest management activities.

SN	Activity	Forest Resource Users (n = 57)		Community Leaders (n = 10)	
		Yes	No	Yes	No
1	Afforestation/tree replanting	47.4	52.6	50	50.0
2	Creating awareness about forests and protected areas	42.1	57.9	30.0	60.0
3	Creating woodlot on indigenous wood species	21.1	78.9	20.0	70.0
4	Development of private-owned forest	10.5	89.5	40.0	50.0
5	Managing fast growing tree species on woodlot	21.1	78.9	40.0	80.0
6	Preventing illegal burning of forest and woodland	12.3	87.7	30.0	70.0
7	Preventing illegal farming on forest reserves	24.6	75.4	30.0	70.0
8	Preventing illegal tree felling	29.8	70.2		
9	Raising seedling/nursery	40.4	59.6	50.0	70.0
10	Regular dialogue/engagement on forest and climate issues with government and NGOs	21.1	78.9	20.0	70.0
11	Training on alternative livelihood (e.g. bee keeping, horticulture)	29.8	70.2	40.0	60.0
12	Training on annual allowable tree cut	21.1	78.9		
13	Training on forest protection issues	31.6	66.7	30.0	60.0
14	Training on forestry regulations	36.8	63.2		
15	Training on good agricultural practices	35.1	64.9	40.0	70.0
16	Training on minimum tree girth	28.1	71.9		
17	Use of alternative source of energy (e.g. coal briquette, solar)	15.8	84.2	30.0	60.0

Source: Authors.

engaged by the some development partners and NGOs. For example, the UNESCO's Man and Biosphere (MaB) and Korea International Cooperation Agency (KOICA) instituted the Green Economy in Biosphere Reserves project to support alternative livelihood initiatives for the few villages in the forest reserve complex. The Nigerian Conservation Foundation has environmental education outreaches targeted at the communities inside the forest reserve complex. Only one community leader claimed to have ever been compensated or rewarded for good forestry practices by the government.

4.4. Incentives for collaborative forest and woodland resource management

From the field survey, 93% of forest resource users, 90% of community leaders and 71% of households are willing to partner with government and any other organization to engage in forest protection and good forestry management practices if the incentives are right. Fig. 4 and Tables 8 and 9 show the incentives required by households, communities and major forest resource users.

Empowerment is the major incentive required by households and major forest resource users including loggers/lumbers,

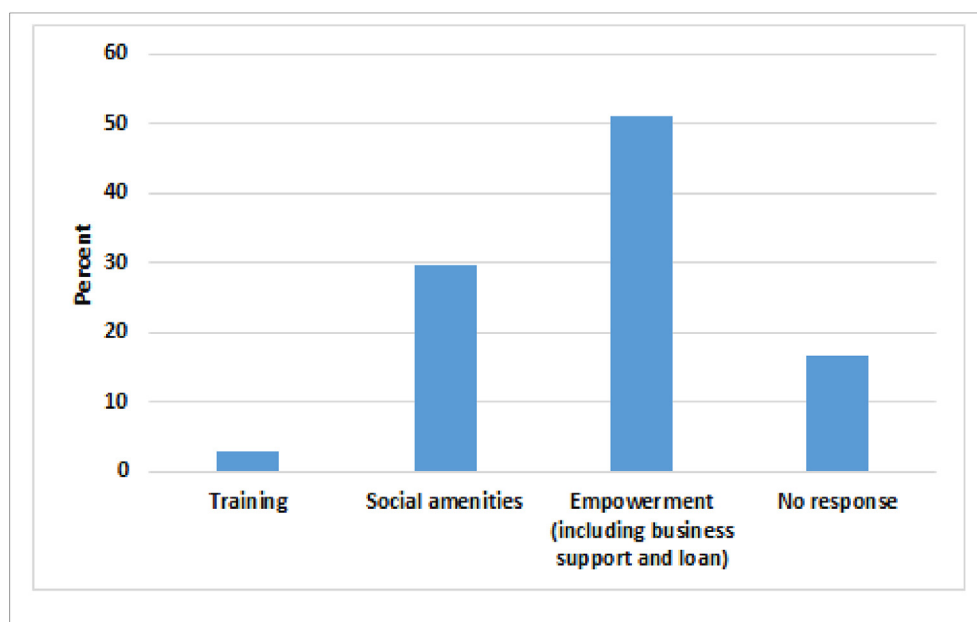


Fig. 4. Incentive required by household (by percent of respondents, n = 108).

Table 8

Incentives required by community leaders (by percent of respondents, n = 10).

Incentive	Establishment of industries	Social amenities	Empowerment	Training	Provision of seedlings	Community engagement	Total
Federal Government	2	3	2	1	1	1	10
State Government	4	2	1	1	1	1	10
Local Government	1	5	1	1	1	1	10
International agencies and development partners	1	4	1	2	1	1	10
Foreign and local NGOs	1	5	1	1	1	1	10
Private Organizations	2	3	1	3	1	0	10

Source: Authors.

Table 9

Incentives required by Forest Resource Users (by percent of respondents, n = 57).

Incentive	Training	Provision of basic amenities	business support/loan	Empowerment	No opinion	Favourable forest protection policies
Federal government	8.8	10.5	26.3	43.9	8.8	1.8
State government	8.8	14.0	22.8	43.9	8.8	1.8
Local government	5.3	17.5	28.1	38.6	8.8	1.8
International agencies and development partners	5.3	10.5	31.6	40.4	8.8	3.5
Foreign and local NGOs	5.3	10.5	29.8	42.1	8.8	1.8
Private organizations	5.3	10.5	26.3	45.6	8.8	1.8

Source: Authors.

lumbering contractors, plank and wood sellers, charcoal producers, etc. Closely aligned to this is the demand for business support by the major forest resource users from different levels of government (Federal, State, and Local), development partners, NGOs and other private organizations as incentive to partners for improved forest and woodland resources management. The provision of basic social amenities (including industries) also featured strongly as part of the incentives for households (30%), communities, and forest resource users. Other incentives mentioned include training, provision of seedling, community engagement, and favourable forest protection policies.

Empowerment (as mentioned by the respondents) include financial incentives, monetary rewards, alternative livelihood support including provision of farm equipment and agrochemicals, guarantee of job opportunities/alternative livelihoods, conditional cash transfer, employment of community youth as forest guards, and involvement of the community in forestry management. Provision of business support/loan as incentive was also mentioned by at least 20% of respondents. The lack of forest compatible alternative livelihood sources (including bee keeping, snail farming and specialization in non-timber forest products) remains a formidable obstacle to effective partnership between the government and the local people for forest and woodland management in Nigeria. Forest degradation can have direct negative effects on vulnerable people and escalate social unrest and conflicts. The recognition of this has led to active processes of integrating forestry into poverty reduction and rural development strategies in some countries. In this study, 61% of the household respondents agreed that the male youth are the most engaged in lumbering activity while 52% agreed that the male and female youth are the most engaged in farming and agricultural production. Thus, the virile population - male and female youth - are significantly involved in activities that drive deforestation and forest degradation in SW Nigeria.

According to [FAO \(2016a\)](#), specific financial mechanisms have succeeded in arresting deforestation or increasing forest area. Local communities, when genuinely engaged in decisions regarding rules affecting their use of resources, can become effective forest stewards when the conditions and incentives (including avenues for meaningful participation and fairly distributed shared costs and benefits) are right ([Ostrom and Nagendra, 2006](#); [Cronkleton et al., 2008](#); [Bond et al., 2009](#)). Combining remote sensing, field investigations and laboratory experiments, [Ostrom and Nagendra \(2006\)](#) concluded that when natural resource users are genuinely engaged in decisions regarding rules that affect resource use, the likelihood of users following the rules and monitoring others is much greater than when an authority simply imposes rules on users (p.19,230). The demand for empowerment is consistent with the strategy employed in the Brazilian Amazon where a conditional cash-transfer programme was implemented. In Brazil, the Government in 2011 implemented the Environmental Conservation Support Program - “Bolsa Verde” (i.e. Green Grant Program) - through which thousands of poor forest-dependent families inside government reserves and protected areas committed to maintaining vegetation cover and sustainable use of natural resources start to receive about R\$ 300 every 3 months as financial incentive ([Brazil, 2014](#)). [Nolte et al. \(2012\)](#) also concluded that indigenous lands in Brazil were particularly effective at avoiding deforestation in locations with high deforestation pressure (p.3). In Nepal, after years of government controls, local communities now collectively make decisions, protect and regulate the use of forest resources, manage plantations and sustainably harvest forest products including deadwood, grass, fuel wood and medicinal herbs in the buffer zones community forests. The proactive role of communities and their heightened sense of ownership of forest conservation increased forest cover, generate ecological and economic benefits, and demonstrate capacity to successfully manage forests under right conditions ([Ostrom and Nagendra, 2006](#); [Jana, 2009](#)).

Ghana also empowered communities to manage forest and wildlife resources through community resource management areas system, engaging communities in forest boundary cleaning for a fee and granting access for collection of non-forest products (Ghana, 2014). The Green India Mission has the target to improve the livelihoods of about 300 million households living in and around forest areas by providing technical training to local communities and facilitating their managing, protecting and sharing of usufructs from forests (India, 2014). In Vietnam, local communities are benefiting from goods and services produced by forests including benefit sharing in protection, development and management of special use forest (protected area system) as part of pilot policy on Payments for Environment Service (Vietnam, 2014).

Most rural communities in Nigeria lack basic services including road, water, electricity, schools and health. The provision of basic social amenities could serve as incentive to commit poor local communities into protecting the forest. Complementarity between rural development and crucial environmental goals has made investment in forests a logical solution to poverty in countries such as Bhutan, the Gambia, Ghana, India, Mexico and Viet Nam (FAO, 2016a p.43). Like other sub-Saharan Africa countries, despite abundant forest resources, Nigeria contributes insignificant share of global value added in forest products. Perhaps a conscious plan to improve value added in forest products will also drive a social infrastructure and job creation agenda. Policy incentives to promote community forestry and small and medium-sized enterprises have helped generate incremental benefits for local people in Ghana; while in Tunisia, local communities, non-governmental organizations and the private sector are engaged in the co-management of forest resources under a system of devolving responsibility for forestry activities (FAO, 2016a).

5. Conclusions

This study revealed the perception of major stakeholders including households, forest resource users, community leaders and forest resources managers on key dimensions of forest and woodland resources management in SW Nigeria. These dimensions are: the status of forest and woodland, effectiveness of government policies, involvement of other stakeholders outside government in forest management activities, and incentives required for collaborative governance of forest resources. The extent to which government policies are effective on the ground significantly affects the degree of degradation of forest and woodlands, stakeholders' interest and participation in forest management activities, and delivery of incentives to encourage shared-responsibility with local communities, forest resource users and other stakeholders. While the policy documents are well intentioned, policy implementation has been a major challenge to effective forest management. The forestry officials have attested to the fact that policy implementation is weak and ineffective, and provides little incentives to activate stakeholders' participation. This inaction drives over-exploitation of forest resources.

Effective policy implementation requires an empowered and highly motivated institution with strong regulatory and enforcement powers. The over-reliance on the forest primary products for internally generated revenue targets set by the state governor puts the forestry sector under heavy pressure to concentrate on the revenue generation goals with immediate and short term benefits. This drives the neglect of the environmental and social goals of forestry management that are critical for the health and long term sustainability of the forests. The state forestry departments must be reformed to be independent and self-accounting. This will enable them to pursue forestry revenue based on sustained yields, plan and execute sustainable forest programmes and projects (including reinvestment in forestry improvement, conservation, natural regeneration and monitoring) and more closely engage with other stakeholders outside the government. This, on the long run, is likely to improve the implementation of forest management policies and deliver on the environmental and social sustainability as well as the revenue generation goals. Local communities and land owning families remain important stakeholders that need to be recognized as critical partners with shared-responsibility (and shared-benefits) over forest reserves. The recognition of their ownership rights to the resources in the vast 'free areas' outside the reserves will incentivize them to assume greater responsibilities and make stronger commitments in managing forests and woodlands. This can only be achieved through a reformed forestry department that is sufficiently empowered for decision making to create the enabling environment for robust participation in sustainable land management decisions.

Funding

This work was supported by the Nigerian Tertiary Education Trust Fund's National Research Fund (TETFUND-NRF) through the 'Land-Use Change and Carbon Emissions in SW Nigeria' Project Award to the University of Lagos.

Acknowledgement

The comments from the editor and the two reviewers are gratefully acknowledged.

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