

Indigenous Information as Tool for Consolidating and Promoting Natural Resources Conservation in Igbo-Speaking Communities of Southeast Nigeria

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Abstract

Prior to modernization, indigenous peoples had strong mechanisms for communicating, regulating and managing natural resources endowments for their survival and development. Modern knowledge and information management systems have not sufficiently improved conservation and natural resource development especially among rural folks. This study was conducted in Igbo-speaking rural communities of Obowo LGA of Imo State in SE Nigeria to elicit information on conventional and indigenous information dissemination and exchange methods on natural resource conservation with the view to identifying the impacts of indigenous information methods on resource conservation. Data obtained from in-depth Interview (IDIs) sessions with key stakeholders within the locality revealed the availability of medicinal plants, arable lands and rivers/streams occurring in relatively high abundance as attested to by 71.0%, 56.0% and 48.0% of the respondents, respectively. Also, rural people access information about natural resources and environment through a variety of media/platforms (both formal and indigenous). Fractional ranking showed that the top five (5)

indigenous information media were oral tradition (1.5), local authority leadership structure (1.5), village assembly (2), story-telling (4) and individual enquiry (5.5). Local authority structure among other indigenous information media manifested the highest positive influence (31.3%) on conservation/consolidation of identified resource. Specifically, local authority was the source of information rivers/streams (63.2%) and arable lands (56.0%) conservation. It is therefore imperative for governments and international agencies to see information media mix especially through recognizable local institutional channels (local authorities) as veritable instruments for sustaining and promoting sustainable development especially of natural resources at different community, national and global levels.

Keywords: Indigenous information, dissemination, conservation, natural resources

Introduction

Information is power and with power, exploitation becomes unlimited. Recent studies on knowledge and information systems have come to open up broad, inciting and new areas of research and development interests. For example, as observed by UNESCO (2012), the knowledge system which focuses on the values, traditions and cultures of people are integral to the attainment of global development thrusts and targets. In our contemporary age and context, indigenous knowledge and practices as held by a given people are increasingly gaining prominence due to failures of some scientific methods to appreciably address salient needs of societies particularly as it affects natural resources management and livelihood improvement.

Available global statistics reports as cited in Thondhlana and Muchapondwa (2014) showed that the life and survival of over one-third of the world population, especially those in third world countries depend directly on existing natural resources in their environment. More strikingly too, these resources are comparatively higher in rural areas where poverty is higher and literacy level is low (Malla *et al.*, 2003). As an instance, USAID (2006) reported Africa and some other developing countries as having the highest number of geographical

terrains that impede access to efficient transportation, restricts knowledge and information dissemination and where also there are poor infrastructure and low standard of development for instance to access and gazette essential habitats. Consequently, most policies and programmes of governments are not efficiently extended and executed in such areas. This can compromise efficiency and best practices in resource exploitation and ultimately impact adversely on any proposed public sector livelihood improvement strategies. Insufficient coverage by public-owned broadcast media in some areas makes government policies directed at attaining some development goals to be poorly perceived and/or unsuccessfully implemented. Such conditions of poor road infrastructure, poverty and unrestricted media coverage limit modern information dissemination (Bonfiglioli, 2003; Dhawan, 2010).

Again, in Africa, public or conventional information dissemination outfits (broadcast stations like television and radio stations) either do not extend their coverage to rural communities or where they do, the dominant *lingua franca* of reportage (English language) poses a problem in understanding by rural population (van Stam, 2013; Bamgbose, 1968). Invariably, majority of local inhabitants in these affected communities largely get knowledge and information which they grow and live with only through orthodox, indigenous or non-conventional means. These means are seen to be keen to sustaining existing/available resource stocks and endowments in such environments. Such indigenous methods/practices especially those that have not been well documented, need to be appraised to identify areas of conservation value in local information exchange and response to enhance their optimal performance and development.

Rural people (peasants, farmers, landless labourers, women, artisans, livestock rearers, hunters etc) are highly knowledgeable but usually non-formally learned. They are versed in their own indigenous practices and have wide information bank especially about resource endowments in their areas, resource use patterns and what works or does not work well in their locality. They also have knowledge on how a change in one aspect of the local ecological settings could likely impact on their immediate environment, survival and land production system (Raygorodetsky, 2011). Despite this huge asset of knowledge which can potentially translate into development, deserved interest and attention are not directed at tapping from this informal knowledge

system and practice by rural development experts and planners, political leaders and technocrats. Where local information and knowledge system about a given people is recognized and well built into wider public development plans, its significance is demonstrably felt in many sectors: agriculture, security, environment, governance among others (Gorjestani, 2000; Nwankwo, 2012).

As observed by Cassimirri (2003) and Chikaire *et al.* (2012) natural resources management in Africa including Nigeria is on the crossroad because her information system has narrow adoption and acceptability by different segments and classes of people. Evoking the interest and information about a people will help save and protect their identity, promote welfare and foster sustainable local participation in resource conservation. Access to information on indigenous knowledge areas is one aspect of many on-going development researches. However, the evaluation of local information gathering and dissemination modes with a view to projecting aspects which manifest progressively convincing tendency to step up existing resource conservation is even more significant and in line with the sustainable development goals SDGs (Ngara and Mangizvo, 2012; Meyer, 2003). This study reports on inciting opportunities for bridging the gap between western science in conservation and local circumstances, which appear to have been neglected and for which its concern has become crucial.

Methodology

The study was conducted in three (3) contiguous border communities in Obowo LGA (Okwuohia, Amakohia and Umuihi) of Imo State, Nigeria. The communities were purposively selected based on documented evidences of cultural homogeneity among them. Again, there is ancestral history of common descent, political and socio-religious affinities. Obowo LGA has a population density of <1000 persons per km², descriptive of rural areas in line with settlement classification scheme of POPIN (1995). Politically and administratively, Obowo is made up of communities with an aggregate population of about 117,432 people and an estimated land area of about 97km² (SEEDS, 2005).

The area which is located within Okigwe senatorial zone of Imo State and lies within latitude $40^{\circ} 45^{\prime}N$ and longitude $60^{\circ} 65^{\prime}E$. Enquiries and desk review of non-documented literature about the region give indication that modernization could have come into the area few decades after the European colonial period in Nigeria (in the 1930s). The lifestyle and some aspects of the indigenous cultural practices of the people in this area can with some level of precision be evaluated and/or linked with farming practices, resource extraction and exploitation methods of the people as well as utilization patterns in the region. Oral tradition holds that indigenes in the area had at some time in the remote past used crude methods in mining activities around the region suggestive of possible mineral/natural deposits in the area. There are large and productive farmlands, energetic manpower for agriculture, good climate and some water bodies for agricultural and fisheries development potentials. Hunting for wildlife species is a household occupation in the area particularly during the 1980s given the extensive vegetation cover then. Public infrastructure like roads, pipe borne water and electricity had deteriorated or are inexistent in some areas (Ukpongson et al., 2011). A few completed public projects in some communities in Obowo LGA have been spearheaded through self-help community effort indicative of the low level of government presence and support to development of countryside locations.

Research team was constituted and field data systematically collected through personal interviews using structured interview schedule. The study was executed using six (6) personal interview sessions in each of the target Igbo-speaking communities. The research thrust bordered on issues demanding wide and deep knowledge and experience of indigenous practices across the study area. Hence, target interviewees were selected based on age (>50 years), knowledge and experience (natives of the area and have lived there for over 30 years). Categories of persons that made the list of the interviewees included traditional leaders, title holders, community/village heads, retired teachers, heads of socio-cultural groups/associations and indigenous religious leaders - native and resident in the area.

Information gathered were on natural resource endowments; local protection/conservation measures for the natural endowments; existing media for information access on natural resources and

environment; and the extent to which the information dissemination media have influenced identified resource base in the area. Information obtained during the interview sessions were transcribed for clarity by the research team and thereafter sifted. Data on existing resource endowments were scaled in percentage while prevalent local conservation measures were presented in form of checklist. Prevalent media for accessing information and knowledge about environment and natural resources were transformed and ranked using fractional ranking method proposed by Fay and Proschan (2010) which method was also applied in a report of a survey of health equity among household (World Bank, 2006). The influence of top five (5) identified platforms (media for information access) on conservation rate of the identified resource endowments was graphically presented.

Results and Discussion

Five (5) different forms of natural resource endowments were identified but at different rates of abundance in the study area (Table 1). Medicinal herbs (71.0%) and arable lands (56.0%) reportedly occurred in highest proportions relative to the others.

Table 1: Identified natural resources and level of abundance in the study area

Identified natural resource	In relatively high proportions (%)	In relatively low/moderate proportions (%)	Total
Rivers/streams	48	23	100.0%
Patches of natural forest and secondary vegetation	-	31	
Medicinal herbs	71	29	
Wildlife species	39	46	
Arable lands	56	36	

The level of abundance of medicinal herbs, which as attested to by over 70.0% of the residents in the study was high compared to other identified resources. This is suggestive of productive top soil and a potential floral biodiversity base which could with appropriate technologies be efficiently harnessed and processed as observable in biodiversity improvement and resource development trends in Malaysia and India (Muhammad and Awaisu, 2008; Singh, 2006). The above resource base as observed in the study area is an asset not only for community benefits but national development particularly for the

health sector (conventional and orthodox). The same is also true for the available arable land that can be cultivated (56.0%). FAO (2010) reposed about 75% of the land in the tropics as arable and utilized mainly for cultivation of tubers, cereals and vegetables. A variety of food crops and other multiple land use options that have successfully been tried on lands in developed nations can potentially be replicated in some third world countries including Nigeria.

Table 2: Local resource conservation practices adopted by community members

Identified Resources	Protection/conservation practices	Okwvohia	Amakohia	Umuithi
River/streams	Not washing in streams	√	√	√
	Regulating pollution by strictly observing periods on no entry (bar days) into the streams/ rivers		√	√
	Manual de-siltation of rivers and streams by men and youths	√		
	Annual stream dredging	√	√	√
	Minimizing/preventing water erosion by conserving existing watershed trees/shrubs species (e.g. bamboo)		√	
	Delineation of relic natural vegetation areas as oral grooves and evil forests	√	√	√
	Enforcements on restriction on entry into grooves and evil forest areas	√	√	√
Patches of natural forests and plantation	Imposing local sanctions on felling of certain traditionally important tree species (e.g. <i>Miletia excelsa</i> , <i>Baphia nitida</i>)	√	√	√
	Community monitoring and protection of indiscriminate wildlife hunting of animal species			√
	Abhorring the killing, eating and use of certain animal species and their products (e.g. python)	√		
Land Management	Restrictions on land excavation	√	√	√
	Imposition of fines for removing top soil (sand) from homesteads and lanes		√	
	Maintaining minimal fallow periods for crop farming (3 years)			√
	Practicing compatible agro-forestry systems (home gardens, compound farming etc) to enhance land sustainability	√	√	
	Communal land tenure system in practice in some villages thus limiting excesses in intensive individual land use practices			√

√= Low level of operation √√= Medium level of operation √√√= High level of operation

Respondents indicated major protection and management practices for the identified resources in their locality (Table 2). For each of the identified endowments, there existed local sanctions respected by residents in the area for effective conservation and biodiversity management. These have evolved as a generational form of practice consistent with the economic, cultural and socio-religious life of the people. An examination of the outlined local conservation practices (Table 2) shows that adoption did not follow a general pattern even though the communities are contiguous. The only exception is the sanction applying to the felling of certain traditionally important tree species (e.g. *Melicia excelsa* - Iroko, *Baphia nitida* - aboshi).

Some conservation experts as well as rural development proponents submit that most communities in Africa endowed with exploitable resources over time experience the challenge of resource neglect and hence scarcity amidst plenty due to disinterest in local content by development agencies, poor governance, lack of adequate information/ knowledge as well as low political will on the part of the public sector (Thorbecke, 1995; World Bank, 1996). Similarly, there are evidences of huge mineral deposits across some locations around the study area yet to be exploited. For instance, the study area is being included among four (4) LGAs in Imo State (Oru East, Oru West, Ngor Okpala and Obowo) where crude oil is discovered (News Agency of Nigeria, 2014 and The Punch, 2014). Documents credited to African Development Bank cited in African Development Report (2007) holds that due to unregulated reception and adoption of knowledge systems distant from local way of life of the people, rich natural endowments (flora, fauna etc) in some locations in Africa are progressively declining from their original levels of abundance. Oral interview transcript report gave clue to the high density of wildlife species in the area around the early 1950s. In Table 1, there is a presumably observed decline in wildlife proportions. This could likely be what is playing out in this research considering the sharp gap in wildlife species abundance and natural forest/plantation from oral evidences of historical trends signified by some respondents.

Methods for communicating local resource conservation and development

There were eleven (11) media through which information about local environment, natural resources and other environmental issues were accessed by residents. Four (4) were consistent with modern information access methods. These include newspaper publications, radio, television and semi-formal socialization amongst neighbours and more informed residents of the area. Non-conventional/indigenous media for information access about natural resources and environment by the respondents and their respective enclosed decreasing order of rank values are oral tradition and local authority structure (1.5); village meeting (3); story telling (4); individual enquiry (5.5) and lowest being cultural festivals and town cries (7).

The NSW Department of Commerce (2008) documented that various methods have been documented through which knowledge/information are obtained by indigenous people. In the results, respondents acknowledged about seven (7) indigenous/non-formal platforms for information gathering about their local environment. Oral tradition (1.5), local authority structure (1.5), village meetings (3), story-telling (4) and individual enquiry (5.5) are platforms for information dissemination which made the top five (5) in the ranking list (Table 3) and whose respective influences on conservation are contained in Figs 1-5.

Table 3: media (platforms) for knowledge/information exchange (dissemination) about the environment and natural resources in the study area

S/No	Media/platforms for knowledge and information gathering	Frequencies		
		Information about indigenous conservation strategies	Information about general environmental management	Mean Fractional Values Ranking
1.	Cultural festivals	8	11	9.5 7
2.	Socialization	11	13	12 9
3.	Individual enquiry	6	10	8 5.5
4.	Local leadership/authority information flow	-	6	3 1.5
5.	Newspaper	11	15	13 10
6.	Oral tradition	-	6	3 1.5
7.	Radio	9	12	10.5 8
8.	Story telling	2	13	7.5 4
9.	Television	16	18	17 11
10.	Town-cry	8	11	9.5 7
11.	Village meetings	5	9	7 3

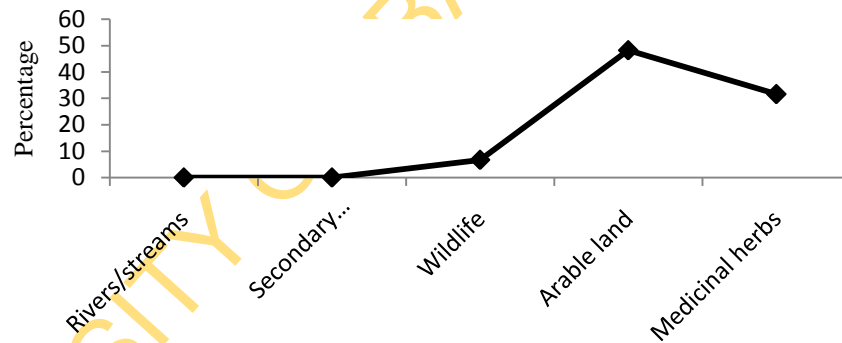


Figure 1: Percentage distribution of respondents' accessing information on identified natural resources conservation through oral tradition

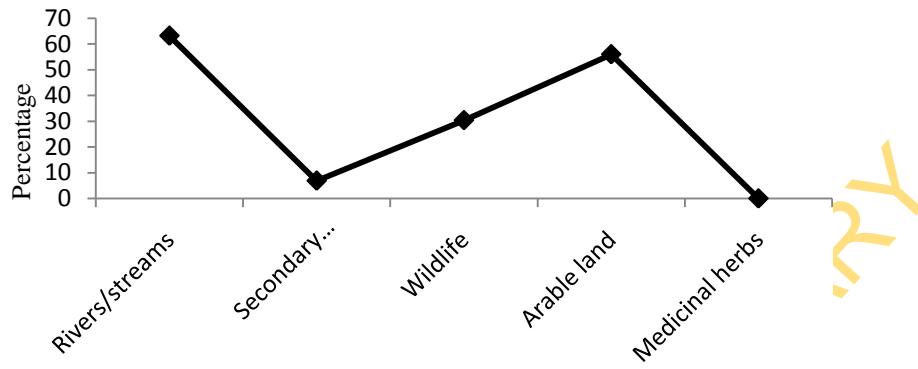


Figure 2: Percentage distribution of respondents' accessing information on identified natural resources conservation through authority structure

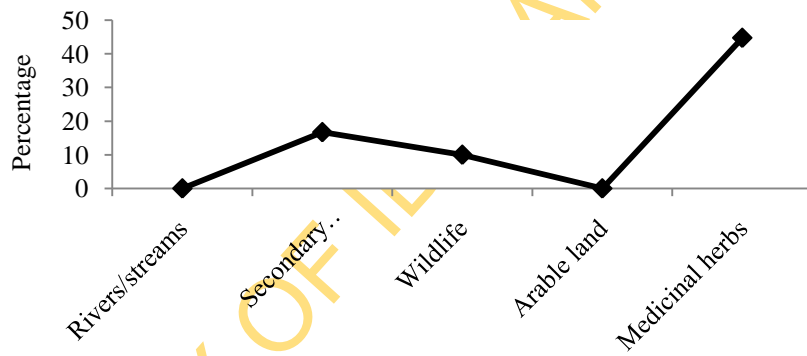


Figure 3: Percentage distribution of respondents' accessing information on identified natural resources conservation through stories and myth

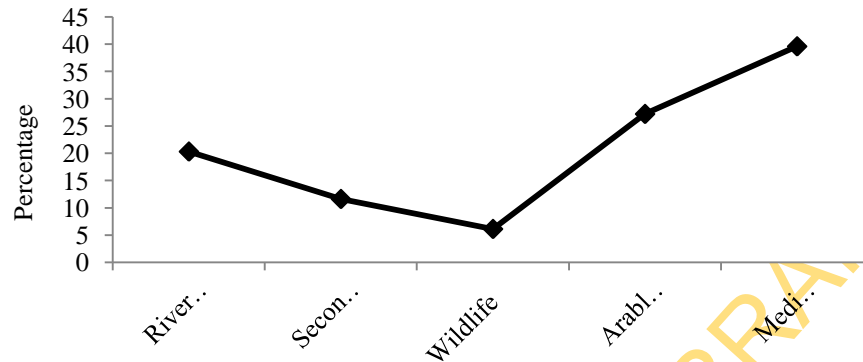


Figure 4: Percentage distribution of respondents' accessing information on identified natural resources conservation through individual enquiries

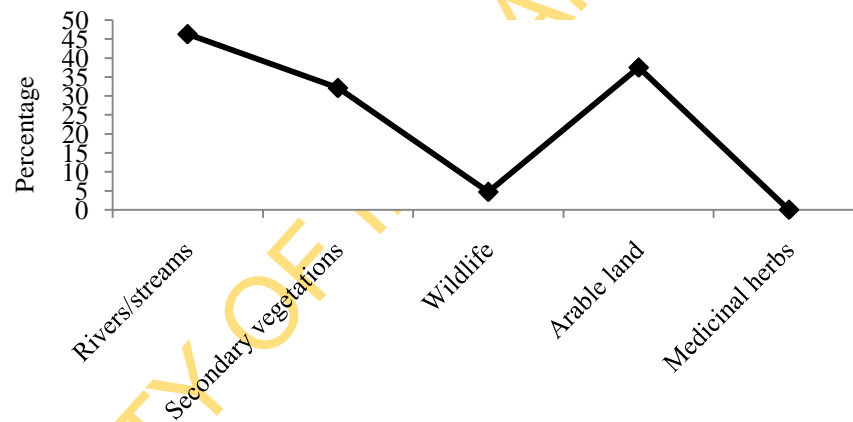


Figure 5: Percentage distribution of respondents accessing information on identified natural resources conservation through periodic village meetings

Oral tradition as held by the people of the study area (Fig 1) contributed marginally to conserving some resource endowments in the area especially arable lands (48.2%) and medicinal herbs (31.6%). Oral tradition portrays an information gathering and dissemination mechanism which is stored in peoples' memories and which they carry about in their lifetime. This presents humans as holders of good memories which play vital role in constant information retrievals and

transfers to other generations and populations. The implication of this medium as identifiable with rural and indigenous people is that any eventual death of knowledgeable person (or persons) holding such or similar oral information leads to loss of valuable asset and identity of a people. The life expectancy for Nigerians in the 2000 – 2010 assessment report is put at 58.6 years (Sede and Ohemeng, 2015). The World Bank report puts current figure at 52 years, which is about the seventeenth (17th) lowest globally. This change of about -11.3% is in deficit and remarkable given its implication on the progressive erosion of wealth of knowledge particularly of conservation importance.

Across Africa, the institutionalization and recognition of leadership by elders at the local community level is evident even in pre-historic times. In the traditional African context, for instance, authority is vested in the elders who form either village/community leadership assembly (George, 2010). In modern day governance, especially in developing and developed societies, government funding, control and regulation of traditional and local leadership institutions and structure in rural communities have coarsed and divulged most fundamental aspects of the practices of rural populations and in some cases, regrettably imposed/instituted imperialistic structures and practices (Ntonzima and Bayat, 2012). This situation is at variance with indigenous sustainable development thrust.

The significance is that if local authorities are not very familiar with a particular type of outside information and almost wholly give her allegiance, such external information/knowledge will skip local sanctioning. This local authority and institution where it is still recognized, respected and promoted in modern day can aid the protection and conservation of resources in local areas especially in poorer countries of the world. Consulting the local authority for information favoured protection and conservation of water bodies (rivers/streams 62.3%), arable lands (59.7%) and wildlife species abundance (32.5%) in the study area (Fig. 2).

Similarly, information and knowledge sharing through story telling offers an experiential platform for learning and sharing especially cultural, religious and social issues (Eck, 2006). In the African context, this is largely on phenomena, issues and events familiar to the story teller. In Figure 3, story-telling as a non-formal

information access medium was reportedly positive at influencing local rate of conservation of medicinal herbs as attested to by about 45.0% of the respondents. Stories that border on health promotion, ill-health prevention and/or related issues reflect potency for orthodox health support service in health promotion using available and cost effective local instrument. The above result by extension will offer potential value in terms of associated multiplier effects on promoting and broadening knowledge base of indigenous communities and their members. This is most especially where such stories are told about the distribution of medicinal plant species in the locality, major habitats, occurrence and alternative uses to which they are put. Indigenous knowledge (local information access for health promotion) from the above findings if developed and formalized as proposed by Abah and Denuga (2015) would significantly improve general standard of living, healthcare and development across hinterland environments and locations.

Local information media as evaluated in this study presented individual personal enquiries as another viable platform which contributed positively to conservation of medicinal plant resources in the study area (Fig. 4). Enquiry was reposed by Zion and Sadeh (2007) as a vigorous and progressive activity whose output often engender innovative appreciation and acceptance of true reality of events/ occurrences on salient or specific issues hitherto merit probe or confirmation. In the graphical result (Fig. 4), the correspondingly highest response rates obtained for conservation of medicinal herbs (43.0%) and arable lands (26.0%) reveals enquiry zeal among residents especially about their environment and natural resources more than other methods for accessing information including finding answers to their possible utility values. In this regard, the local people through this observation manifest their desire and high propensity for change and improvement as a result of gathering knowledge and information. This drive by local population for discovery and improvement was also observed by Ukpongson *et al* (2001) in their study on possibilities for project financing modalities in the study area. The exposure, experience and awareness which people have acquired about their immediate environment and surroundings have helped in some cases to identify and accordingly adapt to the demands of the time in those areas or communities.

Itinerant and non-itinerant people in general and indigenous people in particular that belong to the above groups appear to sustain their engagement in informal village meetings and other socio-cultural gatherings. Periodic village meetings are an integral information dissemination platform in most communities and localities (Meyer, 2003). In most rural areas, for instance, there are designated squares (meeting points) where members converge to discuss development-based issues and take common decisions. This way, local leaders provide information and direction on the well-being and development of their subjects and their locality in general. Although there are reports that literacy rate in sub-Saharan Africa SSA has improved to about 59% over the past 20 years as documented in UNECA (2014). This tends to contradict the report of UNESCO (2014) that more than one in three African adults cannot read and write indicating that rural African environment is not yet at par in information access and literacy level. Observably, most rural inhabitants access their information through informal means: a method which is of virtually zero cost to them. Its costless nature, ease and other associated benefits make village meetings and assembly effective and efficient for indigenous people especially the rural poor. Here also, there is stimulation of interaction, greater socialization and tightening of mutual cohesion through the gatherings.

Protection measures for existing water bodies in the study area, which include annual dredging of streams and planting trees around rivers and streams for their shedding in addition to adopting and enforcing local measures to protect the water bodies are identified measures for sustaining existing natural resources among respondents. These practices which are age-old, confirm the degree of assimilation of the largely unwritten and undocumented regulations that are registered in the minds of the local people. About 30.0% and 35.0% of the respondents attested to imbibing conservation of secondary forests and protection of arable croplands, respectively as a result of information garnered from village meetings. Although, patches of natural forest occur in the locality, they are in marginal/moderate proportions (Table 1), periodic village meetings (Fig. 5) present a veritable platform and avenue through which could sustainable development of biodiversity including secondary vegetation development among others could be promoted.

Given the trend observed from media access in the study, evidences abound that people are accustomed to local communication practices and strategies, which are in tune with the level of understanding and compatibility to local issues and conditions. This was in agreement with the submission of Siniarska and Wolanski (2007) in a related study. Invariably, modern or conventional library is of little importance to most rural dwellers whom in the report of Bilsborrow (2002) constitute almost a greater proportion of the global world population. More so, significant proportions of remaining stocks of biodiversity and natural resources are within the domain and control of this population group(s). At home with the fact that information dissemination and accessibility have changed the course of mankind in the 21st century, Ford Foundation (2010) report has strongly advised governments, public planners and stakeholders to keenly consider rural people and rural areas in as promising contributors to the protection and sustenance of global natural resources and biodiversity.

Conclusion

With the tightening up of international windows on financial aid grants for development, economic growth and sustainable development in developing nations will in the near future draw from resource stocks (material, human and natural) a given country can manage and transform into capital reserves. Most African countries have gained independence over 50 years ago but are still imperialized. Western ideologies have not worked well for the South especially in terms of local content and development. Africa is worse off given her likely dependence on alien information systems, which erode most of their value systems and identity. Wildlife species, vast fisheries, aquatic life and mineral deposits, which Africa is richly blessed with are yet to do the continent and her people commensurate good. Consolidating traditional institutional frameworks and systems; granting some levels of independence in local administration and governance in resource management; reawakening and gradual recognition of local knowledge systems and the fast replacement of obnoxious western indoctrinations are important steps towards sustainable harnessing and exploitation of these resources. Value systems like traditional story-telling, revamping of town hall or village meetings, cultural festivals among others will aid in the attainment of

sustainable development goals for natural resources conservation within short, mid and long term range if rural areas are to catch up with international agenda.

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