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ASSESSMENT OF ENVIRONMENTAL EDUCATION AND MANPOWER DEVELOPMENT STRATEGIES IN KAINJI LAKE NATIONAL PARK, NIGERIA

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ABSTRACT

Irrespective of consistent environmental awareness created by different conservation institutions in Nigeria the level of environmental degradation has remained on the increase. There is therefore an urgent need to investigate the effectiveness of the strategies used for both environmental education, and the development of the environmental educators. Assessment of Environmental Education and Manpower development strategies in Kainji Lake National Park (KLNP) was therefore conducted with the aim of investigating the effectiveness of the strategies; and factors militating against effective environmental education in the park. Data for this study were obtained through personal observations, administrative record, three sets of structured questionnaires and in depth interview with experienced members of staff and knowledgeable indigenes of host communities. A set of questionnaire was administered to thirty percent of staff in the park. The second set was randomly administered to thirty percent of household representatives in ten easily accessible communities bordering the park, while the third was administered to 59% of all students of the Department of Forestry, University of Port Harcourt who visited KLNP for industrial attachment. In all 100 staff members, 403 household representatives and 42 students were sampled. Data obtained were analysed using descriptive statistics in the form of percentages and frequencies. Environmental education level was rated high in KLNP by staff (82.00%) and student (83.00%) respondents. Strategies of environmental education in the park were listed as industrial attachment (IT)(25.0%), mass media (18.00%), seminars (18.00%), hand bills / fliers (14.00%) and workshop (12.00%) and excursions. As a tool for man power development, Industrial Training (I.T) was rated very effective by staff (79.80%), and student (69.00%) respondents. Also rated effective by staff respondents were In – service training (79.80%) and workshop (67.10%). Majority of the student respondents rated I.T very effective as a man power development strategy. A total of 482 students from 19 higher institutions across different geopolitical zones of Nigeria have participated in I.T. of KLNP between 1979 and 2005, while a total of 22,894 students from different states of Nigeria have visited KLNP in form of excursion, with the highest participation experienced in 1998 (2,591). Also 158 workers of KLNP have participated in different forms of staff empowerment programme between 2004 and 2009, with the highest participation recorded in 2008 (78,48%). More so, 220 staff of KLNP have participated in In – service training between 2000 and 2010. Problems militating against effective environmental education and manpower development in the park were inadequate funding (85%) and low educational level of community dwellers (33.00%).Students' industrial attachment is the most effective strategy of man power development in KLNP that can have national spread and sustainable impact, while students' excursion is an effective strategy of also having a sustainable environmental education that spreads across the country. But, at local level, focus discussion and use of radio are the most effective environmental awareness strategy among communities bordering the park, while in – service training and skill acquisition programme for host communities are the most effective man power development strategy.

Key words: Environmental Education, Manpower Development, Kainji Lake, Protected area, Strategies, Nigeria

INTRODUCTION

The issue of environmental degradation and pollution has been one of the global challenges for decades. The environment (forest) and its resources are fast disappearing due to the indiscriminate use of its resources by humans in their quest for pleasure. This is continuously aggravated by population expansion and poverty.

Government at different levels have created protected areas to ensure that environmental resources are conserved but lack of interest in conservation matters and inadequate skilled manpower have hindered conservation. Some staff employed to conserve environmental re-

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sources presently connive with poachers to destroy environmental resources (Ijeomah and Aiyeloja, 2010). Various organizations and institutions have embarked on environmental awareness campaigns as a strategy to restore environmental resources but the problems persist as NEST (1991) reported that the poor masses would always kill the environment to survive. There is therefore an urgent need to increase understanding of the environment and the various manpower development strategies appropriate for up-coming environmentalists and staff of national parks in an attempt to reduce abuse caused by households in their quest to make life comfortable.

Most studies on conservation especially in national parks hardly focused on effectiveness of awareness creation strategies and the development of conservation workers. This study reviews and evaluates both the environmental awareness strategies adopted at KLNP and the strategies used in developing the human resources who implement conservation policies or who are conservation workers. It is geared towards environmental education strategies and manpower development strategies operational in Kainji Lake National Park (KLNP) and the effectiveness of these strategies. The objectives of this paper are to: assess the level of environmental education strategies in KLNP, assess manpower development and environmental education strategies in KLNP; evaluate the effectiveness of students' industrial training as a manpower development strategy in KLNP and determine the factors militating against effective environmental education and manpower development in KLNP.

METHODOLOGY

Study Area

Kainji Lake National Park (KLNP) lies on latitude 9° 50' 19" N and longitude 4° 34' 24" E. The park, which is the premier national park in Nigeria was established in 1979 by the merger of two former game reserves, Borgu game reserve (located in Niger and Kwara states) and Zurguma game reserve (located in Niger State). The Park has two distinct sectors Borgu and Zugurma (Marguba, 2002).The two sectors had been gazette in 1962 and 1971 respectively as game reserves by the then Northern Regional Government.

Based on closeness to the park, ten communities (five from each sector) were selected from communities bordering the park. Listing of households was conducted in selected communities using people who are quite conversant with these communities. Thirty percent of households in the selected communities were sampled as presented in Table 1.

Table 1: Proportional allocation of questionnaire for household communities

Communities	Estimated number of household	Thirty percent of household
Ibbi	477	159
Feligi	30	10
Mulea	30	10
Shafini	30	10
Kizhi	20	7
Wawa	477	159
Tada – Oli	60	20
Kuble	15	5
Luma	50	16
Wuruma	20	7
Total	**1205**	**403**

Data collection

The data for this study were collected through structured questionnaire, review of administrative records and in-depth interview of staff that have stayed with the park for a minimum period of five years and are therefore quite knowledgeable about the environmental education and manpower development strategies and challenges of the park. Three sets of structured questionnaire were used for the study. The first set of questionnaire was administered to thirty percent of staff of the Park. The second set was administered to fifty nine percent of students of the Department of Forestry and Wildlife Management, University of Port Harcourt, who went to KLNP for training while the third set

of questionnaire was administered to thirty percent of households in the selected communities around the park comprising five from each sector. In all, 403 household representatives, 100 staff respondents and 42 student respondents were sampled as shown in Tables 1 and 2.

Table 2: Proportional allocation of questionnaire for staff and industrial training students

Total number of staff	Thirty percent
334	100
Total number of I.T. students	**Fifty nine percent**
71	42

Data analysis

Data collected were analyzed using descriptive statistics in form of frequency of counts, percentages, graphs, pie chart and bar chart.

RESULTS AND DISCUSSION

Assessment of Environmental education Level in Kainji Lake National Park

The level of environmental education in the park was rated high by the respondents (Table 3). This can be attributed to the various extension methods used by the management. The park prints 1500 handbills and 300 posters annually which are distributed to visitors in the park and households in adjoining communities. In-depth interview of staff knowledgeable about environmental education in the park revealed that the management features in radio programmes (mass-media strategy) occasionally to disseminate information to communities bordering the park. Radio is used because of the speed in spreading the environmental message as almost everybody especially males in these communities have radio which they move around with. It is therefore easy to reach them through their radios. Television is rarely used because it can not be carried about, besides it is not everybody that can afford television coupled with the relatively high cost of creating awareness through television, unlike that of radio. The National Park Service uses television but for a very short period due to this high cost. Apart from the use of radio, the park also engages in in-depth household - to - household discussion with neighbouring communities. This is a kind of inter personal or one - on - one communication. In this method, staff members in conservation education department of the park are grouped and they embark on environmental resource protection campaign in communities within the two sectors of the park. This is in agreement with the recommendations of national action on environmental education for sustainable future. The high rating of environmental education by the respondents implies that the methods the parks have been adopting are effective at least for some time. It could also be attributed to the fact that the methods adopted are readily available and easily accepted by the communities.

Table 3: Assessment of Environmental Education Level in KLNP by staff and students

Assessor	Level	Frequency	Percentage
Staff	Very high	2	2.0
	High	82	82.0
	Low	6	6.0
	Very low	0	0.0
	No response	10	10.0
	Total	**100**	**100**
Students	Very High	3	7.1
	High	35	83.3
	Low	2	4.8
	Very low	2	4.8
	Total	**42**	**100**

This one –on – one extension method however was not on a permanent basis. It lasted only for the period Global Environmental Facility (GEF) provided fund for provision of basic amenities to host communities of parks. Those facilities provided were the major rea-

son the households rated environmental education level high in the park and showed more interest in conservation matters hoping that more empowerment projects would be implemented.

Manpower development and environmental education strategies in Kainji Lake National Park

The park adopts various strategies for environmental education and manpower development to communities around the park (Table 4 and 5). Various strategies are adopted because different strategies could be suitable and therefore effective for different audience. Many persons that cannot write can listen to radio. Industrial attachment and in service training are major strategies for manpower development and environmental education in KLNP. The various strategies for manpower development as rated by staff, students and households are presented in Table 5. Majority of household respondents (67.0%) rated all the man power development strategies adopted by KLNP management low (Table 8). This implies that the communities are yet to feel significant impact of KLNP's empowerment projects. The park management proposed to empower households in the neighbouring communities around the park area as a strategy of reducing their activities in the park since they depend on the forest resources for their survival. This man power development could be in the form of employment, free introduction of essential skills for household acquisition and provision of amenities. With exception of the temporary empowerment and basic facility sponsored by GEF, and several promises, the management of KLNP has done little in the area of host households' empowerment, yet host communities were expected to remain calm, work together with the management and be expecting when all the promises of man power development and provision of the much needed basic amenities will be provided.

Table 4 : Strategies of environmental education in KLNP

Strategies	Frequency	Percentage
Industrial Attachment	25	25.0
Workshop	12	12.0
Mass Media	18	18.0
Seminars	18	18.0
Hand Bills/ Fliers	14	14.0
No response	13	13.0
Total	**100**	**100**

Table 5: Manpower Development Strategies in KLNP

Strategies	Frequency	Percentage
In service training	91	34.3
Industrial training of students	89	33.6
Organising workshops	85	32.1
Total	265	100

However, staff respondents rated in service training and industrial attachment respectively effective (79.8%) and very effective (67.0%). Also majority of the student respondents (69.0%) rated industrial attachment very high. This can be ascribed to the fact that the staff of the organisation is subjected to various forms of training to get them better equipped and informed in ways of carrying out their environmental education related assignments. These re - training are in form of seminars, conferences, workshops and in - service training.

Table 6: Staff empowerment programmes embarked on by KLNP between 2004-2009

Year	Programme	Number of participant	Percentage
2004	Workshop	5	3.2
2005	worshop/seminar	9	5.7
2006	Workshop	0	0.0
2007	conference, seminar	0	0.0
2008	conference, seminar and workshop	124	78.5
2009	Workshop	20	12.6
	Total	**158**	**100**

Between 2004 - 2010 a total of 158 staff participated in staff empowerment programme through organization of seminars, workshops, conferences etc. (Table 6). The reason for this could be that the park organises this programs internally with the aim of updating the staff with new techniques and knowledge. In 2008, 124 staff participated in empowerment program and in 2009 20 participated. The reason why there was an increased number of staff in 2008 could be ascribed to the facts that the park noticed that a greater number of staff needed empowerment; change in management system; priority of management; and increase in money allocation to the park. Between 2000 and 2010 which is a period of 10years about 220 staff in the park from various departments were sent to institutions within and outside the Niger and Kwara states for staff development (Table 7). This training is carried out as a way of improving the quality of output of individual employees. The management has not been consistent with training schedule for staff (Table 7).

Table 7: Staff involvement in Development programmes in KLNP between 2000 and 2010

Year	Frequency	Percentage
2000	63	28.6
2001	23	10.4
2002	0	0
2003	17	8.0
2004	13	6.1
2005	12	5.4
2006	14	6.3
2007	30	13.6
2008	18	8.1
2009	24	10.8
2010	6	2.7
Total	**220**	**100**

Respondents' Assessment of Man power development strategies in KLNP

Industrial training was rated very effective by both staff and student respondents (Table 8). However, majority of the respondents (67%) rated all the manpower development strategies of KLNP very low (Table 8). This shows that host communities have not benefitted from the KLNP in terms of manpower development.

Table 8: Rating of manpower development strategies in KLNP by staff, students and household re-

Assessor	Strategies	Rating	Frequency	Percentage
Staff	In-service training	very effective	18	20.2
		Effective	71	79.8
		not effective	0	0.0
		Total	89	100
	Industrial training	very effective	63	67.0
		Effective	31	33.0
		not effective	0	0.0
		Total	94	100
	Organizing workshop	very effective	28	32.9
		Effective	57	67.1
		not effective	0	0.0
		Total	85	100
Students	Industrial training	very high	29	69.0
		High	11	26.2
		Low	2	4.8
		very low	0	0.0
		Total	40	100
households	All the strategies	very high	12	3.0
		High	16	15.0
		Low	271	67.0
		very low	44	11.0
		no response	16	4.0
		Total	403	100

Effectiveness of students' industrial training

Acceptance of students on industrial training

is a major strategy employed in Kainji Lake National Park as a tool for both environmental education and manpower development. Majority of Nigerian institutions both government and private-owned have been sending their students to KLNP for industrial training. Between 2001 and 2010 (being a period of 10 years) about 480 students from nineteen tertiary institutions in different geo-political zones of Nigeria visited the Kainji Lake National Park for training through the students' industrial training work experience (Table 9) and majority of these institutions have visited more than three times (Table 9).

The consistency in these visitations shows that the students have been benefiting academically through this work experience and that the various institutions are satisfied with the quality of training their students have been receiving. The consistency could also be attributed to the fact that Kainji Lake National Park is equipped with practical facilities for effective learning and understanding. It can also be ascribed to the fact that the educators in KLNP are willing and motivated to train students on industrial training. The consistency of these institutions in using the park as a site for industrial training could also be at-

Table 9: Institutions involved in industrial training in KLNP

Institution	Geopolitical Zone	Ownership	Number of Involvement	Total Number of Students	Percentage
Federal College of Wildlife Management, New bussa, Niger State	North central	*FGN	5	27	5.6
University of Agriculture,Markudi, Benue State	North central	State	5	54	11.2
University of Agriculture, Abeokuta, Ogun State	South west	State	1	15	3.1
Olabisi Onabanjo University,Ogun State	south west	Private	2	14	2.9
Federal University of Technology, Akure, Ondo State	south west	FGN	5	53	11.0
Delta State University,Delta State	south south	State	3	31	6.4
Univrsity of Port Harcourt,Rivers State	south south	FGN	3	71	14.7
University of Maidugri,Borno State	north east	State	1	7	1.45
University of Benin,Edo State	south south	FGN	4	69	14.3
Federal Polytechnic,Bida,Niger State	north central	FGN	4	5	1. 0
Ambrose Ali university,Ekpoma Edo State	south south	State	5	93	19.3
Osun State Polytechnic,Osun State	south west	State	4	13	2.7
University of Ibadan,Oyo	south west	FGN	2	16	3.3
NIFRI New Bussa , Niger State	north central	FGN	2	5	1.0
University of Uyo, Akwa-Ibom State	south south	FGN	1	4	0.8
University of Calabar,Cross River Sate	south south	FGN	1	2	0.4
Federal College ofTechnology,Minna,Niger State	north central	FGN	1	1	0.2
Federal College of Forestry, Ibadan, Oyo State	south west	FGN	1	1	0.2
Federal Polytechnic, Offa, Kwara State	north central	FGN	1	1	0.2
Total			**51**	**482**	**100**

FGN* Federal Government of Nigeria

tributed to the fact that it offers free accommodation to the students. Lack of free accommodation facilities is one of the factors that limit many schools in Nigeria from sending their students outside their geopolitical zone on industrial training. Figure 4 shows the graphical representation of students on industrial training in KLNP between 1979 and 2005. The consistency in approving application from schools for the industrial training of their students indicates that training is a major strategy used for both environmental education and manpower development. As the various schools visit the park for their training, the park educates them on environmental conservation and the knowledge they acquire empowers them to be able to educate others they will meet in future as upcoming experts in the field of conservation. Being from different parts of the country, the knowledge acquired is spread to other students or relatives from their locations. This is more pronounced among students from institutions in southern Nigeria that is a forest zone. Visitation of these students to Kainji Lake, a national park in the savanna vegetation zone of same country imprints the remarkable differences of the ecological zones and their species composition in them. Because of these clearly observed differences, when the participants in the industrial training return to their various institutions after the training, they enthusiastically look for opportunities to educate other students (Personal observation). This agrees with Ekpo (1989) who defined manpower development as "the existence of unskilled and/or skilled humans that need training or retraining to perform specific task in society".

Industrial training, apart from being effective is also a sustainable means of creating environmental awareness. It is a reliable means of manpower development for the country. In essence, it is a way of training trainers. The students are trained in such a way that they participate actively in anti poaching activities, education of visitors to the park and in disseminating environmental information. The students are posted to different ranges of the park on weekly basis to acquire various kinds of training. This training is done with the consciousness that some of the students would end up being employed by the National Park Service. Thus if not properly trained and latter employed, will then be inefficient, ineffective and may destroy all the facilities and virtues the management of the Kainji Lake National Park has taken decades of years to build and sustain.

Industrial attachment is more effective as a means of man power development than excursion because of the relatively more time that is spent on in depth training during industrial attachment. However, more people participate in excursion and that helps a lot in conservation education. The limited time they spend in an eco – destination limits the teaching they will receive. Distribution of souvenir to them helps in furthering the education.

Fluctuations in the annual visitation (Figure 3) can be majorly attributed to political instability in the country and consequential rumours of insecurity. It was also partly caused by management policies. This was experienced in 1993 as was caused by the annulment of the general election in the month of June by the then military Head of State, General Ibrahim Babangida. The handing over of the affairs of the country to a civilian led transition government, Ernest Shonekan reduced fears of insecurity and the number of Industrial students' trainee to the park increased in 2004 and parts of 2005. Another military intervention by General Mohammed Abacha led to a progressive decrease in the visitation trend till 2002 when General Abacha had died and the crises associated with his government had been over. The democratic government led to a relatively high increase in 2003 which dropped in 2004. Similarly, in 2012 the Department of Forestry and Wildlife Management of University of Port Harcourt, being an institution located in Southern Nigeria refused to send their students on Industrial attachment to KLNP be-

cause of frequent bombings experienced in many parts of Northern Nigeria. The same affected students from many schools in southern Nigeria.

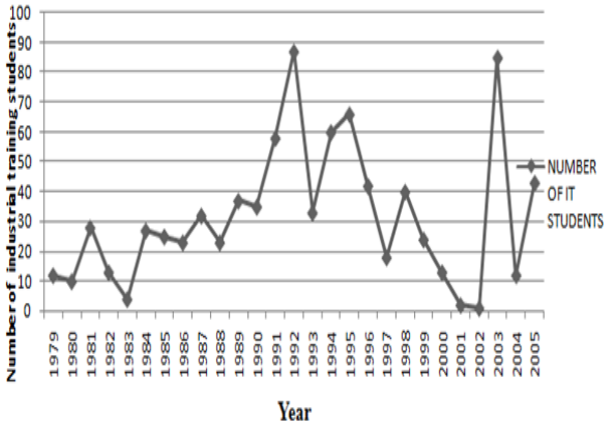

Figure 3: Graphical representation of students on industrial training in KLNP between 1979-2005
Source: Field Survey 2011

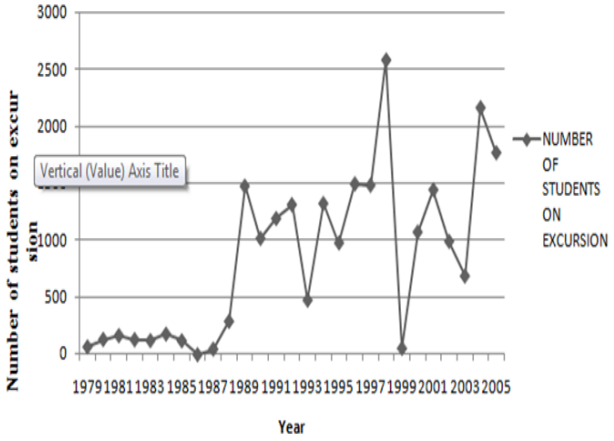

Figure 4: Graphical representation of students on excursion in KLNP between 1979-2005

Factors militating against environmental education and manpower development in KLNP

Effective environmental education and manpower development in the park has some hindrances (Table 10). The fund being released by federal government and the internally generated revenue by the park is usually inadequate for effective manpower development and management. This can be attributed to misplaced priority by the federal government. The park relies solely on the federal government for annual subvention for the running of the park. The amount released and the attention given to them depends on the interest of those at the helm of affairs. The government may not consider it very important to spend much money on conservation related issues since revenue is not being generated from national parks. The strategies being adopted by the park for environmental education and manpower development is income-dependent and its consistency also depends on how frequent the income is generated.

The educational level of rural dwellers is usually low (most of them are non formally educated while others are primary and secondary school leavers) and do not understand English language. This makes it difficult to effectively communicate with the households living in rural areas. Teaching uneducated people in a language alien to them is difficult, and their ability to understand is a more difficult task. Rural dwellers after several persuasions to withdraw entirely from national parks still go back to the forest, which has been their source of sustenance before the establishment of the park.

Table 10: Problems of Effective Environmental education and Manpower development in KLNP

	Challenges	Frequency	Percentages
Environmental Education			
	Inadequate fund	85*	81.73
	Educational level of community dwellers	33*	31.73
	Behaviour of community dwellers	9	8.65
Total		104	100
Man power Development			
	Inadequate fund	90	86.5
	Educational level of community dwellers	14	13.5
Total		**104**	**100**

CONCLUSION

The level of environmental education in Kanji Lake National Park is high. The park uses many strategies to create awareness about conservation but that done through Radio spreads faster (in that vicinity) than others as most nomads and other inhabitants of communities bordering the park are always in possession of their radio set. However the use of poster and handbills is more effective in creating awareness among outsiders (tourists) who visit the park. Students' industrial attachment and excursion are effective strategies of both environmental education and man power development. Their impacts are sustainable and spread across various geopolitical zones of the country. In- service training is an effective strategy of staff development but limited to officials of the park. Though the staff will also empower visitors especially students, but on a larger scale Students' industrial training is the most effective form of empowerment in the park. Irrespective of the number of environmental education and man power development strategies adopted by KLNP, if alternative source of sustainable livelihood is not provided to the park host communities; whose lives depend on the resources in the park, the efforts of the park management will be in vain. The households could be quite aware of the consequences of environmental resources destructions but continue to encroach into the protected area.

The park management should continue to accept students on industrial attachment, and should equip the park with facilities that are adequate for the development of the students as up – coming experts.

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The national parks should be adequately funded to ensure full protection of park resources and the management of KLNP should ensure that the fund given to them by the government is not diverted but judiciously utilized.

Indigenes of host communities should be employed and incorporated into environmental awareness creation. They can act as interpreters and it will be easy to educate inhabitants of park host communities through indigenes of those communities. Skill acquisition programmes should be introduced in communities bordering the park, to empower them, keep them busy, provide alternative source of survival for them in order to divert their attention away from park resources.

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