

The Effects of Creating Access Roads on the Integrity of Conserved Areas: A Case Study of Okwangwo Rainforest in Cross River National Park, Nigeria

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ABSTRACT The implications of the construction of Butatong-Okwangwo-Okwa road for vehicular transport across Okwangwo rainforest in Cross River National Park has been researched and documented. The study between January and March 2009, revealed an unplanned arrival of state sponsored Land Rovers and motorcycles in Okwangwo, Okwa I and Okwa II enclaved communities. This attracted an increased flow of traffic into enclave communities especially amongst indigenes in Diaspora. The study also proved that transporters were equally enjoying high patronage despite prohibitive fares. Notwithstanding, these seeming of advantages of a seasonal road, the negative impact of 'unplanned' presence of vehicles has brought to the fore, the contradictions between conservation and development. This has led to increased pollution of the Oyi river, expansion of farmlands and logging, thus reducing the size and integrity of the community forest as well as increased pressure and insecurity in protected park area. Can the contradictions between conservation and development amongst rural communities in protected area be transcended? The study reveals that the unplanned arrival of Land Rovers and motorcycles to Okwangwo enclave community pose serious environmental challenges that will threaten the integrity of the rainforest area. The study posits that to maintain the rainforest integrity, training and empowerment in non-agro forestry, means of livelihoods, programmed resettlement, recognition of community rights and partnership in the management of protected areas, should precede spatial development, especially construction of vehicular roads. These pre-conditions will move protected areas from fortress conservation towards sustainable agro-forestry insurance policy for local custodians, the state and the international community.

INTRODUCTION

The creation of American National parks in 1916 ushered into mankind the need for preservation and conservation of nature. The parks were designed for scientific research, protection of ecosystem and entertainment or tourism. The park management prevents human exploitation of forest resources, wildlife and limited expansion of access roads to protected areas. As colonialism spread into the French, English, Spain, Portuguese and South Africa, the colonial states especially in Sub-Saharan Africa adopted fortress conservation and declared protected areas as no man's land. Road constructions into protected areas apart from pathways were disallowed by the colonial states. Fortress conservation policy of the United States was adopted. The policy prohibited local human activities inside protected areas. Within Sub-Saharan Africa, colonial states introduced fortress conservation in Congo, Angola, Tanzania, Uganda, South Africa and Nigeria. In places like Congo,

Tanzania, Uganda, Angola and South Africa, locals within protected areas were evicted and settled within the protected areas. This was achieved through codification of laws that deny indigenous historical rights over protected areas, construction of access roads, and exploitation of forest resources for livelihoods.

The current phase in the evolution of parks is dominated by indigenous agitations and claims over historical land rights, restricted rural development, access into the forest and local participation in the management of protected areas, international and local agencies involved in conservation especially United Nations, ODA, NCF, WWF and others have also joined in the definition of conservation and its relationship with locals in protected areas. United Nations resolutions on conservation acknowledge local historical rights over protected lands, rural development and local participation in park management. The organization restricted relocation of population from protected areas to 40,000 people. World Wide Fund for Nature (WWF) and other

Non-governmental Organisations such as Nigeria Conservation Foundation (NCF), Overseas Development Organisation (ODA), Wildlife Conservation Society (WCS) support rural development and participation in forest management within protected areas.

This study examines the issue of rural development in Cross River National Park Okwangwo Division in relation to spatial development, especially the construction of access road into the enclave communities of Okwa and Okwangwo. It also examined the experiences of Cross River State Sanctuary in Nigeria and South Africa in the management of protected areas. The management and local communities agreed to provide access roads into protected areas.

In 2007, Wildlife Conservation Society (WCS), Australian High Commission in Nigeria, Calgary Zoological society of Canada and ExxonMobil Nig. Plc, initiated different community-based conservation enhancement projects in Okwa, an enclave community in Cross River National Park, Okwangwo division. The projects included provision of infrastructure for secondary school education, non-forest based bee-keeping, non-timber forest products, domestication worth nine hundred and seventy-four thousand and proposed construction of transit camps for tourists who visit the park. Materials for the construction of a six-classroom block worth eight million naira were conveyed to construction site from Butatong (vehicle terminal) by portage, on agreed financial rates by individuals, age sets and communal labour (Anashie 2009).

Okwa and Okwangwo communities were persuaded to let go road construction conditionally due to lack of funds and inadequate community skills on non-forest livelihood alternatives which could reduce pressure and dependence on protected park areas. By December 2008, these external agencies had completed a six-classroom block equipped with V.I.P. toilets, trained fifty hunters on bee-keeping, and equally provided relevant materials and finances to support bee-keeping. They also provided fifty housewives with non-timber forest product domestication farms using Afang (*Gnetum Africana*) and dry-season Bush mango (*Iringia-carbonesis*) as case studies (Anashie 2009).

However, in January 2009, Cross River State Boundary Development Commission initiated a rural development project in Okwangwo. The

commission hired trucks to deliver cement and other building materials for the construction of a six-classroom block at Okwangwo. After January, many more trucks arrived at Okwangwo to deliver building materials. For the trucks to access Okwangwo, the commission solicited communal and financial support from timber loggers, elephant and crocodile hunters, and Okwangwo village council which imposed levies on their sons and daughters in Diaspora. The revenue generated from these sources was used to compromise or harass Park officials to submission, hire chain-saw engine operators and engage communal labour to provide a seasonal road to Okwangwo (Anashie 2009).

Why did United States/Wildlife Conservation Society, Canadian and Australian agencies reject the option of road construction proposed to them by the community? Why did Cross River State Boundary Development Commission collaborated with timber loggers, hunters, Okwa and Okwangwo communities in the provision of a seasonal road? What are the implications of a vehicular road to Okwangwo on the integrity of the rainforest, and sustainability of the park as a protected area? These questions and other related experiences examined below, represent the major thrust of the study.

Conceptualization

Conservation is the socio-economic process by which societies endeavour to manage resources, scarcities and limit off-take within the biological capacity of the system to sustain production. Community conservation involves principles and practices that argue that conservation goals should be pursued by strategies that emphasize the role of local residents in local decision making on natural resources. This contrast with fortress conservation approach of United States of America, which reserve places for nature and separate humans from other species. Both community and fortress conservation are rooted in the intrinsic values of nature and society. Community conservation is held to be utilitarian and anthropological. We can describe this conjunction and disjunction in terms of means and sequencing. For fortress conservation, conservation is the end. For community conservation, the fulfillment of human needs serves as a means to this end (Brainchild 2004).

Humans, animals and plants are dependent on planet earth like other forms of life. The more species living in the ecosystem, the healthier and more productive it is to man and animals. When we pollute, deforest and make a mess of the ecological web, we are taking out mortgages on the earth that we can't pay back when these loans will be due. Forest razed can grow back, polluted air and water can be cleaned, but extinction is forever. In hot spots like Madagascar and Brazil, conservationists are working with locals on ground to protect endangered species. This protection is tied to the welfare of the people who live closest to them (Morse et al. 2006).

In the light of the above, there is strong consensus that for conservation in sub-Saharan Africa to become sustainable, the interest of local people and the conservationist must converge. Conservation strategies therefore, seek to address the needs of local communities through an approach described as conservation with development. Projects based on this approach are often labelled integrated conservation development projects or People and Park projects (Hannah 1992). For Okwa and Okwangwo enclave communities, the forest is their main shop, supplying food such as tubers, leaves, flowers, fruits, nuts, fungi, worms, honey, birds, eggs, small game and fish. Others include building materials, medicines, fuelwood, and raw materials such as bamboo, reeds, grasses, gums, waxes, *dynas*, ropes, mats and baskets. The forest also provides water and the basis for social interaction, cultural celebration, and deep inter-connections between the physical and the spiritual (Ash 1987; see also Ewah 2009).

Generally, the value of tropical moist forest resides in the goods and services rendered, provided the forest remains as forest. Mature soils under forest cover can be realized by converting the forest into land for productive and sustainable agriculture. A well-managed tropical forest is a constantly self-renewing resource. It produces many of the benefits mentioned above. These multiple products can supply the basic needs of local communities as well as providing goods for wider market and services for the whole world. The tropical forests in some of the world's oldest and richest ecosystems contain more than fifty percent species of plants and animals. Many plants and animals have medicinal uses for malaria, leukaemia and amoebic dys-

entery. Others are being screened for potential use against cancer and AIDS. Some of these plants are wild relatives of important food crops and are therefore essential for breeding disease resistance and improvement of coffee, cocoa, rice, maize, groundnuts, bananas, pineapples, kiwi, citrus and others. The forest also controls flow of water; it lowers the intensity of peak floods and maintains the basic flow of rivers in periods of low rainfall. This is of great importance for food security because most of the food produced in the tropics comes from alluvial plains along the lower courses of rivers, which originates in forested uplands (Duncan 1991).

However, recent forest resources study carried out reveals that the forest estate in Nigeria is being highly depleted at the rate of 3.5% per year. It is estimated that only about 974, 674 hectares of the forest reserves is productive, while another 2,342 hectares of free land is partially productive. In view of this dismal trend, the need to manage the forest on sustainable yield has never been more felt than in recent times. The growth rate is down to 1 to 1.5m³ of round wood per hectare and per annum. This is a serious challenge to protected areas. There are 1,129 forest reserves, 29 game reserves 4 game sanctuaries and 12 national parks in Nigeria. One of the high points of nature based tourism of Cross River National Park, is the gorilla and chimpanzee found in within forest area. These great apes are faced with extinction in the next few decades if more is not done to conserve them. They are threatened by hunting, loss of habitat, ebola disease and conflict with people living alongside them.

From the above situation, there is urgent need to develop the capacity of indigenous populations for conservation and effectiveness to protect and conserve the area, stop trade on ape's products and increase support for conservation. Within Okwa and Okwangwo, existing lifestyles are essentially commonwealth. In this state, they lack the capacity or technology to desiccate the forest, which is the habitat of endangered apes. Will the coming of land rovers and motorcycles transform the commonwealth to technology capable of desiccating the forest? What can be done to transcend the seeming contradictions between conservation and modernization? As would be seen later, relevant experiences exist for Nigeria to learn new lessons and new directions.

GEOGRAPHICAL LOCATION

Cross River National Park (CRNP) has two divisions, Oban and Okwangwo. It is located between 500'S' 6029' N' and 8015' – 9050' E and covers about 4000sqkm in southeastern Nigeria. The area extends along the Republic of Nigeria – Cameroon border (Fig. 1). Oban Division covers about 3000sqkm. It is contiguous with Kurop National Park Cameroon. Okwangwo Division covers about 1000sqkm and extends into Takamanda Forest Reserve in Cameroon Republic. Okwangwo Division, the main study area is significant for its regional watershed with confirmed existence of at least eleven wildlife species including chimpanzees and Gorillas. The division was created to achieve sustainable development, conservation of the wildlife populations and eco-tourism (Ite 1996.).

The area was designed as Okwangwo and Boshi extension forest reserves and gazetted in 1930, 1951 and 1961 respectively. The reserves which enclave Okwa I, Okwa II and Okwangwo communities were later gazetted in Decree 36 (1991) as Cross River National Park, Okwangwo Division. The distance between Butatong which is the Park headquarters (accessible by vehicular transport through Ikom-Obudu highway) and enclave communities are as follows:

1. Butatong - Okwa I - 30 kilometres
2. Butatong - Okwa II - 27 kilometres
3. Butatong - Okwangwo - 19 kilometres.

Journeys to enclave communities are tedious. Many streams, which cross the footpath, are large, steep swift and impassable during the rainy seasons, especially in August and September. A traveller leaving Butatong to any of the enclave communities will trek for about nine to eleven hours on foot (see Fig. 1). The cost of constructing a road with bridges is huge and beyond the logic of fortress conservation and finances of the park management (Baker 1996).

Politically, the largest political unit amongst the enclave communities is the village polity administered by the council of elders, village assembly, age grade and chief priest of supra-ethnic deities. The economy of these communities is largely agrarian with greater importance attached to hunting, trapping, farming and exploitation of forest resources by households. Modern development is hindered by a number of factors including lack of access roads, vehicular transport, markets, poor health-care de-

livery system and limited access to primary, secondary and tertiary education (Ewah 2009).

METHODOLOGY

This study was carried out between the months of January to April, 2009. Oral evidence was collected from informants who participated in Butatong – Okwangwo road construction and provision on non agro-forestry based livelihood alternatives by external agencies in Okwa as primary sources. Both individual and group interviews were conducted and recorded as Okwangwo Historical Text (1-12). Emphasis was placed on interviews with community leaders, park officials, Cross River State government officials and workers who participated in Okwa and Okwangwo projects. Information was also obtained from secondary sources on rainforest conservation, challenges and related experience to appreciate discussions, conclusion and recommendations.

Rationale of the Study

The relevance of the rainforest to humanity has been discussed by local communities, nations and international organization. Amongst locals the forest is their heritage created for their survival and lifestyles. The state appropriated the forest for preservation, conservation, research and tourism. Management of protected areas by the State and rural communities is the focus of this study. The state preference for fortress conservation has led to increased agitation for locals who claim historical rights of land ownership and exploitation of forest resources.

The study examined the agitation of locals, in particular reference to spatial development within protected areas. Within the study area, the study examined the implication of a newly constructed road from Butatong (park headquarters) to Okwa and Okwangwo enclave communities inside Okwangwo park area.

Before 2010, Okwa and Okwangwo communities have been advocating for access road to link Butatong. To achieve this objective, community leadership organized communal labour, solicited assistance from park management and indigenes in the Diaspora to expand and maintain the pathway into their villages. In 2010, this objective was partially achieved. The implication of this road achievement hangs heavily on

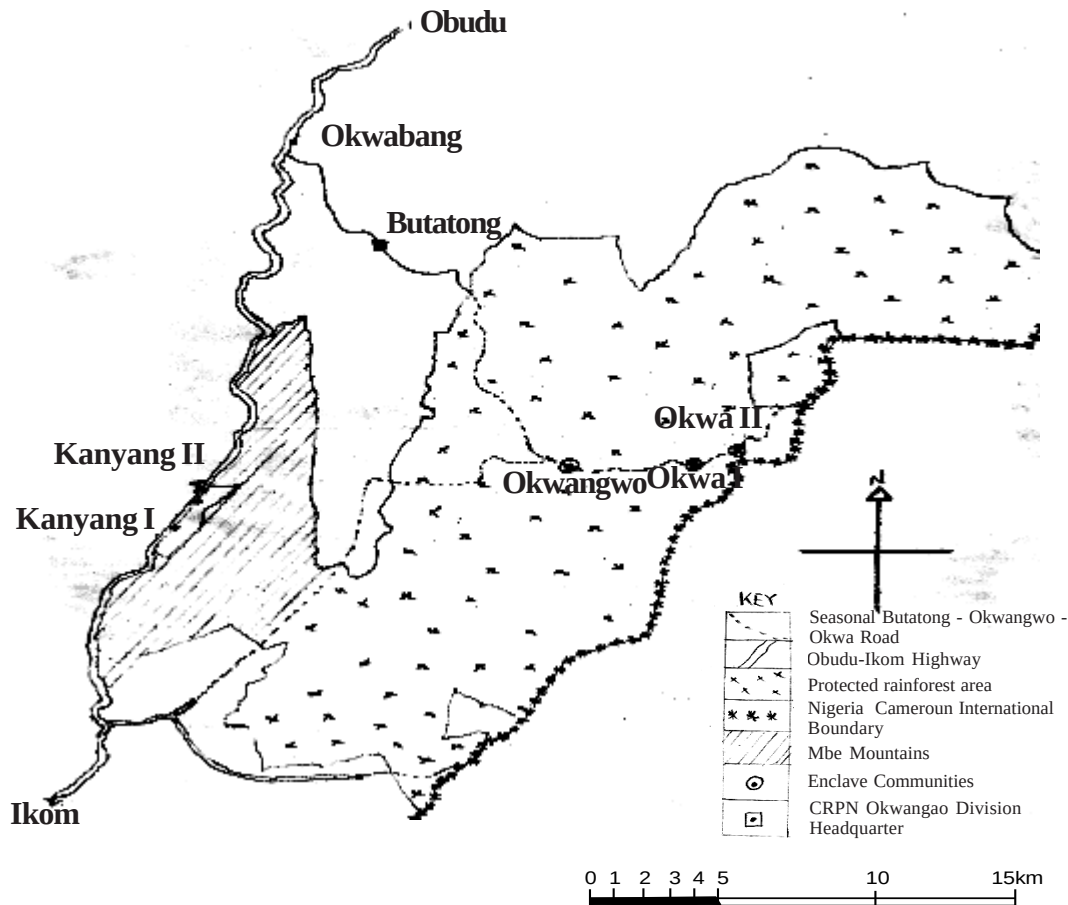


Fig. 1. Map of Cross River National Park: Okwangwo Division showing enclave communities

the integration of the park as a protected rainforest area.

OBSERVATIONS

The Plight of Enclave Communities

Since the establishment of the park in 1990, locals especially enclave communities have suffered various forms of disabilities. Both support zone and enclave communities, suffer varying degrees of decapitalisation and income loss. In Okwa and Okwangwo, pre-alienated income includes hunting, farming, fishing and exploitation of forest resources. These sources of in-

come are now restricted to community forest allocated to locals by the state. The park management prohibits all forms of exploitation within park area. Reduction in the size and extensive exploitation of community forest over a decade, have depleted and reduced the quality and quantity of resources derived from the community forest. Informants are firm that since 1990, the use of corrugated metal roof on new houses, by households dependent on agro-forestry, reduced by less than half within a decade.

Besides income loss, another challenge facing enclave locals is incessant clash with park officials, especially Park Rangers. Hunting materials of locals such as traps, guns, hunting

lamps and transit camps are confiscated and destroyed by better-armed and equipped Park Rangers. Often, these conflicts, turns protected areas into war zones between Park Rangers and stubborn hunters and forest exploiters. The conflict is not limited to park officials and locals. It is equally intense between hunters/farmers and animals classified as endangered species. Elephants, gorilla, chimpanzees, drills, bush pigs and monkeys periodically invade peasant farmlands from the wilderness in search of food. Whenever invasion occurs, affected farmers lose substantial harvest. While, the Rangers appear capable of restricting locals from the wilderness, they lack the capacity to check animal trespass into farmlands (Kebwe 2009).

Healthcare delivery is very low. Health centres are poorly equipped often without drugs. When drugs are available the prices are beyond the reach of most locals. Many who are sick rely on traditional herbs and healers for treatment. When it fails, the sick who cannot walk or afford to be carried, are abandoned to die. Less than five percent of the sick population have access to General Hospitals located at Obudu and Ikom town about fifty kilometers off Okwangwo Park area. Infant mortality rate is very high, with average life expectancy below 55 years.

Education is poorly funded and accessible to less than twenty percent of the population. Existing primary and secondary schools are under-staffed and ill-equipped. In Okwa I and Okwa II, a teacher often handles primary one to three classes alone. Another handles primary four to six especially during the rainy season when non-indigenes return to their hometowns before July when the streams and footpaths are impassable. Okwa I, Okwa II and Okwangwo villages consist of about 140 households housing about 3,500 people. There are less than twenty post-secondary school graduates; less than one hundred post-primary school leavers and less than two hundred pupils in the three primary schools (Ewah 2009).

Today, the challenges of fortress conservation enforced by the park management promotes missing links between households, youths, elders and the community because of land and resource alienation, income loss, decapitalisation, unemployment and low motivation. Unemployment constrains youths to migrate to support zone communities along Ikom – Obudu

highway and further into urban areas in search of employment. Relocation of youths from enclave communities to urban centres, leaves behind a large population of elders who engage in either hunting, foraging or farming (Ewah 2009).

Effects of Road Construction on Conservation

Notwithstanding, the advantages of state sponsored Land Rovers and motorcycles in Okwangwo in January, February and March 2009, which include amongst others increase flow of traffic into enclave communities especially amongst sons and daughters in Diaspora, the construction of a primary school block in Okwangwo and high patronage of transporters and gradual transformation from common wealth to technology, the negative effects of tangible and potential of unplanned construction of vehicular road on conservation have begun to manifest.

In March, 2009 a group of youths from Butatong and Okwangwo support zone villages on motorcycles forced their way into Oyi river and polluted it with Gamalin 20 and 'Arata Bomb.' The kill was much. Crocodile, manatee, fishes and other aquatic life were poisoned and killed for the first time since 1991. After the harvest, the leftover was much because the youths lacked the capacity to manage post-harvest waste. The Oyi river feeds and houses aquatic life from the Atlantic Ocean through the Cross River. This volume of pollution suggests strongly the type of pressure access road will put on protected rainforest area (Anashie 2009).

With Land Rovers and motorcycles now plying the seasonal road, the achievement drive of farmers will be stimulated into expansion of farmlands. Farmers are likely to move from subsistence to plantation farming. Expansion of farms will ultimately put pressure on protected areas because of the marginal income gain by farmers. Sustained banana, plantain and cocoa farming within the next decade, will completely degrade community forest. The consequence of soil degradation and forest dessication, pose serious challenges on the management of protected areas.

The dysfunctional attitude of the Nigerian state equally poses serious challenge to the integrity of the rainforest. Since 1990 when the park was created, only external development partners, showed concern on the declining

lifestyles of locals. This decline was directly attributed to land and resource alienation. World Wide Food for Nature, Overseas Development Association and European Union (WWF/ODA/EU) who acted as technical partners to the park from 1990-1996, helped the park to develop an action plan, which implemented employment of locals to serve as Rangers, clerks, tourist guards, and labourers. After their exit in 1996, many locals have lost their jobs instead of being employed by the state. The plight of locals remained ignored until 2007 when ExxonMobil Plc, United States of America, Australia and Canada through their agencies re-established contact with enclave communities. Current uninformed approach by the Cross River state government to introduce rural development through construction of access road to the heart of the park will pose serious challenges to the integrity of the rainforest area. The road without non-forest livelihood alternatives, vocational education and technology, will definitely open both community forest and protected area, to extensive exploitation by locals external hunters and loggers. This may discourage development partners from collaborating with locals and park management to promote conservation with development.

Insecurity is another challenge posed by unplanned attempt to provide a seasonal road to enclave communities. From 1990 – 2009, clashes between park officials and locals centre on trespassing into the park area. Community park management clashes sometimes instigate great treks from enclave areas to park headquarters at Butatong by locals to protest the activities of Park Rangers or to challenge the arrest, detention, persecution and conviction of locals who trespassed into the park who are standing trial in regular courts of Bateriko, Ikom and Obudu.

On the other hand, clashes between man and animals often attract reprisals against locals by park officials who prefer to protect animals without financial or material support to injured farmers whose farms are either trampled or eaten by elephants, bush pigs, birds and other primates. With the construction of a seasonal road, more hunters, farmers and commercial loggers will trespass to exploit the rainforest. This pressure will equally increase conflict between the park management, locals and loggers. Increased insecurity within rainforest area, will discourage re-

search and tourism. Currently researchers and tourists use park rangers and tourist guards to access the rainforest area. Dessication of the rainforest and pollution of streams and rivers that drain the park area will discourage influx of researchers and tourists and limit financial benefits that accrue to the park, the community and individuals. In Kenya, then natural park management protested the construction of trans-Saharan highway across the Sharangeti Park area because it will disable ecological life within protected areas (BBC News, 15th September 2010).

Extension of access road to enclave communities, will open up the area to influx of stranger elements to settle, trade or exploit the rainforest. Increased human traffic will destroy the existing commonwealth, introduce and expand social challenges such as diseases (HIV/AIDS), crime and insecurity. These challenges are currently very low on account of limited interaction between enclave communities and their neighbours. Within enclave communities traditional beliefs and religious deities prohibit expose and sanction crime, immorality and promiscuity.

DISCUSSION

The experiences of the Drill Ranch in Nigeria and South Africa are relevant and instructive to Okwangwo park development policy and elsewhere in Africa. The Cross River State government Nigeria, in partnership with Pandrillus Conservation Agency established a Drill Sanctuary in Buanchor community to protect Drills and other wildlife species and their habitats. Compensation was paid to the community and individual farmers who are primary owners of the rainforest. Locals are recruited, trained and deployed to work in the sanctuary. The State and Pandrillus also expanded access roads linking supports zone communities and access road to strategic areas within the Sanctuary like the Canopy Walk Way which is the longest canopy walkway in Africa. The Buanchor community is responsible for the protection of wildlife and forest habitats from trespassers. The State, Pandrillus and the locals are working together to preserve and conserve the Sanctuary.

In South Africa, the state and private parks recognized the historical rights of locals in the management of parks. The parks granted limited access roads into the parks, encouraged

programme migrations of locals away from park areas into urban and industrial cities. In both examples, Cross River State Sanctuary and South Africa, earth road are allowed. To sustain livelihoods and lifestyles, locals have access to primary and secondary schools, health-care and vocational re-orientations.

What Is to Be Done

The findings and recommendations below can promote conservation with rural development within Okwangwo and other protected areas if the following factors are considered and implemented. The experience of drill ranch and South Africa are instructive to park development in Africa

Recognition of Community Rights

To improve the lifestyles of enclave communities and related effects of access roads on conservation, the following experiences should be adopted and implemented: proper identification and examination of the challenges of fortress conservation in Sub-Saharan Africa, will suggest the direction and step toward change; change that can partner with locals and equally move park and non-affluent communities forward. To reduce the challenges of under-development in the enclave and support zone communities, the state must recognize the historical rights of communities as custodians of the rainforest. The community did not create the forest, rather they are guardians for which they have socio-economic rights and duties. To achieve this, the state must grant communities secure tenure as guardians. The United Nations, Brazil, and Madagascar have recognized these rights. These institutions and states have moved from fortress conservation to collaborative management of protected areas with local communities.

The United Nations 1992 Conference on Environment held in Rio De Janeiro Brazil, adopted a declaration recognizing the rights of indigenous populations within protected and challenged environment. These indigenous rights are violated in Africa with the enforcement of fortress conservation that alienates man and society from his environment. In Nigeria, Decree 36 (1991) that created the Parks, declared locals, scientist, tourist and researchers as visi-

tors to protected areas. Why are the indigenous rights not enforced by states? A source opines that U.N. environmental declarations and laws are hardly implemented by member states because the laws impose obligations on states on management of environment and tend to undermine national sovereignty. However, in Nigeria, the 1973 U.N. Convention on International Trade on Endangered species was adopted in Decree 11 (1985) (Abdullahi 2009).

Community Benefits in the Management of Protected Areas

In some countries, the local rights of support zone communities are recognized and integrated into the management of protected rainforest area. In Madagascar, half of the revenue generated from National Parks are used to develop support zone communities and sustain local guards. In Nigeria, only 15% of generated revenue from timber logging goes to affected communities within the reserves and community forest. However, a well-managed eco-tourism policy can provide support for conservation. The strategy to partner with local communities to avoid deforestation, offers much more than revenue derived from logging, poaching or fishing in protected areas.

The rainforest of Madagascar and Nigeria contains billions of tons of carbon credit. Destroying the trees and releasing the carbon not only kills local species but speeds global warming. Proposals in global climate negotiations would allow industrial countries to offset some of the green house gas emissions by paying rainforest nations to preserve trees. In Eastern Madagascar, wildlife conservation society is working together with locals and carbon investors to protect about 350,000 hectares in Makira forest by hiring communities to plant trees on eroded land, which creates corridors to connect fragmented habitats. Many communities earn carbon revenues and provide needed employment. This incentivizing environmental protection strategy, allows conservationist to work with locals on ground, to protect endangered species (Walsh 2009). This protection is tied to the welfare of the people who are closer to the forest by allowing countries to trade credit in international markets, provided the carbon in the trees is not cut or burnt. This is possible in Nigeria

where the rainforest mentality is still popular with locals.

Community Participation in the Management of Protected Areas

Another positive direction for the Nigerian state is the Brazilian experience in the Amazon region. In Brazil, local participation in the management of protected areas brought relative peace and stability to the region. In 1990, the Amazon region declared Mamirauá area, an ecological station. 5000 inhabitants lived in the area occupying six small settlements within and on its borders, fishing, farming during the dry season and harvesting timber at subsistence level. The state developed a management plan, which integrated community participation. The plan considered the socio-economic conditions of the people especially fishing and encouraged household fishing, sustainable farming sustainable exploitation of forest resources and tree planting (Stone et al. 2001). The management of National Parks in Nigeria can improve the lifestyles of local stakeholders and achieve sustainable peace and development using the Amazon Integrated Development Plan.

Non-forestry Dependent Orientation

Locals within support zone communities especially Okwa I, Okwa II and Okwangwo should be educated in vocational skills and equipped with funds and material resources to reduce pressure on the rainforest which is currently the only supermarket available to them. Locals should be guided by the state and park management to reject the transient benefits of deforestation through logging, exploitation and plantation farming for sustainable agriculture and agro-forest management. The long term sustainability of the rainforest area and its benefits from tourism, research, sustainable exploitation, carbon credit and annual community revenue are stable and permanent. Farmers, hunters and exploiters of forest resources should be the target audience of re-education and funding.

The development of an action plan from related experiences should be collaborated with re-orientation of locals from agro-forestry mentality to non-forest dependent livelihoods such as virtual forest and insurance policies for business, agriculture and industrial ventures. The

'virtual forest' or vesto stove is designed for the non-affluent to reduce pressure on protected forest areas. The stove is designed and marketed in Swaziland. It burns one quarter of the wood needed to cook on an open fire. It is virtually smokeless. The retail price brings the stove within the reach of many at twenty-nine dollars. It burns wood and dung more efficiently with less emission than conventional stoves. It is designed to pre-heat incoming air while using that air to insulate the fire and prevent heat loss. In sub-Saharan Africa, huge amount of charcoal is produced from wood harvested from the forest. The amount of wood used to power vesto stove is far lesser than that required to produce charcoal to cook in open fires (Crispin 2004). Introduction of this stove amongst the enclave communities of Okwangwo, Okwa I and Okwa II will help save large tracts of forest trees because of its efficiency. The state and non-governmental organisations can provide this stove to households within protected areas.

Professional Management

Engaging professionals to manage National Park in Nigeria will also enhance the sustainability of the rainforest. Within Cross River National Park, more than half of Park workers are not professionals with little or no passion for conservation. It is important that park staff become conservationist and environmentalist both in theory and in practice. In Namibia and South Africa, eco-tourism has been growing at 25% per annum over the past 10 years because of the increasing presence of professionals in the management of parks, wildlife and protected areas. Requisite training for eco-tourism involves provision for peculiar local crafts, retention of cultural festivals and practices, trained and well packaged tour guides, interpreters, provision of transit camps, preservation and advertisement of peculiar aspects of parks and protected sites. Others include promotion of clean, green and safe environment. This is only possible through shroud management and organisational skills of professionals (Brainchild 2004).

Responsible Democracies

Finally, one of the greatest challenges in the management of parks and protected sites is the existence of failed or dysfunctional states within

protected areas. Civil wars, social disorder in Uganda, Congo, Rwanda, Burundi, Sierra Leone, Madagascar and Sri Lanka, acted together to undermine protection and preservation of ecosystems especially logging, poaching, mining and bushfires. In Madagascar, Uganda and Congo, political instability helped to promote forest exploitation, mining and hunting. Within these states or regions, emphasis should be on democracy, rule of law, transparency, state security and food security to enhance environmental protection and awareness. Relative peace and security will attract development partners to collaborate with parks managers in environmental protection and management. In functional states like the United States of America and South Africa where political, civil and food security is effective, pressure on park and protected areas by support zone communities is reduced. In United States of America, for example, easy access to food and non-forestry support alternatives by support zone communities has helped promote parks and protected sites.

In Nigeria, plan for the development of the Park area and support zone communities was put together by WWF/EU/ODA and the Federal Government on Nigeria which included a resettlement programme. Since 1996, resettlement conference in Butatong which was organized by the park management, no resources and time have been allocated to resettle enclave community outside protected areas by the Federal Government or the international community. This option when implement will make road construction irrelevant. Until this is done agro-forestry orientation and capacity building of locals should precede road construction.

CONCLUSION

From the above examination, it is obvious that conservation can be protected if the local custodians are recognized as stakeholders, integrated into the management of protected areas and equipped with non-agro forestry livelihood alternatives. These pre-conditions should precede or go hand in hand with rural development especially provision of rural infrastructure like roads and sustainable exploitation of the rainforest. Within Okwangwo Division area the experience of United States, Canada, Australia agencies and Exxon Mobil efforts in providing Okwa enclave community with non-forest based

livelihood alternatives, should be commended and encouraged by the park management and Cross River State government.

The basis and success of Okwa experience, is the recognition of the community rights and the use of dialogue by development partners. This approach is not peculiar to Okwangwo rainforest area. In Madagascar, locals who engaged in tree planting, were paid by Auto Companies as carbon credit. These related experiences strongly suggest the direction of change and action by the Nigerian state. Where the community is recognized and involved in conservation, sustainable and tangible results and harmony are obtainable. Recognition of community rights and integration into conservation together with economic and social empowerment of locals must precede the construction of vehicular road into the heart of the Park.

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