

PROTECTED AREA MANAGEMENT IN NIGERIA: A REVIEW

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Graphical abstract



Abstract

Nigeria like other countries has experienced rapid increase in number and sizes of protected areas in the last century. As a result, a number of policies, agencies and departments were established to ensure proper protection and management of these areas. To ensure management effectiveness, frequent evaluation is necessary. This paper is a review of relevant literatures on protected area management effectiveness and collaboration in management. The findings of the review indicated that the International Union for Conservation of Nature (IUCN) framework is the most widely used for assessing management effectiveness of protected areas. However, a limitation of the framework is its deficiency to integrate collaboration and motivation. These factors play vital roles in effective management of protected areas through promoting wildlife conservation particularly in developing world. Therefore, this paper proposes a hybrid framework for evaluating protected area management effectiveness, consisting of the IUCN framework, collaboration and motivation to be used in subsequent assessment of protected areas.

Keywords: Protected area, management, effectiveness, collaboration

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1.0 INTRODUCTION

In the 21st century, environmental protection and management have been central issues across the globe. The rapid increase in the world's population and greater dependence of human populace on non-renewable environmental resources has posed a serious threat to the environment, particularly protected areas. The most valuable environmental resources are mainly concentrated in protected areas. They have long been recognized as cornerstones of ecological conservation [1-4]. The International Union for Conservation of Nature (IUCN) is primarily concerned with the management of protected areas through legal or other effective means that can enable long-term achievement of nature conservation and

associated ecosystem services [5]. The establishment of Yellowstone in the United States in the nineteenth century (1872) marked the beginning of protected area formation, where the number and expanse of protected areas keep increasing rapidly throughout the globe. They are established for different purposes ranging from conservation, recreation, natural resource management, cultural and religious purposes. To achieve these and more, the protected areas need to be well-managed [6]. In an effort to ensure proper management, the World Database on Protected Areas keeps and manage data of over 162,000 protected areas distributed worldwide as in figure 1, covering 28.4 million kilometer square, equivalent to 5.6% of the earth surface [6-7]. The necessity or decision for the management of the protected areas depends on size,

richness in biodiversity and availability of rare/threatened species. Even though they are set aside and managed mainly for the purpose of conservation, they are also associated with wide natural, social and economic benefits [8, 6]. Despite the growth in number and size of protected areas across the globe, they are yet to reach 17% and 10% target of terrestrial and marine protection respectively as outlined in the CBD Aichi Biodiversity Target 11. At the same time, those in existence are subjected to a range of natural, human and management challenges. Evidence of increasing challenges in and outside protected areas have been reported by [5, 8-10]; and vulnerability and failure to

achieve their primary objectives [6]. In many cases, damage resulting from these impacts are irreversible, which can lead to complete disappearance of protected areas. Threats can be natural or cultural, they may arise from inadequacies in resources or management, institutional or capacity problems [5]; external impacts, internal impacts, resource exports or human [11]. [9] include illegal hunting, harvesting of exotic plants and logging, encroachment, major conversion and degradation among adverse human activities. Based on the above mentioned facts, there is growing concern to secure protected areas through more effective management.

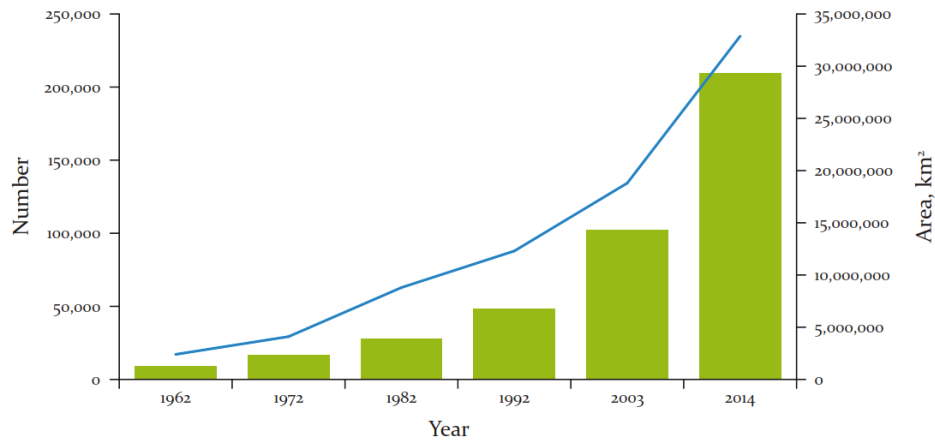


Figure 1 Growth in number of protected areas globally (Adopted from [7])

2.0 METHODOLOGY

The methodology used in this review is a synthesis of literature available in form of journals, books, reports, and conference papers on protected area management effectiveness and collaborative management in protected areas. They were obtained from Web of Science and Google Scholar search engines and IUCN, United Nations Environment Programme and World Conservation Monitoring Center (UNEP-WCMC) websites. The Keywords and phrases used were: "protected area", "management effectiveness", "collaboration management", and "co-management", with "AND" used as a connecting word between keywords for the purpose of retrieving relevant papers, books and reports for the review.

3.0 OVERVIEW OF PROTECTED AREA MANAGEMENT

Protected area management is concerned with a combination of actions such as legal, political, administrative, research, planning, protective, coordinating, so as to improve the operational effectiveness and performance of protected areas towards achieving their specified objectives [12].

Several international organizations play significant role in the management of protected areas globally. Prominent leading organizations include the International Union for Conservation of Nature (IUCN), the United Nation Environment Programme (UNEP/WCMC), the World Wide Fund for Nature (WWF) and the World Bank among others.

Management of protected areas differs greatly due to factors such as level of awareness, system of governance, well-being of the local people and location. In an effort to ensure effective management and sustainability of protected areas, several factors have to come into play, such as: the system of governance, resources availability and community support [13]; availability of management plan, supporting infrastructure, technical and financial resources [14,11]; institutional capacity, information on resources, involvement of indigenous/local people, enforcement and implementation [11]. Effectiveness of protected area governance plays a vital role in ensuring effective management. It determines how responsibilities are shared and exercised, and accounted for based on legal rights [15-16]. The IUCN categorizes protected area governance into four types: governance by government, shared governance, private governance and governance by indigenous people and local communities [17-18]; as shown in figure 2. However, [19] criticized governance

by government in isolation from other stakeholders due to fear that, environmentally sound approaches can be ignored if they are against the interest of those in power. It is thus argued that shared governance is the most effective way of governing/managing protected areas. It is a collaborative approach to management, also referred to as co-management. This approach is the current trend adopted for protected area management in many countries, as it allows managers, local communities/indigenous people and other stakeholders such as NOG's, CBO's and the tourism industry to have sense of ownership and responsibility. Collaboration in management guarantees effective management of protected areas [20, 15].

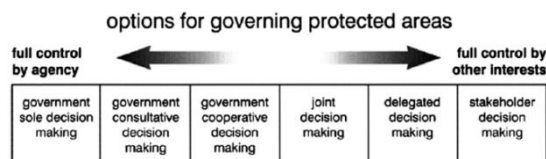


Figure 2 Options for protected area governance (Adopted from [1])

3.1 Current Trend in Protected Area Management

Following the weaknesses of the traditional approach to protected area management, which set aside protected areas for the purpose of conservation, wilderness and scenic values; and exclude indigenous people/local communities and stakeholders in planning and management processes, collaborative approach is now used. This is a Top-Down approach, where the government assumes full responsibility of these areas, as they finance, establish regulations that govern the areas and make management decisions singlehanded. This approach was criticized by many researchers as they deny the local people their social and cultural values [16]. The collaborative approach allows the participation of several parties in management, where concession is reached by all parties involved. Collaboration is a problem solving technique through joint decision-making where stakeholders take collective responsibility for their actions and subsequent outcomes from those actions [20]. Several researches indicate the need for participation of multi-stakeholder to ensure effective management [21]. This approach emerged due to weaknesses of other approaches and their inability to integrate ecological perspective with social and cultural aspects [22]. Researches have also shown that effective management can be achieved best by incorporating local communities in every decision to be taken on the protected area [23]. The need for collaboration in planning and management of protected areas has been identified as a suitable and sustainable approach to protected area management [19-20, 22]. [24] state that public participation in planning and management of parks/reserves can intensify support for the areas by the local

people/communities. This is because effective management of protected areas depends on the manner in which local people view the areas and the environment in general.

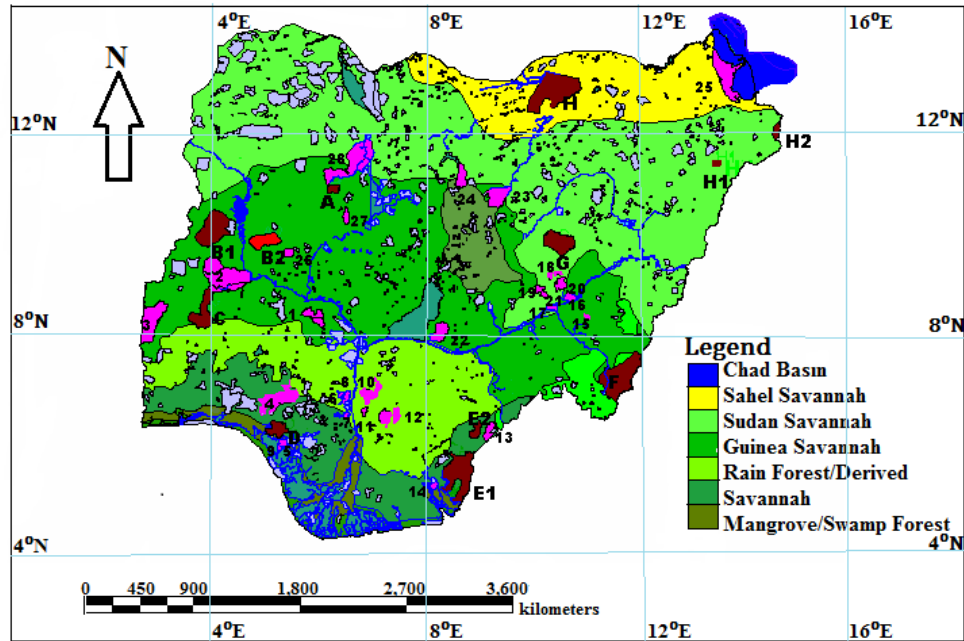
Management effectiveness evaluation is a strong mechanism that inform managers and decision makers about how well a protected area is doing, areas that need immediate attention and revealing strength and weakness of individual sites or system. Responding to the challenges facing protected area management, it becomes necessary to evaluate effectiveness of protected area management effectiveness and their capacity to deliver their management objectives. The need for more evaluation of protected areas has been postulated by a number of authors [5, 13, 25-26]. A study by [26] on global analysis of protected area management effectiveness revealed that 42% of the areas included in the study were associated with major deficiencies. Evaluation of protected area management promotes adaptive management, effective allocation of resources, accountability, transparency and support capacity building [5]; improves programme planning [27]; and improves planning strategies and better management actions/programmes [12]. For the purpose of evaluating protected area management effectiveness, over 70 methodologies have been developed and tested in different regions of the world [26] as shown in appendix I. In addition, their application depends on the region, focus of evaluation, protected area system or management [28].

4.0 PROTECTED AREA MANAGEMENT IN NIGERIA

Environmental protection and management in Nigeria dates back to the pre-colonial era by the traditional/local people. Protected areas in Nigeria have been managed since before the establishment of governmental and non-governmental institutions. At that time, management was the sole responsibility of the traditional and local people until the 19th century, with their local custodians. Later, the reserves were taken over by the government, where the traditional reserves custodians were substituted with modern rangers in 1900s, and came under the control of the government.

Nigeria like other countries has many protected areas. A total number of 1021 protected areas based on compilation from the [7, 29-33]. They are distributed across the seven vegetation zones of the country as in figure 3. Most of them are included in the World Database for Protected Areas (WDPA). However, despite the number of protected areas in the country, their management status remains questionable. Theoretically, the protected areas are protected; however, in practice, the situation is different, as most are only protected by name. This is what literature refers to as "paper parks" [9]; 'paper reserves' [33]. Even

those that are protected, they are not based on management plans or working plans meant for the protection. [5] refers to these un-followed documents prepared to guide management as “shelf documents”.



A: Kamuku; B1: Kainji (Borgu); B2: Kainji (Zuguruma); C: Old Oyo; D: Okomu; E1: Cross River (Oban); E2: Cross River (Okwangwo); F: Gashaka Gumti; G: Yankari; H: Chad Basin (Hadejia-Nguru); H1: Chad Basin (Sambisa); H2: Chad Basin (Chingurme-Duguma); 1: Ebbazikampe; 2: Okpara; 3: Upper Ogun; 4: Ohosu; 5: Ologbo; 6: Iri-Ada-Obi; 7: Ologbolo-Emu-Urho; 8: Orle River; 9: Gilli-Gilli; 10: Anambra; 11: Uddi/Nsukka; 12: Akpaka; 13: Obudu; 14: Stubbs Creek; 15: Ibi; 16: Wase Sanctuary; 17: Wase Rock Bird Sanctuary; 18: Pandam Wildlife Park; 19: Pai River; 20: Ankwe River; 21: Damper Sanctuary; 22: Nasarawa; 23: Lame Burra; 24: Kogin Kano; 25: Lake Chad; 26: Dagida; 27: Alawa; 28: Kwiambana

Figure 3 Map of Nigeria showing protected areas (Adapted from [30])

Nigeria has witnessed a rapid increase in the number and size of protected areas in the 20th century. The first forest reserve created in 1899 marks the beginning of designating protected areas in the country. In 1900, protected areas in Nigeria represent 0.01% of the country's total land mass, equivalent to 97,125 hectares. Five decades later, a substantial achievement was recorded as the figure increased to 8% in 1950 representing 7,332,031 hectares, and after that, it increased slowly to 11% in 1980 [35]. The protected areas include forest reserves, biosphere reserve game reserves, game/wildlife sanctuary, strict nature reserves, and national parks as in appendix II. They are established for the purpose of conservation of valuable environmental/-ecological resources, to meet tourism and recreational needs and to support research and education through proper management [35].

In Nigeria, National Parks and Game Reserves constitute the greater percentage of the protected area system. [36] estimates the total area covered by Nigeria's protected areas to be over three million hectares, and about 2.3 million hectares fall into category Ia and II of the IUCN category. [37] categorized effort towards management and conservation of protected areas into three: the first stage was to restrict hunting rights of the traditional/local people, the second stage was to

establish game reserves and other forms of protected areas so as to ensure effective management of resources; and the third stage was development of wildlife tourism with the aim of conserving endangered resources. In line with [37] categorization, management of protected areas in Nigeria gained government support from the colonial era, when the Department of Forestry was established to oversee and manage the reserves resources [38]. The Department of Forestry was established in 1897.

The establishment of the Department of Forestry was the initial step towards proper management of protected areas and other natural resources in Nigeria. Recently, the Federal Environmental Protection Agency (FEPA) was established, and it recorded significant achievements in establishment of national environmental policy, guidelines, standards and criteria. The ultimate aim of the agency are to: (i) ensure quality of life and environmental standards adequate for better health and well-being of all Nigerians, (ii) conserve and ensure the utilization of the environment and its natural resources sustainably so that both the present and future generations can reap benefits from its resources, (iii) restore, maintain and enhance ecosystems, (iv) increase public awareness particularly on the relationship between environment and socio-economic development, and encourage communities and individuals to participate in efforts

towards environmental improvement, and (v) collaborate with international bodies/agencies and NGOs in ensuring proper protection and management of the environment. But yet, this is not the reality on the ground.

Management of protected areas in Nigeria is a Top-Down approach which involves only the agencies responsible and the managers. This approach is associated with several shortcomings as they are unable to incorporate indigenous/local communities, which made them lose their support in management. Involvement of local communities in protected area management is among the requirement of the Decree 46 of 1999, in an effort to improve management and conservation of national parks in Nigeria.

Effective management of protected areas in Nigeria depends heavily on the well-being of the indigenous people and local communities surrounding the areas [35]; economic and social structure of regions where protected areas are located [39]. In an effort to achieve this objective, the National Biodiversity Strategy and Action Plan was adopted in 1997 by the federal government. The primary aim is to conserve and enhance sustainable use of the nation's biodiversity and biological resources; and to integrate biodiversity considerations in national planning policy and decision-making.

5.0 THEORETICAL FRAMEWORK

5.1 IUCN Framework for Evaluating Protected Area Management

Series of theories and framework have been developed for the purpose of evaluating protected area management effectiveness so as to determine how well a protected area is doing and how well it is protected. The most widely accepted framework is the one developed by IUCN which is based on three themes: planning and design; adequacy and appropriateness of management processes; and delivery of protected area objectives [5] as in figure 4.

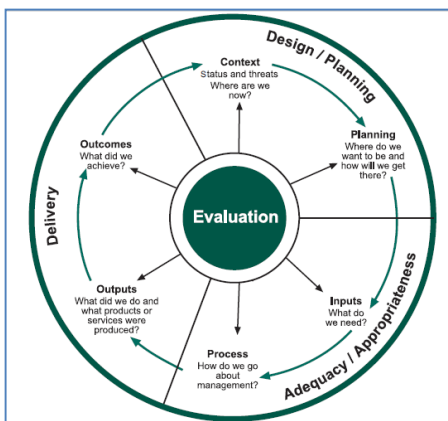


Figure 4 IUCN framework for evaluating protected area management (Adopted from [5])

The framework focuses on six elements namely: context, planning, input, process, output and outcome to determine the effectiveness of protected area management at either individual sites or protected area system and their contributions in effective management. One of the limitations of the construct is that, it does not incorporate collaboration and motivation. This is part of the requirement of the CBD Aichi Biodiversity Target 11 for 2020, where effective conservation and equitable management of protected areas have been spelled out. Indigenous/local communities can play a significant role towards effective management, as they were in-charge of the protected area management before the coming of the present institutions. In addition, other protected areas can play a significant role in ensuring effective management through information sharing and motivation of both managers and the indigenous/local people. But the institutions are of the view that the local communities are unable to manage them through proper regulation and therefore they are threats to the areas and or their contribution in management can be insignificant. Therefore, government controls are imposed, which has paved the way for the top-down approach, and this has not yielded successful outcome. The institutions are less concerned with managers' motivation which strengthens ability to perform and achieve better outcomes for the reserves.

Collaboration receives less attention due to low level of environmental education from the side of local people. But then their traditional knowledge however is of vital importance in management and conservation of protected areas [40-41]. Some researchers argue that management of protected areas can be achieved without collaboration with local communities and stakeholders [42]. However, collaborative management strategy appears to be the most effective way of managing the protected areas since the areas are in the mist of the local people. Nowadays, collaborative management is gaining recognition due to its positive contribution in protection and conservation of protected areas [41-42]; reduces pressure on the areas especially through support of local economic development [44]; contribute to effectiveness of the areas [45]; stands better chance of achieving the protected area management objectives [46].

Neglecting local communities in management itself is a threat to the areas. It can lead to deliberate (illegal) actions that can be detrimental to the protected area resources as well as a setback to the sustainability of the areas [47]. The author also emphasized on peaceful coexistence managers and local communities otherwise, the local communities may collaborate with poachers and others of prejudicial interest. Quite number of researchers reveal that collaboration between the PA managers and the local communities plays significant role in effective management of protected areas by promoting wildlife conservation particularly in developing world [48-50, 46]. Protected areas that

lack the support of local people, or tend to disregard them hardly if not impossible to attain expected outcome [51]; and their sustainability is at stake [48]. [52] added that, local communities should not only participate in management of protected areas, but also in decision-making process. This allows the local people to have a sense of ownership, and as well make them comply easily to policies and guidelines governing the protected areas, while disregarding them can make them become resistant to the regulations because they will feel that they are rubbed off their resources.

In addition to collaboration, staff motivation is another important factor in ensuring effective management of protected areas. Motivating protected area staff through incentives or other means contributes to effectiveness of protected areas [43].

5.2 Proposed Framework

Based on a synthesis of literature on protected area management and collaborative management, coupled with the effort to meet the CBD Aichi Biodiversity Target, a new direction for effective management of protected areas has been proposed. It incorporates elements of motivation and collaboration with indigenous people/local communities/stakeholders, NGOs, international organizations and other protected areas in both planning and management processes. The integrated framework is shown in figure 5. This is an additional dimension to the work of [5] for evaluating management effectiveness of protected areas.

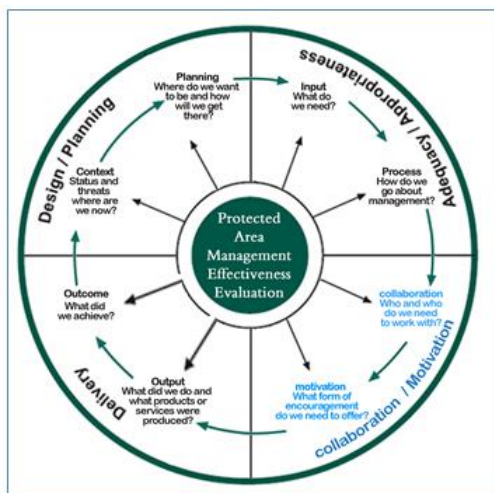


Figure 5 Proposed framework for evaluating protected area management (Adapted from [5])

6.0 POLICIES AND PROGRAMMES RELATED TO PROTECTED AREA MANAGEMENT IN NIGERIA

The protection of protected areas by legislation dated back to 1880s under Governor Alfred Maloney. This

marked the formal protection of forest and environmental resources through the Department of Forestry. The first forest reserve was then established in 1899. Environmental protection was formalized in 1901 with the establishment of Forest Ordinance, later the colonial Township Ordinance in 1917, which paved the way for the establishment of protected areas [53]. Then in 1916 the Wild Animals Preservation Laws of Western Nigeria (Cap 132) emerged as the first law, and was only applicable to the western part of the country. A decade after, the second law, the Wild Animals Preservation Laws of Eastern Nigeria was enacted in 1928, and was only applicable to the eastern part of the country. The last law which protected the northern reserves came into being after three decades in 1963, and is referred to as the Wild Animals Laws in Northern Nigeria.

After independence in 1960, a Decree emerged so that creation of reserves and national parks could have legal backing. Decree No. 46 of 1979 serves as a legal background for the creation and protection of reserves. In an effort to promote planning and management of the environment, the Nigerian Society for Environmental Management and Planning was created in 1983 with the aim of promoting planning and management of the environment; developing policies; and conducting research on the state of the environment and its management in Nigeria. In addition, the Federal Environmental Protection Agency (FEPA) in Nigeria also plays significant role in environmental management through the establishment of national environmental policy, guidelines, standards and criteria among others. Decree 36 of 1991 was later promulgated to ensure proper management of protected areas. However, the Decree was modified in 1995 due to some weaknesses. The latest decree established for NPS is: Decree 46 of 1999, introduced to improve management and conservation of National Parks in the country. The Decree also mandates all National Parks to prepare a comprehensive management plan for the parks. The plan according to [36] should consist of: (1) a map of the park and proposed facilities; (2) an inventory of resources in the park; (3) assessment of wildlife population trends in the park; (4) assessment of wildlife interference and plans for controlling it; (5) a description of proposed research activities, infrastructure development and wildlife resource management in the park; (6) plans for administration of the park; (7) plans to develop national and international tourism; (8) plans for the creation of buffer zones around the park and the participation of local communities in the management of the park; (9) plans for public participation in park activities; (10) plans to promote and assist in ensuring environmentally sound sustainable development in the areas surrounding the park, other buffer zones, for the purpose of protecting the areas.

In addition, policy on forestry, wildlife and protected areas is part of the National Policy on Environment in 1989, which was subsequently revised in 1999. The policy is aimed at:

- Maintaining environmental quality in order to ensure healthy wellbeing of the citizens;
- Conserving and sustaining the environment and its natural resources;
- Restoring, maintaining and enhancing the ecosystems and ecological processes so as to ensure sustainability of the natural environment;
- Increasing public awareness and at the same time promoting public understanding of the linkages between the environment and development;
- Cooperating with other agencies and international organizations in environmental protection and management.

Similarly, other effort to strengthen the protection and management of reserves/protected areas in Nigeria include the establishment of the Support Zone Community Development Programme. It is among the significant programmes developed for the benefit of local communities around protected areas. This policy is integrated in section 49, sub-section (1) and (2) of the National Park Legislation. This policy can play a significant role in incorporating local communities in protected area planning and management so as to achieve effective protection and management, but as noted above, most park management regimes still pursue a top-down approach that tends to exclude local communities.

7.0 CONCLUSIONS AND FUTURE DIRECTIONS

Significant achievements have been recorded in the establishment of protected areas at both local and global scales, despite the pressure from population increase and increasing dependence on environmental resources which subject protected areas to a number of threats and pressure. However in Nigeria this effort continues to face major shortcomings. Even those in existence face a series of challenges from ineffective management, degradation, extinction of biodiversity and lack of independent objective evaluation.

At present, the existing IUCN framework as the most widely used framework for evaluating management effectiveness of protected areas is inadequate at fully exploiting opportunities in collaboration and motivation in management. These two elements have potentials to improve more effective management and maintain good relationships between key players (communities and managers) in management. The interplay between them can significantly contribute to the achievement of protected area objectives. This paper has indicated the reason that necessitates incorporation of the two elements into the IUCN framework so as to determine the extent to which they contribute to effectiveness of protected area management. Effectively managed protected areas are vital not only to the environment and the ecological system, but also to humans as they contribute to controlling and limiting the occurrence

of natural catastrophes. Therefore, this paper calls for more assessment of protected areas using this framework to enable them accomplish their management objectives.

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Appendix I:

METHODOLOGIES FOR EVALUATING PROTECTED AREA

S/N	Methodology name	Abbreviation
1	Rapid Assessment and Prioritization of Protected Area Management	RAPPAM
2	Management Effectiveness Tracking Tool	MET
3	Enhancing Our Heritage	EOH
4	How is Your Marine Protected Area Doing?	How is Your Marine Protected Area Doing?
5	Conservation Action Planning	TNC CAP
6	World Wide Fund – World Bank Marine Protected Area Score Card	Marine Tracking Tool
7	Conservation International Management Effectiveness Tracking Tool	CI MET
8	Important Bird Area Monitoring	Birdlife IBA
9	Governance of Biodiversity Survey Greifswald	GOBI
10	Stockholm Biosphere Reserves Survey	Stockholm BR Survey
11	West Indian Ocean MPA Toolkit	West Indian Ocean MPA
12	Site level assessment of World Heritage Areas	Egyptian Site-Level Assessment
13	Central Africa Republic-Evaluation of 'Conservation Potential' of Protected Areas	Central African Republic
14	African Rainforest Study	African Rainforest Study
15	Assessing protected area management effectiveness in the Congo Basin	Congo MEE
16	Threat Reduction Assessment in Uganda	Uganda Threat Assessment
17	Korean tracking tool	Korea MET
18	Korea survey on protected area management status	Korea MEE
19	Evaluation of Management effectiveness of Indian Protected Areas	MEE Indian
20	Management Effectiveness Evaluation of Indian Tiger Reserves	Indian Tiger Reserves Assessment
21	Marine Protected Area Evaluation	Alder
22	European Diploma of Protected Areas	European Diploma
23	Protected Area Network Parks	PAN Parks
24	EUROPARC Trans-boundary Parks Certification	EUROPARC Transb.
25	EUROPARC European Charter for Sustainable Tourism	EUROPARC ECST
26	Carpathian Management Tracking Tool	CPAMETT
27	European Site Consolidation Scorecard	European SC5
28	Management Effectiveness Study-Finland	Finland MEE
29	Management effectiveness of Lithuanian protected areas	Lithuania
30	State of the Park Assessment Finland	SOP Finland
31	Evaluation of French Regional Nature Parks	French RNP
32	Contrat d'Objectifs (French National Parks)	French NP (CdO)
33	Nature Park Quality Campaign, Germany	German Nature Parks
34	Quality Criteria and Standards of German National Parks	German National Parks
35	Evaluation of German BRs	German BRs (EABR)
36	Evaluation of German BRs	German BRs (Schradler)
37	National Park Authority Performance Assessment, England	NPAPA England

38	Evaluation of Local Nature Reserves, Scotland	LNR Scotland
39	Performance and management effectiveness of national nature reserves, Scotland	NNR MEE Scotland
40	Countryside management system (National Nature Reserves, Wales)	NNR Wales
41	Quality Park Project Italy	Italian Quality Parks
42	Monitoring and Evaluation of Protected Areas, Italy	MEVAP Italy
43	Naturmonumenten Quality Test	Naturmonumente n Test
44	Spanish National Parks	Situation of National Park Network
45	Evaluation of the system of protected areas of Catalonia, Spain	Catalonia MEE
46	Management Effectiveness Evaluation Tenerife	Tenerife MEE
47	EUROPARC Spain DB	EUROPARC Spain Database
48	INDES-PAR Asturias	INDES-PAR (Asturias)
49	MEE Swedish Counties	Evaluation of Swedish County Administrative Boards
50	SkötselDOS	SkötselDOS (Protection GIS System)
51	TNC Parks in Peril Site Consolidation Scorecard	PIP Site consolidation
52	PROARCA/CAPAS Scorecard Evaluation	PROARCA/CAPAS
53	WWF/CATIE Measuring protected area management effectiveness	WWF-CATIE
54	Rapid Evaluation of Management Effectiveness in Marine Protected Areas of Mesoamerica.	Mesoamerica MPA
55	Degree of Implementation and the Vulnerability of Brazilian Federal Conservation Areas (WWF Brazil)	Brazil 1999
56	AEMAPPS: Analisis de Efectividad de Manejo de Areas Protegidas con Participacion Social: MEE with social participation Columbia	AEMAPPS
57	Ecuador MEE: Indicadores para el Monitoreo y Evaluacion del Manejo de las Areas Naturales Protegidas del Ecuador	Ecuador MEE
58	Manual para la Evaluacion de la Eficiencia de Manejo del Parque Nacional Galapagos-SPNG	Galapagos MEE
59	Monitoring and Assessment with Relevant indicators of Protected Areas of the Guianas	MARIPA-G
60	Belize National Report on Management Effectiveness	Belize MEE
61	Metodologia de Evaluacion de Efectividad de Manejo (MEMS) y SNAP del SNAP de Bolivia	MEMS
62	Padovan 2002	Padovan 2002
63	Scenery Matrix	Scenery Matrix
64	PA Consolidation Index	PA Consolidation Index
65	Valdiviana Ecoregion Argentina	Valdiviano
66	Venezuela Vision	Venezuela Vision
67	Peru MEE	Peru MEE
68	Sistema de Información, monitoreo y evaluación para la conservación	SIMEC
69	Tasmanian World Heritage MEE	Tasmanian WHA
70	New South Wales State of Parks (Australia)	NSW SOP
71	Victorian State of Parks (Australia)	Victorian SOP
72	Queensland Rapid Assessment (Australia)	Qld Rapid Assessment
73	Fraser Island World Heritage Area (Australia)	Fraser Island WHA
74	Queensland Park Integrity assessment (Australia)	Qld Park Integrity
75	USA State of Parks	USA SOP
76	Monitoring and reporting ecological integrity in Canada's parks.	Parks Canada

Source [26]

Appendix II:

S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas	S/N	Name of Protected Areas		
1	Apoi Creek Forests	112	Bokori	227	Eporo	342	Ijebu-Ode	457	Kogo	573	Marguba	688	Omo	803	Ukpor-Bende	918	West Okura
2	Baturiya Wetland	113	Bonu	228	Erwa	343	Ikebiri Creek	458	Kogum River	574	Maribara	689	Oni	804	Uku Da Sisi	919	West Tangaza
3	Dagona Sanctuary Lake	114	Borgu	229	Esie	344	Ikeji	459	Kokomto	575	Maru Bongudu	690	Onishere	805	Umon Ndealichi	920	Woubi
4	Foge Islands	115	Boshi	230	Etizurugi	345	Ikerre	460	Komadugu Gana	576	Matanfada	691	Opantha	806	Umubai	921	Wuda Taye
5	Lake Chad Wetlands	116	Bosso Dam	231	Ewohimi	346	Ikom	461	Komala	577	Matsago	692	Ora-Iuleha-Ozalla	807	Umuhia Ibeku	922	Wurkam River
6	Lower Kaduna-Middle Niger Floodplain	117	Buga Hill	232	Ewun Rafia	347	Ikom	462	Kona	578	Matsena	693	Oroma Anam	808	Umude Ugbenu	923	Wuro Bamusa
7	Maladumba Lake	118	Bugau North	233	Fadaman Mada	348	Ikpeye	463	Konduga	579	Mawarta	694	Osara	809	Umuokpara Umuowa Ogee	924	Wuro Biriji
8	Nguru Lake Complex	119	Bulangu	234	Fahu	349	Ikrigon	464	Kontagora	580	Mawashi	695	Osho	810	Ungua Jiburu	925	Wuro Mallum
9	Oguta Lake	120	Buli Hill	235	Falomi	350	Ikwe	465	Korama Kurumi	581	Mawulli	696	Oshogbo	811	Ungua Lalle	926	Wushishi
10	Pandam and Wase Lakes	121	Bunga Hill	236	Farfar	351	Ila (Nigeria)	466	Kpashimi	582	Mayo Ndaga	697	Oshun	812	Unknown (NGA) No.1	927	Wuyo Gube
11	Upper Orashi Forests	122	Bunu	237	Farin Ruwa	352	Ilaro	467	Kpeyafao	583	Mazanbiya	698	Osi	813	Unknown (NGA) No.11	928	Yache
12	UNESCO-MAB Biosphere Reserve	123	Burashika	238	Fatika	353	Ilesha	468	Kuchigi	584	Mbaafon	699	Osomari	814	Unknown (NGA) No.12	929	Yamaltu
13	National Community Forest	124	Buratai	239	Fefeku	354	Illela	469	Kudu	585	Mbaav 1	700	Otamiri	815	Unknown (NGA) No.13	930	Yamdugu
14	Mbe Mountains	125	Burgo	240	Femari	355	Illoka'oje	470	Kuduge	586	Mbaav 2	701	Otamiri River	816	Unknown (NGA) No.14	931	Yammama
15	Abak River	126	Burra North	241	Feri	356	Imbibnina	471	Kukangiwa	587	Mbaava	702	Otete	817	Unknown (NGA) No.15	932	Yan Tumaki
16	Agia Gate	127	Burra West	242	Finukunu	357	Inyelen	472	Kukar Jangara	588	Mbahura	703	Otu	818	Unknown (NGA) No.16	933	Yandev
17	Agbaja	128	Busta	243	Fuchi	358	Ipele-Idoami	473	Kukawa	589	Mbakoso	704	Otuma	819	Unknown (NGA) No.17	934	Yangaiya
18	Agbun	129	Central Shendam	244	Fuka	359	Ipetu	474	Kukwaba	590	Mbakpa	705	Oturkpo	820	Unknown (NGA) No.18	935	Yarda Kangiwa
19	Acharane	130	Central Wase	245	Gabam Mari	360	Irele	475	Kuma	591	Mbamajrom	706	Owan	821	Unknown (NGA) No.19	936	Yashi
20	Adaki	131	Chinade	246	Gabo Escarpment	361	Irite Amoli	476	Kuna Hill	592	Mbanue	707	Owo	822	Unknown (NGA) No.2	937	Yasku
21	Adankolo	132	Chihurma	247	Gabu	362	Irrua Uromi	477	Kurba	593	Mbatan	708	Oyinno	823	Unknown (NGA) No.20	938	Yautare
22	Adiam	133	Chikwei	248	Gadadri	363	Irrua-Unea	478	Kurba	594	Mbatav	709	Pai River	824	Unknown (NGA) No.21	939	Yede
23	Aduru	134	Chinade	249	Gadam	364	Isa Zurni	479	Kurmaiyai	595	Meko	710	Panshanu	825	Unknown (NGA) No.22	940	Yelwa Fuel
24	Afaka	135	Chokochoko	250	Gadari	365	Isanlu	480	Kurmayai	596	Mele	711	Pategi	826	Unknown (NGA) No.23	941	Yerwa
25	Afi River	136	Cross River North	251	Gadau	366	Ise	481	Kurmi Adebisi	597	Meleri	712	Prison Fuel	827	Unknown (NGA) No.24	942	Yo
26	Agave Gate	137	Cross River South	252	Gagara	367	Iseyin Central	482	Kurmi Agudu	598	Meringa North West	713	Puisa	828	Unknown (NGA) No.25	943	Zaga
27	Agala	138	Dabaga	253	Gajiram	368	Iseyin West	483	Kurmi Agyaragu	599	Minna	714	Rabadi	829	Unknown (NGA) No.26	944	Zala
28	Agbaja	139	Dabamsame	254	Galadima	369	Ishian Aiyede	484	Kurmi Akanga	600	Mkar	715	Radda	830	Unknown (NGA) No.27	945	Zalanga
29	Agbun	140	Dabira	255	Galambi	370	Ishagu	485	Kurmi Akano	601	Mohono	716	Rade	831	Unknown (NGA) No.28	946	Zamfara
30	Agoi	141	Dadngel	256	Gamba	371	Ishieki	486	Kurmi Akura	602	Molai	717	Radoho	832	Unknown (NGA) No.29	947	Zanchita
31	Ago-Owu	142	Dagidda	257	Gambare	372	Isiamigbo	487	Kurmi Kurayi	603	Moma	718	Radung	833	Unknown (NGA) No.30	948	Zandama Hills
32	Aguaru	143	Dajina	258	Gambari	373	Ivi-Ada-Obi	488	Kurmi Maiakuya	604	Mongu	719	Radwan	834	Unknown (NGA) No.31	949	Zangula River
33	Agutubu Owa	144	Dakka	259	Gangara	374	Iwa River	489	Kurmi Maisamari	605	Monkin	720	Rafin Bawa	835	Unknown (NGA) No.32	950	Zaranda Hill
		145	Dalali	260	Gangoro	375	Jabi Rawa	490	Kurmi Tagwaye North	606	Mozum	721	Rafin Doboysi	836	Unknown (NGA) No.33	951	Zaria
		146	Dam Makama	261	Gangume	376	Jagali	491	Kurmi Tagwaye South	607	Mudu	722	Rafin Hill	837	Unknown (NGA) No.34	952	Zauna
		147	Damakuli	262	Garba Shege	377	Jaja	492	Kurmin Bakin Kogin	608	Mungurum	723	Rafin Iwa	838	Unknown (NGA) No.35	953	Zigau
		148	Damangu	263	Gardemma	378	Jajere	493	Kurmin Danki	609	Muni	724	Raganda	839	Unknown (NGA) No.36	954	Zing

34	Ajaokuta	149	Damasak	264	Garere	379	Jalingo	495	Kurmin Kogi	610	Musa	725	Rahama	840	Unknown (NGA) No.36	955	Zok
35	Ajigin	150	Dambo	265	Garko	380	Jangasiri	496	Kurmin Male	611	N.W. Escarpment	726	Rakuma	841	Unknown (NGA) No.37	956	Zubakpere
36	Akanga	151	Damri	266	Garko Meri	381	Jankai	497	Kurra Jekko	612	Naanabi	727	Ran	842	Unknown (NGA) No.38	957	Zugurma
37	Akanto	152	Dan Babba	267	Garu	382	Jaori	498	Kurumi Zano	613	Nabardo	728	Ribako	843	Unknown (NGA) No.39	958	Zuguskwak
38	Akerre	153	Dan Gagi	268	Garu Gingna	383	Jarawa Hill	499	Kusoru	614	Nafada	729	Ribuku	844	Unknown (NGA) No.40	959	Zuma Hill
39	Ako	154	Dan Kabba	269	Garunda	384	Jare	500	Kusoziko	615	Nami Hill	730	Richa	845	Unknown (NGA) No.41	960	Zurak
40	Akabiwo	155	Dan Kulili	270	Gasartani	385	Jauro River	501	Kusur	616	Namтары	731	Rigachikum	846	Unknown (NGA) No.42		Game Reserve
41	Akpaka	156	Dandauda	271	Gasi	386	Jauro Tukur	502	Kutigi	617	Nasarawa	732	Rikau	847	Unknown (NGA) No.43	961	Alawa
42	Akpatakum	157	Danganagi	272	Gauara	387	Jawo	503	Kuzosiko	618	Nasarawa (North Kaduna)	733	Rinukunu	848	Unknown (NGA) No.44	962	Afi River (proposed)
43	Akpugo	158	Danguwa	273	Gaya	388	Jenere	504	Kwaimbana	619	Ngala	734	River Amboi	849	Unknown (NGA) No.45	963	Akpaka (proposed)
44	Akumazi	159	Dankaiwa	274	Gayi	389	Jere	505	Kwakuti	620	Ngamzagi	735	River Moshi	850	Unknown (NGA) No.46	964	Anambra (proposed)
45	Akure	160	Dansosia	275	Gazabure	390	Jerwa	506	Kwakuti	621	Nghingulde	736	River Nwum	851	Unknown (NGA) No.47	965	Bakono?
46	Akure-Ofosu	161	Dapchi	276	Gbagba	391	Jimbum	507	Kwakwa	622	Ngoroje	737	Rogogo	852	Unknown (NGA) No.48	966	Baturiya Wetlands
47	Akwana East	162	Dargazu	277	Gbedege	392	Kabacha	508	Kwankiro	623	Nimbia	738	Roni East	853	Unknown (NGA) No.49	967	Dagida
48	Akwana West	163	Dargazu	278	Gboko	393	Kabama	509	Kwari Kwasa	624	Ningishi Hills	739	Roni North	854	Unknown (NGA) No.5	968	Dagona
49	Akwari Ani	164	Datsindura	279	Geltur	394	Kabo	510	Kwaya Tera	625	Ninjam	740	Rukuba (Amo)	855	Unknown (NGA) No.50	969	Ebbe/Kampe (proposed)
50	Ala	165	Daura	280	Gembu	395	Kabobi	511	Kwogin Kerami	626	Niocha	741	Ruma	856	Unknown (NGA) No.51	970	Falgore (Kogin Kano)
51	Alagbede	166	Dawaki	281	Gerkawa Hill	396	Kadobi	512	Kwoiba	627	Nkachu-Iraku	742	Rurum	857	Unknown (NGA) No.52	971	Gilli-Gilli
52	Alawa	167	Dawan Allah	282	Gerki	397	Kafa Kurmi	513	Kwongoma	628	Nkisi River	743	Sainyinan	858	Unknown (NGA) No.53	972	Ibi
53	Albasu	168	Dayi	283	Gerri Kloof	398	Kafanchan	514	Kyarana	629	North Tangaza	744	Sakwa	859	Unknown (NGA) No.56	973	Ifon (Proposed)
54	Alin Magani	169	Dayigora	284	Gijja	399	Kafarati	515	Labar	630	Nsukwai	745	Sambisa	860	Unknown (NGA) No.57	974	Iri-Ada-Obi (proposed)
55	Alla	170	Dekina	285	Gilli-Gilli	400	Kafinkoro	516	Lafia (Gongola State)	631	Nugboji	746	Sambro	861	Unknown (NGA) No.58	975	Kambari
56	Ambakar	171	Demsa	286	Gimi River	401	Kagorko	517	Lafia (Plateau State)	632	Numan	747	Sandami	862	Unknown (NGA) No.59	976	Kashimbila
57	Amere	172	Dende	287	Gindiri	402	Kaguma	518	Lafagi	633	Nun River	748	Sanga River	863	Unknown (NGA) No.6	977	Kuyambana
58	Anambra	173	Dep River	288	Girari	403	Kaibaki North	519	Lafagi Oro	634	Nungu	749	Sangiwa	864	Unknown (NGA) No.61	978	Kwale
59	Anara	174	Divana	289	Girel	404	Kaibaki South	520	Laiqbede	635	Nunku	750	Sapoba	865	Unknown (NGA) No.62	979	Lame-Burra
60	Anchau West	175	Djibia	290	Giru	405	Kaikaimako	521	Lainde	636	Oba Hills	751	Sebore	866	Unknown (NGA) No.69	980	Margadu-Kabak Wetlands
61	Andoni (proposed)	176	Dogan Dawa	291	Gitata	406	Kakanda Hills	522	Lake Alo	637	Oban Group	752	Seri	867	Unknown (NGA) No.7	981	Moko (proposed)
62	Anfani	177	Dogwandaji	292	Giwa (North)	407	Kakangi	523	Lame	638	Obaretin	753	Shaba	868	Unknown (NGA) No.72	982	Ngel - Nyaki
63	Anji	178	Doka	293	Giwa (South)	408	Kakara	524	Lamurde	639	Obaoku	754	Shakwadina	869	Unknown (NGA) No.74	983	Nguir/Adiani Wetlands
64	Anwo	179	Dokin	294	Gogya	409	Kakau	525	Langai	640	Obi	755	Shamyogti	870	Unknown (NGA) No.75	984	Nun River (proposed)
65	Apoi Creek	180	Domu	295	Gombe	410	Kakiwari	526	Lanlate	641	Obize-Isu	756	Shangye Tiev	871	Unknown (NGA) No.78	985	Ohsou (proposed)
66	Ara	181	Dono	296	Gombole	411	Kalalawa	527	Lantang	642	Obot-Ndom	757	Share	872	Unknown (NGA) No.8	986	Okomu
67	Arakanga	182	Doro	297	Goronyo	412	Kalsingi Hills	528	Lema	643	Odo Ogun	758	Shasha	873	Unknown (NGA) No.80	987	Okeluse (Proposed)
68	Assob Bachit	183	Dorofi	298	Gubagi	413	Kaltungo	529	Lembi	644	Odoba	759	Shebangel Hills	874	Unknown (NGA) No.9	988	Ologbo
69	Auchi	184	Duisin Bamli	299	Gubaji	414	Kaltungo Hill	530	Lemsiari	645	Odu	760	Shegali	875	Unknown (NGA) No.10	989	Opanda (proposed)
70	Auno	185	Dukku	300	Gubio	415	Kalutna	531	Libere	646	Odugebe	761	Shekato	876	Unknown (NGA) No.4	990	Opara
71	Auya	186	Duma	301	Gudi Hill	416	Kaluruwa	532	Liji Hills	647	Odun	762	Sherigia	877	Unknown (NGA) No.54	991	Orile
72	Aviele	187	Dumbari Futu	302	Guduma	417	Kamarimi	533	Limanti	648	Ogbe	763	Sheya	878	Unknown (NGA) No.55	992	Orle River
73	Awlaw-Isikwe	188	Dungunde	303	Guga	418	Kamatan	534	Limoro	649	Ogbesse	764	Shimfida	879	Unknown (NGA) No.60	993	Pai River
74	Aworo	189	Dupa	304	Gugunguma	419	Kambari	535	Little Osse	650	Ogiopa	765	Sobi	880	Unknown (NGA) No.63	994	Pandam
75	Ayu Hills	190	Dusuwa	305	Guidan Baure	420	Kampe River	536	Lizai	651	Oglewu	766	Soge	881	Unknown (NGA) No.64	995	Ribako (proposed)
76	Azarnukwia	191	Dutsen Amina	306	Gujba	421	Kanawa	537	Lokwoja	652	Ogouton North	767	Sonkpa	882	Unknown (NGA) No.65	996	River Benue (proposed)
77	Azaya	192	Dutsen Bello	307	Guji-Ganna	422	Kandawa	538	Lower Enyong	653	Ogouton South	768	South Ibe	883	Unknown (NGA) No.66	997	Sambisa
78	Babban Rafi	193	Dutsen Kurafe	308	Gulbin Ka	423	Kande River	539	Lower Imo River	654	Ogouton West	769	Stubbs Creek	884	Unknown (NGA) No.67	998	Stubbs Creek (proposed)
79	Babankurmi	194	Dutsin Dorowa	309	Gumsi	424	Kanoma Gabiya	540	Lower Orashi River	655	Ogu Iru	770	Sumu	885	Unknown (NGA) No.68	999	Taylor Creek (proposed)
80	Badauri	195	Dutsin Gora	310	Gumu	425	Karaduwa	541	Mada River North	656	Ogun River	771	Suntai	886	Unknown (NGA) No.70	1000	Udi/Nauka
81	Baga	196	Dutsin Kodawa	311	Gundulwa	426	Karfe Binji	542	Mada River South	657	Ogwa	772	Surami	887	Unknown (NGA) No.71	1001	Wase
82	Bagaji	197	Dutsin Kuba	312	Gundumi	427	Karfi	543	Madagine	658	Ogwashi-Uku	773	Swamp	888	Unknown (NGA) No.73	1002	Wase Rock Bird
83	Bagau	198	Dutsin Kwaita	313	Gura	428	Kariya	544	Madalla	659	Ohaji	774	Takum	889	Unknown (NGA) No.76	1003	Yankari
84	Bage	199	Duya	314	Guram River	429	Karlali	545	Madara	660	Ohadoo-Mbanasa	775	Tala Hill	890	Unknown (NGA) No.77		National Park
85	Bagele Hill	200	East Anka	315	Gurin	430	Karmo	546	Madatai	661	Ohosu	776	Tandama	891	Unknown (NGA) No.79	1004	Baturiya Wetlands (proposed)
86	Bagga	201	Eba Island	316	Gurmina	431	Karnowa	547	Mafa	662	Ohumbe	777	Tara	892	Unknown (NGA) No.79	1005	Chad Basin
87	Baissa	202	Ebba	317	Gurmina	432	Karoka	548	Mafta	663	Oinye	778	Tarana	893	Upkon	1006	Cross River
88	Baiye	203	Ebor	318	Gurusa	433	Karonmajigi	549	Maharai	664	Oji River	779	Tatu	894	Upper Imo River	1007	Gashaka-Gumti
89	Bakanbawa	204	Ebue	319	Gwadabawa	434	Kasa Kogi	550	Mai Hula	665	Ojofu	780	Taylor Creek	895	Upper Ogun	1008	Gujba(proposed)
90	Bakin Dutse	205	Eda 1	320	Gwagwa	435	Kasanu	551	Mai Samari	666	Ojogba-Ugun	781	Teshi	896	Upper Orashi River	1009	Kainji Lake
91	Bakura Tureta	206	Eda 2	321	Gwaiyo	436	Katerma	552	Mairafi	667	Okeluse	782	Tongo	897	Uremure Yokri	1010	Kamuku (proposed)
92	Bam Ngelzarma	207	Ede	322	Gwana	437	Katika	553	Maigazari	668	Okene catchment area	783	Tsanni	898	Usonigbe	1011	Kogo (proposed)
93	Bantaji	208	Edoko Hills	323	Gwanara	438	Katsina	554	Mai-Ido	669	Okene waterworks	784	Tsamin Kaura	899	Ute-Ukpu	1012	Kuyambana (proposed)
94	Bara	209	Edotsu	324	Gwirta	439	Katsina-Ala	555	Maiwado	670	Okhueasan	785	Tudun Iyo	900	Utugu and Karama	1013	Old Oyo
95	Barawa	210	Edumanom	325	Gwiwa Korel	440	Kaugama Motso	556	Maje (East)	671	Okomu	786	Tudun Mani	901	Uwet Odot	1014	Sambisa (proposed)
96	Barburam	211	Efan	326	Hadejia Plantation	441	Kawara	557	Maje (West)	672	Okpara	787	Tufa	902	Vohera		Strict Nature Reserve
97	Bashari	212	Effium	327	Hadin	442	Kaya	558	Maje Abuchi	673	Okpobi	788	Tukan	903	Wafin	1015	Akure
98	Bauni	213	Egbe	328	Hardaali	443	Kazura	559	Maki	674	Okura Iyale	789	Tukoki	904	Wagur	1016	Bam Ngelzarma
99	Bayawa	214	Egbedi Creek	329	Ibadan	444	Keanu Suna	560	Makurdi Fuel	675	Okura River	790	Tukulma	905	Waji	1017	Lekki
100	Bazairam	215	Egguwa	330	Ibaji-Ojok	445	Keffi	561	Maladumba	676	Okuta	791	Turustrajiri	906	Walama	1018	Miliken Hill
101	Beji	216	Ehor	331	Ibi	446	Kenjimiram	562	Malachana	677	Olaque	792	Tuwaru	907	Wamba	1019	Omo (Biosphere Reserve)
102	Belare	217	Ejidogardi	332	Idanre	447	Kesewa	563	Mallamji	678	Old Ogbomosh	793	Tyabo Rokota	908	Wamiri	1020	Urhongbe
103	Benisheikh	218	Ejigbo	333	Idasu	448	Kilboa	564	Mamu River	679	Old Ogbomosh Water Works	794	Ubiaja	909	Wannune		Wildlife Sanctuary
104	Bida (Bornu State)	219	Ejigbobini	334	Idu	449	Kinging	565	Mando	680	Olla Hill	795	Ubbia	910	Wara	1021	Afi Mountain
105	Bida (Niger State)	220	Eksenwan	335	Ile	450	Kir Hill	566	Mando Road North	681	Olle	796	Udo	911	Warwade		
106	Bihri Hills	221	Ekiadolor	336	Ifon	451	Kirfi Hill	567	Mando Road South	682	Ologbo	797	Ugboha	912	Wasagu Sakaba		
107	Birin Gwari	222	Ekiadolor	337	Igangan	452	Kiri	568	Manu	683	Ologholo-Emu-Uh	798	Ugondo	913	Wasami		
108	Birniwa	223	Ekina River	338	Iggi River	453	Kirmin Agyaga	569	Maradun	684	Olokemeji	799	Ujrohi-Ojogba	914	Wawa		
109	Birniwa Railway	224	Eleyele	339	Iguobazuwa	454	Kirmin Nunkuku	570	Marafa	685	Olomu	800	Ukpan	915	Wawagi		
110	Bissaula	225	Eme River	340	Ibugh	455	Kogin Kano	571	Marama Hill	686	Oloyan	801	Ukpe-Sobo	916	Werdawa		
111	Bodor Hill	226	Enugu	341	Ijaive	456	Kogin Zur	572	Marbe	687	Otuwa	802	Ukpilla	917	West Anka		