

**ASSESSING THE INCLUSION OF CRITICAL HABITAT EVALUATION IN NIGERIA'S EIA REPORTS:
A CRUCIAL STEP TOWARDS BIODIVERSITY CONSERVATION AND SUSTAINABLE
DEVELOPMENT**

ABSTRACT

Environmental Impact assessment (EIA) is among globally accepted means to reduce habitat destruction and fragmentation that result to loss of biodiversity. However, non-technical revision of EIA Procedural Guidelines to address emerging environmental concerns and news areas by Federal Ministry of Environment are preventing EIA from meeting above obligation in Nigeria. This study evaluated extent of critical habitat assessment/inclusion in Nigeria`s EIA reports. 100 EIA reports from Manufacturing, Infrastructure, Power, Agric/Roads and Petroleum sectors were assessed using critical habitat evaluation criteria consisting of 20 attributes; adapted from International Finance Corporation`s Guidance Note Six. Results show varying levels of critical habitat inclusion in the EIA reports. **Though** majority of the reports recognised the need for conservation of biodiversity and mitigation measures for reducing habitat fragmentation and restoration in course of project development. **However, majority of the EIA reports evaluated did not deepen habitat screening of project area or adopted any quantification approach. There was no evidence to show that avoidance was deployed as part of mitigation hierarchies; likewise, partnership with conservation organizations to offset residual impacts. Also,** none of the EIA reports suggested modification of project execution option(s) based on EIA outcome. Result of critical habitat inclusion evaluation amongst the sectors, shows mean inclusion scores of Power, (37.2%), Petroleum (36%), Manufacturing (33.7), Infrastructure (27.8%) and Agric/Road (22.8%) with overall mean inclusion of value of 31.7%. ANOVA statistic deployed, showed no significant inclusion difference among the sectors (P -value = .103>.05). Recommendations were made for the use of technology and **capacity building** to enhance critical habitat assessment as part of EIA

Keywords: (Biodiversity loss, EIA reports, Critical habitat inclusion, International Finance Corporation, Procedural guideline, Nigeria).

1. INTRODUCTION

Worried by the skyrocketing habitat destruction and fragmentation leading to loss of biodiversity and as a result of human activities and natural disasters, the United Nations General Assembly declared 2021–2030 as decade for ecosystem restoration with actions to address this concern. The goal is to protect and revitalise ecosystems across the globe to restore natural balance for the attainment of universal and common goals and stop loss of biodiversity[1].

Biodiversity simply put is the varieties and differences between and within plants and animal species in a habitat. **Ecosystem** is the interaction that exist between plants and animals and the environment **whereas** habitat simply is where species live, which can be land, fresh, brackish or saline water area or airways conducive for assemblage of organisms. Examples include forest, grassland, meadow, seashore, sea, and woodland [2]. Thus, critical habitat is an area within a species` span of interaction and endowed with biological, physical, and structural characteristics relevant for the conservation of the species [3]. However, the area may be outside the species` present reach upon a declaration that such places are crucial for the protection of the organism [4].

Critical habitat (CH) is an area rich in biodiversity, considered important to species survival or recovery, whether the species live in those areas presently, existed or stayed in those areas in the past, uses those

47 areas for movement, or for any other reason. It also includes a particular area within a species' span of
48 interaction and endowed with biological, physical, structural characteristics relevant for the conservation
49 of the species [3]. Critical habitat may still be areas outside the species' present reach upon a declaration
50 that such places are crucial for the protection of the organism [4]. From the above explanations one can
51 well see the interrelationship that exist between biodiversity and habitat with respect to species ability
52 to provide or render ecosystem services function.

53 International Finance Corporation (IFC) explained that Critical Habitat are areas suspected to possess
54 high biodiversity value, and considered important to species survival or recovery, whether the species
55 live in those areas presently, previously, uses such areas for movement, or for any other purpose.
56 Such area needs evaluation for Critical Habitat qualifying features. The following five (5) conditions or
57 settings are listed by [5] as areas that qualify for Critical Habitats: internationally or nationally critically
58 endangered or endangered species, Restricted-range or endemic species, Assemblage of migratory
59 and congregatory species, Unique ecosystems and or highly threatened ecosystems. And Important or
60 significant evolutionary processes. Apart from these five criteria, two other features that may qualify an
61 area as critical habitat are, one, legally protected area especially by the International Union for the
62 Conservation of Nature (IUCN) Categories I-IV) and two, high biodiversity value areas like places
63 known for scientific relevance (UNESCO sites) or primary/virgin forests. Therefore, a place merits
64 Critical Habitat designation by meeting any of the above listed (5+2) criteria. Further update can be
65 obtained from [4].

66 IFC [5] introduced Eight (8) Performance Standards for Environmental and Social Sustainability as well as
67 the corresponding Guidance Notes for their implementation. Performance Standard Six (PS6) and it's
68 Guidance Note (updated in 2019) stated that the aim of designating Critical Habitat is to detect and
69 classify places highly rich in biodiversity value, where precaution would need be taken prior to
70 developmental activities due to ecological sensitivities prevalent in such locations. This concept has
71 attracted a lot of interest from and amongst multilateral agencies, financial institutions and banks who
72 have aligned their policies to the requisites of IFC Performance Standard Six (6). The Biodiversity
73 Consultancy [6] noted, that more than Seventy-Five Equator-Principle-Financial Institutions have aligned
74 their processes and commitments to IFC [5] PS6 commitments. IFC is in the business of financing private
75 sector projects to achieve sustainable development especially in third world countries. Currently, Critical
76 Habitat and PS6 is being adopted as a global standard for biodiversity integration in the private sector
77 business

78 Critical Habitat conservation considers global and national significances and stands on the bedrock of
79 conservation principles of irreplaceability (rarity or restricted distribution) and susceptibility (degree of
80 threat). Critical Habitats are in levels of importance, thus not all are equal. The other explanation is that it
81 is a subgroup of modified and natural habitats. Modified habitats are areas containing huge quantities of
82 plants and or animals of non-indigenous source, or where anthropological activities have largely distorted
83 the main biological roles and species structure. Natural habitats on the other hand are places containing
84 diverse indigenous flora and/or fauna species, where anthropological activities have not altered the
85 biological or environmental roles, species structure and morphology [5].
86

87 However, Critical Habitat is not a magic wand to address or resolve biodiversity loss, rather a method for
88 knowing significant biodiversity locations from national and global standpoint. It does not recognize state
89 or local significances or values. For instance, threatened species at state or regional level are not
90 considered as Critical Habitat. Equally, local biodiversity values such as sacred forests and iconic
91 species, are not included as critical habitat as they cannot be identified using the standard method of
92 critical habitat Assessment. However, a developer, should take note of local values and sensitivities
93 through stakeholders' engagement. Critical Habitat cannot be or deployed as a stand-alone or general
94 approach to biodiversity risk assessment [6].
95

96 Hanson et al, [7]Morgera, [8],Stefan et al [9] Hughes et al [10], Brauner et al, [11]provided business
97 case for Critical Habitat Assessment, specifically to forestall further biodiversity loss, environmental
98 degradation/catastrophes through improved business decisions for the management of developments,
99 and supply chain impacts on biodiversity. The authors noted that businesses are now compelled by
100 stakeholders to address biodiversity concerns and impacts in their respective production or distribution
101 lines. This demand is exacerbated by the constant technological breakthroughs on how biodiversity
102 integration and knowledge of ecosystem services can pose risks and opportunities to businesses and
103 society. Nowadays organisations adopt wide-ranging efforts in policies and plans to identify, harness, and
104 address impacts on biodiversity guided by their respective standards, government regulations, voluntary
105 industry sustainable procedures and systems as well as requirements of international financial/funding
106 institutions.
107

108 Apart from the above, as prove of its global acceptance, Convention on Biological Diversity, (at her 11th
109 Conference) enjoined nations and organisations to embrace IFC 2012 standards via integration into the
110 EIA process. The Standard not only sets conditions for biodiversity integration by companies whose
111 projects were funded by IFC, but also provides guidance for projects supported by other funding
112 organisations otherwise called Equator Principle Financial Institutions (EPFIs). Today, IFC PS6 has global
113 influence with its affiliates like African and Asian Development Banks, and EPFIs which cover more than
114 eighty percent of international project financing mostly in developing countries [12]. Critical Habitat
115 assessment and PS6 are now adopted in EIAs as a global best-practice to integrate biodiversity into
116 private sector projects [13]

117 As described by Mmom [14], EIA is a systematic process carried out to assess negative impacts of a
118 proposed project on the environment with the objective of proffering measures to reduce the negative
119 impacts and enhance positive ones. Nwafor [15], pointed out that since the origin EIA in 1969 in the
120 United States of America, it has matured significantly in impact identification, prediction, monitoring, and
121 evaluation. The author noted that EIA has progressed from the implementation of multi-disciplinary and
122 iterative approaches to the consolidation of procedures and processes to address any potential
123 environmental concerns. Thus, by so doing, EIA has now been established as a decision-making tool to
124 manage project risks.

125 In Nigeria, there are laws, regulations, and conventions, at states, national and international levels,
126 governing and requiring the conduct of EIA. FEPA Regulations (derived from EIA Act No. 86, 1992),
127 empowered the then Federal Environmental Agency (FEPA) now Federal Ministry of Environment
128 (FMEEnv) to regulate EIA activities in Nigeria. FEPA in turn, published procedural guidelines and
129 methodologies for the conduct of EIA for certain public or private projects among other environmental
130 protection duties. The conduct of EIA was made mandatory for projects (developments) in the list sectors
131 [16]. Federal Ministry of Environment [17] also provided guidelines for the conduct of EIA for Projects in
132 the manufacturing sector.
133

134 **Stefan et al [8]** reinforced the need for Critical Habitat (CH) inclusion in project development as most
135 times, the anticipated conservation goal under IFC PS6 is no-net-loss of biodiversity. The authors
136 emphasized that this can be achieved by adopting the like-for-like or better still, mitigation hierarchies
137 (avoidance, mitigation, and biodiversity offsets). The authors noted that critical habitats should be
138 determined on a case-by-case basis bearing in mind the irreplaceability and vulnerability paradigm, and
139 be carried out as part of the EIA process.
140

141 Since 2012 stipulations by IFC coupled with Convention on Biological Diversity directives for member
142 countries to embrace the IFC guidelines, other parts of the world have continued to incorporate critical
143 habitat assessment as part and offshoot of their project EIAs especially for gigantic and linear projects
144 that through diverse ecosystems and sensitive areas [18,10,19]. However, it appears this renaissance is
145 yet to fully spread in Nigeria to address biodiversity concerns.

146 Thus, based on the above, this research assessed the level of critical habitat inclusion in the Nigeria EIA
147 reports using the IFC [5] Performance Standard six (PS6) criteria. The objectives are to evaluate the

148 extent of critical habitat inclusion in the selected EIA reports carried out in Nigeria. Two, to determine
149 whether there are differences in critical habitat inclusion amongst the sample sectoral EIA reports. Null
150 hypothesis which stated that there is no statistically significant difference in the sectoral inclusion of
151 Critical Habitat Assessment in EIA reports will be tested.

152
153

154 2. MATERIALS AND METHODS

155 Materials and methods deployed for this study is to enable smooth empirical approach to the evaluation
156 of the level of critical habitat assessment inclusion in Nigeria EIA reports. Thus, exploratory and survey
157 methodologies were used including qualitative and qualitative techniques. It all, one hundred EIA reports
158 from five (5) Nigeria sectors were assessed for this study.

159

160 2.1 Study Area

161 The EIA reports evaluated were carried out respectively across Nigeria six (6) geopolitical areas. In other
162 words, deliberate effort was made to ensure that EIA reports used for this study had national spread
163 (Figure 1 & Appendix A).

164

165 2.2 Selection of Sectoral EIA Reports

166

167 The selected EIA reports used for this assessment were those approved by the Federal Ministry of
168 Environment (FMEnv). They were drawn from sectorial projects listed by Federal Environmental
169 Protection Agency [16] requiring EIA to be carried out prior to their commencement. These projects include
170 those from Infrastructure, Transportation, Quarries, Railways, Drainage and Irrigation, Power generation
171 and transmission, Pipelines, Resort and Recreation, Roads, Land Reclamation, Agriculture, Industry,
172 Housing, Forestry, Airport, Water supply Mining, Petroleum, Wastewater Treatment, Fisheries and Ports.
173 Federal Environmental Protection Agency [16] also gave detailed description of the capacities, varieties
174 and size of these sort of projects that qualify for the conduct of EIA.

175

176 2.3 Sample and Sampling Technique for the Sectoral EIA Report Evaluation

177 EIA reports carried out between years 2012 – 2022 were assessed for this study. They include 20 EIA
178 reports each from Agriculture/Roads, Infrastructure, Power, Manufacturing and Power sectors
179 respectively. Thus, the selected 100 EIA reports are representative EIA reports of Nigeria Projects
180 requiring EIA to be carried out prior to their commencement.



181
 182 Figure1: Nigeria Geopolitical Map. Source: Gayawan et al [17]
 183

184 **2.4 Methods of Data Collection/Instrumentation.**

185 This involves examining relevant sections of the respective EIA reports and scoring them on the Critical
 186 Habitat Assessment Worksheet adapted from IFC [5]with insight fromThe Biodiversity Consultancy [6].
 187 The worksheet or questionnaire is made up 20 questions (Appendix B). In terms of its validity, Equator-
 188 Principles Secretariat, [12]noted that IFC PS6 stipulations has attracted a lot of interest globally from
 189 amongst nations, institutions including multilateral financial institutions and banks who have aligned their
 190 policies to it.

191
 192 **2.5 Method of Data Analysis**

193 Each question was scaled 0 to 1 to be selected as follows: 1 - Moderate to detailed inclusion,
 194 0.5 - Slight to minor inclusion and 0 - No inclusion. The Researcher with support from nominated experts
 195 carried out the assessment of critical habitat inclusion in the selected EIA report as a group activity to
 196 avoid bias and improve objectivity. After the exercise and scoring the respective EIA reports, Critical
 197 Habitat Inclusion Index equationbelow was deployed to obtain the respective index scores.

198 **2.6 Statistics**

199 Critical Habitat Inclusion (CHI) formula below was adopted:

200
 201
$$CHI = \frac{A+0.5B}{N}$$
 Equation 2.1
 202

203
 204 Where A represents number of attributes fully met, B represents number of attributes partially metand N,
 205 Number of attributes (20).
 206

207 **One-way Analysis of Variance (ANOVA)** was further used for analysis to ascertain the level of
208 differences in inclusion amongst the study sectors by calculating the **F-Statistic**. F represents mean sum
209 of squares between the groups divided by mean sum of squares within groups. That is MSB/MSW .
210 Statistical Package for Social Sciences (SPSS) software was used for the Analyses.
211

212 3. RESULTS

213
214 The 100 sample EIA reports were qualitatively examined using the 20 critical habitat (CH) assessment
215 evaluation criteria (Appendix B). Outcome from the respective EIA report evaluated along with the total
216 result for a given sectoral report on no inclusion, slight to minor inclusion, and moderate to detail inclusion
217 are displayed in Appendix C of this research work.
218

219 3.1 Performance of the 100 EIA reports on the 20 evaluation criteria

220
221 **1. Recognition of the need for and focus on the protection and conservation of sensitive**
222 **biodiversity area in the EIA report.** Out of the 100 EIA reports evaluated across the five (5) sectors of
223 the economy, 24 had moderate to detail inclusion of environmental conservation, 41 slights to minor
224 inclusion and 35 non-inclusion. This implies that the number of EIA reports that had slight to minor
225 discussion on protection of sensitive areas are higher in number than those that did not include it in the
226 EIA report. However lesser number of EIA reports particularly those from Power and Petroleum sectors
227 had moderate to detailed emphasis on protection and conservation of the environment in course of
228 project impact prediction.
229

230 **2. Evidence of stakeholder's consultation specifically to understand biodiversity value in the**
231 **project area.** Stakeholder's engagement is crucial in the EIA process right from initiation, screening, site
232 selection scoping, impact assessment, report compilation and reviews, environmental management plan
233 implementation, monitoring, auditing and site closure; including other project interfaces. Thus, in order to
234 have a good understanding of biodiversity and ecosystem values of an area to design appropriate
235 mitigation hierarchies, there is need to have adequate consultation and engagement with relevant
236 resident/community stakeholders. In this research, 27 EIA reports recorded moderate to detailed
237 stakeholder consultation in this regard. Fifty-two (52) EIA reports were assessed to have slight to minor
238 stakeholders' engagement whereas 21 EIA reports did not document any form of biodiversity and
239 ecosystem value related stakeholders' engagement. Results show that this key component of critical
240 habitat assessment is not well captured in the sample EIA reports.
241

242 **3. Further efforts made to deepen the assessment of sensitive project area by the engagement of**
243 **local experts.** Apart from the fact that stakeholder's engagement is a continuous process, it is specifically
244 essential to obtain in-depth information from the locals and experts in the project's area of influence.
245 Thus, in the evaluation carried out on above, only 21 EIA reports engaged complete suite of local experts
246 to scope and assess sensitive locations. Thirty-three (33) EIA reports engaged one or two experts for the
247 purpose, whereas greater number of 46 EIA reports failed to show evidence of engagement of local
248 experts to deepen critical area assessment or information on sensitive area assessment is scanty. Large
249 number of non-involvement of local experts to deepen habitat assessment showcase the value placed on
250 critical habitat assessment.
251

252 **4. Description of habitat with significant importance to critically endangered and/or endangered**
253 **species in the EIA report.** Out of 100 EIA reports evaluated, 25 documented critically endangered and
254 endangered species in their respective project areas. Twenty-one (21) EIA reports partially described them
255 (that is, they were either mentioned in few sentences or mixed with other details in one paragraph. A
256 whole lot 54 EIA reports did not document this element. Majority of the EIA reports that recorded the
257 above aspect in the assessment were those with stint of international exposure mainly in the Petroleum
258 and Power sectors projects that mostly source external project funding. Majority of the EIA reports from

259 Power and Petroleum sectors reviewed were prepared to meet international standards. However, the
260 number of positive response (25 out of 40 samples in both sectors) is not encouraging, suggesting that
261 even in power and petroleum sectors, assessment of critical and critically endangered species was not
262 well documented.

263

264 **5. Description of habitat(s) with significant importance to endemic and/or restricted range of**
265 **species in the EIA report.** Only 15 EIA did moderate to full evaluation of the project location. Thirty-seven
266 (37) EIA reports included this to some extent in their respective EIA reports, particularly endemic species
267 prevalent in the project area. Restricted range species was discussed only in one EIA report. However, 48
268 EIA reports did not capture these at all as part of baseline line environmental conditions. This
269 buttresses the status of Nigeria EIA reports against international requirements.

270

271 **6. Description of habitat(s) supporting globally significant concentration of migratory species**
272 **and/or congregatory species in the EIA report.** Poor reporting of these criteria was recorded in the
273 sample EIA reports evaluated as only 8 EIA reports documented full to moderate inclusion of this element.
274 Fifteen (15) report passively mentioned it in one or few sentences and in others, information was not
275 specific to enable confirmation of inclusion. However, 77 EIA reports recorded non-inclusion of this
276 parameter. These really fall short of requirements, which may mean that assessment of this criterion in
277 Nigeria EIAs is suboptimal, or EIA reports evaluated have no need for this attribute.

278

279 **7. Description of highly threatened and/or unique ecosystems.** In the above instance, 14 EIA reports
280 showed inclusion of this requirement. 25 EIA reports had partial inclusion whilst the greater number of 61
281 had did not document this aspect. Higher number of non-inclusion in EIA reports reflect the importance
282 placed on this requirement by IFC Critical Habitat Assessment suit of criteria. Though there were a
283 number of unique ecosystems especially in the Niger Delta areas, EIA report of projects in the area
284 evaluated did not classify the environment with the above feature. This could probably be due to lack of
285 information to substantiate evidence or lack of assessment on the part of EIA report writers due to some
286 limitations (such as time, budget, resources).

287

288 **8. Description of areas associated with key evolutionary processes.** Only 1 EIA report elaborated
289 this, whereas 3 partly mentioned it in the EIA report. A whole lot of 96 reports did not capture it at all.
290 Apparently, it is either no such project area was identified in the sample EIA reports or the EIA report
291 preparers did not factor the criteria in the assessment.

292

293 **9. Description or highlight of any recognised high biodiversity values that might also support any**
294 **critical habitat designation.** Thirty-one (31) EIA reports had moderate to full inclusion of this
295 requirement. Twentynine (29) EIA reports partially included the requirement, whereas 42 EIA reports did
296 not include this. It is either this parameter was not considered or there was lack of knowledge of the
297 requirements. Also, it may have been deemed irrelevant to be included in the EIA reports. Biodiversity
298 values captured in the EIA reports were mainly flora listing and their economic, ethnobotanical, social and
299 health importance/ uses, with few mentions of fauna species revered and some others used as totems in
300 some climes.

301

302 **10. Quantification of critical or endangered species in the Project area.** Twenty-nine (29) EIA report
303 had moderate to full inclusion of this, with 34 EIA report partially/slightly capturing it too. However, a
304 greater number of 37 EIA report did not include this in the EIA report. The sketchy and missing
305 information hinders impact prediction and mitigations thus exposes the need for thorough baseline
306 assessment.

307

308 **11. Spatial map(s) drawn to evaluate the effects on critical habitat to enable quantification above.**
309 Out of the 100 EIA reports assessed for this study, only 12 showed inclusion of this requirement. 18 had
310 partially requirement on this, whereas a larger number of 70 of EIA reports did not capture this in the EIA

311 report. Maps seen in the EIA reports evaluated only showed project location without indicating any
312 biodiversity sensitive information or nearness to existing projects.
313

314 **12. Recommendation(s) aimed at cushioning impacts of biodiversity through identification of and**
315 **protection of set asides.** Setasides are similar to avoidance measures essentially deployed to enhance
316 conservation initiatives [5]. Out of the 100 EIA reports evaluated for this study, only 11 showed inclusions
317 of this requirement. Twenty-seven (27) reports partially met the requirement whereas a larger number of
318 62 EIAs did not capture this in their reports. It is insightful to state that avoidance remains the first effort in
319 the mitigation hierarchies and expected to be given foremost consideration, but this was not
320 demonstrated in majority the EIA reports evaluated.
321

322 **13. Implementation measures aimed at minimising habitat fragmentation such as biological**
323 **corridors.** IFC [6] emphasized the need for the design of mitigation measures (such as biological
324 corridors) to reduce habitat fragmentation leading to loss of biodiversity and habitat degradation due to
325 access to pristine areas. Eighteen (18) EIA report acknowledged and provided mitigations in this regard
326 whilst 44 others partially/slightly included this in their reports. However, greater number of 38 failed to
327 capture/incorporate, discuss and provide mitigations to address this attribute in the EIA reports, even as
328 this attribute is pervasive in all regions irrespective of ecosystems.
329

330 **14. Quantification of residual impacts on critical habitats.** Offsets are deployed to compensate
331 residual impacts. This research witnessed limited quantification of residual biodiversity impacts as only 6
332 EIAs moderately/full included this in their report compilation whereas 33 partially included it. However,
333 greater number of 61 did not embrace this in their EIA reports. The importance of quantification of residual
334 impacts cannot be overemphasized due to its usefulness in the development of viable offsets.
335

336 **15. Recommendation for reinstating loss or impacted biodiversity to reduce risks to changes in**
337 **Biodiversity to as low as reasonably practicable.** As reasonable and important this may sound, in the
338 area of impact management, only 28 of the EIA studies reports evaluated recorded its inclusion. 52 EIA
339 report partially included it, leaving 30 reports that failed to carry this onboard. IFC [6] stipulated that
340 irrespective of prospects, proponents should design and implement mitigation measures that will
341 guarantee a-no-net-loss to biodiversity where possible through a combined application of onsite and
342 offset mitigation measures.
343

344 **16. Biodiversity compensation recommendations following the approaches.** As noted elsewhere
345 compensation can be offsets in form of *in-situ* or *ex-situ* conservation of priority plants or animal species
346 adjudged as threatened or rare. In the above instance, only 12 moderate/full responses were recorded
347 from the evaluated EIA reports. Thirty (30) EIA reports partially included this whilst 60 EIA reports did not
348 capture this in the report.
349

350 **17. Recommendations for restoring lost habitats during operations and /or after operations.** This is
351 among the very essence of carrying out EIA. Thus, a dedicated Biodiversity Action Plan or one integrated
352 with Project Environmental Management Plan, action parties and monitoring protocols for its
353 implementation are essential. Also important are evaluation plans, budget, process for implementation,
354 and sets of monitoring indicators [6]. Twenty-one (21) EIA reports had moderate/full inclusion on this.
355 Forty-three (43) had partial inclusion whilst 36 reports failed to incorporate this. It could be assumed that
356 where recommendations were not made concerning this (Action Plan) is where EIA is seen as an end and
357 not means to an end. This is where no further action was required after securing EIA Approval.
358

359 **18. Recommendations for partnering either by way of funding support or advocacy for nature**
360 **conservation.** Usually most project proponents partner with conservation organisations for expert support
361 and collaboration on biodiversity conservation. However, out of the EIA reports evaluated, only
362 2 moderately/fully recognised the need for expert partnership, support and advocacy. Thirteen
363 (13) reports partially did that whilst 85 number were silent on this. Conservation is noted as a way of

364 offsetting residual impact, but the opportunity was not exploited by majority of the EIA reports evaluated in
365 this study.

366
367 **19.Recommendations to support alternative sources of income for stakeholders that depend on**
368 **the habitat resources for subsistence and livelihood.**This is usually a component of Biodiversity
369 Action Plan and very crucial in the application of mitigation hierarchies. Out of the evaluated EIA reports,
370 only one (1) captured the value and need for this attribute, whilst 24 reports partially did that. Seventy-five
371 (75) failed to capture this irrespective of obvious understanding that people are at the centre of any
372 sustainable biodiversity conservation.

373
374
375 **20.Recommendations made for modifications of project design and footprint based on**
376 **assessment outcome.**This attribute attracted 3 moderate/full inclusion and 28 partial inclusions. Sixty-
377 nine (69) EIA reports did not document this.This could mean that information about this is lacking since
378 many EIA Proponents or Project Owners contract out EIA studies without providing full project
379 background information. EIA outcome is supposed to be among considerations for project siting, including
380 design, and execution options. Results obtained does not speak to this as it appears that sites and
381 designs were already decided before EIAs were carried out. In a way, this is confusing because EIA is
382 usually prepared on a firm /frozen scope and cannot be carried without a known Project scope and
383 location. However, this negates the objectives of EIA which is to guide project development towards
384 environmental protection and conservation. None of the reports evaluated documented modification of a
385 project due to recommendations of the EIA report.

389 3.2 Assessment of the sectoral EIA Reports

390
391 To further assess performance of the 5 sectors on Critical Habitat inclusion, Critical Habitat Index formular
392 (noted in section 2.6) was deployed to arrive at the index score for each of sectors with results shown in
393 Table 1. The highest critical habitat index score of 0.88 was recorded in the Power sector whilst the least
394 critical habitat Index score of 0.1 was recorded in Agric/Road sector. However, Figure 2below shows
395 mean critical habitat inclusion scores of all the studied sectors. The results recorded in Figure 2 revealed
396 that Power sector has the highest critical habitat inclusion followed by Petroleum, Manufacturing,
397 Infrastructure sectors respectively while the Agriculture/Road sector recorded the least inclusion.

400
401 Table 1. Sectoral Critical Habitat Index Scores

S/N	Power	Petroleum	Agric/Roads	Infrastructure	Manufacturing
1	0.73	0.6	0.1	0.13	0.18
2	0.43	0.3	0.1	0.28	0.15
3	0.15	0.05	0.1	0.08	0.33
4	0.18	0.35	0.15	0.2	0.28
5	0.48	0.13	0.18	0.25	0.03
6	0.1	0.08	0.08	0.05	0.63
7	0.65	0.63	0.2	0.33	0.43
8	0.13	0.62	0.3	0.5	0.43
9	0.45	0.58	0.45	0.18	0.4
10	0.23	0.58	0.18	0.18	0.08
11	0.23	0.55	0.05	0.23	0.65
12	0.1	0.45	0.3	0.4	0.55
13	0.4	0.3	0.13	0.3	0.3

14	0.63	0.08	0.4	0.7	0.1	402
15	0.6	0.23	0.13	0.23	0.3	403
16	0.18	0.23	0.8	0.3	0.5	
17	0.2	0.2	0.3	0.3	0.08	404
18	0.25	0.3	0.1	0.2	0.4	405
19	0.88	0.43	0.33	0.52	0.43	
20	0.43	0.5	0.18	0.2	0.4	406

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Figure 2. Mean scores of Sectoral Critical Habitat Inclusion on EIA

416 In a similar vein, Table.2 shows percentage Critical Habitat Inclusion in EIA Reports across the respective
417 sectors. The overall Critical Habitat inclusion in EIA Reports in Nigeria found to be about **31.47%**.

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Table 2: Percentage inclusion of Critical Habitat in Nigeria EIA Reports

S/N	Sector	Critical Habitat
1	Power	37.15
2	Petroleum	35.95
3	Manufacturing	33.65

4	Infrastructure	27.8
5	Agric/Road	22.8
Total		31.47

421

422 Following confirmation of normality of data set to be used (that is Table 1), Table 3 shows the results of
 423 the analysis of variance (ANOVA) statistics deployed to investigate whether there is a significant
 424 difference between the critical habitat inclusion index among the five sectors considered in this study. P-
 425 value from the Table is 0.103 which is greater than 0.05 significance level, which means there is no
 426 statistically significant difference in the critical habitat inclusion index among the five-sector
 427 considered. Therefore, there is no need to carry out post-hoc analysis since we have already ascertained
 428 that the critical habitat inclusion indices of these sectors are similar. However, further test via
 429 homogeneity of variance still confirmed no significant difference. Therefore, null hypothesis which stated
 430 that there are no statistically significant differences amongst the sectors in the inclusion of CH
 431 Assessment in EIA reports is accepted. Thus, alternative hypothesis is rejected.

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439 **Table 3: ANOVA results of the difference in Critical Habitat Inclusion Index score amongst the five**
 440 **sectors**

	Sum of Squares	df	Mean Square	F	p-value.
Between Groups	0.288	4	0.072	1.985	0.103
Within Groups	3.448	95	0.036		
Total	3.736	99			

441

442

443 4. DISCUSSION

444 This study evaluated the extent of Critical Habitat assessment inclusion in EIA Reports executed in
 445 Nigeria, using International Finance Corporation (IFC) [5] Performance Standard (PS6) criteria. Result
 446 shows the following moderate to detail and slight to minor responses on the Critical habitat inclusion
 447 index:

- 448 1. Recognition and focus on the protection and conservation of sensitive biodiversity Project areas.
- 449 2. Stakeholder's consultation specifically to understand biodiversity value of the project area.
- 450 3. Quantification of critical or endangered species in the Project area.
- 451 4. Implementation measures to minimize habitat fragmentation such as biological corridors.
- 452 5. Recommendations for restoring habitats during operations and /or after operations.

453

454 In the same vein, the following areas were not well described in the EIA reports reviewed:

- 455 1. Further efforts made to deepen the assessment of sensitive project area by the engagement
 456 of local experts after the conduct of initial EIA study.

- 457 2. Where applicable, explication of Habitat of significant importance to critically endangered
- 458 and/or endangered species.
- 459 3. Highlight of recognised high biodiversity values that might also support any critical habitat
- 460 designation
- 461 4. Description of habitat of significant importance to endemic and/or restricted range of species.
- 462 5. Description or mention of habitat supporting globally significant concentration of migratory
- 463 species and/or congregatory species.
- 464 6. Description of highly threatened and/or unique ecosystems.
- 465 7. Description of areas associated with key evolutionary processes.
- 466 8. Spatial map(s) drawn to evaluate the effects on critical habitat to enable quantification above.
- 467 9. Recommendation aimed at avoiding impacts on biodiversity through identification of and
- 468 protection of set asides.
- 469 10. Quantification of residual impacts on critical habitats.
- 470 11. Biodiversity compensation recommendations following the approaches.
- 471 12. Recommendations made on modifications of project design and footprint based on
- 472 assessment outcome.
- 473

474 **Statistical analysis of the** research findings shows varying mean inclusion of Critical Habitat in Nigeria`s

475 sectoral EIA Reports sampled for this Study. Power sector (37.15%) has the highest critical habitat

476 inclusion followed by Petroleum (35.95%), Manufacturing (33.65%), Infrastructure sectors (27.8%) and

477 Agriculture/Road sector (22.8%).The national critical habitat inclusion in Nigeria`s EIA Report is found to

478 be 31.47% of global requirement.From the percentage result of 5 sectors above, higher performance of

479 Power and Petroleum sectors can be attributed to their stint with Equator-Principle-Banks/Institutions who

480 often require organisations approaching them for project financing to tailor such Project EIA reports to

481 include critical habitat assessment and other IFC [5] Performance standards in other to mitigate

482 associated Project risks. Project risks stall and/or delays project execution thereby impacting schedule

483 and smooth return of borrowed funds. To forestall this, funding institutions carry out occupational health,

484 environmental management and social performance due diligence to assuage the risks and by so doing,

485 contribute to sustainable development. On the other hand, agriculture and roads sectors are usually

486 nationally or state funded (either from borrowed or generated revenue) and at best seen as beneficial

487 projects. Beneficial projects by regulatory standard undergo less rigorous scrutiny in the EIA process. This

488 could account for lack or limited integration of critical habit assessment in their EIA Reports.

489

490 **However,**ANOVA statistic deployed affirmed statistically that there is no significant difference in critical

491 habitat inclusion amongst the sectors.**Implication of the** results is that all the sectors and by extension

492 Nigeria EIA reports do not properly integrate critical habitat assessment in line with the evaluation criteria

493 used for this study.The poor integration of critical habitat assessment in the EIA reports can be adduced

494 to lack of awareness and knowledge on the part of EIA Practitioners and Proponents. Nigeria EIA

495 guidelines are yet to provide detailed requirements for critical habitat assessment. There are also cost

496 implications to the endeavour and proponents often insist on doing what is in the regulation in place of

497 what is even in the guidelines **talkless** of doing what is not in the law or guideline.

498

499 Therefore, much is required to bring Nigeria EIA reports to global standards in the area of habitat

500 assessments, via enabling laws and enforcements in course of project development. Critical on this are

501 projects envisaged to have huge impact, high magnitude and widespread, crisscrossing different

502 ecosystems and habitats.

503 This study supported Hughes et al [10] works on importance and relationship of biodiversity and

504 ecosystem functions in the design of habitat restoration though the authors noted that the way biodiversity

505 has been integrated into restoration practice remained vague but can be improved upon.

506

507 It also supported Stefan et al [9] work. Here, the authors stated that proponent or client are required to

508 evaluate environmental and social risks on the basis of the stipulations of IFC Performance Standards

509 one to eight. Performance Standard Six (PS6); and its Guidance Note 6 [4], concentrated on the

510 conservation of biodiversity. The anticipated conservation goal under PS6 is to achieve no-net-loss of

511 biodiversity value. Where a project is located in a critical habitat, a net gain in biodiversity value is
512 essential. A thorough critical habitat assessment is required to achieve a-net-gain on biodiversity, via the
513 adoption of mitigation hierarchies order of Avoidance >Minimization > Restoration > Offsetting [5]
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515
516

5. CONCLUSION

517

518 This study, explained the critical habitats, assessments and business case for its inclusion in EIAs which
519 provided background for the evaluation of critical habitat inclusion in the sectoral EIA reports in Nigeria.
520 Using the Critical Habitat Inclusion Criteria adapted from the IFC [6], and further evaluation with Critical
521 Habitat Assessment Index, this study found that the mean critical habitat inclusion on EIA reports in
522 Power sector is 0.3717, Petroleum 0.3595, Manufacturing 0.3325, Infrastructure 0.278 and Agric/Road
523 0.228. Overall mean critical habitat inclusion is 31.47% in Nigeria. ANOVA statistic deployed after
524 confirmation of normality distribution of data set shows no statistically significant difference existing
525 amongst the evaluated sectors in critical habitat integration. Table P-value (0.103) which was greater than
526 0.05 significance level confirmed this. The findings suggested that more efforts are required in Nigeria to
527 improve and integrate Critical Habitats in EIA studies. This effort will help to reveal sensitive habitats in
528 proposed project areas and devise mitigation strategies to protect, preserve enhance species wellbeing
529 and their ecosystem services. It will also enable projects demonstrate no net loss of critical habitats and
530 promote net positive impact to biodiversity.

531

532 This study recommends that Critical Habitat assessment be enshrined in the EIA process in Nigeria
533 particularly for category 1(One)EIAs. Training and capacity building including the use of technologies
534 (computer tools) on Critical Habitat Assessments be organised by the FMEEnv with support from expert
535 institutions where necessary. Above will improve biodiversity conservation to achieve sustainable project
536 development.

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LIST OF APPENDICES

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Appendix A: Sample EIA Reports selected and evaluated for this study

S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
1	150 Mega Watts Gas Powered Plant with Expansion option to 500 Mega Watts.	Ozoroda, Delta State.	Power	2016	Proton Energy Limited
2	500 Mega Watt Gas Power Plant	Gaube Community, Kuje Area Council, Abuja	Power	2021	Jebeta Nigeria Limited
3	Transmission Lines with Associated Substations Project (Lot 2).	Lagos and Ogun States	Power	2018	Transmission Company of Nigeria Limited
4	200km x 330kv DC Transmission Lines, Substations and Facilities Project.	Jos to Kaduna	Power	2017	Transmission company of Nigeria Limited
5	Transmission Lines with Associated Substations Project (Lot 3).	Lagos and Ogun States	Power	2019	Transmission Company of Nigeria Limited
6	Liquefied Natural Gas (Mini) and Compressed Natural Gas Plant.	Ajankuta, Kogi State.	Power	2019	Appela Limited and Nigerian Gas Marketing
7	80 Megawatts Solar Photovoltaic Plant.	Duste LGA, Jigawa State.	Power	2016	Nova Scotie Power Development Limited
8	Field Development Project.	Enyhe, Bayelsa State	Petroleum	2018	Shell Petroleum Development Company Ltd
9	EA and EJA Fields Further Oil Development.	OML 79, Shallow Offshore, off the Coast of Bayelsa State	Petroleum	2016	Shell Petroleum Development Company Ltd
10	Modular Refinery Project.	Gbarasutu Kingdom, Delta State	Petroleum	2017	Gbarasutu Oil and Gas Producing Trust Fund
11	Iseni Wells Early Hookup to Domestic Gas Project.	Sagbama and Ekeremor LGA of Bayelsa State as well as Patani LGA of Delta State.	Petroleum	2017	Shell Petroleum Development Company Limited

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
12	Umuseti and Igbuku Further Field Development.	Umuseti and Igbuku (OML 56), Ndokwa West LGA, of Delta State.	Petroleum	2020	Pillar Oil Nigeria Limited
13	Preosayi Field Development Drilling and Production Operations	Oil Mining Lease (OML) 130, Deep Offshore	Petroleum	2020	Total "E" and "P" Nigeria Limited
14	3D Reshoot Seismic Data Acquisition Project	Adibawa - Gbaran in Bayelsa and Rivers States.	Petroleum	2015	Shell Petroleum Development Company Limited
15	Associated Gas Solution (AGS) Project	Onumara, Warri South LGA, Delta State.	Petroleum	2015	Shell Petroleum Development Company Limited
16	Field Development Project	Ugu, Yenagoa LGA, Bayelsa State	Petroleum	2018	Shell Petroleum Development Company Limited
17	NLGN Train 7 Project	Bonny, Rivers State	Petroleum	2019	NLNG, Limited.
18	Exploration and Appraisal Wells,	Bonny, Rivers State	Petroleum	2019	Shell Petroleum Development Company Limited
19	Fertilizer Blending Plant	Funtua, Katsina State	Agric/Road	2019	Greentide Agro Services Limited.
20	Okomo Palm Oil Mill Expansion Project	Ovia South-West Local Government Area, Edo State.	Agric/Road	2020	Okomo Oil Palm Company Limited
21	Batum Farms,	Kano, Kano State	Agric/Road	2018	Kano State Government
22	Bifam Farms	Kano, Kano State	Agric/Road	2019	Bifam Limited Kano
23	Fertilizer Blending Plant Project	Kalambains, Wamakko LGA, Sokoto State	Manufacturing	2021	OCP Africa Nigerian Limited

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
24	Assa North, Ohaji South Gas Development Project (Pipelines).	Ohaji/Egbema, LGA of Imo State and Ogba/Egbema/Ndoni, LGAs of Rivers State.	Petroleum	2016	Shell Petroleum Development Company Limited
25	Soku Gas Plant to San Barth Manifold Pipeline Project.	Akuku Toru LGA, Rivers State	Petroleum	2013	Shell Petroleum Development Company Limited
26	NOPL to Indorama Gas Supply Tie-In Point Project.	Ukwa West LGA of Abia State, Oyiabo, and Eleme LGAs of Rivers State,	Power	2020	Total E & P Nigeria Limited
27	Power Plant and Gas Pipeline Project.	Ukanafun - Oma, Akwa-Ibom State.	Power	2016	Accugas Limited
28	Calabar- Adanga Pipeline.	Cross Rivers State	Power	2013	Niger Delta Power Holdings Company/NIPP Calabar
29	Sagamu LDZ Natural Gas Pipeline Network Construction Project.	Ibafun LGA of Ogun State	Power	2020	Transit Gas Nigeria Limited
30	Ebonyi State Ring Road.	Ebonyi State	Agric/Road	2018	Ebonyi State Govt
31	Jakara Rivers Road.	Kano, Kano State	Agric/Road	2013	Kano State Ministry of Works, Transport and Housing
32	Calabar - Ikoum - Katsina Ala Superhighway Project.	Cross Rivers and Benue States	Agric/Road	2016	Cross River State Government
33	Abuja Technology Village.	Federal Capital Territory, Abuja.	Infrastructure	2015	Federal Ministry of Industry, Trade & Investment Abuja
34	Solar Power Plant.	Kankiya LGA, Katsina State.	Power	2015	Nova Solar 5 Farms Limited
35	Steel Manufacturing Plant and Construction of 1.3km x 132kv Power Transmission Line.	Ukwa West L.G.A., of Abia State.	Manufacturing	2016	Inner Galaxy Steel Company Limited.

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
36	Tyre Recycling Plant.	Km 10, Ibadan-Abeokuta Express Road, Apata, Ibadan, Oyo State.	Manufacturing	2020	Freetown Waste Management & Recycle Limited.
37	Port Facility.	Kirikiri, Amuwo-Odofin LGA, Lagos State	Infrastructure	2020	BESTAF Marine Service Limited.
38	Automotive Biomass Ethanol Project	Okeluse, Ondo State	Manufacturing	2020	NNPC
39	National Information and Communication Technology Infrastructure Backbone (NICTIB) Project.	FCT-South-West States	Infrastructure	2015	Huawei Technologies Co., Nigeria Limited
40	Proposed Steel Pipe Threading and Valve Assembly Facilities and Related Activities.	Lekki Free Zone in Ibeju Lekki LGA of Lagos State.	Manufacturing	2020	Bell and Gas FZE
41	Pipeline Construction	OMLs 56 and 26	Petroleum	2012	Midwestern / Unuigini Asset (Nigeria) Company Limited
42	Utapete Field Development by NPDC	Eastern Obollo, LGA, Akwa Ibom State	Petroleum	2020	Nigeria Petroleum Development Company
43	HI Field Development	OML 144, Shallow Offshore	Petroleum	2021	Sunlink Nigeria Limited
44	Gas Processing Facility with Liquefied Natural Gas (LNG) Plant	Gilli-Gilli Field, Ovia Northeast LGA, Edo State	Petroleum	2021	VTT LNG West Africa Limited
45	Pipeline, GPU, LPG, IPP, Petrochemical and Lube Plants	OML 143, Delta State	Petroleum	2019	Sterling Oil Exploration and Production Company Limited (SEPCO)

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
46	Etoko Refineries	OML 56, Delta State	Petroleum	2019	Etoko Energy Plc
47	Edo Modular Refinery.	Edo State	Petroleum	2015	Edo Refining and Petrochemical Nigeria Limited
48	Construction & Establishment of 18" X 60km Natural Gas Pipeline Project.	Ogere - Ibadan Tollgate, Oyo State	Power	2022	NIPCO Gas Limited
49	108km Benin to Delta Transmission Line and 330kv Double Circuit Quad Conductors Project	Delta and Edo States	Power	2020	Transmission Company of Nigeria Limited & African Development Bank
50	138 km X 330kv Single Circuit Transmission Line to 330kv Double Circuit Quad Conductors	Alaaji to Onitsha, traversing Abia, Imo and Anambra States	Power	2020	Transmission Company of Nigeria Limited & African Development Bank
51	100mw Solar Independent Power Plant and 18 KM Transmission Line Project.	Ganiuwa LGA Bauchi State	Power	2017	Nigeria Solar Capital Partners/Globeleq/ARM Harith Consortium
52	Ukanafun - Calabar Gas Pipeline	Akwa Ibom & Cross Rivers States	Power	2016	Nigeria National Petroleum Corporation (NNPC).
53	505 Gas Combined Cycle Power Plant and related infrastructure.	Ikwak Abak LGA, Akwa Ibom State	Power	2016	Thompson and Grace Investment Limited
54	Joint Venture Power Plant	Eket LGA, Akwa Ibom State	Power	2012	Exxon Mobil
55	275 MW Power Generating Plant	Oluyole LGA Along Lagos Ibadan Express Way Oyo State	Power	2012	Entec Power and Utilities Limited Ibadan,
56	Akure - Ilesha Road Rehabilitation Project,	Ondo State	Agric/Road	2012	Federal Ministry of Works

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
57	CICO- POLO-, Farms, Estate/Life Camp Infrastructure	Ehocha, Ogba/Idoni LGA of Rivers State	Agric/Road	2021	Polo-Cico Farming and Estate Ltd
58	Iyin/Ado/Ekiti Dual Carriageway Project.	Ado Local Government Area, Ekiti State	Agric/Road	2020	Ekiti State Government
59	Agro Processing Productivity Enhancement and Livelihood Improvement Support Project	Enugu State.	Agric/Road	2021	Agro Processing Productivity Enhancement and Livelihood Improvement Support (APPEALS) Project, Enugu State Co-ordination Office.
60	Eganyi - Ikura - Baro Rail Link Project.	Kogi, Niger States and FCT.	Agric/Road	2013	Federal Ministry of Transport
61	Construction of Agro-Cargo Terminal and Warehouse.	Bodosa, Sokoto State	Agric/Road	2022	Sokoto State Government
62	Bodo - Bonny Road Project, Rivers State	Gokana and Bonny LGAs, Rivers State	Agric/Road	2018	Federal Ministry of Works
63	Mafa Rice Mill Limited, Km 11, Hadeja Road, Kano.	Kano State	Agric/Road	2020	Mafa Rice Mill Limited
64	25km Kilometer Saimbaki to Kwara Road/	Nasarawa State	Agric/Road	2021	Nasarawa State Govt
65	Gadon Kaya UnderPass Bridge and Roads.	Kano State	Agric/Road	2013	Kano State Government

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
66	Second River Niger Bridge across, Asaba and Onitsha.	Across Delta & Anambra States	Agric/Road	2014	NSIA Motorways Investment Company and Julius Berger Nigeria Limited, Abuja.
67	Improved Breeding, Beef, Milk Production, and Pasture Development for Enhanced Productivity of Indigenous Cattle.	Sokoto State	Agric/Road	2021	Sokoto State Government
68	Priority Value Chains of Rice, Wheat and Tomato.	Kano State	Agric /Road	2021	Agro Processing Productivity Enhancement and Livelihood Improvement Support (APPEALS) Project, Kano State Co-ordination Office.
69	Saipem Fabrication Yard, Workshop and Accommodation.	Bunuoluneni Obio/Akpor LGA, Rivers State	Infrastructure	2014	Saipem Contracting Nigeria Limited.
70	Obudu Cargo and Passenger Airport.	Obudu Local Govt Area	Infrastructure	2020	Cross River State Government
71	Afexim Bank Africa Trade Centre (AATC).	FCT, Abuja	Infrastructure	2020	Afexim Bank
72	Amfani Industrial Park and Smart City, 1000Ha.	Magama LGA, Niger State	Infrastructure	2021	Hydropolis Investment Limited (HIL) /Mainstream Energy Solutions Limited (MESL).
73	Ondo Deep Sea Port	Ondo State	Infrastructure	2020	Ondo State Development & Investment Promotion Agency.
74	Bonny Deep Sea Port Project.	Bonny Island, Bonny LGA of Rivers State	Infrastructure	2020	Federal Ministry of Transportation.
75	Eko Atlantic Phase 1, Shoreline Protection and Reclamation Project.	Lagos State	Infrastructure	2012	South Energyx Nigeria Ltd (SENL).

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
76	The Proposed Construction and Establishment of Multipurpose Crusade Ground.	Aseese Community, Ogun State	Infrastructure	2022	BLW Nigeria Limited
77	Lafia Cargo Airport	Gwandara, Lafia LGA, Nasarawa State	Infrastructure	2020	Nasarawa State Govt
78	Ebonyi State International Olympic Stadium	Abakiliki LGA, Ebonyi State	Infrastructure	2020	Ebonyi State Government
79	Lekki Tolaram Port and Power Plant	Lekki, Lagos State	Infrastructure	2012	Lekki Port and the Lagos Free Trade Zone (LFTZ)
80	Naho Dockyard Infrastructure Project,	Takwa Bay, Lagos	Infrastructure	2015	Naho Nigeria Limited/Dee Jones
81	Ebonyi International Airport	Erza North and South	Infrastructure	2012	Ebonyi State Government
82	ITE Airstrip	Tunga District, Awe, Nasarawa State	Infrastructure	2022	Tungly Nigeria Limited
83	Nestoil Operations Base	Abuloma, Port Harcourt City LGA	Infrastructure	2015	Nestoil PLC
84	Port Harcourt Industrial Park	Uhinu, Ikwerre LGA	Infrastructure	2020	Federal Ministry of Transportation
85	Brass Island Shipyard at Brass	Brass LGA, Bayelsa State	Infrastructure	2021	Nigeria Content Development and Monitoring Board
86	Textile and Garments Industrial Park	Lekki, Lagos	Manufacturing	2020	Nigeria Export Processing Zone Authority
87	Lad Group Sheanut Factory Expansion.	Ikenna LGA, Ogun State	Manufacturing	2020	LadGroup Limited

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
88	400,000 Unites Per Annum Type 3 Composite LPG Cylinder Manufacturing Plant.	Bolaku, of Bayelsa State	Manufacturing	2020	RunGas Prime Industries
89	50,000 Liters of Oil Blending Plant	Yenagoa, Bayelsa State	Manufacturing	2021	Eraskon Nigeria Limited
90	Franemm Industries Limited	Plot 9-13 Riverview, Lagos -Ibadan Expressway Isberi in Ifo LGA of Ogun State.	Manufacturing	2020	Franemm Industries Limited.
91	Wood Processing Factory.	Sapele LGA of Delta State.	Manufacturing	2020	Woodland Nigeria Limited.
92	Bua Cement Plant Lines 4 and 5 Expansion.	Sokoto State	Manufacturing	2021	Bua Cement Plc
93	Sugar Mill	Gain Chiroma, Gagarawa, Jigawa State.	Manufacturing	2020	Great Northern Agribusiness (GNA).
94	Nakudu Tinnery Limited,	Kano, Kano State	Manufacturing	2018	Nakudu Tannery
95	Salasar Enterprises Limited, Kano	Kano, Kano State	Manufacturing	2016	Salasar Limited
96	Dangote Cement and Air Strip	Oknella, Etsako East LGA of Edo	Manufacturing	2019	Dangote Cement PLC
97	Vee Oil Resources Limited Oil Blending Plant, Kano	Kano State	Manufacturing	2018	Vee Oil Resources Limited

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S/N	TITLE	LOCATION	SECTOR	YEAR	PROPONENT
98	6000 Clinker Cement Plant with Power Plant	Nkalagu, Ebony State	Manufacturing	2016	Ibeto Cement Company Nigeria Limited
99	Industrial Complex comprising Sugarcane, Sugar, Vegetable Oil, Cassava Tuber Processing	Jamata along Lokoja - Abuja Road, Lokoja in Kogi State	Manufacturing	2016	Unicane Industries Limited
100	Proposed Agrochemical Packaging and formulation Plant.	Ibafé, Ogun State	Manufacturing	2016	Harvest field Industries Limited

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Appendix B: Data Collection Instrument

Questionnaire for Evaluating Critical Habitat inclusion in Sample EIA Reports using International Finance Corporation (IFC) Performance Standard (PS6) Criteria

S/N	Description of Biodiversity Value
1	Were there recognition of the need and focus on the protection and conservation of a sensitive biodiversity Project area in the EIA report?
2	Were there evidence of stakeholder's consultation specifically to understand biodiversity value of the project area?
3	Were there further efforts made to deepen the assessment of sensitive project area by engagement of local experts?
4	Were there description of habitat with significant importance to critically endangered and/or endangered species in the EIA report?
5	Was there any sort of description of habitat(s) of significant importance to endemic and/or restricted range of species in the EIA report?
6	Confirm whether there was a description or mention of habitat(s) supporting globally significant concentration of migratory species and/or congregatory species in the EIA report?
7	Confirm whether there was a description of highly threatened and/or unique ecosystems?
8	Confirm the description of areas associated with key evolutionary processes?
9	Was there a description or highlight of any recognised high biodiversity values that might also support any critical habitat designation?
10	Confirm any attempt to quantify critical or endangered species in the Project area?
11	Confirm any spatial map(s) drawn to evaluate the effects on critical habitat to enable quantification above?
12	Was there any form of recommendation(s) aimed at dodging impacts on biodiversity through identification of and protection of set asides?
13	Were there recommended implementation measures aimed at minimising habitat fragmentation such as biological corridors?
14	Were there quantification of residual impacts on critical habitats?
15	Any recommendation for reinstating loss or impacted biodiversity to reduce risks to changes in Biodiversity to as low as reasonably practicable?
16	Were there biodiversity compensation recommendations following the approaches?
17	Were there recommendations for restoring lost habitats during operations and /or after operations?
18	Was there recommendation for partnering either by way of funding support or advocacy for nature conservation?
19	Was there recommendation to support alternative sources of income for stakeholders that depend on the habitat resources for subsistence and livelihood?
20	Were there any form of recommendations made on modifications of project design and footprint based on assessment outcome?

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KEY: 0 = No Inclusion, 0.5 = Slight to minor inclusion; 1 = Moderate to detail inclusion

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Appendix C

Summary of Sectoral Critical Habitat Inclusion responses

S/N	Power	Petroleum	Agric/Roads	Infrastructure	Manufacturing	Total
1	(√) 7	(√) 7	(√) 3	(√) 2	(√) 5	(√) 24
	(X) 4	(X) 9	(X) 7	(X) 10	(X) 5	(X) 35
	(P) 9	(P) 4	(P) 10	(P) 8	(P) 10	(P) 41
2	(√) 9	(√) 8	(√) 1	(√) 6	(√) 3	(√) 27
	(X) 5	(X) 5	(X) 4	(X) 3	(X) 4	(X) 21
	(P) 6	(P) 7	(P) 15	(P) 11	(P) 13	(P) 52
3	(√) 7	(√) 4	(√) 2	(√) 5	(√) 3	(√) 21
	(X) 8	(X) 6	(X) 12	(X) 10	(X) 10	(X) 46
	(P) 5	(P) 10	(P) 6	(P) 5	(P) 7	(P) 33
4	(√) 9	(√) 8	(√) 2	(√) 1	(√) 5	(√) 25
	(X) 6	(X) 9	(X) 14	(X) 12	(X) 13	(X) 54
	(P) 5	(P) 3	(P) 4	(P) 7	(P) 2	(P) 21
5	(√) 6	(√) 3	(√) 1	(√) 2	(√) 3	(√) 15
	(X) 8	(X) 10	(X) 10	(X) 9	(X) 11	(X) 48
	(P) 6	(P) 7	(P) 9	(P) 9	(P) 6	(P) 37
6	(√) 3	(√) 4	(√) 0	(√) 1	(√) 0	(√) 8
	(X) 14	(X) 15	(X) 14	(X) 17	(X) 17	(X) 77
	(P) 3	(P) 1	(P) 6	(P) 2	(P) 3	(P) 15
7	(√) 5	(√) 6	(√) 0	(√) 2	(√) 1	(√) 14
	(X) 8	(X) 10	(X) 13	(X) 13	(X) 17	(X) 61
	(P) 7	(P) 4	(P) 7	(P) 5	(P) 2	(P) 25
8	(√) 0	(√) 0	(√) 0	(√) 0	(√) 1	(√) 1
	(X) 19	(X) 19	(X) 19	(X) 20	(X) 19	(X) 96
	(P) 1	(P) 1	(P) 1	(P) 0	(P) 0	(P) 3
9	(√) 8	(√) 8	(√) 3	(√) 5	(√) 5	(√) 31
	(X) 8	(X) 8	(X) 13	(X) 6	(X) 7	(X) 42
	(P) 4	(P) 4	(P) 4	(P) 9	(P) 8	(P) 29
10	(√) 6	(√) 10	(√) 3	(√) 5	(√) 5	(√) 29
	(X) 8	(X) 4	(X) 12	(X) 3	(X) 7	(X) 34
	(P) 6	(P) 6	(P) 5	(P) 12	(P) 8	(P) 37
11	(√) 4	(√) 2	(√) 0	(√) 3	(√) 3	(√) 12
	(X) 13	(X) 16	(X) 18	(X) 11	(X) 12	(X) 70
	(P) 3	(P) 2	(P) 2	(P) 6	(P) 5	(P) 18
12	(√) 3	(√) 4	(√) 0	(√) 0	(√) 4	(√) 11
	(X) 13	(X) 8	(X) 17	(X) 13	(X) 11	(X) 62
	(P) 4	(P) 8	(P) 3	(P) 7	(P) 5	(P) 27
14	(√) 2	(√) 1	(√) 0	(√) 2	(√) 1	(√) 6
	(X) 11	(X) 13	(X) 14	(X) 15	(X) 8	(X) 61
	(P) 7	(P) 6	(P) 6	(P) 3	(P) 11	(P) 33

649 **Key:** No inclusion(X), Slightly to minor inclusion(P) and Moderate to detailed inclusion (√)

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Appendix C Continues

Summary of Sectoral Critical Habitat Inclusion responses

S/N	Power	Petroleum	Agric/Roads	Infrastructure	Manufacturing	Total
15	(√) 7	(√) 3	(√) 1	(√) 2	(√) 5	(√) 28
	(X) 3	(X) 4	(X) 9	(X) 9	(X) 5	(X) 30
	(P) 10	(P) 13	(P) 10	(P) 9	(P) 10	(P) 52
16	(√) 6	(√) 3	(√) 0	(√) 1	(√) 2	(√) 12
	(X) 11	(X) 11	(X) 18	(X) 14	(X) 6	(X) 60
	(P) 5	(P) 6	(P) 2	(P) 5	(P) 12	(P) 30
17	(√) 6	(√) 4	(√) 0	(√) 4	(√) 7	(√) 21
	(X) 5	(X) 3	(X) 12	(X) 12	(X) 4	(X) 36
	(P) 9	(P) 13	(P) 8	(P) 4	(P) 9	(P) 43
18	(√) 0	(√) 1	(√) 0	(√) 1	(√) 0	(√) 2
	(X) 15	(X) 18	(X) 18	(X) 16	(X) 18	(X) 85
	(P) 5	(P) 1	(P) 2	(P) 3	(P) 2	(P) 13
19	(√) 0	(√) 0	(√) 0	(√) 1	(√) 0	(√) 1
	(X) 17	(X) 13	(X) 13	(X) 14	(X) 18	(X) 75
	(P) 3	(P) 7	(P) 7	(P) 5	(P) 2	(P) 24
20	(√) 2	(√) 1	(√) 0	(√) 0	(√) 0	(√) 3
	(X) 9	(X) 12	(X) 16	(X) 18	(X) 14	(X) 69
	(P) 9	(P) 7	(P) 4	(P) 2	(P) 6	(P) 28

654 **Key:** No inclusion(X), **Sightly** to minor inclusion(P) and Moderate to detailed inclusion (√)

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