

SOCIO-ECONOMIC AND ECOLOGICAL IMPLICATIONS OF THE REHABILITATION OF AGODI GARDEN, IBADAN AFTER 2011 FLOOD

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ABSTRACT

This work aimed at highlighting the socio-economic and ecological implications of rehabilitating Agodi Garden after the 2011 flood in Ibadan. The study used an interviewed-administered questionnaire. Two types of questionnaire were used. Data were analyzed and presented in percentages as well as in Pearson moment correlation coefficient and descriptive statistics. Results showed that majority of respondents had tertiary education (89.0; 55.6%); were males (60.0; 55.6%) and were Nigerians (102.0; 94.4%). It was shown in table 3 and figure 2 that there was remarkable increase in tourists' influx. Increase in tourists' influx rate was significant .000* ($P < 0.05$ at levels), while other implications of rehabilitation (such as ecological and environmental) were also significant .048* ($P < 0.05$ at levels). Majority of the respondents perceived that rehabilitation was excellent (36.0; 33.3%); would yield financial gain (97.0; 89.8%); would serve as tourists' attraction (5.0; 4.6%), would as well as cause destruction of the vegetative cover and loss of soil micro-organisms (3.0; 2.8%). On the other hand, the staff perceived that rehabilitation would lead to employments creation (28.0%); enhance research opportunities (18%); bring about landscape with good walkway network (18%) and flood control and relaxation services (27%). However, some respondents further opined that rehabilitation would have negative effects which included loss of natural wetlands and degradation (5.0%); trampling on soil structure (2.0%) and environmental pollution (1.0%). Other negative effects perceived by

the staff that the rehabilitation of the garden would cause included displacement and migration of fauna and avifaunal species (27.0%); destruction of rare habitats and age-long tree species (27.0%) and environmental pollution (9.0%). Finally, considering the socio-economic gains of the garden and the ecological alterations during the rehabilitations, it is very imperative to always have the conservation objective in mind over economic objective during construction, reconstruction, development, re-development or rehabilitation of any nature-based area, like Agodi Gardens and Park.

Keywords: Socio-economic, Ecological, Implications, Rehabilitation, Tourism, Perception

INTRODUCTION

Tourism is a fast growing industry in the world. It has become potentially important for some countries as their major source of income. Apart from being an economic backbone of some countries, it also helps in the social life of the host communities. In developed countries such as Greece and the United Kingdom, tourism has contributed immensely both economically and socially to the growth of the country. In the 50's, Tourism has played an increasingly major role in the socio-economic development of many countries. The growth has been driven by an increase in demand and in the effort of the supply destinations. As such, demand for tourism is a fundamental element in the tourism system. The level of tourism demand has reached an unexpected level in the new millennium thereby providing the tourism industry and other tourism stakeholders a great challenge (Cooper *et al.*, 2008). However, its expansion has been attributed to an increase in inter-socialization, global co-operation, technological advancement in transportation (invention of fast jets, trains, and cars), and communication and information technology such as internet, migration and language.

The development of tourism at the destination region is a process and it involves market and resources evaluation. The development

comes in a picture of recognizing the gaps in the local tourism market, identifying project ideas to fill in the gaps and make a possible recommendation for the action plan so as to put those ideas into reality. However, the destination in question would have had tourist areas as a product and segment that will need to be developed. Some of the places might be growing while some might be declining; the most important is that it attaches different priorities that differ in terms of marketing implications for achieving the set goals (Middleton *et al.*, 2009). The growth in tourism industry can also be attributed to the increase in tourism marketing. Tourism marketing is the method of applying the correct marketing concepts and ideology to planning a strategy to attract tourists to particular destinations which may come in form of resort, city, region or country. Marketing is a process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that will satisfy individual and organizational goals. Referring to the definition in the concept of tourism marketing, it revolves around planning for tourism from the demand and supply concept in order to satisfy both the host communities (suppliers of tourism) and the visitors (Godfrey and Clarke, 2000).

The application of marketing in tourism industry is an equal focus on the 'four Ps' (Product, Place, Price and Promotion). Product: the destination or region as a product can only be consumed by travelling to that region. Equivalently, the product is also the place and each tourist can consume or buy the product/place at different prices (Kolb, 2006). As a matter of fact, when marketing a city, price is the least of focus. This is because it discourages some tourists whose intention is to have fun without paying anything. Promotion is an awareness created by media and other advertising agents for the events. The promotion of socio-economic expansion by tourism was driven by the fact that, as an export industry, it encourages new spending within the local or host communities. This spending creates job opportunities, socio-cultural interaction, pride and appreciation,

understanding and respect, and even tolerance for each other's culture and norms (Kolb, 2006). In addition to the socio-economic benefits, tourism development tends to appreciate local cultures, promote solidarity from cultural exchange give rooms for comprehensible feelings of both the host communities and the tourists (Kolb, 2006). However, based on the increase in tourism awareness all over the world, it has been a general notice that social and economic tourism play a vital role in the sustainability of the global tourism. While social tourism explains how satisfied a tourist is at any destination, economic tourism modifies the financial affordability of the situation. Therefore, social and economic tourism are directly the pillars of sustaining tourism in the world. Ecotourism has become one of the fastest-growing sectors of the tourism industry, growing annually by 10-15% worldwide (Bar kin, 2002).

One definition of ecotourism is "the practice of low-impact, educational, ecologically and culturally sensitive travel that benefits local communities and host countries" (Honey, 2008). Many of the ecotourism projects are not meeting these standards. Even if some of the guidelines are being executed, the local communities are still facing many of the negative impacts. South Africa is one of the countries that are reaping significant economic benefits from ecotourism, but the negative effects far outweigh the positive- including forcing people to leave their homes, gross violations of fundamental rights, and environmental hazards- far outweigh the medium-term economic benefits (Honey, 2008).

Ecotourism channels resources away from other projects that could contribute more sustainable and realistic solutions to pressing social and environmental problems (Saayman and Rossouw, 2012). But there is a tension in this relationship because ecotourism often causes conflict and changes in land-use rights, fails to deliver promises of community-level benefits, damages environments, and has many other social impacts. Indeed, many argue repeatedly that ecotourism

is neither ecologically nor socially beneficial, yet it persists as a strategy for conservation and development, due to the large profits (Kamauro, 2007). Ecotourism operations occasionally fail to live up to conservation ideals. It is sometimes overlooked that ecotourism is a highly consumer-centered activity, and that environmental conservation is a means to further economic growth leading to serious environmental hazards (Kamauro, 2007). Although ecotourism is intended for small groups, even a modest increase in population, however temporary, puts extra pressure on the local environment and necessitates the development of additional infrastructure and amenities. The construction of water treatment plants, sanitation facilities, and lodges come with the exploitation of non-renewable energy sources and the utilization of already limited local resources (Vivanco, 2002). The conversion of natural land to such tourist infrastructure is implicated in deforestation and habitat deterioration of butterflies in Mexico and squirrel monkeys in Costa Rica (Isaacs, 2000).

Aside from environmental degradation with tourist infrastructure, population pressures from ecotourism also leaves behind garbage and pollution associated with the Western lifestyle (McLaren, 2008). Although, ecotourists claim to be educationally sophisticated and environmentally concerned, they rarely understand the ecological consequences of their visits and how their day-to-day activities append physical impacts on the environment. As one scientist observes, they "rarely acknowledge how the meals they eat, the toilets they flush, the water they drink, and so on, are all part of broader regional economic and ecological systems they are helping to reconfigure with their very activities (Eadington and Smith, 2002). Ecotourism activities are, in and of themselves, issues in environmental impact because they may disturb fauna and flora. Ecotourists believe that because they are only taking pictures and leaving footprints, they keep ecotourism sites pristine, but even harmless-sounding activities such as nature hikes can be ecologically destructive. In the Annapurna Circuit in Nepal, ecotourists have

worn down the marked trails and created alternate routes, contributing to soil impaction, erosion, and plant damage (Eadington and Smith, 2002). Where the ecotourism activity involves wildlife viewing, it can scare away animals, disrupt their feeding and nesting sites, or acclimate them to the presence of people (Eadington and Smith, 2002). In Kenya, wildlife-observer disruption drives cheetahs off their reserves, increasing the risk of inbreeding and further endangering the species (Eadington and Smith, 2002). Flooding, as one of the most frequent and widespread of all environmental hazards and of various types and magnitudes, occur in most terrestrial portions of the globe, causing huge annual losses in terms of damage and disruption to economic livelihoods, businesses, infrastructure, services and public health. Long term data on natural disasters suggest that floods and wind storms (which frequently lead to flooding) have been by far the most common causes of natural disaster worldwide over the past 100 years (Few *et al.*, 2004). According to the International Federation of Red Cross and Red Crescent Societies, in the 10 years from 1993 to 2002 flood disasters affected more people across the globe (140 million per year on average) than all the other natural or technological disasters put together (IFRC, 2003).

Generally, causes of floods in Nigeria could be as a result of natural or human factors. The natural causes are in the form of heavy or torrential rains/rainstorm oceans storms and tidal waves usually along the coast. While the human factors are burst of main water pipes, dam bursts, levee failures and dam spills. Flooding occurs throughout Nigeria in the following forms: Coastal flooding, river flooding, flash floods, urban flooding, dam burst, levee failures, dam spills. Coastal flooding occurs in the low-lying belt of mangrove and fresh water swamps along the coast. River flooding occurs in the flood plains of the larger rivers and Flash floods are associated with rivers in the inland areas where sudden heavy rains can change them into destructive torrents within a short period (Lameed and Lameed, 2012).

Urban flooding occur in towns located on flat or low lying terrain especially where little or no provision has been made for surface drainage, or where existing drainage has been made for surface drainage, or where existing drainage has been blocked with municipal waste, refuse and eroded soil sediments. Extensive urban flooding is a phenomenon of every grainy session in Lagos, Maiduguri, Aba, Warri, Benin and Ibadan. Virtually every Nigerian is vulnerable to disasters, natural or man-made. Every rainy season, wind gusts arising from tropical storms claim lives and property worth millions of naira across the country. Flash floods from torrential rains wash away thousands of hectares of farmland and Dam bursts are common following such floods. In August 1998 for instance, 142 died, 18000 houses were destroyed and 14000 farms were swept away when the Bagauda Dam collapsed after a flash flood. Urban flood such as the Ogunpa disaster which claimed over 200 lives damaged property worth millions of naira in Ibadan, are common occurrences (Lameed and Lameed, 2012). The objectives of this study were to highlight the socio-economic and ecological implications of rehabilitating Agodi Garden after the 2011 flood in Ibadan.

LOCATION AND DESCRIPTION OF STUDY AREA/SITE

Study Area/Site

Ibadan is the capital city of Oyo State, Nigeria; located on several hills (average elevation 700 feet [200 meters]) 100 miles (160 km) from the Atlantic coast and on coordinate 7.3775°N, 3.9470°E. It is one of the most populous cities in the country. Ibadan's beginnings are shrouded in mystery; they were recorded only in oral tradition. It is said that the earliest group of settlers at Ibadan were fugitives from justice who were expelled from nearby villages. This small group later swelled with the arrival of immigrants from all over Yorubaland (now western Nigeria). Agodi Gardens which is also known as Biological Gardens located at Parliament road was opened officially on Monday 18 December, 1967 by the Military Governor of the then Western State of Nigeria (Brigadier R.A. Adebayo). It is situated in the sprawling Ibadan metropolis, beside Oyo State

Secretariat Complex. Agodi Gardens is right in the heart of the metropolitan city of Ibadan. The garden shares the same locality with Premier Hotel (**Plate 1**) on the Hill overlooking an artificial lake and the Cultural Center. The Gardens is a fine example of multiple use of land for forestry, nursery, arboretum, park boating and fishery, zoo, recreational and relaxation purposes. One remarkable aspect of the garden is the unique educational value of bringing various species of animals together as the garden presents a captivating site for seeing rare species by tourists.



Plate 1: Aerial view of Premier hotel from Agodi Gardens and Park

Agodi Gardens is an alluring but rustic Zoological Park. The expansive Garden, in contrast with the hustle and bustle of the city life outside, showcases nature and freshness. In spite of the occasional fuss and bleat of monkeys, the roar of the lions and the chirp of crickets, Agodi Gardens is serene and alluring. The Gardens, which is run by the Oyo State Government, was ravaged by the Ogunpa flooding in the 1980s, but it was rehabilitated by the Gov. Lam Adesina administration. Also, when it was again destroyed by the 2011 flood, the Garden was rehabilitated in 2014 by the Gov. Isiak Abiola Ajimobi administration in conjunction with a Private firm.

Data Analysis

Data were grouped and summed by response category. The responses were recorded on a data sheet and later transcribed into English and entered into a Microsoft Excel 2010 database as well as Statistical Package for Social Sciences version 19 for Windows (IBM SPSS Inc, Chicago, USA). Where multiple responses were possible on an open-response question, data are presented as the percentage (%) of respondents giving each response, and may sum to 100%. Pearson moment correlation coefficient and descriptive statistics were also used.

RESULTS

Table 1: Age and Annual Income of Respondents in Agodi Gardens

VARIABLES	N	Minimum	Maximum	Mean	Std. Deviation
AGE	108	.00	52.00	23.4352	10.33212
ANNUAL INCOME	108	.00	2880000.00	129231.5278	466775.07562
VALID (list-wise)	108				

Source: Field Survey, 2015

Table 1 showed that the number of the respondents (tourists) was 108. The maximum age of the respondents was 52 while the average age was just over 23. The standard deviation however was just over 10. The average annual income of the respondents totaled just under N130000, the maximum income of respondents was N2880000.

Table 2: Demographic Information of Respondents in the Agodi Gardens

VARIABLES	Freq.	%
Marital Status:		
Single	83.00	76.90
Married	23.00	21.30
No Responses	2.00	1.80
Total	108.00	100.00
Sex:		
Male	60.00	55.60
Female	47.00	43.50
No Responses	1.00	00.90
Total	108.00	100.00
Religion:		
Christianity	78.00	72.20
Islam	29.10	26.90
Traditional	1.00	00.90
No Responses	0.00	00.00
Total	108.00	100.00
Educational Status:		
No Formal Education	00.00	00.00
Primary Education	00.00	00.00
Secondary Education	15.00	13.90
Tertiary Education	89.00	82.40
No Responses	4.00	3.70
Total	108.00	100.00
Occupation:		
Student	57.00	52.78
Self-employed and Artisans	26.00	24.07
Civil servant	16.00	14.81
Unemployed	1.00	0.93
No Responses	8.00	7.41
Total	108.00	100.00
Nationality:		
Nigerian	102.00	94.40
Kenyan	1.00	0.90
Indian	1.00	0.90
No responses	4.00	3.70
Total	108.00	100.00

Source: Field Survey, 2015

Tables 2 showed that majority of the respondents were still single (76.90%) while 21.30% are married. Most of the respondents are male (55.60%) while 43.50% are female. 72.20% of the respondents are Christians while 26.90% are Muslims. 13.90% of the respondents have secondary education while 82.40% are either still students in tertiary institutions or are graduates. 52.78% of the respondents are still students, 24.07% are self-employed while 14.81% are civil servants. A staggering 94.4% of the respondents are Nigerians while 0.90%, there were also Indians and Kenyans present at the time the questionnaire was administered.

Table 3: Tourists' Influx Rate from 2013 to 2015

S/N	MONTH	YEAR 2013	YEAR 2014	YEAR 2015
1.	January	1,302	1252	6320
2.	February	800	983	1733
3.	March	1351	1052	2433
4.	April	3421	2176	12812
5.	May	1214	1176	5417
6.	June	1123	1010	2116
7.	July	1316	1003	3246
8.	August	789	953	5510
9.	September	1003	1001	5425
10.	October	1530	1652	-
11.	November	1861	1954	-
12.	December	3720	3020	-

Source: Agodi Garden Records Unit

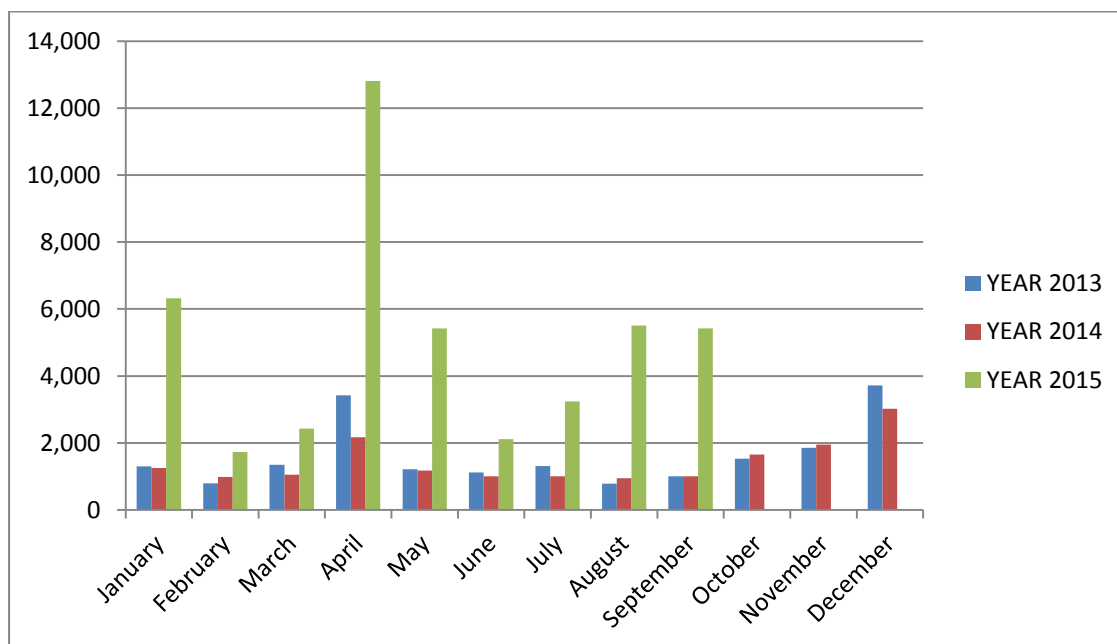


Figure 2: Tourists' Influx into Agodi Gardens from 2013 to 2015
Source: Agodi Gardens Record Unit

Table 3 and figure 2 showed the figure of the influx rate from 2013 to 2015 and you would notice that there was a considerable increase in the number of tourists in the year 2015 especially since the rehabilitation and reopening of the Gardens in December 2014.

Table 4: Implications of the Improvements made within the Agodi Gardens

Variable	Pearson	1
Correlation	Sig. (2-tailed)	108
	N	
Improvement leading to tourists' increase	Pearson	.000*
Correlation	Sig. (2-tailed)	.727
	N	108
Other implications (of improvements) apart	Pearson	.048*
Correlation	Sig. (2-tailed)	.385
From tourists' increase	N	108
*Correlation is significant at the 0.05 level (2-tailed)		

Source: Field Survey, 2015

Table 4 showed the implications of the improvements made within the Agodi garden with 0.05% level of significance (2-tailed)

Table 5: Assessment of Respondents' Perception and Implication to the Development of the Garden

S/N	Variable	Freq.	%
1	Perception of the development done to respondents?		
	Excellent	36.00	33.30
	Very good	26.00	24.10
	Good	30.00	27.80
	Fair	5.00	4.60
	Poor	2.00	1.90
	No Responses	9.00	8.30
	Total	108.00	100.00
2	Can development improve lot of the garden financially?		
	Yes	97.00	89.80
	No	1.00	0.90
	No Responses	10.00	9.30
	Total	108.00	100.00
3	Willingness of respondents to tell people about the development within the garden?		
	High	97.00	89.80
	Low	1.00	0.90
	No Response	10.00	9.30
	Total	108.00	100.00
4	Perceived implications of the development on the garden?		
	Tourist attraction	5.00	4.60
	Better view and access	1.00	0.90
	Destruction of vegetative cover and loss of soil micro-organisms	3.00	2.80
	No responses	99.00	91.70
	Total	108.00	100.00

Source: Field Survey, 2015

Table 5 showed the perception of respondents on the improvements and implication of the development of the Garden. 33.30% of the respondents thought the quality of the improvement was excellent; 24.10% thought it was very good, 27.80% rated it as good, 4.60%

said it was fair while 1.90% said it was poor. Financially, 89.80% believed the rehabilitation and development would improve the revenue of the Garden while 0.90 did otherwise. 89.80% of the population would be willing to tell others about the improvement in the Garden while 0.90% would not.

Some of the perceived implications of the development of the Garden included: Tourist attraction: 4.60%, better view and access: 0.90%, destruction of vegetative cover and loss of soil micro-organisms: 2.80%.

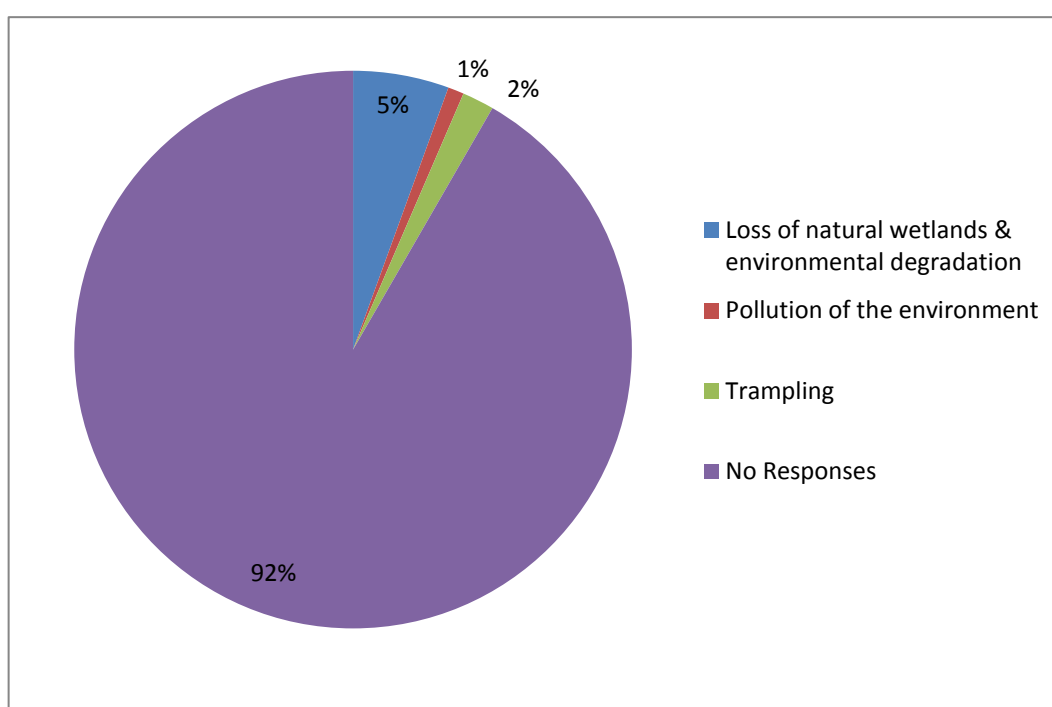


Figure 3: Negative effects of the improvements perceived by the respondents

Source: Field Survey, 2015

Figure 3 showed some of the negative effects of the development made on the Garden. It should be noted that 92% of the respondents did not respond to this question; 5% of the respondents thought the rehabilitation would cause loss of natural wetlands and environmental degradation while 2% thought trampling of flora resources would be a problem. The remaining 1% thought it could lead to pollution of the environment.

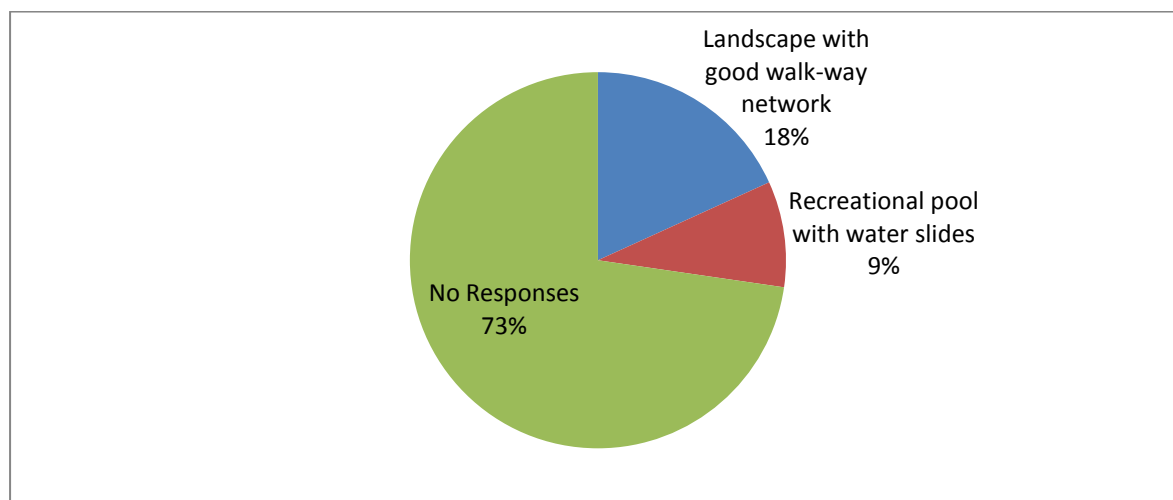


Figure 4: Staff's Perception about the remarkable changes within the garden after the flood

Source: Field Survey, 2015

Figure 4 showed the staff's perception about the remarkable changes within the garden after the flood and 18% liked the fact that there is good landscape with good walk-way networks while 9% like the recreational pool with water slides.

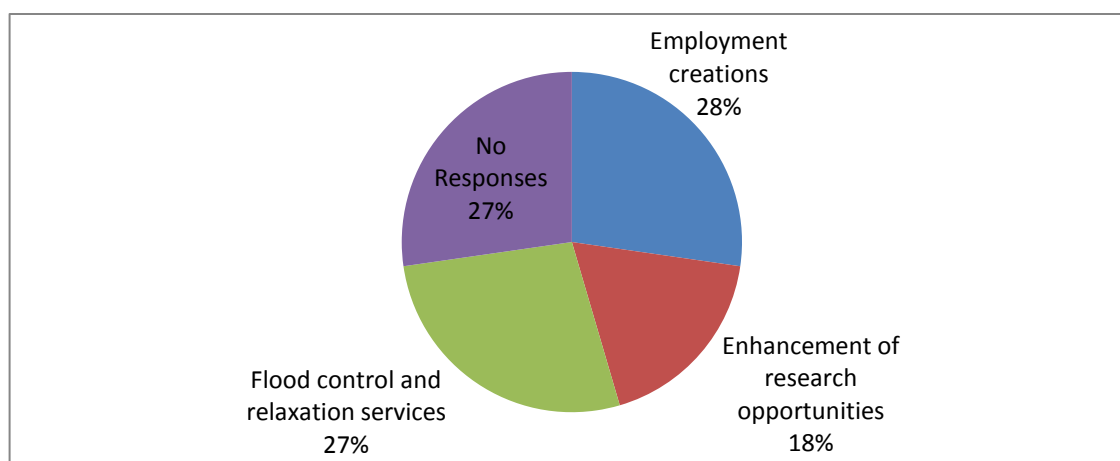


Figure 5: Respondents Perception about the post-rehabilitation effects on the garden aside tourists' influx

Source: Field Survey, 2015

Figure 5 showed the respondents perception about the post-rehabilitation effects on the garden. 28% of the respondents thought it would serve as an avenue for employment creation, 27% thought it would serve as flood control to the environment and also

relaxation services and 18% also thought it would enhance research opportunities.

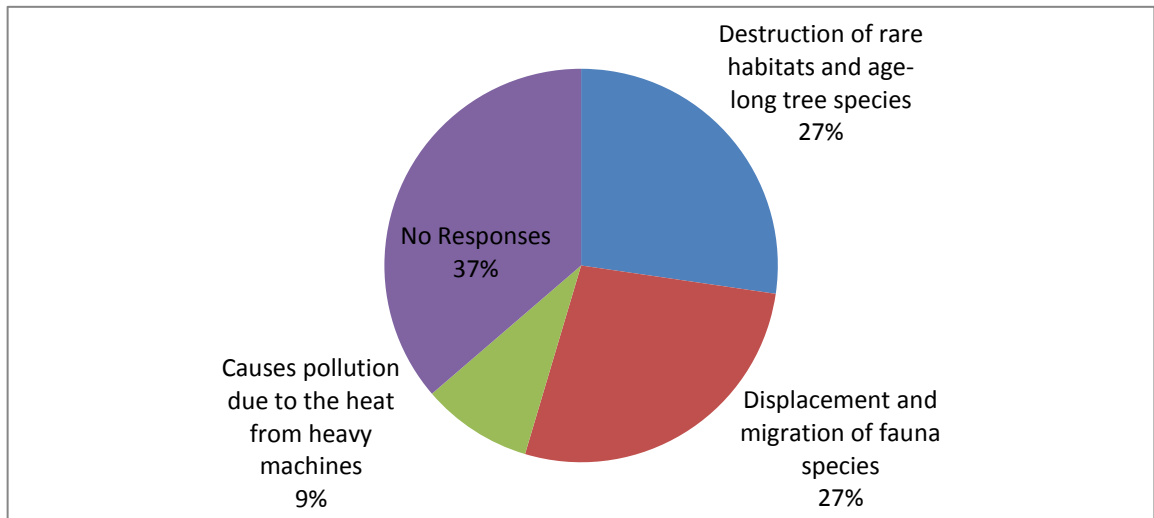


Figure 6: Staff's Perception about the negative post-rehabilitation effects on the garden

Source: Field Survey, 2015

Figure 6 showed staff's perception on the negative post-rehabilitation effects on the garden. 27% of the respondents thought it had caused destruction of rare habitats and age-long tree species; another 27% thought it caused the displacement and migration of fauna species while 9% thought that the heat and smoke from heavy machines caused pollution which endangers the species and habitat.

DISCUSSION

Table 1 showed the descriptive statistics of the respondents in the study area. The mean age was 23 years 4 months; while the mean income was 129,231.5 Naira. The mean age is indicative of the fact that majority of those who visit Agodi gardens are young persons. The maximum age (52 years), is not all that too old. This then shows that, tourism requires strength, vigour and vitality. Also, most of the respondents earn above 50,000 Naira annual incomes; with the maximum annual income towering 2.88 Million. This is a real boost for

economic power of the State. Since tourism brings increased demand for goods, services and facilities, such as lodging, restaurants, other attractions, and personal vacation properties. As visitor numbers increases, so do the demands for basic services such as policing, fire, safety and healthcare. Such increased demand brings increased costs and possibly a well robust annual income. Thus, without money, tourism as well as ecotourism is not feasible. From table 2, it was shown that more male (60; 55.6%) participated in the study when compared to the female (47; 43.5%) respondents. This further buttress the submission of (Buyinza and Naguula, 2007) that women have bias towards biodiversity conservation and visiting nature-based sites which may be due to political, cultural and economic barriers. Majority of the respondents are single (83; 76.9%), while (23; 21.3%) are married. Singleness and youthful strength brings insatiable curiosity. This could be the main reason Agodi Garden is usually flooded by the young and the unmarried. Data generated from the study instrument revealed that education is a priority to the respondents in the study area.

This is because all of the respondents had formal education. All of them surpassed primary education; very few (15; 13.9%) had secondary education; while a handful of the respondents (89; 82.4%) had tertiary education. This may not be unconnected with the enlightenment and the illuminating power of the education among the learned respondents about the nation's geography, society, natural sites, protected areas and the garden (Agodi Garden) in particular. Since majority of the respondents (57; 52.78%) are students, it also showed why there are more educated people visiting the place. Others are self-employed and artisans (26; 24.07%); civil-servants (16; 14.81%) and the unemployed (1; 0.9%). This result (for unemployed) further showed that if you don't have money, you can't embark on any tourism tour (including ecotourism). More Christians (78; 72.2%) participated in the study than their Muslim brothers and sisters (29.1; 26.9%). Also, majority of the respondents (102; 94.4%) are Nigerians sandwiched with Kenyan (1; 0.9%) and Indians

(1; 0.9%). This may be due to the local publicity given to the garden. The garden might not be well-known outside the shores of Nigeria. This should be looked into by the management and corrected (as it has just been rehabilitated and restructured).

According to Langholtz and Brandon 2001, Tourism in protected areas produces benefits (positive effects) and costs (negative effects). These effects interact often in complex ways. It is the responsibility of the protected area planner to maximise benefits while minimising costs. This is evident on table 3 and figure 2 where there was remarkable increase (between 2013 and 2015) in the tourists' influx. This however, translated into increase in income generation. Improvements made on and around the Garden are significant: 0.000* (at 0.05 levels) to increasing number of visitors (tourists). Also, other effects (economic and environmental) of the improvements made on and around the garden are significant: 0.048* (at 0.05 levels) (Table 4).

According to Brown, 2001; Driml and Common, 1995; some of the economic benefits of tourism in nature-based area include: increase jobs for local residents; increase income; enhancement of new tourism enterprises; diversification of the local economy; encourages local manufacture of goods; obtains new markets and foreign exchange; improvement of living standards; generation of local tax revenues; enablement of employees to learn new skills and increase funding for protected areas and local communities. From the foregoing, respondents during the study at Agodi Gardens also opined some economic benefits which the rehabilitation of the garden has brought upon it. Twenty-eight percent of the respondents claimed that it has led to job and employment creation; twenty-seven percent said it helped in flood control (due to its good drainage system) and also serve as relaxation point; while eighteen percent believed that it can enhance research opportunities (Figure 5).

In addition, Brown (2001) further gave ecological benefits of protected areas and nature-based areas/sites as follows: protects ecological processes and watersheds; conserves biodiversity (including genes, species and ecosystems); protects, conserves and values cultural and built heritage resources; creates economic value and protects resources which otherwise have no perceived value to residents, or represent a cost rather than a benefit; transmits conservation values, through education and interpretation; helps to communicate and interpret the values of natural and built heritage and of cultural inheritance to visitors and residents of visited areas, thus building a new generation of responsible consumers; supports research and development of good environmental practices and management systems to influence the operation of travel and tourism businesses, as well as visitor behaviour at destinations; improves local facilities, transportation and communications; helps develop self-financing mechanisms for protected area operations.

But contrary to the foregoing, the respondents 8% (though minority), believed that there have been negative impacts on the garden as a result of the rehabilitation and improvements done on and around it. The negative impacts included: loss of natural wetlands and degradation of the environment (5%); pollution of the environment (1%) as a result of the machines and other carbon-monoxide producing equipments on the garden and trampling (2%) on soil surface, young plants seedlings and very small biodiversity (Figure 3).

This contrary view of the respondents was further corroborated by the staff of which twenty-seven percent of them agreed that improvement and rehabilitation within the garden has led to displacement and migration of fauna species within the garden due to habitat destruction and fragmentation; another twenty-seven percent also believed that it has led to rare habitat destruction and disappearance of age-long tree species; while only nine percent of the staff believed that it causes pollution due to the heat and heavy

machines being used (Figure 6). The above revelations both by the respondents and the staff was also mentioned by Cole, Petersen and Lucas, 1987; McNeely and Thorsell, 1989; Buckley and Pannell, 1990; Dowling, 1993; Wright, 1996 that tourism activities in a nature-based area can result in the following: trail creation (and deterioration); camp-sites (and deterioration); litter; crowding; tracks and recreation vehicles; pack stock impacts; human waste problems; wildlife disturbance, habituation, or impact; user conflicts; water pollution (physical or biological); overdevelopment; weeds, fungi and exotic species; solid and human waste; cultural vandalism; boats damaging banks; habitat loss; emissions and air pollution; firewood collection; visual and noise impacts; overfishing, undersized fishing; impacts on vegetation; damage to sand dunes/reefs; soil compaction or erosion; increased fire risk; damage to archaeological sites; trampling (human or horse); changed water courses; taking souvenirs (flora and fauna). Although, the staff of Agodi gardens also noted some of the remarkable changes within the park (Figure 4), but they also revealed the costs brought about by the rehabilitation.

In table 5, the general perception of the respondents about the development done within the garden was alright. Majority of the respondents (36; 33.3%) claimed that the development done was excellent. 26 (24.1%) claimed it to be very good; while 30 (27.8%) said it was good. This reveals that remarkable improvements and major upgrading in nature-based areas can spurn people (tourists) to the areas which will have other direct and indirect benefits as discussed above. Furthermore, it has been shown in table 3 and figure 2 that the improvements, rehabilitations and re-development of the garden had led to increase in tourists' influx. This therefore has direct implications on the financial status of the garden. This is the more reason why majority of the respondents (97; 89.8%) agreed that the development would automatically lead to income generation in the garden (that is economic power). Although, the management of the garden will do well by taking the burden of

publicizing the garden upon itself but satisfied tourists whose eagerness and thirst for nature has been quenched by the improvements and rehabilitations within the park will be willing to do much more (table 5). On the perceived implications of the development and rehabilitations in the garden, most of respondents (99; 91.7%) did not show a thorough understanding of the said implications and thus did not respond. This might be due to their ignorance or lack of in-depth knowledge of what the implications of such development could have on the garden. 5 (4.6%) of the respondents believed that the implications could translate the garden into a tourist attraction site. Pondering on this deeply, it could not be far from the truth, as there has been remarkable influx of tourists to the garden since its rehabilitation after the flood (table 3 and figure 2). Other implications of the developments are better view of the garden and good access (1; 0.9%) and destruction of vegetative cover and loss of soil micro-organisms (3; 2.8%). Finally, the city of Ibadan provides various area of interest to geographers and tourists and Agodi Gardens and Park serves as a tourist site, botanical garden and for sight-seeing. The rehabilitation of the Garden is having a great impact on the economy of Oyo state as it has attracted and accommodated a lot of people as well as events in the past three years.

One needs not to be an environmental determinist to appreciate the various impacts the physical environment of the rehabilitated Gardens has on socio-economic and community development. Agodi Gardens is a lovely place to be because of its trouble-free environment, and also, it is convenient for different people of different societal class, it is also conducive for learning. The garden presents a perfect tourist environment due to its predominance of plants and animals species, which serves as picnics, retreats, relaxation and also for research purposes. It also affords its visitors the ample opportunity to feel the power of nature like never before. However, there have also been ecological alterations during the rehabilitations as shown by this study. Therefore, it is very

imperative to always have the conservation objective in mind over economic objective during reconstruction, re-development or rehabilitation of any nature-based area, like Agodi Gardens and Park.

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APPENDIX



Plate 1: Beauty of the Gardens and the Forest walk



Plate 2: Agodi Garden after rehabilitation



Plate 3: Water logged area in some parts of Agodi Gardens before rehabilitation



Plate 4: Tree species around the walkway of Agodi Garden before rehabilitation



Plate 5: Area disrupted by flood in the Old Agodi Gardens



Plate 6: Marshy area of the Garden before rehabilitation



Plate 7: A wide drainage to curtail the high flood torrent



Plate 8: Playground to accommodate kids as well tourists

References to this paper should be made as follows: ¹Adedoyin, S.O and ²Lameed, G. A (2017), Socio-Economic and Ecological Implications of the Rehabilitation of Agodi Garden, Ibadan after 2011 Flood. *J. of Agriculture and Veterinary Sciences*, Vol. 9, No. 2, Pp. 52-79
