

Perceived Effects of Ecotourism on Well-Being of Rural Residents in Selected Ecotourism Sites in Plateau and Nasarawa States, Nigeria

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Abstract

Restricted use of natural resources is bound to affect the well-being domains of rural residents in close proximity to ecotourism sites. This has sustainable development implications for the rural residents who depend on these resources to meet their needs. This study investigated the perceived effect of ecotourism on well-being domains of rural residents within selected ecotourism sites in Plateau and Nasarawa States, Nigeria. A multistage sampling technique was used to select 331 respondents from communities situated within a 5km radius of the boundary of the ecotourism site. Data were collected using interview schedule and key informant interviews. Data were analysed using both descriptive and inferential statistics. The result showed that the restriction placed on natural resources due to their ecotourism value was perceived to have the most beneficial effect on the residents' communities well-being by enhancing relationships; and feelings of belonging in the community. This was followed, in descending order, by the ecotourism effect on residents' emotional, educational, health and safety, and material well-being domains. The effects differ significantly across selected ecotourism sites due to the difference in residents' access to natural resources. The study recommends the creation and strengthening of

community-based local resource management fora to cater for issues of ecotourism resources management, responsibilities, and benefits sharing.

Keywords: Ecotourism, Natural Resources, Well-being, Rural Areas

Introduction

Tourism is the industry that involves travelling temporarily to places outside one's usual place of residence for different activities including leisure, other than for being remunerated. Rural areas in sub-Saharan Africa offer abundant natural resources for tourists to explore. The rural people who live in proximity to these resources expect tourism development to improve their lives sustainably. Where tourism has been well developed, it has enhanced the lives of such people by placing value on their socio-cultural practices and stimulating the growth of economic activities (Okech, Haghiri and George, 2012). It has brought about improvement in social services and infrastructure; increased sense of pride, self-awareness, and decreased emigration and depopulation of the locality. However, a decline in the lives of the people is also possible where rural tourism development is not properly managed (Pullin et al., 2013). This is because tourism puts more strain on natural resources, biodiversity, and the entire ecosystem on which people's livelihoods depend (UNWTO, 2018). It is vital to strike a balance between the natural resources that rural people require for survival and the natural resources' integrity, which is required to preserve visitor interest. This is the reason for the continuous shift in developing countries from traditional 'mass tourism,' which prioritizes profit, to 'alternative tourism', which prioritizes environmental preservation and sustained improvement of local people's lives (Christou, 2012). Ecological tourism (ecotourism) is a non-consumptive type of alternative tourism that is premised on the conservation of the nature and culture of the local inhabitants for continuous benefits to the local people. It differs from other forms of nature tourism, such as wildlife tourism. Its inherent characteristics have endeared it to the promoters of sustainable development through tourism (Kiper, 2013). Ecotourism is the totality of initiatives aimed at unifying preservation/conservation of natural resources, satisfying tourists, as well as meeting the needs of the host communities. Ecotourism sites are characteristically sizeable areas of land/water preserved by law for tourism because of their immense natural and cultural values (Duke, 2008). Ecotourism enterprises have the specific ability to impact directly

on the realization of Sustainable Development Goal 15 (SDG 15). That is, to 'protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (UNWTO, 2018).

In ecotourism destinations the well-being of the local residents and success of ecotourism projects are interdependent. The lives of the people living around ecotourism sites are germane to the success of ecotourism initiatives. Their communities form places of social interaction which can create receptive attitudes that promote ecotourism practice. The local residents are also the traditional stewards and custodians of the bio-geographic and cultural ecotourism resources, as a result, they usually expect compensation for these roles, and sometimes they exploit ecotourism resources for their personal uses (Fennell, 2008; Miller, 2017). The living conditions of the rural residents are also tied to ecotourism projects. Due to their proximity, they are the first to bear the impact and the most affected by such developments (Kiper, 2013). In Nigeria, evidence has shown that ecotourism is useful for the preservation of land and water resources (Tunde, 2012; Adebayo, Jegede, and Eniafe, 2014), but its sustainability is threatened by unmet expectations of the rural host communities, which manifests in their poaching of game, encroaching on ecotourism sites, deforestation and habitat destruction.

However, there is a scarcity of studies demonstrating how ecotourism initiatives are linked to various aspects of the rural people's personal lives and how it affects their lives as a whole. For example, the effect of regulations and prohibitions often imposed by local authorities restricting local people from exploiting traditional natural resources in their vicinity, such as flora, fauna and water, in order to enhance conservation and tourism without providing suitable alternatives, is critical to the survival of the residents (Fennel, 2008). Thus, an examination of the living conditions and characteristics of the people in and around ecotourism sites has been regarded as an important indicator of ecotourism success and long-term development (Kim 2002; Rastegar, 2018). The use of well-being and quality of life concepts for such analysis, and as measures of human development in tourism studies is growing globally because it is comprehensive. Its use in tourism studies in Nigeria is scarce. Well-being measures are pragmatic and depend on the perception and feelings of individuals (Andereck and Nyaupane, 2011; Smith and Diekmann, 2017). Well-being is tied to the exploration of

resources around people to meet their needs (Etuk & Odebode, 2016). It is the expression of how both material and non-material needs of individuals are met in different need areas (well-being domains) of life (Costanza et al., 2007; Stiglitz, Amartya and Fitoussi, 2009; Dodge et al., 2012; Helne and Hirvilammi, 2015). For instance, individuals can express their satisfaction, positive or negative reactions towards their income size or employment type. Such reactions help to identify salient concerns of the people and provide relevant information for intervention. Ecotourism is bound to impact on the social, physical and psychological resources accessible to the local people at a given time and space, hence affecting their well-being. It cannot be said that tourism has sustainable developmental effects if it cannot be seen to be beneficial to important aspects of people's lives (Dombroski, 2005). It is within this context that this study sought to determine the level of perceived effect of ecotourism on the well-being domains of rural residents in the study area, as well as to find out whether the perceived effect of ecotourism on the well-being domains of rural residents differs across selected ecotourism sites.

Ecotourism

Since Hector Ceballus-Lascurain coined the term 'ecotourism' in 1983, and defined it as 'travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas' (Matthews 2002:4), its definition has multiplied. Many of these definitions are confusing and contradictory due to the social nature of tourism (Wondirad, 2019). This first definition emphasized the non-consumptive effect of ecotourism on destination environments. Subsequent ones also emphasized its unique characteristic of preservation and conservation of natural resources. The success of ecotourism projects as a conservation tool in the long run is still regarded as a subject of debate (Liu and Li, 2020). Other important concepts aiding the growth of ecotourism are related to conservation education, ethics, responsibility, and sustainability (Fennel, 2001; Weaver and Lawton, 2007; Wondirad, 2019; Liu and Li, 2020). The livelihood of the local people is critical to achieving ecotourism objectives (Fennel, 2008).

The International Ecotourism Society (TIES, 2015) definition of ecotourism as 'responsible travel to natural areas that conserves the environment and sustains the well-being of local people and involves

interpretation and education' (Dangi and Jamal, 2016:4),underscores the importance of the well-being of local people in the use of ecotourism as a tool for sustainable development. Ecotourism can help to achieve the sustainable development goals through its environmental, economic and social components (Kalaitan et al., 2021).Eco-tourists are expected to engage in activities that cause the least harm to natural resources at destinations, such as, relaxation, camping, photography, medical tourism, speed boating, canoeing, sport fishing, hiking and game viewing (Neth, 2008). These provide employment opportunities and income by engaging localpeople in conservation practices, education of tourists and local people, and servicing tourists' needs for crafts, catering, accommodation and transportation (Healey,2018). This helps to alleviate poverty in developing countries (Regmi and Walter, 2016). Studies have shown that it has generated employment, expanded the markets, and increased fishing opportunity, and supply of protein (Ijeomah and Ayodele, 2009). Studies have also shown that ecotourism increases local cultural respect, gives global recognition to tourism communities, and enhances natural resources appreciation and empowerment of local people (Acquah et al., 2017). For a site to keep attracting visitors it should be seen to be intact at all times. But if this is to happen, the positive impact of protection on the local people must also be high (Pullin et al.; 2013; Mutanga et al., 2015). Effective protection against depletion of resources as a necessity for ecotourism has been a challenge for conservationist, as well as for the local people who depend on the natural resources in developing countries. Compelling indigenous people to relocate to remote areas for ecotourism to thrive has generated negative livelihood effects(Fennel, 2008; Pullin et al., 2013). Negative effects of ectotourism on communities include denying local community residents farmland, hindering access to forest products like firewood, game animals; and fishing activities (Ijeomah, 2012).

Well-being

Not many studies connect the impact of ecotourism (or tourism as a whole) to the different domains of human well-being. This may be ascribed to the lack of clarity on the concept of well-being. The definition of human well-being by Dodge et al. (2012:230) as 'the balance point between an individual's resource pool and the challenges faced' emphasizes the connection of well-being and resource availability to satisfy needs. Well-being is often used as proxy in studying quality of life. The World Health Organization, in 1993 (quoted by Rockika, 2014),

defined quality of life as 'an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns'. Shin and Johnson (cited in Dodge et al., 2012:224) defined well-being as 'global assessment of a person's quality of life according to his own chosen criteria'. Well-being is often used as proxy in studying quality of life (Emptaz-Collomb, 2009). According to Galloway et al. (2006), quality of life and well-being are distinct basically in their evaluation; whereas well-being evaluation requires only people's self (subjective) assessment of their well-being; quality of life encompasses both objective (non-personal assessment) and subjective well-being and as such, well-being is to be regarded as subjectively perceived quality of life. Two sets of processes and components are involved in the evaluation of well-being or quality of life. The first is the set that relates to internal psychological mechanism which requires a subjective analysis, the other is the set of external conditions that trigger the internal mechanism which can be measured objectively (Massam, 2002). Galloway et al. (2006) argued that well-being is a subjective affair usually assessed at individual level by self-rating questionnaires. According to Tinkler and Hick (2011:4) 'human perception is fundamental to understanding an individual's well-being, as the only person who knows whether a person is feeling well is that person themselves'. It has been argued that subjective rating can also apply to objective conditions too, based on the notion that objective conditions are subjected to psychological processing which allows individuals to adjust to life circumstances (Easterlin and Sawangfa, 2007).

Several well-being domains have been studied to account for individual personal well-being but their numbers differ according to discipline and the objectives of the studies. A well-being study in Nigeria by Adisa, Agunbiade, and Akanmu (2007) focused only on house ownership as a measure of well-being among retirees. The study by Oni and Adepoju (2014) on rural well-being in Nigeria focused on seven well-being domains. For some tourism-related studies such as Kim (2002) and Aref (2011), the focus was on four domains that are related to tourism impact, namely: material well-being, community well-being, emotional well-being, and health and safety well-being. The study reported here is based on five interdependent, universal and non-hierarchical domains of well-being advanced by Full Frame Initiative (FFI, 2015). The domains include health well-being domain, which is portrayed in this study as health and safety well-being domain; meaningful access to relevant

resources, which is portrayed with the material well-being domain, and education well-being domain, which represents mastery. These three have been described as core well-being by Cahyat, Gonner, and Haug (2007). Two others; community well-being domain, which represent social connectedness, and emotional well-being domain, which represent stability, are included in this study based on the premise that they relate tourism impact to the cultural life of the local people (Kim, 2002; Aref, 2011). Empirical studies have measured the perceived effect of tourism on well-being domains using Likert type scales, with several items on each well-being domain (Aref, 2011; Kim, 2002; Emptaz-Collomb, 2009; Andereck and Nyaupane, 2011). In line with Andereck and Nyaupane (2011), the effect of ecotourism on well-being in this study was taken as information of people's observable physical and environmental conditions, their personal expression of these conditions, and with different aspects of their life. The study adapted a subjective self-evaluation scale to measure the perceived effect of ecotourism on residents, thereby aligning with arguments for subjective assessment of tourism impact on well-being by aggregating its effect on the different well-being domains of life (Kim, 2002; Dombroski, 2005, Andereck and Nyaupane, 2012). Similar studies (Kim, 2002; Aref, 2011) have shown that critical to the needs of poor people is the influence of tourism on material well-being, indicated by income and employment. However, the effects on domains differ considerably from place to place, based on the external environment and the internal factors of the individual.

Methodology

Study area

This study was conducted in North Central Nigeria. This area lies within latitude 7°30'N and 10°12'N and between longitude 05°00'E and 10°38'E. It is one of the six geopolitical zones of Nigeria, generally referred to as the Middle Belt (Figure 1). The area is made up of the Federal Capital Territory (FCT) and six other states namely: Nasarawa, Niger, Kwara, Kogi, Benue and Plateau. Within the North Central region of Nigeria, Plateau State, nicknamed 'State of Peace and Tourism', is uniquely blessed with rock formations, a large variety of flora and fauna, and temperate-like weather conditions that attract a large number of local and international tourists (Gunap et al., 2017). Plateau State has strong historical, cultural and geographic linkages with Nasarawa State, also known as 'Home of Solid Minerals'. The two were one state until 1996.

They both have similar geography, biodiversity and many state-owned ecotourism attractions. Prominent examples are: Pandam Game Reserve in Plateau State and the Farin Ruwa Ecotourism Site in Nasarawa State which is one of the flagship projects of the Nigeria Tourism Master Plan (UNWTO, 2006). However, in addition to poverty, these two states also have a history of herder-farmer crises over land and water resources (Ogbozor, Omale and Umar, 2018). This calls to question the purpose of reserving natural resource assets for ecotourism in this region.

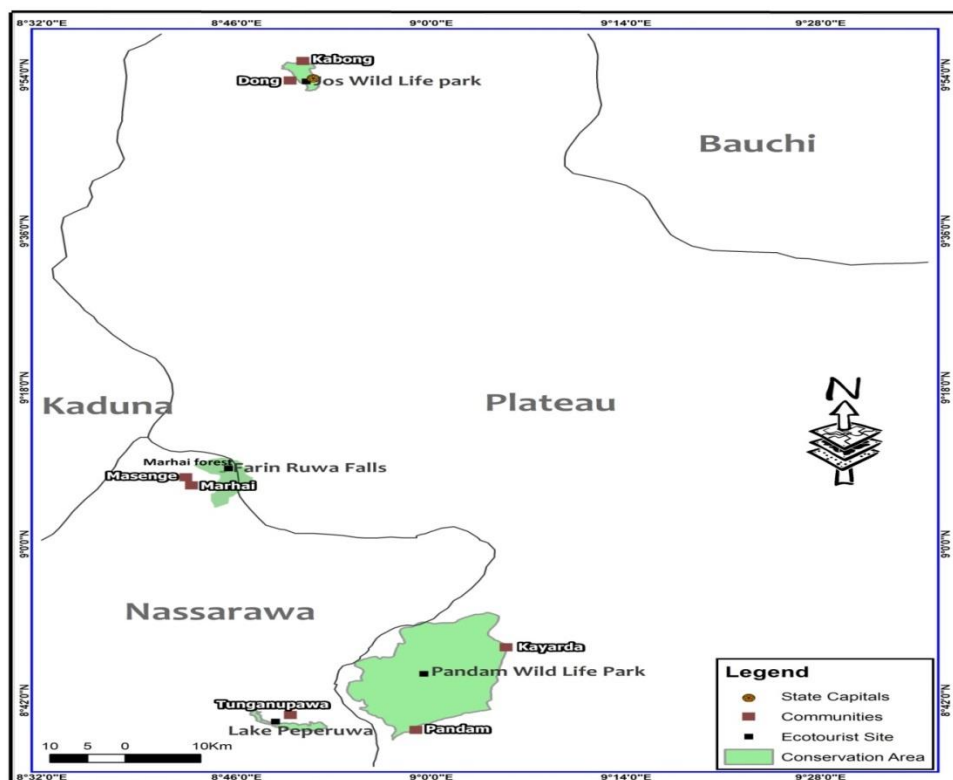


Figure 1. Map of the study area showing selected ecotourism sites.

Sampling procedure and sample size

A multistage sampling procedure was used to draw the sample size. Two states (Plateau and Nasarawa) were purposively selected due to the high concentration of active ecotourism site attractions. Based on the assessment of the importance of the ecotourism sites owned and managed by these states, two sites were selected in each state: Jos Wildlife Park and

Pandam Game Reserve in Plateau State, and Farin Ruwa Waterfall and Peperuwa Lake/Game Reserve in Nasarawa State. Communities situated within 5km of the boundary of each of the selected ecotourism sites formed the sample frame. Seven communities were purposively selected based on their proximity and the perceived impact of the sites on the rural community (Tijani, 2005). Fifteen percent of household heads were systematically selected from the communities in the ecotourism sites. Sampled households in Jos Wildlife Park (159) and Pandam Game Reserve located in Plateau State (98), and Farinruwa Waterfall (62) and Peperuwa Lake located in Nasarawa State (12) gave a total of 331 respondents. Data were collected through the administration of a structured questionnaire on the selected respondents, key informant interviews (KII) and direct non-participant observation.

Data analysis

Quantitative data were collected using a structured questionnaire with a Cronbach's alpha reliability coefficient of 0.884. Respondents' level of perceived ecotourism effect on well-being was assessed based on their indication of whether ecotourism had a high positive effect (HPE), a positive effect (PE), undecided (UN), negative effect (NE) and high negative effect (HNE), with values from HPE=5 to HNE =1, on thirty (30) well-being statements, made up of six each from the five well-being domains. A total of 247 copies, representing 74.6% of the administered questionnaires were retrieved. Percentage, mean and frequency distribution tables were used to explain descriptive data, while analysis of variance (ANOVA) and Duncan's multiple range tests were used to analyse inferential statistics.

Results and Discussion

Respondents' socioeconomic characteristics

Previous studies have shown that the socioeconomic characteristics of respondents in the tourism area influence their perception of the effect of tourism on their lives (Long, 2012). Table 1 reveals that the respondents' mean age was 48years and more than half (58.3%) were in the 31-50 years age bracket. Most of the respondents were male (71.7%) and married (75.3%). More than half (58.3%) of the respondents were engaged in jobs not directly related to tourism, such as farming, fishing and artistry. The result on the respondents' education revealed that 80% of the respondents

in the research area had formal education, indicating a high literacy level. But only 38.5% had education beyond the primary school level. Furthermore, the result revealed that 43.3% of the respondents had lived in the community for over 16 years, and 16.2% had lived there for 11-15years. It also showed that more than half of the respondents (59.1%) earned a monthly income of ₦20,000 or below.

Perceived effect of ecotourism on well-being domains

The perceived effect of ecotourism on well-being domains showed the residents’ opinion on the nature of the effect of ecotourism on different aspects of their lives. Table 2 reveals that the majority of the respondents’ perceived the relationship with people in the community ($\bar{x} = 3.71$) and the feeling of belonging in the community ($\bar{x} = 3.57$) to be the most positively affected by ecotourism.

Table 1: Socio-economic characteristics of respondents (n=247)

Variable	Frequency	Percentage
Age(Years)		
<31	24	9.7
31-50	120	48.6
51-70	93	37.7
<70	10	4.0
Gender		
Male	177	71.7
Female	70	28.3
Religion		
Christianity	189	76.5
Islam	50	20.2
Traditional	8	3.2
Marital Status		
Single	27	10.9
Married	186	75.3
Divorced	10	4.1
Widowed	24	9.7
Education		

Variable	Frequency	Percentage
No formal Education	43	17.4
Primary	109	44.1
Secondary Education	64	25.9
Tertiary	31	12.4
Job Status		
Unemployed	41	16.6
Tourism-related	39	15.8
Non tourism-related	144	58.3
Retired	23	9.83
Length of residency		
<1year	12	4.9
1-5years	39	15.8
6-10years	49	19.8
11-15years	40	16.2
>16years	107	43.3
Monthly Income(₦)		
<5000	54	21.9
5100-20000	92	37.2
20100-50000	79	32
50100-100000	18	7.3
>100000	4	1.6

This implies that a high and beneficial interpersonal relationship exists among the people as a result of ecotourism. This may be the result of community pride, a common phenomenon which arises when local destinations receive attention from both visitors and other stakeholders which the residents see and interact with (Neth, 2008). The health and safety domain was also perceived to be positively affected but it was less than the community domain. Health treatment received when sick (3.32) and quality of drinking water (3.29) were the most affected by ecotourism.

Table 2: Distribution of respondents' perceived effect of ecotourism on wellbeing domains

S/N	Statements	HPE	PE	UN	NE	HNE	Mean
Community domain							
1.	Relationship with people in the community	39(15.8)	125(50.6)	55(22.3)	28(11.3)	0	3.71
2.	Feeling of belonging in the community	38(15.4)	108(43.7)	63(25.5)	31(12.6)	7(2.8)	3.56
3.	Security services in the community (vigilante, police, etc)	36(14.6)	101(40.9)	81(32.8)	19(7.7)	10(4.0)	3.54
4.	Support/help you receive from people in the community	28(11.3)	99(40.1)	89(36.0)	29(11.7)	2(0.8)	3.49
5.	Size and access of market in the community	33(13.4)	86(34.8)	95(38.5)	24(9.7)	9(3.6)	3.45
6.	Condition of infrastructure in community	17(6.9)	104(42.1)	73(29.6)	42(17.0)	11(4.5)	3.30
Health and Safety domain							
7.	Health treatment you received when sick	18(7.3)	108(43.7)	72(29.1)	33(13.4)	16(6.5)	3.32
8.	Quality of drinking water	16(6.5)	99(40.1)	82(33.2)	41(16.6)	9(3.6)	3.29
9.	Foodstuff available to you throughout the year	13(5.3)	63(25.5)	107(43.3)	61(24.7)	3(1.2)	3.09
10.	Safety in the day	15(6.1)	81(32.8)	94(38.1)	44(17.8)	13(5.3)	3.17
11.	Safety at night	12(4.9)	68(27.5)	103(41.7)	56(22.7)	8(3.2)	3.08
12.	Waste disposal method in the house	25(10.1)	61(24.7)	118(47.8)	36(14.6)	7(2.8)	3.25
Material domain							
13.	Current occupation	31(12.6)	64(25.9)	83(33.6)	57(23.1)	12(4.9)	3.18

S/N	Statements	HPE	PE	UN	NE	HNE	Mean
14.	Income from current job	29(11.7)	58(23.5)	79(32.0)	70(28.3)	11(4.5)	3.10
15.	Condition of house you live in (mud or brick)	15(6.1)	57(23.1)	80(32.4)	87(35.2)	8(3.2)	2.94
16.	Economic future of current job	25(10.1)	55(22.3)	100(40.5)	60(24.3)	7(2.8)	3.13
17.	Cost of basic necessity such as food and clothing	20(8.1)	63(25.5)	56(22.7)	96(38.9)	12(4.9)	2.93
18.	Size of your farm land	23(9.3)	71(28.7)	85(34.4)	61(24.7)	7(2.8)	3.17
Educational domain							
19.	Level of education (Pri., Sec.,Ter.)	32(13.0)	77(31.2)	83(33.6)	48(19.4)	7(2.8)	3.32
20.	Job skills you have acquired in your life	32(13.0)	83(33.6)	81(32.8)	43(17.4)	8(3.2)	3.36
21.	Performance at your job based on your education	31(12.6)	55(22.3)	113(45.7)	45(18.2)	3(1.2)	3.27
22.	Education of your spouse and children	37(15.0)	93(37.7)	68(27.5)	44(17.8)	5(2.0)	3.46
23.	Opportunity for progress on present job	17(6.9)	92(37.2)	98(39.7)	25(10.1)	15(6.1)	3.29
24.	Types of sch. available (Pri., Sec., and Ter.)	17(6.9)	99(40.1)	82(33.2)	42(17.0)	7(2.8)	3.31
Emotional domain							
25.	Overall emotional condition	20(8.1)	65(26.3)	90(36.4)	64(25.9)	8(3.2)	3.10
26.	Use of leisure time	16(6.5)	86(34.8)	91(36.8)	50(20.2)	4(1.6)	3.24
27.	Participation in sporting and recreational activities	30(12.1)	57(23.1)	118(47.8)	31(12.6)	11(4.5)	3.26
28.	The way cultural activities take place in your community	43(17.4)	89(36.0)	75(30.4)	40(16.2)	0	3.55

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S/N	Statements	HPE	PE	UN	NE	HNE	Mean
29.	Your spiritual life	48(19.4)	114(46.2)	54(21.9)	25(10.1)	6(2.4)	3.70
30.	Religious tolerance in the community you live	47(19.0)	84(34.0)	65(26.3)	39(15.8)	12(4.9)	3.46

HPE=High Positive Effect, PE=Positive Effect, UN=Undecided, NE=Negative Effect, and HNE=High Negative Effect

For material well-being, the majority of the respondents seemed to be undecided as to the effect of ecotourism. With respect to this, the study showed that current occupation ($\bar{x} = 3.18$), size of farmland ($\bar{x} = 3.17$) and economic future of present job ($\bar{x} = 3.13$), respectively had 33.6%, 34.4% and 40.5% of the respondents undecided

For the educational well-being domain, ecotourism had the most positive effect on opportunity for progress in their present job ($\bar{x} = 3.46$) and type of job skills acquired in life ($\bar{x} = 3.36$). For the emotional well-being domain (items 25-30), the respondents perceived their spiritual life ($\bar{x} = 3.70$), cultural activities in the community ($\bar{x} = 3.55$), and religious tolerance (mean=3.45) as the most positively affected by the influence of the ecotourism sites.

Table 3 shows aggregated means for the five well-being domains whose items appear in table 2. The greatest effect was in the community well-being domain as indicated by the highest aggregated mean ($\bar{x} = 21.05$). The implication of this is that social connectedness (FFI, 2015), among residents in the selected communities is the most positively affected by ecotourism development initiatives relative to other aspects of the people's lives. It suggests that the bond of relationships among residents was strengthened. Ecotourism enhanced, more than any aspect of life, their inter-personal support and care for each other's needs, safety and concern for available social amenities in their communities. This was followed in descending order by the ecotourism effect on the residents' emotional domain ($\bar{x} = 20.32$), which represents stability (FFI, 2015). Positive emotion is critical to personal well-being; it indicates the ability to cope with the demands of everyday life including being sick (Fredrickson and Joiner, 2002). This is rather expected in rural locations where livelihood resources access is curtailed. Residents usually develop coping mechanisms such as sports and religious activities to improve their psychological well-being.

The positive effect of ecotourism on education ($\bar{x} = 20.00$) may be considered moderate. Both fishermen and crop farmers are forced by ecotourism restrictions to improve their agricultural skills for better output. For instance, it was observed that the adoption of improved seeds, herbicides and artificial fertilizers were gaining popularity amongst the residents due to unavailable land for shifting cultivation. However, many of the residents still aspire to improve on their formal education, so they can enhance their livelihood opportunities. The health and safety domain ($\bar{x} = 19.19$) may be considered to have been enhanced by ecotourism due to the presence of local health centres in the communities. However, it was observed that medical personnel were seldom available to cater for the residents' health needs. Drugs were also costly where available. Residents' health challenges were often compounded by lack of sufficient foodstuff all year round. The least positively influenced by ecotourism was the material domain ($\bar{x} = 18.45$) of the residents. The results suggest that ecotourism has not enhanced the residents' capacity to acquire relevant resources necessary for improving their well-being. This is indicated by their observable poor housing, low income, low job prospects and high cost of basic commodities.

Table3.Distribution of means: effect of ecotourism on well-being domain (n=247)

Domains	Min	Max	Mean	Std. Dev
Community	12.0	30.00	21.05	4.10
Health and safety	9.00	30.00	19.19	3.97
Material	9.00	30.00	18.53	4.64
Education	11.0	30.00	20.00	4.64
Emotional	14.0	30.00	20.32	3.95

Table 4 further shows that 51% of the respondents perceived ecotourism to have low effect on their well-being, than their desired expectations. This may not be unconnected to the fact that their perception of its effect on their material domain is the lowest, as observed in Table 3. The result is in line with the study by Oni and Adepoju (2014) which showed that indicators of material well-being, such as income, are low and correlate with well-being in rural Nigeria. Even though this result shows

that ecotourism has the most positive effect on the relationships the residents have with each other in their communities, material well-being is critical to the quality of their lives in general. Material resources such as monthly income play an important role in an individual’s access to relevant livelihood resources in the study area, where the majority earn ₦20,000 and below. Here, balanced diets, clothing, medication and good housing are often beyond the people’s reach. The respondents therefore expect more from the ecotourism site in meeting their economic needs. However, quite a large proportion of the respondents still believe that the ecotourism sites meet their desired expectations.

Table 4. Level of perceived ecotourism effect

Perceived Effect	Frequency	%	Mean	SD	Min	Max
Low effect	126	51.0	78.04	14.53	54.0	120.0
High effect	121	49.0				

Difference in respondents’ well-being domains across ecotourism sites

Effect of ecotourism on community domain

The results in Table 5 show that the effect of ecotourism on community well-being domain, represented by the aggregate of the means for the items on community domain (table 2), differ across the catchment areas of the ecotourism sites ($F = 4.07, p = 0.008$).

Table 5: Perceived effect of ecotourism on well-being domains

Variables	Perception status	Sum of square	Df	Mean square	F	P	Decision
Community	Between group	198.48	3	66.15	4.07	0.008	Significant
	Within group	3941.87	243	16.22			
Health and safety	Between group	57.11	3	19.04	1.21	0.306	Not significant
	Within	3813.56	243	15.69			

group							
Material	Between group	521.91	3	173.10	8.85	0.000	Significant
	Within group	4779.55	243	19.67			
Educational	Between group	322.73	3	107.58	5.26	0.002	Significant
	Within group	4967.27	243	20.44			
Emotional	Between group	79.88	3	26.63	1.72	0.163	Not significant
	Within group	3759.49	243	15.47			

*Significant at $p < 0.05$

The Duncan test in Table 6 shows that Peperuwa Lake ($\bar{x} = 24.8$) had the greatest positive effect on the community well-being domain of the residents, compared to Pandem Wildlife Park ($\bar{x} = 21.3$), Farin Ruwa Waterfall (mean = 21.0) and Jos Wildlife Park ($\bar{x} = 20.5$). This indicates that Peperuwa Lake had a more positive impact on the well-being of its surrounding communities. This may be explained by the nature and level of access by the respondents to the resources in the ecotourism sites. Information from the community head of Tunganupawa (situated at the bank of Peperuwa Lake) as well as officials of Nasarawa State Ministry of Information, Culture and Tourism (Tourism Department) showed that, unlike the other three sites, Peperuwa Lake is still being managed at the local government level. The local residents, in collaboration with officials of the local government area, manage the lake and forest resources. This gives almost unlimited access to fishing in the lake. Regulating fishing, their most important livelihood activity, is the responsibility of the community head, with the assistance of his relatives and aides. He pays some amount of money to the local government authorities on a monthly basis. This is in line with Kim's (2002) assertion that community well-being is enhanced when there is equal access to shared resources.

Table 6: Duncan test of perceived effect of ecotourism on community domain

		Subset for alpha =0.05	
		1	2
Jos Wildlife Park	113	20.5398	
Farin Ruwa Waterfall	60	21.0000	
Pandem Wildlife Park	62	21.3226	
Peperuwa Lake	12		24.7500
Sig.		.468	1.000

Effect of ecotourism on material well-being domain

Table 5 reveals that perceived effect of ecotourism on material well-being represented by the aggregate of the means of the items on material domain (table 2), was significantly different across catchment areas of the ecotourism sites ($F = 8.85, p = 0.000$). This suggests that the effects of ecotourism on the material domain in terms of access to basic amenities, occupation and income as perceived by the respondents, vary significantly across communities around the ecotourism sites. The post-hoc analysis, as depicted in Table 7, shows that the respondents around Peperuwa Lake ($\bar{x} = 22.9$) had their material domain most influenced by ecotourism when compared to Pandem Wildlife Park ($\bar{x} = 20.1$), Farin Ruwa Waterfall ($\bar{x} = 18.0$) and Jos Wildlife Park ($\bar{x} = 17.5$). This result underscored the dependence of the respondents on the natural resources offered by the ecotourism sites under consideration. The respondents around Peperuwa were fishermen who derived their income principally from selling fish taken from the lake daily; their economic life was thus dictated by the lake resources. This was different for the respondents around Pandam Wildlife Park whose major occupation was crop farming, though fishing on the Pandam Lake was also an important economic activity. The respondents around Farin Ruwa Waterfall and Jos Wildlife Park perceived the least economic effects of these sites on their income because they were not fishermen and did not depend on the sites for their livelihoods.

Table 7: Duncan test of perceived effect of ecotourism on material domain

Ecotourism site	N	Subset for alpha = 0.05		
		1	2	3
Jos Wildlife Park	113	17.4867		
Farin Ruwa Waterfall	60	18.0167	18.0167	
Pandem Wildlife Park	62		20.0968	
Peperuwa lake	12			22.9167
Sig.		.633	.062	1.000

Effect of ecotourism on educational well-being domain

The perceived effect of ecotourism on the educational well-being domain represented by the aggregate of the means of the items on educational domain (table 2), significantly differed across the catchment areas of ecotourism sites ($F = 5.26$, $p = 0.002$), as depicted in Table 4. This implies that the educational effects of ecotourism vary across catchment areas of ecotourism sites. This is further explained in the post-hoc test in Table 8 which shows that Pandem Wildlife Park ($\bar{x} = 21.8$) had more educational effect on its residents than Peperuwa Lake ($\bar{x} = 21.4$), Jos Wildlife Park ($\bar{x} = 19.3$) and Farin Ruwa Waterfall ($\bar{x} = 19.2$). The result also showed that the effects of ecotourism on the education domain in terms of access to basic job skills and formal education are better for both Pandam Wildlife Park and Peperuwa Lake, that provide fishing opportunities for residents in their catchment areas, than for both Jos Wildlife Park and Farin Ruwa Waterfall which do not have fishing communities around them. This result implies that traditional skills are as germane to well-being as is formal education. Fishermen need special skills to succeed in their vocation; such skills are usually traditionally transferred from fathers to their children over a period of time.

Table 8. Duncan test of perceived effect of ecotourism on educational domain

Ecotourism site	N	Subset for alpha = 0.05		
		1	2	3
Farin Ruwa waterfall	60	19.2162		
Jos Wildlife Park	113	19.2743		
Peperuwa Lake	12	21.4167		

Pandem Wildlife Park	62	21.8065	
Sig.		066	730

Conclusion

The ecotourism sites were perceived to have a positive but less effect than expected on the well-being of the respondents, which also differed across the ecotourism sites. The effect of ecotourism on the community and emotional well-being domains enhanced the overall well-being of the respondents but its effects on the material, health and safety domains were detrimental to the sustainable development of the rural residents. The study found that ecotourism sites that provide means of livelihoods were perceived to have more positive effects on the well-being of the respondents than those that did not. This suggests that ecotourism sites can be used as tools to improve the well-being of the people in a sustainable manner. It also indicates that the availability of livelihood opportunities around ecotourism sites would go a long way in impacting positively on the well-being of local people. Based on the social exchange theory (Nunkoo, 2016), residents are likely to support development of ecotourism in an area such as Peperuwa, where they perceive the most positive effects on their different well-being domains and their overall well-being as well.

Recommendations

Based on the findings from the study, the following recommendations are made:

1. Conservation education, training on improved farming methods, additional vocational skills and access to capital are possible areas to be explored in the bid to improve the well-being of local residents and shift their attention from exploitative uses of tourism resources.
2. Community-based local resource management committees need to be created to strengthen the relationship between the managers of the ecotourism sites and the residents, thereby providing opportunities for the residents to be involved in the administration of the sites, offering useful suggestions to the managers, and thereby benefiting more from ecotourism.

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