

THE CONSTRUCTED ENVIRONMENT: GAIN AND LOSSES (A CASE STUDY OF EKPOMA TOWN IN EDO STATE-NIGERIA)

Adavbiele, Justina A. PhD
*Department of Vocational & Technical Education,
Ambrose Alli University, Ekpoma-Nigeria*

Abstract

Ekpoma since the inception of a University and Teaching Hospital has expanded rapidly from being a rural area to become an urban area. Business has expanded in it, new roads are constructed and most areas have been electrified, but accommodation, crimes, accidents, waste accumulation, pollution and other vices are also on the increase. In the circumstance, this study aims to examine the gain and losses of this constructed environment. A descriptive survey designed was used (interview, percentage and mean methods) to examine in detail the benefits and problems associated with this constructed environment. The finding reveals that though the problems the development has caused are more than the benefits, these problems could have been averted if the structures, safety and security measures were put in place before the increase in population.

Keywords: Environment, Construction, Gain, Losses, Planning.

Background to the Study

The environment is the natural world (the air, soil and water), within which living organisms (people, animals and plants) live (Porteous, 1991). The soil is the thin mantle of material that supports terrestrial life. It is the product of climate, parent material such as glacial till and sedimentary rocks, and vegetation. Dependent on all these are the Earth's living organisms, including human beings. Plants use water, carbon dioxide and sunlight to convert raw materials into carbohydrates through photosynthesis; animal life, in turn, is dependent on plants, in a sequence of interconnected relationships known as the food web. The built environment is defined as the urban area around us (Porteous, 1991, Environmental Protection Agency, 2000 and Ina Klaasen and Wil Zonneveld, 2012). Our world is becoming increasingly developed and crowded. Much of where we live in is man made—from

the roads and city parks to the houses and apartments we live in. The built environment includes all of these spaces. Ekpoma since the inception of a University and Teaching Hospital has expanded rapidly from being a rural area to become an urban area. Business has expanded in it, new roads have been constructed; cultural interaction has increased and most areas have been electrified, but accommodation, crimes, accidents, waste accumulation, pollution and other vices are also on the increase. In the area, waste-disposal facilities are minimal and substantial quantities are not diverted for recycling. The impact of the built Ekpoma environment on dwelling lives has been profound (Adavbiele, Otubu and Adavbiele, 2006). It is also regarded that the environment is being at risk from the harmful influences of the building activities (Dubos, 2002; Izomoh and Olomu, 2005; Osuide and Dimuna, 2000; 2005, Dimuna, 2005 and Federal Office of Statistics, 2001).

Although the fact that cities concentrate production and population may be considered a problem, Odomudu (1987) stated that it also gives them some obvious potential advantages over rural settlements or dispersed populations. For instance, high densities mean much lower costs per household for the provision of piped, treated water supplies, the collection and disposal of household and human wastes, and most forms of health, educational, and emergency services. Perhaps the main determinant of the quality of the built Ekpoma environment is whether the potential advantages of the concentration of population and production in the city are well utilized, while avoiding the potential problems. Within Ekpoma, the concentration of population has made sewage disposal problematic given the volume of sewage and solid wastes generated (Adavbiele and Igbudu, 2006). However, this is not the case in rural areas, where most of the population lives. Common consequences are: the devaluation of property, the generation of alternate periods of congestion and emptiness; the increasing appearance of disfiguring conversions to adapt buildings to commercial use and the growing presence of urban voids, various areas that have become highly accessible in the past are now the privileged sites for a concentration, and diversification of activities including those that were traditionally located in the old town centre as well as of medium and large scale residential and commercial developments.

The first concern, therefore, is an understanding of the gains and losses of the built Ekpoma community on the life of the people. The second concern is the environmental impact of the urban-based development on the needs of the people, not just those within the town jurisdiction, but the immediate surroundings. The third is the nature of many natural resources (or the ecosystems from which they are drawn) and of the capacities of ecosystems in the wider context to absorb or break down wastes. Lastly, though the change in the vitality of a language has important implications for individuals and the society, multilingualism is a common and

increasing phenomenon in present day Ekpoma which can be studied from different perspectives. These issues form the subject of discussion in this paper.

Statement of the problem

When people build houses, roads, farms, and factories, they destroy the land where plants and animals live. They cut down forests for lumber and to clear land for farming in a practice known as deforestation. Factories and cars release chemicals into the air that cause a type of pollution known as acid rain, which damages trees, lakes, and rivers. Without trees for shelter or clean water to drink, animals, including man suffer and cannot survive. These activities by man are currently having a negative impact on Ekpoma and the world at large. Any town that is not developed technologically is poor, therefore technology is inevitable. In this circumstance, can we forfeit technology to retain our naturally constructed environment? Since the answer is no, there is the need to address the following problems.

- 1 What are the gains of the built Ekpoma environment?
- 2 What are the problems associated with the built Ekpoma environment?
- 3 What can be done to rectify these problems to have a healthy Ekpoma environment?

Method

This study employed partly site visitation and a descriptive survey research design, which considers the use of questionnaire formulated after review of related literature and other scales that have been used in similar situations. Sample information was sought from 200 respondents, among which 190 responded from a larger population of the Ekpoma community divided into ten zones. The questionnaire has three sections. Section A had 12 items addressing the gains from the built Ekpoma environment. Section B also had 20 items, which were to provide information on the losses associated with built Ekpoma environment. Section C had 18 items, which were to provide information on what can be done to rectify these problems to provide a healthy environment in Ekpoma. All the items in sections A, B, and C were placed on a four point Likert-type scale, with responses ranging from strongly agree (SA), agree (A) disagree (DA) and strongly disagree (SD) respectfully. Percentage and mean methods were used to assess responses. Based on the 4-point Likert-type scale, a benchmark mean of 2.5 was used about which decisions were made.

Results

Table 1 list out the zones of the respondents with percentage against the total return. The results were collected from the zones and tables 2 to 4 consist of the gain, losses and solutions respectively.

Table1. Distribution of Respondents in Ekpoma Community

S/N	NAME OF ZONE	NO OF RESPONDENTS	PERCENTAGE (%)
1	Eguare	22	11.58
2	Irukepken	23	12.11
3	Uhiele	21	11.05
4	Ihumudumu	23	12.11
5	Ujemen	17	8.95
6	Illeh	19	10.00
7	Emaudo	18	9.47
8	Ujuolen	19	10.00
9	Ukpenu	20	10.53
10	Uke	8	4.21
	Total	190	100

Note: NR stands for number of respondents

Table 2: Identified Gains of the Constructed Ekpoma Environment

S/N	ITEM	SA	A	D	SD	N	MEAN(X)	REMARK
1	Modern ways of dressing	130	40	12	8	190	3.54	Strongly Agreed
2	Tourist attraction	139	31	8	12	190	3.56	Strongly Agreed
3	Business opportunities	130	140	12	8	190	3.54	Strongly Agreed
4	Marketing facilities	95	60	20	15	190	3.24	Strongly Agreed
5	Improved accommodation services	66	76	30	18	190	3.00	Strongly Agree
6	Health care services	139	31	8	12	190	3.56	Strongly Agreed
7	Postal and communication services,	77	60	29	24	190	3.00	Strongly Agreed
8	Cultural relationship	110	40	17	23	190	3.25	Strongly Agreed
9	Urbanization	129	38	13	10	190	3.51	Strongly Agreed
10	Our roads are constructed	115	64	5	6	190	3.52	Strongly Agreed
11	The advent of the university brought educational facilities to us	118	60	8	13	190	3.54	Strongly Agreed
12	Business boom is currently on the increase at Ekpoma	124	49	10	1	190	3.53	Strongly Agreed

In table 2 and as shown in Figure 1, 12 identified gains of built Ekpoma environment are itemized. The calculated mean in items1-12 from the mean ratings shows that the respondents agreed that all the stated items are gains resulting from the built Ekpoma environment.

Figure 1: Gains from the Ekpoma Built Environment

Table 3: Identified Problems Associated with Built Ekpoma Environment.

S/ N	ITEM	SA	A	D	SD	N	MEAN(X)	REMARK
1	Natural ecosystem altered as a result of construction	13 0	40	12	8	19 0	3.54	Strongly Agreed
2	Accident on the increase	13 9	31	8	12	19 0	3.56	Strongly Agreed
3	Crime is currently on the increase at Ekpoma	13 0	14 0	12	8	19 0	3.54	Strongly Agreed
4	Insufficient accommodation	95	60	20	15	19 0	3.12	Strongly Agreed
5	Air pollution on the increase	77	60	29	24	19 0	3.00	Strongly Agreed
6	Road accidents is a major treat	12 9	38	13	10	19 0	3.51	Strongly Agreed
7	Noise pollution on the increase	20	14	62	94	19 0	2.76	Strongly Agreed
8	Commutation of solid waste	24	14	62	90	19 0	2.79	Strongly Agreed
9	Sewage facility disposal problems	12 4	49	10	1	19 0	3.53	Strongly Agreed
10	Power supply shortage	90	77	15	18	19 0	3.34	Strongly Agreed
11	Shortage Water supply	12 2	48	12	8	19 0	3.56	Strongly Agreed
12	Solid waste	12 9	38	13	10	19 0	3.51	Strongly agreed
13	Air pollution	26	14	60	90	19 0	2.78	Strongly Agreed
14	Water pollution	20	40	51	79	19 0	3.13	Strongly Agreed
15	Wildlife destruction	10 0	40	17	33	19 0	3.24	Strongly Agreed
16	Vegetation destruction	11 8	39	18	15	19 0	3.48	Strongly Agreed
17	Environmental worming	11 2	60	8	10	19 0	3.52	Strongly Agreed
18	Problem of insecurity	10 0	78	11	10	19 0	3.54	Strongly Agreed
19	Language mix-up	90	50	35	15	19 0	2.91	Agreed
20	Spacing warming	10 2	40	38	10	19 0	3.01	Agreed

In table 3 and as depicted Figure 2, 20 identified problems associated with built Ekpoma environment are itemized. The calculated mean in items1-20 from the mean ratings shows that the respondents agreed that all the stated items are accompanying problems from built Ekpoma environment.

Figure 2: Losses from the Ekpoma Built Environment

Table 4: Suggested Ways of Rectifying the Problems of the Built Ekpoma Community.

S/ N	ITEM	SA	A	D	SD	N	MEAN(X)	REMARK
1	Domestic waste to be converted to useful energy in this solid waste plant	95	7 2	15	18	19 0	3.34	Strongly Agreed
2	City provision transport to avoid accident	12 6	4 8	12	4	19 0	3.56	Strongly Agreed
3	Provision of good road network	20	1 4	62	94	19 0	2.79	Strongly Agreed
4	Allow government reserve forest to avoid destruction of vegetation and wildlife	28	3 9	52	71	19 0	2.13	Disagreed
5	Adequate supply of water	26	1 9	57	88	19 0	2.61	Strongly Agreed
6	Provision of electricity	11 1	6 8	7	4	19 0	3.50	Strongly Agreed
7	Good refuse disposal system	12 9	4 2	13	6	19 0	3.55	Strongly Agreed
8	Acoustic materials recommended for building construction to check noise pollution	10 6	7 2	4	8	19 0	3.45	Strongly Agreed
9	Use of trained security personnel	11 2	6 0	8	10	19 0	3.52	Strongly Agreed
10	Industrialization of Ekpoma to allow employment of youth will reduce crime	11 9	3 8	13	20	19 0	3.50	Strongly Agreed
11	Adopting policies to encourage waste minimization	12 0	3 8	13	19	19 0	3.31	Strongly Agreed
12	Stoppage of bush burning	80	6 0	22	28	19 0	2.63	Agreed
13	Domestic waste is converted to useful energy in this solid waste plant	12 8	3 9	13	10	19 0	3.53	Strongly Agreed
14	Provision of low cost housing scheme to solve accommodation problem	26	3 9	57	88	19 0	2.81	Strongly Agreed
15	Provision of hospital facilities	10 0	3 0	22	38	19 0	3.34	Strongly Agreed
16	Provision of business facility	12 0	4 0	12	18	19 0	3.44	Strongly Agreed
17	Provision of educational facilities	13 0	4 0	12	8	19 0	3.54	Strongly Agreed
18	Provision of amenities	11 9	3 8	13	20	19 0	3.41	Strongly Agreed

Eighteen (18) suggested ways of rectifying the problems of the built Ekpoma community are itemized in table 4 and presented in Figure 3, out of which the respondents agreed on 17 stated items (proffered solutions) but disagreed on item 4.

Figure 3: Proffered Solutions for the Ekpoma Built Environment

Discussion

In table 2, 12 identified gains of the built Ekpoma environment were itemized. The calculated mean (higher than 2.50) in items 1-12 from the mean ratings shows that the respondents agreed that all the stated items are the benefits associated with the built Ekpoma environment, which include modern ways of dressing, tourist attraction, increased business opportunities, marketing facilities, improved accommodation services, health care services, postal and communication services, cultural relationship, urbanization and roads construction. It suffices to say that the advent of the university brought about higher educational facilities and business boom that is currently on the increase at Ekpoma. Furthermore, the healthcare situation has improved with the inception of the teaching hospital. This is in line with the opinion held by Johnson (2005) who stated that the outcomes of built environment are to improve not only the education, but the health care of the people.

Table 3 consists of 20 identified problems associated with built Ekpoma environment. The calculated mean as represented in items 1-20 from the mean ratings show that the respondents strongly agreed that all the stated items are problems emanating from built Ekpoma environment. The natural ecosystem is altered because of ongoing construction while road accidents and crime are on the increase. Besides, there is insufficient accommodation problem; air, water and surface including noise pollution are on the increase; there is accumulation of solid waste, sewage disposal is a problem, frequent shortage of power supply exists; there is shortage of water supply; wildlife are completely displaced and vegetation are being destroyed. The environment is experiencing climate warming and insecurity of life and property has become a major problem arising from the teeming population, a great number that are unemployed. According to Sarinen (1966), domestic accidents resulting in injury and premature death are often among the most serious, especially if a high proportion of the population live in overcrowded dwellings made of flammable materials as is common in Ekpoma now. The amount of rain forest cut down every year is already having a negative impact on the entire society, which is now beginning to experience flooding and ground erosion.

In tables 4, 18 suggested ways of rectifying these problems to have a developed environmental friendly Ekpoma community were proffered. The calculated mean in items 1-18 from the mean ratings show that the respondents agreed that all the stated items are proffered solutions but disagreed with item 4, which states that government should be allowed to reserve forest to avoid destruction of vegetation and wildlife. Respondents during the interview section reaffirm their fear that government will monopolize this opportunity thereby depriving individual free access to farming in the surrounding forest.

Responses to the remaining 17 items raise a number of issues. Although growing levels of urbanization are associated with growing levels of private car ownership, the Ekpoma town represents a much greater potential for limiting the use of motor vehicles and the fossil fuels they need through walking, bicycling, or greater use of public transport to limit accidents arising from road use. Physical hazards are a major source of injury and premature death from accidents, especially from motor cycles, in the area. Domestic accidents are often among the most serious, especially if a high proportion of the population live in overcrowded dwellings made of flammable materials. The solution proffered is to avoid over crowded dwellings.

Policies should be adopted to encourage waste minimization, which consists of a hierarchy of management options ranging from cessation of waste production (the most favoured), reuse, recycling, combustion for fuel and disposal by landfill, and so on, to incineration (the least favoured). Together with other strategies, such as encouragement of recycling centers and domestic composting of organic matter, it is likely that there will be a substantial move away from traditional waste-disposal practices (Adavbiele and Igbudu, 2006) to the alternative methods mentioned above.

Critical social dimensions include poverty and health. Policy and institutions, although most often thought of as the response to mitigate such change, may also drive environment change and impact directly on human vulnerability. From a health perspective, environmental problems are best identified if considered in terms of the nature of the hazard (for instance biological pathogens, chemical pollutants, and physical hazards) and the physical context in which they occur (for instance the home, workplace, neighborhood, or at the city level). The most serious Ekpoma environmental problem in regard to health are the biological pathogens (disease-causing agents) in water, food, air, and soil. For instance, diarrhea diseases are responsible for the deaths of hundreds of infants and children living in it each year and for tens whose physical and mental development is impaired by repeated attacks of diarrhea (Izomoh and Olomu, 2005). Hundreds of the dwellers suffer each year from malaria or other diseases spread by insects—including hundreds who die (mostly children under five). This calls for proper planning to ensure good quality water is supplied and drainage run should frequently be cleared to avoid breeding places for insects, particularly mosquitoes. There is a large and growing list of chemical pollutants, which are known to cause or contribute to ill health or premature death. Exposure takes place in homes, workplaces, or within the ambient environment. Air pollution is sufficiently serious in the town to have demonstrable health impacts; industries, motor vehicles, and domestic cookers and heaters are the main source. There is also a growing list of chemicals in the environment about which there is concern, even if the precise health impact is not known. The use of these devices should be regulated and ensure strict compliance.

Pollution of surface and groundwater is minimized by lining and contouring the fill, compacting and planting the cover, selecting proper soil, diverting upland drainage, and placing wastes in sites not subject to flooding or high groundwater levels; gases are generated in landfills through anaerobic decomposition of organic solid waste. If a significant amount of methane is present, it may be explosive; proper venting eliminates this problem.

The concentration of production and consumption in the town means a greater range and possibility for efficient use of resources such as paper, glass, or plastics, through material reclamation, recycling, and reuse, and for the specialist enterprises that ensure this can happen safely. Today, recyclable materials are recovered from municipal refuse by a number of methods, including shredding magnetic separation of metals, air classification that separates light and heavy fractions, screening and washing. This should be the practice in Ekpoma.

Moving from a concern for the urban environment to a concern for sustainable development has resulted in a growing awareness of two new responsibilities for governments and developers. Building a dam on a river as with the Ebiekuma dam in the town for electric power, irrigation and water supply can harm ecosystems around the river. Bulldozing lands and cutting down forests for agricultural purposes destroys ecosystems. Ecologists and researchers working with companies and governments are to find better ways of catching fish, cutting down trees, and building dams. They are looking for ways to get food, lumber, and other products for people without causing harm to ecosystems. People in Africa are at the centre of sustainable development – in rural and urban areas. Although it was once largely rural, the Ekpoma has been experiencing major transformation in terms of population composition and distribution, with positive and negative implications for the environment and development. The challenge is not to arrest development but to use the available resources in a more productive and efficient manner, ensuring better and more equitable returns to people while at the same time lessening pressure on the environment.

Changing demography and particularly the changing age structure of the population, a high rate of urbanization, and a faster rate of population growth in relation to economic growth are major drivers of environmental change in Ekpoma, with significant impacts on the natural resource base. Due to this, it is imperative that population growth and its structural changes are addressed to reduce environmental degradation. Each year, the number of people increases, but the amount of natural resources with which to sustain this population to improve the quality of lives and to eliminate poverty remains finite increasing the challenge of sustainable development.

This fast rate of urbanization of Ekpoma is causing a strain on infrastructure and other services, with a percentage of the people living in slums. There is a growing and urgent need for integrated approaches to environmental planning and management. In the absence of alternative livelihood opportunities and strategic management of the environment, this rapid population growth and urbanization has resulted in environmental degradation and resource depletion. However, migration to urban areas is not inevitably destructive, nor does it necessarily lead to the formation or growth of dangerous and unhealthy slum areas. It is important to recognize the valuable role urbanization can play in stimulating the economy. The challenge lies in reversing the current pattern, and enhancing the efficiency of and the value derived from natural resource use. The youth are becoming increasingly important in natural resource management. The lack of employment and other livelihood opportunities, as well as setbacks in education, health and other capabilities, may mean that this generation will have increased natural resource dependence and pose new threats to the sustainability of the terrestrial ecosystems. Degraded environments may spur further social and economic conflicts and hardships.

Population growth affects the natural resource base in many ways. First, it causes increased demand for food, water, arable land and other essential materials, such as firewood, in all areas. Second, expanded agricultural activities encourage encroachment into forest and woodlands. These consequences are more pronounced in the context of high levels of poverty. Third, the degradation of the natural resource base in turn impinges on the livelihoods of all, but particularly the surrounding rural communities. More small farmers are forced to work harder, often on shrinking farms on marginal land, to maintain household incomes. Health, food security and environmental degradation are closely linked, and a negative change at any of these levels may have implications for the others (World Health Organization, 2005).

Conclusion

It can be inferred from the responses that Ekpoma built environment has been experiencing major transformation in terms of urbanization, population composition and distribution, with positive and negative implications for the environment and development. Though there are a lot to gain from urbanization of Ekpoma community, the losses or effects appeared to foreshadow gains. However, with proper planning, good layout of the town roads and buildings, good sewage and solid waste disposal, good security outfits and greening of the built spaces, Ekpoma environment can be brought closed to the initial natural setup thereby becoming a healthy dwelling.

References

- A. Porteous. "Dictionary of Environmental Science & Technology Buckingham" Open University press. 1991
- A.S. Adavbiele, & J.A. Adavbiele. "Micro Scheme for Overcoming the Perennial Water Shortage in Ekpoma". *The Built Environment*. 1 No 2 (2005).14-20
- A.S. Adavbiele, P.A. Otubu & J.A. Adavbiele. "The Environment & Engineering" Ways of Curbing the Paradoxical Implication of One on the Other". *The Built Environment*. 2 No 1 (2006). 36-43.
- A.S. Adavbiele and S.O Igbudu. "Solid Waste Management Strategies for Ekpoma". *The Built Environment*. 2 No 2 (2006) 41-45
- E. Sarinen. "The City: Its Growth, It's Decay. It's Future. Reinhold New York Publishing Corporation" New York. 1966. 21
- Environmental Protection Agency: Built Environment Web Site. Available at: <http://www.epa.gov/sustainability/builtenvironment.htm>. 2000. Accessed August 2, 2013.
- Federal Office of Statistics: Annual Report 2000. FOS, Abuja. 2001
- Ina Klaasen and Wil Zonneveld, Editors. "Evaluating the New Charter of Athens 2003". *Delft University of Technology Built Environment*. 38, No 4 (December 2012).
- Johnson, Ian: Environmentally and Socially Sustainable Development, Environment Matters. *The World Bank Annual Review*, 3 No 1 (2005). 87.
- K.O. Dimuna. "The slum: Its growth, nature, effects and solutions". *Occasional Journals*, 1 No 1 (2005). 3.
- P. White, M. Franke and P. Hindle. "Integrated Solid Waste Management. Blackie Academic & Professional" London. 1995.
- R.C. Odomudu. "Shelter & Housing, An Approach to Better Living". *Journal of Nigerian Institute of Architects*, 3 No 2 (1987). 92.
- R.J. Dubos. "Man adapting: His limitations & potentialities". *Environment for Man, The Built Environment Decay And Urban Health in Nigeria* (2002). 21
- S.O. Izomoh and J.I Olomu. "The Effects of Poor Architectural Design & Poor Application of Appropriate Technology on the Health of the Occupants of Residential Buildings: Nigerian Situation". *The Built Environment Journal of International Institute for Building Research (IIBR)*, 1 No1 (2005). 3.
- S.O. Osuide and K.O. Dimuna. "Effects of Population Growth on Urbanization and the Environment in Nigeria". *Proceeding of year 2000 National Seminar on Population, Growth, Architecture and the Environment*. (2000) 27-33
- S.O. Osuide and K.O. Dimuna. "None Compliance with Building Bye-Laws and Regulations in Nigeria" *The Dangers Ahead*". *The Built Environment Journal of International Institute for Building Research (IIBR)*, 1 No 1. (2005). 62-68
- World Health Organization: "Annual Review of Environment and Health in Africa". July 2004 -June 2005. WHO Geneva. (2005). 22-32