
AN APPRAISAL OF THE EFFECT OF HUMAN BEHAVIOUR ON THE INCIDENCE OF FLOODING
IN ADO – EKITI, EKITI STATE, NIGERIA.

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Abstract

This paper focuses on social responsibility of individuals and groups towards the environmental quality maintenance of the city of Ado-Ekiti as a way of abating the incidence of flooding in the settlement. The paper shows how responsible social behaviour and ethical conducts are germane to handling issues of flooding for the purpose of ensuring an environment free of natural hazard. The paper illustrates undesirable adverse consequences of disregard for ethical issues and in consideration of the importance of social responsibility in relation to the management and/or prevention of flooding in an urban environment. An instance of the linkage between social and ethical issues in an urban centre is illustrated with flooding situation in River Ajilosun in Ado-Ekiti in Ekiti State. Some of the areas where human behaviour causes flooding in the capital city are illegal dumping of refuse in water courses and storm drains, construction of houses on the floodplains and water courses, erection of buildings on sloppy terrains and dereliction of responsibility in keeping a hygienic environment. Insincerity on the part of the Town Planning Authority in ensuring a comprehensive implementation and total enforcement of the town planning laws are also part of the unethical factors contributing adversely to flooding in the city. This paper advocates for a change of attitudes on the part of the residents of Ado Ekiti and the municipal authorities for proper entrenchment of a sustainable environmental milieu rid of natural and anthropogenic disasters.

Keywords: Attitude, Behaviour, Flooding, Environment, Hazard

Introduction

Underlying every environmental problem in the society today is the human behaviour attitude and inclination. Ogundele (2003) concludes that eighty percent of the instances of environmental problems are the product of our behaviour. Therefore, solution to the incidence of flooding in Ado Ekiti must focus principally on changing the behaviour of our people and their orientation to environmental issues.

Flooding in Ado Ekiti is a serious environmental hazard which has grown particularly after the creation of Ekiti State on

1st October, 1996. The increasing influx of immigrants into the city in recent time and the concomitant upsurge in population growth and demand for land for various construction works, portends potential hazards and threats to the environment. In order to forestall experience of such dastard occurrence, this paper looks at areas where impacts of human behaviour on occurrence of flooding in the city can be controlled. It is strongly anticipated that such a step will go a long way to engender a sustainably liveable city environment in Ado-Ekiti.

Against the foregoing backdrop the paper examines the behavioural causes of flooding hazards in the study area and suggest measures to correcting such behaviours with a view to controlling the recurrent flood disaster in the city.

(A) Historical Records of Flooding in Ado-Ekiti (UTCL)

Flooding in Ado-Ekiti assumed relatively greater dimensions in its occurrence and geophysical effects since 1996 when Ekiti State was created and Ado-Ekiti was named as the capital city. Although prior to that year, isolated cases of floods/flooding were known to have occurred and affected different parts of the settlement (Adebayo, 1987; Arohunsoro, 2011), more disastrous cases of flooding were witnessed over the subsequent years.

Specifically in 1999, heavy flooding took its toll on Ado Ekiti and was particularly exacerbated by the global warming phenomenon activating climate change with the concomitant savage weather system (Watchtower, 2003; Adebayo, 2010; Arohunsoro, 2011). Cases of flooding in 2009 resulted in widespread spatial/hazards in the city.

Also in 2010 and 2011, several losses were incurred on household properties and engineering structures such as roads and hydraulic structures like bridges/culverts amongst which are the popular Ajilosun street bridge along Ado-Ikere road and the Odo Ayo bridge along the Ekiti State University road. These bridges gave way to the floods of 2009 and necessitated their subsequent reconstruction. Of more pathetic instance was the flooding of Sunday 24th October, 2010 when at Adeparusi in Opopogbooro, a six year old girl was

drowned in a ditch while going to church service. Also in 2011, there were widespread flooding across the city in areas such as Adehun, Ekute, Adebayo, Ita-Eku Mercy land, Oke Oniyo, Akeju lane via Oke-Ila road and Embassy Island off Mofere. The rain which caused the flooding of the 29th August, 2011 fell non stop and lasted for about four (4) hours. The heavy rain and flooding of 2nd September, 2011 pulled down fences, destroyed personal effects and caused traffic delay and diversion.

The prolonged rain that fell in the evening of the 3rd of September, 2018 left the land area opposite the Ayemi garage flooded heavily. The floodwater following the prolonged rain rendered the road across the River Ofin bridge impassable for several hours in the night. The nasty experience extended till the following day.

These and many other cases of flooding in Ado-Ekiti have necessitated the need to unite this paper so as to understand the dynamics of human behavior and how it is related to the aggravation of the occurrence of flooding in the city.

Literature Review and Conceptual Framework

Flooding is a situation whereby water accumulates excessively either in stream/run channels such that the channels is exceeded and causes water to spill to the adjacent areas of the channel. When flooding occurs in streets or spaces outside the run channels and banks, it refers to the widespread spatial coverage of an area which is normally dry but becomes submerged particularly due to prolonged rainfall or short duration rainfall in which the intensity of the rainfall exceeds the infiltration capacity of the soil.

Flood is a natural phenomenon which is basically of climatic origin. However, when flooding it results in hazard and disaster.

Globally, flooding remains a disaster which is ubiquitous in nature. The current onslaught of global warming and the climatic changes has pushed many regions across the globe towards excessive rainfall and flooding. However, occurrence of flooding in urban areas and cities pose more threats to both the physical and human environment.

Urban areas are specifically predisposed toward increased area of impervious surfaces created by walkways, paved and asphalt laid roads, concrete edifices and use of impervious zinc sheet as roofing materials. These coupled with the increasing rate of deforestation and urbanization, the resulting urban surfaces become sealed up and consequently resources the infiltration capacity of the ground surface. The accumulated water arising from this condition contributes to increased runoff in the cities.

Both developed and developing countries face deplorable situation as a result of flooding. In the United States of America flooding has been generating more environmental hazards on the country since the inception of the 21st century. The situation is not connected with the onslaught of global warming (Watchtower, 2003). In the last one decade or two the tropical and equatorial regions of the globe have been pushed to annual flooding arising from the gradual shift in the boundaries of climatic limitations of the area.

Human behavior and attitudes are essential ingredient of ethical consideration in man-environment relationship. The relationship between man his environment is aptly desensed by Heimstra and McFarling (1974) as the psychological foundation of environmental management. The aspect of human behavior as it relates to the interaction of man with his physical

environment is termed the environmental psychology (Adebayo, 2004). According to Adebayo (2004) the physical environment is divided into the man-built environment and the natural environment. This man interacts with both types of environment and the attitudes, perceptions and needs of man dictates the direction of the behaviour of man in the environment which implies that both negative and positive attitudes can be exuded by man towards his environment.

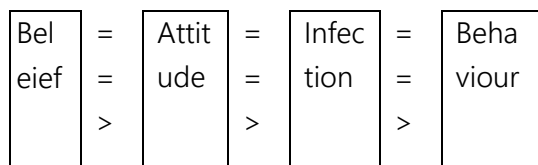
As printed out by Adebayo (2004) the environment may act as a positive or negative reinforce for an already determined mode of behavior but it cannot be expected to change the basic direction of this behavior

In the behavioural approach to the environmental management, man and types of decision or actions he takes constitute the subjects of study. These towns are usually mediated by cognitive process where cognition is the internalized reflection and reconstruction of thought.

Human behavior involves many processes such as decision aspects, attitude formation and perception in environmental management, the attitude that individuals have towards the environment can affect both the sanctity of the environment and the behavior of individual living in the environment. In the same way, the nature of the environment will directly influence the behavior of the residents of the environment. For instance, in an overcrowded environment, pollution becomes intensified and aggravated. The situation may consequently push people to adopt negative measures for maintaining environmental quality and freeing themselves from any stress this will also directly influence the reaction of people to the environment in the other hand.

The theory of reasoned action (Fig) in one of the fundamental theory to behavioural prediction that was developed by Ajzen and Frshbein in 1975. The theory of reasoned action is built on the assumption that people consider the implication of their actions before they decide to engage or not in a given behavior. The theory sees human action as personal in nature and also reflecting social influences.

The personal factor is the individual's positive or negative evaluation of performing the behavior in the general sense, individuals would infeud to perform behavior when they evaluate it positively and when they believe it is in pursuant that others think they should perform it.



TRA = People Actions Perform/Engage BEHAVIOUR

Infections Not to Engage/ Perform

Fig: theory of reasoned action (Ajzen & Fisher 1980).

According to Ogundele (2003) two concepts are essential to our understanding of the behavioural attitudes of man towards our environment and which are capable of causing serious degradations to the environment where such behaviours are exhibited.

The two concepts are social responsibility of individuals and groups and social ethics. The

concept of social responsibility is defined as the personal obligation of everyone as he acts in his own interest, to ensure that the rights and legitimate interests of all others are not infringed (Koontz & O'Donell, 1968). Thus, a socially responsible individual will obey the laws because the rights of others are at stake.

On the other hand, ethics refers to codes of conduct that guide an individual in his or her dealings with others (Ogundele, 2003). It has to do with personal behaviour and moral duty. It is concerned with what is right or wrong. Afolayan (2010) sees ethics as being concerned with what is right or wrong, good or bad, fair or unfair, responsible or irresponsible, obligatory or permissible, praiseworthy or blameworthy. Ethics is also associated with guilt, shame, indignation, resentment, empathy, compassion and care. In the context of this paper, ethics and social responsibility are considered in respect of the/in view of human behavioural influences as determinants of flooding in River Ajilosun drainage basin.

While discussing further about the connection between attitudinal inclination and environmental hazards two theoretical model of the society are important for our understanding of the basis of human behaviour in the society (Ogundele, 2003) these theoretical models are illustrated in Figures 1 and 2.

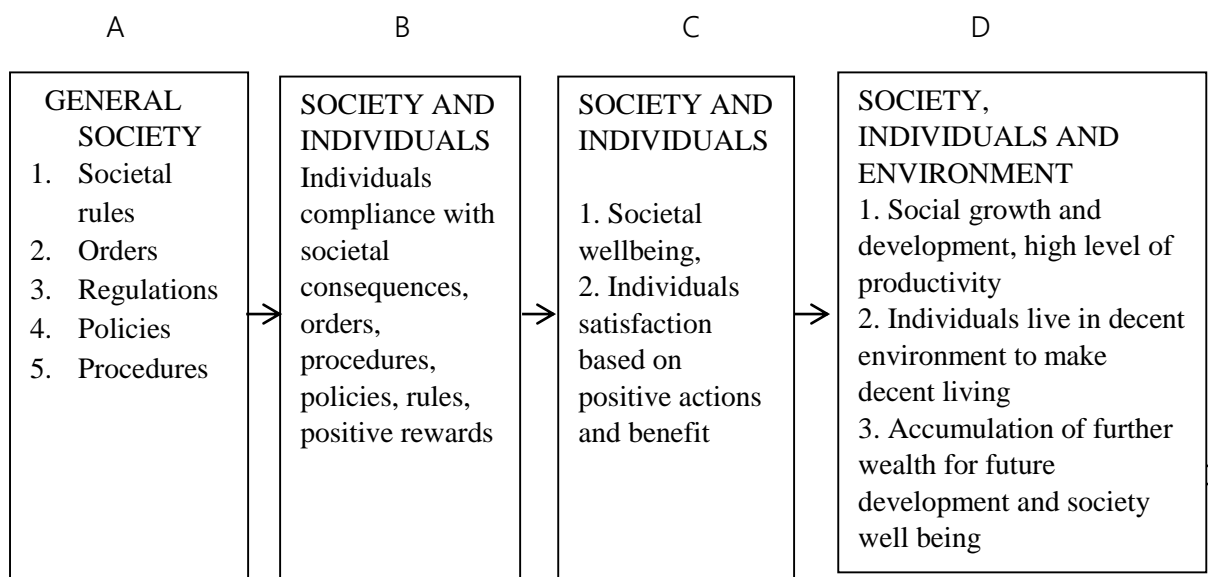


Figure 1: *Model of Disciplined Society (UCTL)*
 Source: Ogundele (2003)

Figure 1 represents a model of a society where discipline dominates. The illustration in Figure 1 stipulated features of the society and the rewards exhibiting desirable ethical behaviour on individuals and the larger society.

According to Ogundele (2003) section A stands for the general society, with its rules, orders, regulation, policies and procedures specifying standards of acceptable behaviour with positive rewards following individuals who exhibit desired behaviour. Section B represents interaction among individuals in the society. Compliance of individuals with standards and standing rules and regulations are social approval yielding orderliness and desirable results in the environment. In section C there exist a situation whereby satisfaction of members of the society is expected to lead to

commitment of member to societal goals attainment that produces societal health and wellbeing in return. The representations of D show the society, the individual and the environment in interaction. The outcomes are growth and development leading to decency of the environment, good health and high level of productivities. Thus, according to Ogundele (2003) compliance with rules, regulations, procedures and standards produces decent environment and societal health and individual satisfaction.

The consequences of features of committing acts of indiscipline on individuals and general society are displayed in Figure 2 below:

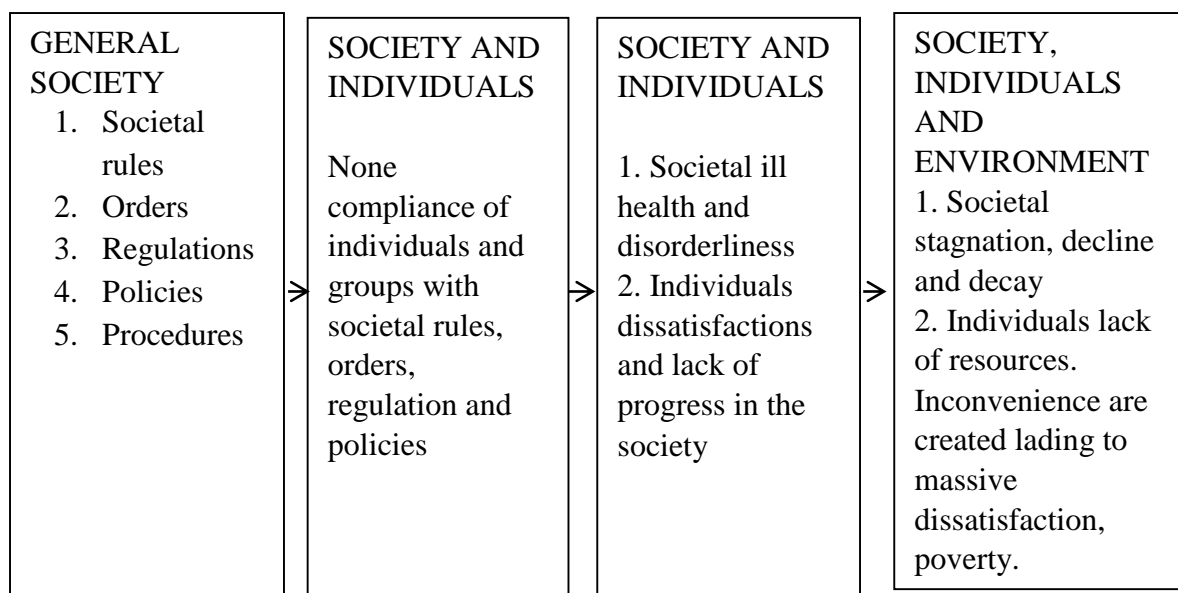


Figure 2: *Model of an Undisciplined Society (UCTL)*

Source: Ogundele (2003)

The model of an indisciplined society in Figure 2 illustrates a society where section A stands for the society with rules, orders, regulations, policies, procedures, rewards and sanctions system. In section B non-compliance of individuals and groups with specified standards in section A would lead to sanctions of members for pursuing selfish goals against the regulations of society. Section C shows ill-health and disorderliness in the society following the breaking of rules and regulations and dissatisfaction of member as a result of sanctions and lack of progress in the society. Finally section D the terminal consequences of violating the societal regulations manifest in stagnation, decline and decay leading to massive dissatisfaction and for the society at large, poverty. According to Ogundele (2003) the second model depicts the situation in Nigeria where indiscipline had led to the neglect of social responsibility issues and ethical conducts. The result is massive and unchecked and consequently result into abuse of our environment. We are going to illustrate this with incidence of flooding in Ado Ekiti city with a particular emphasis on River Ajilosun.

Ogundele (2003) suggested two broad approaches for promoting the practice of social responsibility and ethic in Nigeria society. There are:

- (i) Reducing unethical practices and
- (ii) Developing ethical practices.

According to Ogundele (2003) the former which he believes is more appropriate to Nigerian society and can come in the form of

- (i) Strict sanctions

- (ii) Moral suasion and
- (iii) Reward excellence/outstanding ethical behaviour

Specific aspects of Human Behaviour

Promoting Incidence of Flooding in Ado Ekiti (UCTL)

Flooding in River Ajilosun is partly due to indiscipline attitude of our people to the environment and lack of compliance with normal rules and regulations guiding human behavioural attitude to one another and to the environment.

There are a number of specific aspects of human behaviour which contribute to incidence of floods in Ado Ekiti in the first place, a serious threat to the environment in Ado-Ekiti and which contributes significantly to the incidence of flooding in the city. These are discussed as follow: i. Illegal and reckless dumping of refuse into streams/water courses and the lined drains ii. Constructing houses and other buildings in the water ways iii. Non compliance with town planning regulations on building construction iv. Flagrant disobedient to environmental laws e.g environmental laws. (Figures 1, 2,3). The habit of indiscriminate disposal of waste is rampant among the city dwellers and this has generated quite a deal of refuse choking the water courses and storm drains thus leading to the reduction in the unethical behaviour of illegal refuse located close to the river channel. It is one aspect of the peoples' indisciplined behaviour to see them discharging different sorts of refuse in concrete strand drains during rains. The practice usually become more pronounced and exhibited during pick rainfall periods in

July, September and October. If the people have imbibed proper ethics of interacting harmoniously with. Storm drains are man-made channel through which storm run-off is transported and evaluated. In activeness is an attitude of government which is demonstrated by not paying prompt attention to construction of drains along the roads. For instance some areas at Opopogbooro, around Ayemi garage, Adebayo street, Fajuyi, Christ School, and along immigration road have roads are badly degraded by storm run-off in August and September. Besides, non construction of drainages in some quarters and the paucity of the hydraulic (areas) of many of the drainages in the city is blocked due to people's nonchalant attitude which may inhibit healthy environment that is decent for conducive living.

In a similar vein, if people don't build or construct their houses on water courses and in the minor/seasonal river valleys, occurrence of floods could have been mitigated and its effects reduced. The attitude of people in Ado-Ekiti with the drainage basins amount to irresponsible social and environmental considerations with the environment, flooding will be minimal if it could not have been absolutely checked

The regulations determining the location of houses along river courses are grossly

violated by constructing houses in close proximity to river banks in Ado Ekiti. For instance, the means distance of location of houses to River Ajilosun in the drainage basin is 20.53 metres (SD \pm 28.67) in the upper segment and 26.50 metres (SD \pm 23.32) in lower reaches.

These distances fall short of the recommendations of building codes and the town planning regulations and the environment. Undesirable behaviour of residents of the drainage basin manifests in the poor management and degradation of slopes. An instance can be seen on Ayoba hills located at the headwaters of River Ajilosun. The regolith mantled hill which stands at 1750ft above the sea level, has its vegetation cleared and built up at the lower regions of the hills. A human action in this aspect is a sheer reflection of the deviation from the procedures and regulations guiding urban and physical development. Whereas slopes of 12° or more ought to be protested from any construction works (Oriola, 2000), nevertheless hills with an average slope gradient of 31° is developed into residential houses. This is a clear demonstration of social irresponsibility and lack of consideration for ethical dealings with the environment.



Figure 3: Refuse-clogged section of River Ajilosun channel at Odo-Otu tributary of the river. The picture was taken during the peak of dry season in February, 2018.



Figure 4: Refuse-choked concrete-channelized segments of River Ajilosun at Agere in Oja Oba, Ado-Ekiti.

The picture was taken few weeks after the early rains in March, 2018.



Figure 3: *Refuse-blocked section of River Ajilosun channel at Atikankan in Ado Ekiti.*
The picture was snapped after the first few rains in March, 2018.

Conclusion

This paper has shown that human behavioural attitudes constitutes the fundamental basis for understanding the causes of flooding in river Ajilosun in Ado-Ekiti. Such negative behaviours reflects the refusal of the residents to recognize the consequence of unethical actions on people and the physical environment of the River Ajilosun drainage basin. The neglect of the obligations and social responsibility of individuals to others have gone along way to generate ecological hazards across the space of the drainage basin. Thus public enlightenment campaign in respect of mass communication of the obligations social responsibilities and ethical issues in the environment is germane to an effective

control of floods and flooding in River Ajilosun drainage basin.

Recommendations

Since most of the environmental problems in Nigeria are causally related to adverse human behavioural attitudes, aggressive mass media campaigns are needed for the control of floods and flooding in the River Ajilosun drainage basin. In this regards it will be necessary to improve the efficient performance of the existing institutional frameworks for urban development in the drainage basin and other drainage basins in the city. Environmental education through mass media should be undertaken regularly. The undesirable consequence of the residents' behaviour in relation to flood hazards in the drainage basin can be outlined on the radio. Such programme should also be organized in all Faith based organizations.

Non observance of the monthly sanitation exercise should be strictly enforced and backed legislative procedures. Culprits should be expressly tried by a mobile court and awarded the penalties which are commensurate with the gravity of the offence committed

Applying these measures to the control of flooding in the basin, strictly sanctions should be offered to any practice that promotes flooding in the drainage basin particularly as regards the habit of indiscriminate dumping of refuse in waterways and lined drains. Residents also need moral persuasion or encouragement to desist from acts which could encourage occurrence of floods and reward excellent flood ethical behaviour in respect of abiding by environmental laws in respect of street cleaning and maintenance and observance of environmental laws relating to prevention of flooding in the drainage basin. Moral persuasions on ethical behaviour can also be preached by faith based institutions from time to time during their programmes and meetings.

Fiscally, public enlightenment campaign in respect of mass communication of the obligations, social responsibilities and ethical issues the environment are considered germane to an effective control of floods and flooding in River Ajilosun basin.

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