
FOSTERING HOME-GROWN AND CULTURALLY-FILTERED APPROACHES TO GULLY EROSION CONTROL: A SPOTLIGHT ON ENEN ATAI ITAM COMMUNITY, AKWA IBOM STATE.

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Abstract

The causes and potential solutions to gully erosion are invariably bound up with human attitudes, beliefs, values, needs, expectation and behaviour. Sequel to this notion, the research work examined home-grown approaches culturally approved by Enen Atai Itam, a local community in Akwa Ibom State, in response to gully erosion problem. The study was grounded on the theory of Planned Behaviour. Ethnographic research design was adopted to explore contextual conditions relevant to the phenomenon under study. In-depth interview, observational techniques and focus group discussion were the data collection techniques employed to elicit responses from participants. Using purposive sampling technique, participants were selected for the study. Simple percentages were used to present socio-demographic information of participants. Thematic analysis was adopted to analyse the narratives from the participants in order to present their responses in perspective and provide answer to research questions. Findings of the study revealed that human-induced causes of gully erosion could be reversed by using cultural values to shift from the patterns of destruction. The study concludes that humans could move towards a sustainable society by using cultural strategies to encourage pro-environmental behaviour.

Keywords: Culture, Environment, Gully Erosion, Indigenous knowledge

Introduction

Environmental issues have gained a foothold on the public agenda (Kim, 2010). The surge in the number of research on the contemporary ecological crises is spurred by a profound concern for the precarious state of the earth (Li, Johnson and Zaval, 2011). Among the top issues threatening the environment, scholars have shown great interest in gully erosion. This is attributed to the fact that erosion is recognized as a great signature of land degradation (Mbaya, 2013; Ionita *et al.*, 2015). Some scholars treat gully erosion as a geomorphic natural hazard whose formation gains with inter rill erosion and increase in dimensions of the channel, surface run off, sediment removal and slides of the overlying materials (Parikh and James, 2012). However, as it is with other forms of environmental issues, there are scholars that emphasize a link to anthropogenic influences such as deforestation, improper land use and over grazing (Dotterweich *et al.*, 2012). In view of the validity of the two positions, it is logical to submit that while topographical, lithological and climatological conditions are implicated in the formation of gullies (Castillo and Gomez, 2016), these conditions are exacerbated by anthropogenic factors (Vijith and Dolgewan, 2019).

There is an indication that climate and hydrological systems will experience dramatic changes in the coming years (Li and Fang, 2016). In the same vein, human activities that place a burden on the possibilities available to future generations will continue to add salt to injury (Waters *et al.*, 2016). The ecological message conveyed is that natural processes and human activities will continue to elicit significant changes in the environment (Ahmed, 2015). However, with reference to gully erosion problem, scholars have pointed out gradual but constant dissection of the terrain, destruction of arable land and loss of residential homes and income (Okorafor *et al.*, 2017), signalling huge impact on ecology and economy of affected areas (Itanna *et al.*, 2011). Sobering warnings on the consequences of continuing down the part

of destruction have been issued at national and international forums. In view of this, the search for a sustainable solution to problems affecting our environment is one of the greatest tasks facing humanity in the twenty first century.

In spite of the fact that gully erosion control approaches have been on the spotlight (Zegeye *et al.*, 2018; Chalise *et al.*, 2018), varying degree of implementation outcomes have been recorded (Smit *et al.*, 2017). For example, in resource constrained regions, the cost of addressing gully erosion using the engineering approach has hindered its implementation by government (Quinonero Rubio *et al.*, 2016). Against this backdrop, the need to keep the cost of intervention as low as possible has become increasingly important. Generally, there is a consensus that weak integration of indigenous knowledge is the bane of environmental protection schemes in a wide range of settings (Zimale *et al.*, 2017). In view of this gap, some scholars point to the cultural pathway in addressing gully erosion sustainably (Guerrero-Gatica *et al.*, 2020). This interest is inseparable from the view, in recent times that environmental protection techniques ought to be home-grown. It is in light of this perspective that the present study examines cultural responses to gully erosion and their effectiveness in addressing the problem in Enen Atai Itam.

Ethnography of Enen Atai Itam

Enen Atai is a village in Itam clan located along Calabar-Itu Highway, Akwa Ibom State. The people of the area depend largely on subsistence farming for their livelihood. They grow dry-land crops including maize, okro, melon and vegetables. Fruit trees such as mango, citrus, peas and paw-paw are also planted on homesteads. Subsistence farming is mixed with domestication of goat, sheep and poultry. Most households rely on family labour to perform farming activities. However, during the peak of farming season, outside labour are hired to lessen the burden. The people of the area also engage in hunting games from the forest. In addition to these economic activities, informal trading activities are carried out by a significant number of the people. One of the most famous markets is Urua Itam. There are other small but significant trading centers spread across the various villages making up Itu Local Government Area including Urua Obo Itam and Urua Itu.

Most residents of Enen Atai are Christians while a small proportion of the populations adhere to African traditional religion. There are various denominations of churches in the area including The Presbyterian Church, Qua Iboe Church, The Apostolic Church, Methodist Church and Mount Zion Mission. However, most Christians still retain many of the traditional customs and beliefs in traditional religion. The traditional religion and beliefs of Ibibio groups were based on the supreme deity known as Abasi Ibom and lower deities (mme ndem) who acted directly through the agency of the ancestors, chiefs and elders. Within the community, there is a system of belief in which the gods, the ancestors, and man interact freely but not without approved boundaries.

The community is cheerful and hospitable to strangers. The people are socialized to maintain a high moral standard. This morality manifests in respect for one's parents, elders and constituted authority. Cultural folklore, riddles, songs, dances and performance by masquerades provide interactive, educational and recreational functions in the community. There are other socio-cultural institutions such as secret societies which had performed some social, religious, humanitarian and moral functions in the pre-colonial era. However, due to Western influence, these institutions have dwindled in their functions. They include Ekpe, Ekpo, and Obon. However, there are some instruments for regulating social relations that have survived till present times. They include Mbiam (Oaths), Idiong (divination), Ukang (Ordeal), Ayei (Palm Fronds) and Nka (age grade).

Theoretical Underpinning

Human activity and lifestyle choices are significant drivers of global environmental issues. Most of these challenges require fundamental change in attitudes and behaviour of members of the society. To address global environmental challenges, understanding how humans determine environmentally-relevant behaviours is vital. The present study analyses cultural values as pro-environmental and proximal determinants of environmentally significant behaviour using the theory of Planned Behaviour Constructs. Developed by Icek Ajzen, the Theory of Planned Behaviour holds that intention to engage in a behaviour is influenced by attitudes, subjective norms and perceived behavioural control. These determinants are all based on corresponding underlying belief structures which include behavioural beliefs, normative beliefs and control beliefs. At its heart is the idea that the intention to act and objective situational factors are direct determinants of pro-environmental behaviour.

As globally significant environmental issues in the 21st century are inextricably linked to anthropogenic processes, much more than previously, there is greater need to understand patterns, connections, systems and root causes of the degrading environment. Veritable measures for achieving this feat are proper understanding and application of behavioural models and theories. Investigating human behaviour within the context of culture is increasingly important for environmental sustainability. When discussing sustainable behaviour, theory of planned behaviour can be used to explain factors influencing behavioural choices (Maimud and Sman, 2010). In the context of our study, basic understanding of behaviour can be gained by tracing its determinants back to underlying beliefs. Beliefs determine attitudes and subjective norms determine intention and the corresponding behaviour. Attitude relates to the questions: do I want to do that? Subjective norms relate to the social pressure from others for an individual to behave in a certain way. It has to do with the question: do other people want me to do that? While perceived behavioural control relates to the sense of control over the situation as well as the ease or difficulty of performing the behaviour of interest. It has to do with the question: do I have the necessary ability to do that? These constructs considered together, determine the intention of the individual and ultimately predict the behaviour. The more favourable attitudes and subjective norms combined with greater perceived behavioural control, the stronger the intention for environmentally-oriented behaviour.

When discussing sustainable behaviour, the theory of planned behaviour can be used to explain factors influencing behavioural choices. Individual behaviour represents conscious reasoned choice. Such behaviour is shaped by cognitive thinking and social pressures. Behaviour towards the environment is based on one's intention regarding the behaviour which in turn is a function of the person's attitude towards the behaviour, subjective norm regarding that behaviour and perception of control over that behaviour. Therefore, the theory of planned behaviour provides valuable implication for incising social and environmental sustainability.

Methods

The study was carried out in Enen Atai Itam, Itu Local Government Area, Akwa Ibom State. The study was designed as a qualitative investigation of cultural practices engaged in the study area to mitigate gully erosion and effectiveness of indigenous methods of gully erosion control in Akwa Ibom State. The use of qualitative approach for the study was to enable the researcher to explore the lived experience of people related to the study objectives.

Purposive sampling technique was used to recruit study participants based on age, possession of knowledge and experience and ability to give useful responses to questions pertaining to the research objectives. The use of purposive sampling technique was borne out of the need to select study participants with requisite knowledge and experience on the subject matter under investigation. 60 participants were

involved in the study. In-depth interviews, focus group discussion (FGD) and observational techniques were used to collect data for the study.

Results

Thematic analysis of qualitative data gathered through in-depth interview, FGD and participant observation culminated in the emergence of different themes related to cultural approaches engaged by the people in response to gully erosion problem in Enen Atai Itam.

Socio-Demographic Characteristics of Study Participants

A total of 60 participants took part in the study. The study participants comprised of 35 males (58.3%) and 25 females (41.7%). Age distribution of participants shows that majority of the participants 18(30%) were between ages 42-49 years, 6(10%) were between 18-25 years, 10(16.7%) were between 26-33years, 12(20%) were between 34-41years and 14(23.3%) were 50 years and above.

Educational background of the participant indicated that 15(25%) had tertiary institution certificates, 27(45%) had Senior Secondary Certificate. 10(16.7%) had FSLC and 8(13.3%) had no formal education.

Occupational background shows that 35(58.3%) were farmers, 4(6.7%) were hunters, 8(13.3%) were into petty trading and 13(21.7%) were civil servants. Religious background of participants indicated 45(75%) are Christians while 15(25%) were traditional worshippers.

Cultural Practices and Erosion Control

Despite the fact that modern environmental problems arise from the way humans relate to the biosphere and all that is within it, culture has been recognized as a functional asset communities can use to mitigate and adapt to threatening changes in their environment. Enen Atai Itam community in Akwa Ibom State has indigenous mechanisms for environmental protection based on their culture. Emerging from observations, interview and discussions on cultural measures adopted by locals for preventing and controlling gully erosion, it was gathered that behaviours and practices embedded in our culture are useful in remediating environmental issues.

According to one of the study participants aged 54 years;

“ Even though the demand for building house, cultivation of crops and need for firewood have led to the plunder of our forest and eventually exposure of the land surface to erosion and mudslide, our culture, handed over to us by our forefathers is an important asset for working out solutions to environmental issues. For example, the culture of reverence for monkeys in Itam Clan as a whole shapes the behaviour of people towards protection of species and management of biodiversity. We do not harm, kill or eat monkeys. That is why monkeys are not endangered here. If you go round the village you will see a large population of monkey. So, totemism as a cultural practice prevents loss of biodiversity which is one of the environmental issues. With regard to gully erosion menace in our village, we have cultural ways of addressing the problem. For example, there are certain forests that are protected as sacred. Cutting of trees, farming or building of structures are prohibited in these areas. In addition to serving deep spiritual functions, this approach prevent further dissection of the land in this village. This method of prevention and control is working for us otherwise the whole village would have been overwhelmed by gullies” (P1, 54 years interviewed 8/11/2023).

This view was corroborated by a discussant during FGD (women):

“I think that environmental problems in this community are compounded by population increase and poverty. As people come from cities to buy land to build houses in the community, most villagers have sold their lands and now their children have nothing left. Such people usually mount pressure on community lands to survive. However, there are cultural ways of doing everything. We generally respond to issues using our culture as a frame of reference. Behaviours that are positively approved by a given society can help to control environmental problems. If we wait till government carries out big engineering projects to curb the menace to gully erosion in this community, it may take time. And over time, if the problem is not addressed, it will degenerate to further head cuts, slides and degradation of land resources. We have made our own home-grown and self-help measures to tackle the problem. Collectively, we have responded to the problem by using materials readily available such as stones, raffia and palm kernel shells to construct check dams which provide various ecosystem management functions. (P2, 54 years, 11/11/2023).

A participant (34 years) in in-depth interview added credence to the above view:

“The community has responded to the menace of gully erosion by using local plants and grass varieties to control runoff and ensure soil stability. We plant banana and plantain, we plant grasses and trees that have strong root systems to stabilize the soil” (P4, 34 years, interviewed on 13/11/2023).

The responses to questions bothering on involvement of the people of the community in activities geared towards protecting the environment, pertinent questions bother on what the people of the community have been doing to curb the menace of gully erosion. In addition to personal observations, the people of the community have initiated several self-help actions in response to gully erosion problems they are facing. One of the participants during FGD (Men Aged, 44) recalls.

“Our parents used to carry logs of wood to cover the surroundings of the village stream so as to protect it from being covered by mud” (P8, 44 years interviewed on 22/11/2023).

Personal observation of environmental sanitation exercises regularly embarked on in the village by the researcher was corroborated during focus group discussion. A discussant (Male, Aged 68) stated:

“We try at the council level to encourage people to protect their surroundings. So apart from the general state-wide environmental sanitation, our town crier will go round in every first Saturday to announce village sanitation exercises. During the exercise, we remove garbage or pieces of material deposited in the gutters and maintain our environment” (P5, 68 years interviewed on 23/11/2023).

Moral values and motivation grounded in our culture have been identified as major influences on individual's tendency towards involvement in pro-environmental behaviour. This was deduced from the data gathered during in-depth interviews. A participant in in-depth interview stated:

“Some people have planted local varieties like banana and bamboo trees in their surroundings in order to manage the situation” (P20, 34 years interviewed on 25/11/2023).

One of the participants said:

“I know that with the way things are going, we have to take responsibility to protect the environment. It is a moral duty to do so (P30, 28 years interviewed on 18/11/2023).

According to his narrative, a participant aged 30 reported that:

“We use sandbags and vegetative measures. The thing is that check dams are easy to construct. We do not need advanced technologies to do it. We use local materials to build check dams across the courses of gully for the purpose of reducing the erosive power of runoff in our community. We also plant some local trees with strong root system that can stabilize the soil” (P26, 30 years interviewed on 14/11/2023).

Another participant aged 42 affirms that:

“Stones, brushwood, sandbags, palm kernel shell and bamboo are built across gully lines to minimize the velocity of runoff and ultimately reducing infiltration” (P31, 42 years, interviewed on 11/11/2023).

Another participant (Male, Aged 68) reported that:

“In this village, we have a law that nobody should farm on the areas affected by erosion. But people are prepared to fight village council for not allowing them to cultivate their farmlands. A lot of people in this village are violating this law” (P45, 68 years interviewed on 18/11/2023).

Elders complain of non-chalant attitude of some members of the community towards the idea of protecting the environment and describe cultural sanctions prescribed against such deviant behaviour. A participant during in-depth interview (Male, aged 68) stated that:

“There are some people who show lack of concern about the environment. No matter how hard you try, you see them farming on erosion-prone areas and building houses on affected areas because that perhaps is the only portion of land left or due to poor mindset that God will not allow evil to happen to them. But we usually collect fine depending on the offence committed” (P50, 68 years interviewed on 24/11/2023).

Responding to this issue, a discussant said:

“In this village, if anybody does something that will affect the environment, for example cutting trees in protected areas or removing clay from the surrounding areas of our village stream, immediately when such action is noticed, people will report the case to the youth president for necessary action. Recently someone was reported for removing sand from erosion prone area. Such persons are made to pay fine to serve as a lesson to others. If they refuse to comply, they lose their right to be involved in communal activities” (P60, 72 years interviewed on 25/11/2023).

Another participant, an elder (male, aged 71) said:

“We have tried to create awareness so that people living in this community will know the challenges we have and how to effectively respond to them” (P59, 71 years interviewed on 25/11/2023).

A participant linked environmental issues with religious values and made the following comment:

“We have deities in this village. They are the territorial spirits acting upon our environment. They occupy our landscape but due to years of neglect by our community to maintain ritual relationship with them, they have expressed their anger which results in the many active gully erosion sites in the community” (P58, 31years interviewed on 20/11/2023).

This narrative was confirmed by the comments of a participant in in-depth interview:

“Even though Christianity dominates over traditional forms of worship, our deities should not be abandoned. A spiritual approach to solving this problem lies in consulting the custodians of tradition in this community to appease territorial deities otherwise something mysterious will continue to happen”(P54, 38 years, interviewed on 21/11/2023).

During FGD session (Female), a discussant (Aged 65) said:

“Sometimes if engineers bring their equipment to do their construction without strengthening the ritual relationship with the deities, their engine will spoil. If they struggle to build any structure, it will collapse. These are not physical things” (P49, 65 years, 21/11/2023).

If mere enactment of laws relating to protection of environment was all that we need to ensure healthy environment, then environmental problems will not dominate global debate. But this is not so. There are several laws enacted in several communities to help protect the environment. Unfortunately, environmental protection is not just about promulgating strict laws. Evidence from the narrative of the participants has shown that if legislation alone would make the big difference, then environmental problems would have been addressed. Environmental problem is a moral challenge. Legislations without moral responsibility evident in change in attitude of people toward the environment are counterproductive.

Effectiveness of Indigenous Methods of Controlling Gully Erosion

The vast accumulation of knowledge and experience pertaining to the protection of our environment which is embedded in our culture are crucial assets for the management of land resources and ecosystems. This notion was expressed by a participant aged 50 during interview session. In his narrative the following views were reported:

“The planting of trees to cover the soil from direct harm has been very useful. The shade provided by trees, the fallen leaves and branches and the root system provide some ecosystem services that are effective in controlling erosion. In addition to these advantages, using home-grown species and materials readily available within the community make the cost of intervention low and affordable. When we plant trees, we save the land surface from being exposed to erosion, we prevent violent wind from destroying properties. We also understand that these plants help to absorb carbon. It also provides habitat for animals as well as fodder for domesticated animals in the community. So cultural approaches can yield high return on investment if

properly articulated” (P53, 50 years interviewed on 25/11/2023).

Another participant aged 60 had this to say:

“The use of cultural method of communication via town criers has been effective in socializing community members especially non-indigenes on the culturally approved means of protecting our environment. The sanction instituted when people depart from the norms of behaviour is a useful social control mechanism” (P48, 50 years interviewed on 27/11/2023).

Another participant noted that:

“The construction of check dams using materials available within the community helps in reducing the velocity of running water and trapping soil particles along gully channels” (P47, 45years interviewed on 24/11/2023).

Another participant in his narrative expressed the usefulness of area closure against encroachment of animal in gully-prone areas. In his narrative, he said:

“The community has taken an important step to close off certain areas from grazing. Vigilante groups are actively monitoring and barbed wire, bamboo and traditional fence are constructed to prevent animals from grazing in the protected lands” (P20, 45 years interviewed on 27/11/2023).

Discussion of Findings

Findings from this study show that cultural factors exercise a considerable impact on public attitude and behaviour toward the environment and the way the public frames environmental issues. Although some of the long held cultural practices can lead to degradation of the environment, cultural value changes can provoke public expression of concern and determine the willingness of people to undertake actions to help protect the environment. An influential factor determining the relationship between public sentiments about the present or future state of the environment is found in the domain of value. Breaking with old habits that are harmful will benefit the environment. This includes shifting from exploitative attitudes and farming method. Such value change can give rise to high level of environmental consciousness and environmental protection support. These findings have credence from Fielding & Hornsey (2016) that adoption of appropriate pro-environmental behaviours reflects some value orientation that are culturally patterned.

Available information and observations revealed that beliefs about what is right or wrong have guided some members of the community in navigating environmental Sustainability. This is demonstrated in their concern to participate in environmental sanitation and planting local varieties such as banana and bamboo trees to mitigate erosion. Appiah- Opaku (2007) gives credence to the finding by stating that practicing sustainable behaviour is at the core of improving our ability to safeguard the environment for future generation.

Local chiefs and focal persons in the community have begun a campaign of sensitization and making moral appeals to people to behave in ways that will save the planet. Study by Evans et al (2013) affirms that environmental problems require a shift in our social values, attitudes and behaviour towards environmental stewardship. The study found out that while naturally occurring processes alter the earth's topography and adversely impact the environment, anthropogenic activities are creating various ecological problems. Human activities have destroyed the environment remarkably. Agricultural land use and

practices are implicated in environmental change. Deforestation is one of the most urgent problems related to land use. Within the community, deforestation has been triggered mainly by agriculture. There is an interplay of population increase and poverty in the continuation of environmental destruction. This is indicative of the complex situation which multiple factors combine to create condition for environmental destruction. Dottenweich (2015) corroborate this review and maintained that environmental problem is related to exponential increase in human population and massive land cover changes. People hold to all sort of unsustainable practices such as steep slope cultivation and building houses in erosion prone areas, due to poverty. Therefore, a major challenge facing the community is how to feed their family without harming the environment.

Gully erosion in the community was made worse by human activities, pressure on marginal lands and violation of rules of development. Findings reveal that one key requirement for achieving the more hopeful scenario is cooperation. Making the necessary changes to protect our environment is a collective responsibility. In addition to the local efforts geared towards mitigating environmental problems, narratives of some participants focus on people's obligation to minimize impact through tree planting, adopting sustainable land use patterns, involvement in environmental sanitation and carrying out campaign of awareness in the community.

Conclusion

The main objective of this study was to examine home-grown strategies designed in line with local culture to address environmental issues in Akwa Ibom State, Nigeria. In view of its role in shaping attitudes and behaviour, culture provides an important analytical lens for policy and research on gully erosion control. To contribute meaningfully to the understanding of how locals respond to threatening changes in their environment, the study examined the relevance of culture in mitigation of and adaptation to threatening changes in the environment. To achieve this feat, there is need to positively change public attitudes and actions toward environmental condition. Since the perception of human societies of their environment is largely driven by culture, effective ecosystem management can be achieved through a better understanding and integration of the relationship between communities and nature. While long held cultural practices which undermine ecological resilience can be modified through culture change, others that play vital roles in promoting conservation should be strengthened. By indicating a host of socio-cultural and religious practices that reflect concern for ecological sustainability, the study contributes to existing social scientific debates bothering on how human values, attitudes and behaviour affect the environment and how communities respond to environmental changes. This study concludes that humans can move toward a sustainable society by using home-grown and culturally- filtered strategies to encourage pro-environmental behaviour.

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