THE ROLE OF BUILT ENVIRONMENTAL PROFESSIONALS ON ENVIRONMENTAL HAZARDS: AN OVERVIEW

Omozokpia E. Ruth and Mamman E. Juliet
Department of Quantity Surveying
Federal Polytechnic Bida, Niger State, Nigeria.
ruthomozokpia@gmail.com, julietekemenajuliet@gmail.com

ABSTRACT

The perception of hazards is a research issue familiar to environmental psychologists. However, the cost implication aspects of technological hazards are one of the newly emerging topics hardly known some few decades ago but quickly gaining worldwide attention and pertinence as recent events in the world testify. Also the hazards associated with our physical surroundings, especially those environmental components that are the products of human activities and industry have become increasingly important issues of public policy and opinion. This paper focuses on environmental hazards, natural and as a result of technological advancement. It examines tools for implementing environmental risk reduction in environmental hazard zones and skills built environmental professionals can bring in to environmental hazard management. The special professional knowledge, skills and competencies that need to be shared across all the built environment professions in relation to the entire disaster management process are established in the current literature. A literature synthesis and a comprehensive desk review were carried out to review the roles of the built professionals.

Keywords: Environment, Hazards, Professionals.

INTRODUCTION

Mankind, since his existence on earth, battled with nature over the control of his environment. Man is, and will continue to be the victim of this war of supremacy. Man has been the victim of natural and man-made hazards. Man has been drowned by floods, swept away by winds, burnt by fires, frozen to death by cold, swallowed up by earthquakes, dried up by droughts, killed by nuclear radiation, choked to death by gaseous chemicals or blown to pieces by explosions, all a continuous sequences of unending catastrophes.

The perception of hazards is a research issue familiar to environmental psychologists. However, the cost implication aspects of technological hazards are one of the newly emerging topics hardly known some few decades ago but quickly gaining worldwide attention and pertinence as recent events in the world testify. Also the hazards associated with our physical surroundings, especially those environmental components that are the products of human activities and industry have become increasingly important issues of public policy and opinion. Ninety percent of disaster victims worldwide live in developing countries, where poverty and population pressure force growing numbers of poor people to live in risky zone I.e. on flood plains, in earthquake prone zones, river banks, unstable hillsides including unsafe

ISSN: 2277-0097

buildings. The vulnerability of those living in risky prone areas is perhaps the single most important cause of disaster casualties and damage. Population growth and concentration in urban areas, increasing capital investment coupled with new and sometime vulnerable critical facilities and fragile life lines and the increasing worldwide interdependence of people in all communities are also factors that increase the world's vulnerability to hazards. (NEST, 1991).

The efforts of the United Nations (UN) and of individuals and governments to mitigate the effects of natural hazards are highly commendable. The UN in December 1989 designated the years 1990 to 2000 as the International Decade for Natural Disasters Reduction (IDNDR). The objective of IDNDR is to appeal to the international community to pool its knowledge and resources and work together in reducing the suffering, disruption, destruction and loss of life caused by natural disasters. The objective is a worldwide shift from post-disaster reaction to pre-disaster action – this is hazards management.

ENVIRONMENT AND NATURAL HAZARDS

The increasing incidence and intensity of natural hazards and climate change have a distinct impact on the environment and vice versa and must therefore be seen as an integrated whole. In this context environment refers to all of the external factors, conditions, and influences that affect an organism or a community. This includes everything that surrounds an organism or organisms, including both natural and human-built elements. Environmental concerns are essential components of human well-being and contribute positively to human security, providing basic materials for good life, health and social relations. If these are being compromised and overexploited it will ultimately lead to increase of natural hazards. (Ofori, 2002).

When natural hazards becomes a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources it is referred to as a disaster. In other words we can say that disaster risk = hazard x vulnerability / capacities. A hazard can be defined as a potentially damaging physical event, phenomenon or human activity which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. It is important to keep in mind a more general understanding of the nature of hazards since it involves a consideration of a wide range of physical phenomena. However, the frequency and impact can be influenced by environmental degradation, however due to the intricate and complex relationship between different hazards, cataloguing a hazard is often a challenging and difficult task. Primary hazards can and often give rise to collateral or secondary hazards that can pose even greater threat to a community. (ISDR, 2004).

In the same line it is worth mentioning that when referring to natural hazards it does not mean that this is purely a natural phenomenon. It is a myth that humans have little influence over the occurrence of natural hazards, even the shortage of rainfall. Human activities triggering global warming and thereby affect the frequency and

intensity of extreme climate events. On a local scale, deforestation and desertification have demonstrable effects on local rainfall patterns and are complicit with the occurrence of drought. Climate change as a global phenomenon will challenge the way humans live today and lead to intensified natural disasters like floods, storms, sea level raise, and desertification, and as such risk reduction can become a tool for mitigating the negative impact of climate change.

Factors That Motivate People to Reside or Work in Risky Environments

There are numerous natural and technological undesired events, disastrous in nature, occurring each year around the world. We read about them and even see them through the media but despite all the dangers posed by the probability of occurrences of these disastrous events, people still continue to live and work in the very areas most likely to be affected in future by such hazardous events. It is estimated that 360 million people live on the slope of volcanoes. 450 million people (40 percent of china's vast population) live in areas at risk from flooding from main rivers of China. Coastal regions now have some of the highest population densities and yet many are at the risk from tropical storms, tsunamis or possibly global warning. Over a third of the fastest growing cities in the world are within areas at risk from earthquakes or volcanoes (Bilham-Boult, Blades, Hancock and Ridout, 1999).

It is also a known fact that, over 1 billion people work in various industries with potentials foe accidents. These include those with potential for chemical leakages, explosions, fires and nuclear radiation.

Some reasons why people continue to live or work in area prone to environmental hazards includes;

Fertility of Soil: Flooding and volcanoes can each increase the fertility of the soil. Many rivers valleys in Asia, Africa and even America depend on annual flooding to provide water and silt for their crop. Such areas often support high population densities.

Source of Revenue: Hazards prone areas may possess precious minerals; fossil and geothermal energy generation may be possible; or the hazards may be the focus of tourism, bring valuable revenue to the local economy. For instances, in Sicily; Mount Etna, one of the most active volcanoes in Europe, is a popular destination with tourists.

Ancestral Home: Many stay in environmental risky zone because that is where the families have lived. It is their ancestral home and as such cannot leave but remain, no matter the consequences.

Some have no choice: They are poor and homeless for example, the landless inhabitants of the delta of Bangladesh. Fishing and farming may be the only way of life that they know. Another category is those who live in uncompleted building because they can't afford a decent home. Some factory workers work in factory where no incentives are given as a result of environmental hazards. They still remain

in such factory because they cannot find another job. Some cannot afford to relocate because of financial incapability and old age. The reason can go on and on.

HAZARDS AS A RESULT OF ENVIRONMENTAL ADVANCEMENT

Increasing scale of human activities brought about technological advancement. These technological advancement, which Man manipulates foe his purposes, impose artificial environments which are not in harmony with the natural environment and which subsequently upset the complex equilibrium of nature. Man's impact on nature due to his scientific and technological advancements is comparable to the impact of powerful natural factors (natural hazards). The development of energy and chemical industries in particular, while conferring great benefits have also exerted their toll through dam bursts, chemical leakages, explosives, fires nuclear plant accidents, oil spillage and terrorism. In this context, man-made or technological hazards may be described as major technological accidents characterized by concentrated releases of energy and material, which pose unexpected threats to human lives and can cause significant damage to goods and the environment (Smith, 2001).

The nature of technological hazards depends on the comparative risks assessment of alternative technologies and classification of technological hazards depends on source (chemical leakage), use (medical x-ray), potential harm (explosion or fire), population exposed (oil rig workers), environmental pathways (air or water pollution) or varied consequences (diseases, property damage, death, environmental degradation). Review of some recent hazards as a result of technology around the world and in Nigeria.

On Friday, September 21, 2001, there was an explosion at AZF Grande Pariosse Plant in Toulouse, France. A plant containing between 200 and 300 tonnes of ammonium nitrate in granular form exploded at the plant causing a tremor equivalent to an earthquake of 3.2 magnitudes on the Richter scale (Toulouse, 2001). The explosion caused enormous damage, 29 dead, more than 2,000injured. Beyond the tragic toll of human lives, the violence of the shock caused extensive property damage in the area, which became urbanized over years. Windows shattered as far as 5 kilometer away. The worst case showed pulverized roofs, caved in ceiling and walls blown completely apart.

On January 27, 2002, Ikeja Nigeria area of Lagos, military bombs and ammunitions, caused series of explosions in the armory of the Ikeja military cantonment. The explosions caused the death of over 1000 persons, injured many thousands more while rendering more than 2,000 families homeless after destroying more than 50 houses.

Oil Spillage Due to Pipeline Vandalism

The oil bunkering business though illegal is another striving business in the Niger Delta region and also in other states of the federation where oil installations or wherever the petroleum products pipeline run through. In Lagos, early 2007 about 40 peopple were roasted to death in the process of siphoning fuel from broken

pipelines. Residents flee homes located at Shell's oil field in Ikarama, Yenagoa Local government Area Bayelsa state as a result of oil spillage. Shell estimated that about 70 percent of oil spills were due to damage caused by oil thieves. Oil spill in shells Nembe-Obama Pipeline in Nigeria's onshore Niger Delta due to sabotage affected aquatic lives and surrounding farm land. Mobil Producing Nigeria reported oil spill on coast in Ibemo, Akwa Ibom. The company claims it spent $500 million in the cleanup of the spill.

Structural Defects also Responsible for Building Collapse

In Nigeria, January 28, 2012, a building collapsed at Naval Quarters in Gwarinpa Abuja killing two people and five others rescued alive from the rubble. November 21, 2012, a two-storey building located at Jakande Estate, Oke Afe Isolo Lagos collapsed killing two sisters and their mother seriously injured. July 26, 2013, a three-storey building collapsed at the Ebute metta killing about seven people (Mohammed Sani-Sidi, 2013).

Floods as environmental hazards occur regularly every year in different parts of the worlds. The causes for flooding could be natural or human caused. Natural like when rivers overflow their banks, when the soil is saturated and ground water stores are high and so on. On the other hand, human activities can cause flooding. Examples are, buildings on water ways/drainage channels, dumping of refuse in drainage channels thereby blocking the passage of water, farming techniques that is intent can lead to the soil storing less water and surface run-off, clearing of vegetation, dam failures, etc.

In Nigeria, a dam failure occurred in Kano on August 17, 1988, although Kano is a Sahel region and is least expected to suffer from flood hazard, nonetheless, flooding did occur. This was caused by the collapse of Baganda Dam following a heavy rainfall. The dam collapsed after days of persistent rainfall in Kano, which introduced flood water into the dam swelling it's built up capacity of 22 million cubic meters of water to an all time high of 42 million cubic meters. These cause the death of 146 persons, destroyed 18,000 houses, killed 14,000 cattle and displaced 200,000 people. The damage caused was estimated at 650 million Naira. (NEST, 1991)

Director General, National Emergency Management Agency (NEMA) Mr. Sani Sidi said "the recent flood disaster in the country is still fresh. According to the 2012 Post Disaster Needs Assessment report; 363 people were killed; 5,857 injured; 3,891394 affected and 3,871530 displaced due to the resulting floods. Estimated loss and damage is about #2-29 tn, that is equivalent to 1.4 percent of the GDP.

The ongoing amplifying rate of fire accidents in the country where hundreds of live and property worth billions of naira are lost annually to fire disasters has become a subject of concern among the people.

About 65 shanties were gutted by fire in Ebutte Meta, Lagos state, followed by other fire incidents consuming billions of naira commodities at Keffi Central Market of Nassarawa state, and Gamboru Market of Borno state. Catastrophic personal injury

and devastating socio-economic and psychological damage arising from fire outbreaks would always remain a remarkable account to the victims.

In an estimate of 7129 fire accidents, about 990 lives are lost annually in the country; while the United Sate Fire Administration (USFA) statistical analysis has showed that there were about 3,320 deaths and 17, 000 related injuries occurred in the year 2008 from series of fire accidents. Also, the death associate with different fire accidents result not only from burns but also from smoke inhalation and toxic gases as it did in November 2011 to Nandnagari community of Eastern Delhi and Nigerians' victims of fire mishap in Saudi Arabia.

The NEWS MAGAZINE media organization suffered fire loss in November 2012. The inferno, which was caused by power surge in the two storey building started at about 6:30PM and extensively damaged the top floor. Fortunately, there was no loss of life in the incident.

Fire wreaked havoc in Oko Baba Community, Ebute Metta, Lagos wood logging community. Many residents were rendered homeless as fire gutted about 50 shanties in the area. Saw milling equipment worth millions of naira were also destroyed in the blaze which lasted over 2 hours. The cause of the fire has not been determined but the wood and saw dust served as fuel for the fire resulting in rapid growth and spread.

Faleye Oke-Padre Market in Ibadan lost about 20 shops to fire which started in one shop. Goods worth several millions naira were destroyed in the fire that hit the electronics section. The fire started at about 9.30AM as the traders were starting their business day.

An international non-governmental organization (NGO) that promotes sexual and reproductive health and rights of women was visited by the fire bug on January 31st. Property worth millions of naira was lost in the blaze that started at about 2AM. Security personnel blamed the fire incident on power fluctuations in the area. The blaze destroyed the newly furnished conference room. Fire fighters from Asokoro Fire Station were said to have responded promptly to the distress call thereby saving the entire four-storey building from destruction.

The Lagos office complex of the National Agency for Food and Drug Administration and Control (NAFDAC) in December 2012 was gutted. The fire started at about 7.30PM at the warehouse where seized goods were kept. The cause of the fire was not known, but the speed of the fire might indicate that the use of accelerant was involved. This could mean that the fire was the handiwork of arsonists. The ferocity of the blaze discouraged passers-by and touts (area boys) from attempting to fight the fire. By the time the fire fighters turned out one hour later, the whole building was lost.

The Office of the Millennium Development Goal (MDG) in Bauchi State was in October 2012 destroyed by fire. The night time fire affected all the offices in the

building including official documents, files, computers and furniture among others. The cause of the fire is unknown, but the intensity and rapid spread showed that accelerants were used. In other words, it appeared to be an arson attack.

TOOLS FOR IMPLEMENTING ENVIRONMENTAL RISK REDUCTION IN ENVIRONMENTAL HAZARD ZONES

The following tools were proposed by the International Strategy for Disaster Reduction (ISDR, 2004).

1. **Community Approach:** There should be activities, projects and solutions tailored for the individual community. When the process is lead by the community itself and not as an official from the central authorities, it is often referred to as a "bottom-up" process. Involvement of the most venerable groups, like women and children are considered vital for successful and sustainable long-term achievements. When financial means for assisting the implementation of a specific project comes from a central government or even from external donors: it comes with complications, as decisions are not made in the community. For projects such as reinforcement of river banks, or more, the community members need to be a part of the process to learn to preserve the structures after ended project cycle. Thus community members should be participant in the design and construction processes to ensure community ownership and maintenances skills.

2. **A Strength, Weakness, Opportunity and Threat (SWOT) Analysis**: SWOT analysis can be a useful hazard management tool in the initial phase of a risk assessment as guidance for the community to capture and identify the community's overall areas of development including geographic and programmatic scope of action, perceived effectiveness and level of acceptance and support by community members and local institutions. Identification of the SWOT is essential because subsequent steps in the process of planning for achievement of the selected objective for the community might come as a result from the SWOT Analysis. The benefit of this technique are the identification of the links between each of the perceived "threats" which relates to the community's "weaknesses", the "weaknesses" to related "opportunities" and the "opportunities" to related "strength". The item at which the most lines (links) converge indicate the priority threats to be mitigated, weaknesses to be corrected, opportunities to be seized, and strengths to be reinforced.

An example of a SWOT analysis is presented in figure 1.

Figure 1: Fictive Result of a SWOT Analysis

Strength	Weakness	Opportunities	Threats
Local knowledge of water resources and seasonal floods	Lack of people centered early warning systems	Well established flood management systems	Information about floods are not reaching the community in timely or comprehensible manner.
Autonomy for the local government administration	Lack of integration of environmental conservation in local development plans and policies.	Ability to carry out development plans and policies without macro management from national level.	Local government show little interest in investing in environment and disaster risk reduction.

Source: ISDR, 2004.

The SWOT analysis can be complemented by an environmental impact assessment (EIA) which is a policymaking tool that provides information on the environmental impacts of activities. The EIA encourages the private sector and individuals to consider the impact of their actions on the environment. An EIA could be used to assess risk in coastal areas facing sea level raise, e.g along the Mediterranean, to access the impact of agriculture and food security. It is important to note here that EIA is not necessary an easy task to administer and it can be a costly and time consuming process.

3. Hazards and Risk Maps: Following the SWOT analysis, the community can benefit from developing a hazard and /risk map, which displays the community or geographical zone that identifies the places and structures that might be negatively affected by a natural and manmade hazards. Mapping can be of a single hazard such as fault maps and flood maps or it can take form as a multiple hazards map which combines all the present hazards in a single map to give a composite picture of the situation.

   One of the most common computer assisted technique use for hazards and risk mapping is the geographic information system (GIS). This is a mapping which uses a geographic information system, a computer-based tool for risk and/or hazard mapping.

THE ROLE OF BUILT PROFESSIONALS ON ENVIRONMENTAL HAZARDS

A professional is a person who has acquired skills abides by the code of conduct, etiquette, the special conventions, forms of politeness and so forth associated with a certain profession. The National Building Code (2006) defines a registered professional as a technically and legally qualified person who has a valid registration/license to practice issued by the relevant statutory regulatory bodies established for the control of that professions in Nigeria. There are seven professionals in the Nigerian Building Industry and according to the National Building Code (2006), these include: Architecture, Building, Engineering, Estate Surveying and Valuation, Quantity Surveying, Land Surveying and Urban and Regional planning.

Ogunbiyi (2008) describes four basic principles guiding professionalism. These are:

- **Expertise**: A professional possesses a systematic body of theory developed through education training and experiences. Professionals are generally expected to maintain the knowledge of their discipline, to respect the accomplishment of the body responsible for their profession and to contribute to growth.

- **Autonomy**: A professional provides expertise advice to his employer (client), independent of any self interest; learned and uncompromised professional judgment should take precedence's over other motive in the pursuit of the profession. Moreover, the social and environmental impact of a professional and his activities must be considered.

- **Competence**: Professional brings a high level of selfless dedication to the work they do on behalf of the clients. Professionals are charged to serve their clients in a professional manner and to exercise unprejudiced and unbiased judgment on their behalf.

- **Accountability:** Professionals accept responsibility for the unqualified, independent advice provided to their clients. Professional undertake to perform professional services only when they together with those whom they may engage as consultants, are qualified by education, training and experience in the specific technical areas involved.

Jayaraj (2002) describes, disaster management cannot be seen in isolation but it is a collection of various phases of management. In addressing this particular issue, OECS (2007) explains a comprehensive disaster management framework composed of six phases called risk identification risk mitigation, risk transfer, disaster preparedness, emergency response and rehabilitation and reconstruction. A simpler version of the above is proposed by ADRC (2005) which looks at the disaster management cycle as a four stage cycle consisting of phases called prevention/mitigation, preparedness, response and rehabilitation/reconstruction.

A summarized version of this process is shown below.

1. Disaster Mitigation and Prevention
    - Dikes and dams
    - Building codes
    - Disaster insurance
    - Land-use management
    - Risk mapping
    - Safety codes
    - Public education
    - Tax incentives and disincentives

2. Preparedness
    - Emergency operations plans
    - Emergency public information

- Resource management plan
- Training cadre
- Conducting drills and rehearsal of emergency response plans.

3. Rehabilitation and Reconstruction
    - Debris clearance
    - Contamination control
    - Temporary housing and services
    - Restoring houses and permanent infrastructure services

4. Immediate relief and recovery
    - Fulfilling affected peoples' health, food and beverages, accommodation/housing and infrastructure services needs by stabilizing systems and preventing any potential secondary damage.

Bosher, Dainty, Carrillo, Glass and Price (2007) describe design, engineering and construction as the most influential disciplines that shape the resilience of the built environment. Therefore, the professionals involved in designing and construction of built environment facilities require an in-depth expertise and knowledge on how to avoid and mitigate the effects of hazards to built environment facilities (Hamelin and Hauke, 2005 cited Bosher and Dainty 2011). Without being limited to the proactive pre-disaster actions, the built environment professionals should be able to provide their expertise during post-disaster context (immediate relief, rehabilitation and reconstruction). The emerging trends in concepts such as disaster risk reduction, vulnerability reduction and hazards mapping emphasize the multi-disciplinary nature of the professional knowledge that needs to be integrated within a single setting. Built environment professional have to share their skills and knowledge among various other disciplinary professionals involved in disaster management process through which the built environment professionals can add value to the disaster management process.

The main responsibilities, skills, activities proposed by various authors, in which built environment professionals are of great importance before, during and after major disasters are summarized in table1.

CONCLUSION

Humans activities impacts on the environment. Deforestation and desertification has lead to the occurrences of drought. Vandalisation of oil pipelines has lead to pollution of water wells and farmlands. Building on water ways and blocking of water channels leads to flooding of the environment.

In order to implement environmental risk reduction in environmental hazards areas, there is need for synthesizing of the community by creating activities, projects and solutions tailored for the community and lead/supervise by the community. A strength, weakness, opportunity and threat (SWOT) analysis should be complemented with an environmental impact assessment (EIA). Also the need for

hazards and risk mapping of environmental hazards zones by means of geographic information system (GIS).

The Quantity Surveyor as a member of the built environmental professionals, based on years of practical experiences, can be involved in disaster management in areas like cost planning and spending priorities, financial planning and management, monitoring funding, re-establish damaged major infrastructures etc.

REFERENCES

Asian Disaster Reduction Centre (ADRC) (2005). Total Disaster Risk Management – Good Practices 2005*, ADRC,* and (Retrieved February, 02, 2014 from http//www.adrc.asia/publications/TDRM2005/TDRM_Good_Practises/GP2005_e.html.

Bosher, L.S., Dainty, A.R.J. Carrillo, P.M., Glass, J. & Price ADF (2007). "Integrating Disaster Risk Management into Construction: A UK Perspective". *Building Research and Information 35*: 163 – 177.

Bosher, L., and Dainty, A., (2011)"Disaster Risk Reduction and "Built In" Resilience Towards Overarching Principle for Construction Practice". *Disasters* 35: 1 – 18

Bilham-Boult, A; Blades H., Hancock J. and Ridout, M. (1999). *People Places and Themes,* Heinemann, Educational Publishers, Oxford.

Farrow, S., Hayakaw, H., (2002). Investing in Safety: An Analytical Precautionary Principle. *Journal of Safety Research. Summer; 33(2)* 165-174.

Federal Republic of Nigeria Building Code (2006). 1st Ed. Capetown: Lexis Nexis Butterworths.

International Strategy for Disaster Reduction (ISDR): *An Overview of Environment and Disaster Risk Reduction in the Arab Region – A Community Perspective,* ISDR, Geneva 2004.

Jayaraj, A., (2002) "Post-disaster Reconstruction Experience in Andhra Pradesh, In India", *Proceedings of Conference of Improving Post-Disaster Reconstruction in Developing Countries,* 23rd-25th May 2002, Universite de Montreal, Quebec, Canada.

Mohammed, S., (2013). Response Mechanism for Managing Building Collapse, *NIOB, 43rd Builders Conference and Annual General Meeting,* August.

NEST (1991). *Nigeria's Threatened Environment – A national Profile*, NEST Bade, pp 111-115.

Ofori, G., (2002). "Construction Industry Development for Disaster Prevention and Response", *I – Rec Conference on Improving Post - Disaster Reconstruction in Developing Countries,* 23-25 May 2002, University de Montreal, Canada.

Ogunbiyi, M.A (2008). The National Building Code and the Professional Builder. Proceedings of the 38th Annual General Meeting/Conference of the Nigerian

Institute of Building, Theme: "The National Building Code and Nation Building" Osogbo, Osun State, Wednesday 15th-19th October, pp 76 -88

Organization of Eastern Caribbean States (OECS) (2007). *Vulnerability Benchmarking Tool*, Saint Lucia: OECS

Smith, K., (2001). *Environmental Hazards – Assessing risks and reducing disasters,* Third Edition Routhledge Physical Environment Series, London

Thurairajah, N., Roshan, P., Aled, W., (2011). Incorporate Disaster Management Perspective into Built Environment Undergraduate Curriculum. *International Conference on Building Residence* Kandakana, Sri Lanka.

Toulouse (2001). Toulouse Special Report on Explosion at AZE Grande Paroisse Plant on September 21, Synergies, No 6 Autumn.

www.oyibosonline.com/cgi-bin/newsscript.pl?record=3583 (accessed 31/1/2014)

www.channelstv.com/.../gas-pipline-vandals-sabotage-nigerias-power-se (accessed 3/2/2014).

www.nigeriaoilandgasintelligences.com/rampant-vandalism-caused-oil-spills(accessed 3/2/2014).

www.punchng.com/news/nigeria-lost-n2-29tn-to-2012-flood-disaster-nema(accessed 3/2/2014).

www.thisdaylive.com/article/ways-to-protect-nigerians-from-the-scouge-of-fire-4. (accessed 3/2/2014).

Reference to this paper should be made as follows: Mamman .E. Juliet and Omozokpia .E. Ruth (2014), The Role of Built Environmental Professionals on Environmental Hazards: An Overview. *J. of Environmental Sciences and Resource Management,* Vol. 6, No. 1, Pp. 56 – 67.