

The Roles of Town Planners in Disaster and Risk Management in Built Environment of Birnin Kebbi, Nigeria

Imole Oyelade ^{1*} and Elimisiemon Monday C. ^{2*}

¹Department of Urban and Regional planning, Waziri Umaru Federal Polytechnic, Birnin Kebbi, Nigeria

²Department of Architecture, Kaduna State University, Kafanchan Campus, Kaduna

* imole_oyelade@yahoo.com

Abstract - This paper examines the roles of Town planners in Disaster and risk management in built environment of Birnin Kebbi, Nigeria. The objectives are to: assess the roles of town planners in disaster and risk management and; identify factors undermining town planners in disaster and risk management within the study area. The primary and secondary data were used for the study. A total of 20 questionnaires were administered to the 20 registered members of the Nigerian Institute of Town Planning (NITP) and Town Planning Registration Council (TOPREC) named Kebbi study group in Birnin Kebbi. The study employed descriptive statistics base on the ranking of the mean score. The study identified three most important roles of town planners in disaster and risk management and also three most important factors undermining town planning profession in the area. The study is recommended to help government and policy makers to identify useful roles and challenges of the Town planners in the built environment.

Key words: Disaster; Reduction; Risk; Management; Spatial; Vulnerability.

1.0 INTRODUCTION

Planning of towns and cities had been a continuous exercise especially as it relates to the increase in populations. Urbanization in the cities had further affected the accessibility to land. In fact, most buildings had been converted to storey buildings and at the same time, attachment of commercial shops form the basis of encroachment on the residential buildings. This growth in population further creates slum and squatters' settlements in our environment. These are characterized with unauthorized building development, lack of drainage, absence of refuse dump, dirty and unkempt surrounding etc. The UNDP (2010) described Cities as the economic drivers within their countries and the center of intellectual, political, business and financial activities. These functions create a huge potential for influencing improvements in risk management. UNDP (2004) defines disaster as a serious disruption of the functioning of a society with widespread human, material or environmental losses which exceed the ability of the affected society to cope using only its own resource.

According to Ammann (2012), cities face increasing risks of impacts from large scale disasters. Risk in urban areas is a combination of two factors: first, location and exposure to hazards; and second, increased vulnerability due to poor local governance, environmental degradation, and the overstretching of resources (UNDP, 2010). Risk is identified as a phenomenon which occurs and likely to make various damage and losses in human lives and which can be avoided or reduced if human activities like the arbitrary urbanization and environmental pollution are avoided (Zelloum, 2009). Disasters often occur because risk reduction measures have not been considered or undertaken, despite their previous knowledge of existing hazards and threats (Bosher, 2014). There is the

continuous expansion of cities to accommodate rapid population growth, combined with in appropriate land-use planning and failure of urban authorities to regulate building standards, contribute to the vulnerability of urban populations. The UNDP (2010) asserts that disasters induced by urbanization increases the exposure of people and economic assets to hazards and create new patterns of risk, coupled with extreme natural hazards, result in risk accumulation.

In the light of this, Patton and Reed (1988), described urban and regional planning as a discipline and profession "that is concerned with the forces that influence the quality of life from the neighbourhood to the region, state and nation using a systematic and creative approach to address and resolve social, physical, and economic problem of the neighbourhoods, cities, suburbs, metropolitan areas, and larger regions. Alan and Jorge (2013) observed that the Intergovernmental Panel on Climate Change (IPCC) 2012 report acknowledges the importance of urban planning being integrated with risk reduction practices, but actually developing ways of achieving this integration still remains challenging. This paper therefore considers the assessment of the roles and the factors that undermine town planners in disaster and risk management within the built environment in Birnin kebbi, Nigeria.

2.0 THE CONCEPT OF DISASTER AND RISK MANAGEMENT

UNISDR (2012) described disaster as a serious disruption to the functioning of a society with widespread human, materials, or environmental losses which exceed the ability of affected society to cope using only its own resources. Wahab, Atebije and Yunusa (2013) observed that disaster occurs when natural events, situations and

normal human activities are impacted by significant and sudden adverse events that cause damaging impacts on human lives, property and the environment. Disaster impacts may include loss of life, injury, disease and other effects on human, physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation (UNISDR, 2007b).

Disasters often occur because risk reduction measures have not been considered or undertaken, despite their previous knowledge of existing hazards and threats (Bosher, 2014). Similarly, risk is described as the combination of the probability of an event and its negative consequences. Zelloum (2009) asserts "Risk is identified as a phenomenon which occurs and likely to make various damages and losses in human lives and which can be avoided or reduced if human activities like the arbitrary urbanization and environmental pollution are avoided.

Zelloum (2009) emphasize that risk is characterized by the magnitude, intensity, frequency and return period. The risk is a neutral and natural phenomenon, neither good. Disaster management is a process which involves the coordination and integration of all activities necessary to build, sustain and improve the capability (of people) for disaster prevention, mitigation, preparedness, response and recovery (Khan et al, 2008). Disaster risk management is therefore the systematic process of using administrative, organization and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impact of hazards and the possibilities of disasters (UNISDR, 2012). In general, risk is measured as a combination of the probability of an event and its consequences.

Wahab, Atebije and Yunusa (2013) identified few examples of Disaster are as follows: Oil spills in Niger Delta, pipeline vandalization in Nigerian western part of the country, building collapse in Lagos, desertification/Drought in the North, loss of community land due to erosion in the South East, windstorm in the North, floods in some part of the country, atmospheric pollution and water pollution in the urban and rural areas, power or telecommunication outage due to thunderstorms or tornadoes, road accidents due to impact of climate change on road design, epidemics and diseases, and fire outbreak especially due to the ignition and overheating of electrical.

2.1 Physical planning measures and Tools used in Disaster and Risk Management

Urban planning encompasses a range of action modes and the development of knowledge or intelligence sets, its underlying attention to *spatial* relationships, between physical, social, economic and ecological systems provides a potentially powerful base for disaster risk reduction (Alan and Jorge, 2013).

Burby and Beatley et al. (1999) pinpoint the power of land use planning to deal with disasters, particularly in terms of the ways that social and organization aspects are typically drawn into planning approaches. According to Alan and Jorge (2013), land use planning can reduce losses

by (1) "affecting both the location and the design of urban development" and by (2) "helping create a knowledgeable constituency of citizens who support hazard mitigation programs". A key element of both urban planning (Rydin, 2007) and of Disaster risk reduction, Smith (2013) sees it as the gathering, development and application of various types of data or intelligence and its analysis as a base for action (Alan and Jorge, 2013).

The activities of planning actions in "plans" is incorporated into many disaster risk reduction approaches. Plans and the processes for their achievement will have a range of instruments, such as: action agendas; policies (decision rules for repeated actions); visions (images of the desired future); designs or master plans; and, strategies or decision making systems processes to modify plans and overall directions over time (Hopkins, 2001; Alan and Jorge, 2013).

King *et al* (2013) observe that planners have three main areas through which they may reduce hazard risk or reduce vulnerability to risk. These are the zoning of the existing and future land uses whereby development controls and building codes are applied as appropriate to the type of land and its structures, urban infrastructure and settlement design, and information and mapping. These activities primarily take place within the jurisdiction of local governments which experience constraints of resources and capacity.

According to Kotter (2003), it is necessary to use the instruments of spatial planning in contributing to the prevention of the risks and mitigating the effects of natural and environmental disasters. In the context of environmental disasters, spatial planning and land management have to support the following essential functions as described by Kotter (2003):

-*Early warning system*: Spatial planning requires a comprehensive data base, to get sound information about the spatial development.

-*Risk assessment and mapping*: Prevention of disasters requires a detailed information and data about the reasons and effects of hazards. This calls for a systematic framework of the assessment and mapping of disasters.

-*Prevention and reduction*: Spatial planning needs to analyze the interrelations between the spatial influences and the environmental disasters. This requires the improvement and establishment of new models of spatial development.

-*Risk Management*: Environmental disasters requires a certain infrastructure needed to realise the emergency plan and risk management plan based on the data available.

-*Reconstruction*: Spatial planning has to be standardized through the provision of innovative models for regional development.

Oyesku identified the failure managing Nigerian Cities as the failures in the roles of Town planners and the challenges are related to mismanagement of funds, inadequate data base map, lack of political will, lack of public participation, absence of development control

mechanism, poor awareness, inconsistent policy, poor enforcement and implementation of plans.

3.0 METHODOLOGY

This study employed both primary and secondary data. The primary data made used of questionnaires within the study area. The secondary data used include online Journals and textbooks. The study was conducted using only the registered members of the Nigerian Institute of Town Planning (NITP) and Town Planning Registration Council (TOPREC) named the Kebbi state study group. Questionnaire administration was adopted for data collection using Likert scale of Very Good, Good, Average, Bad and Very Bad. The data was analyzed using the mean scores of the descriptive statistics and on that basis, a ranking was done on the identified roles and factors that undermine the town planners.

Oyesku (2014) highlighted Seventeen roles of Town planners in City management and eight challenges of managing Nigerian Cities. The Variables used in his work were modified and used for this study.

4.0 RESULTS AND DISCUSSION OF FINDING

TABLE 1: THE ROLES OF TOWN PLANNERS IN DISASTER AND RISK MANAGEMENT

	ROLES OF TOWN PLANNERS	Mean score	Rank
1	Town planners are directly responsible for planning resilient city	1.55	11th
2	Town planners are involved in disaster and risk management of climate change	2.10	1st
3	Town planner have regular programme of awareness that update their profession	1.75	4th
4	Town planners go for annual training and equipping to handle environmental issues	1.30	14th
5	Town planners provide researches and dissemination of information to handle climate change	1.50	12th
6	Town planners are recognized for infrastructural provisions in the city	1.70	7th
7	Illegal or unapproved plans are future disaster to the nation	1.75	4th
8	Town planners functions aid provision of a safer city	1.90	2nd
9	Building plans are useful instruments in disaster and risk management	1.75	4th
10	Layout plans are useful tools used in disaster and risk management	1.85	3rd
11	Master plans are useful tools used in disaster and risk	1.75	7th

	management		
12	Town planning education will avert possible disaster occurrence in our environment	1.65	9th
13	Town planners promote community development that aids sustainable development	1.60	10th
14	Town planners employ Geographical Information system in disaster prone areas	1.30	14th
15	Town planners help in disaster and risk management through zoning	1.45	13th

Source: Source: Kebbi NITP/TOPREC Study Group, 2017 and Variables from Oyesku (2014).

Table 1 presents the roles of town planners in disaster and risk management. The mean scores from the members of the study group help to weight these roles in accordance of their importance and then ranking assessment carried out. Table 1 identified the first ranking to be Town planners are involved in disaster and risk management of climate change. The second ranking is to that town planners' functions aid provision of a safer city and the third ranking is that Layout plans are useful tools used in disaster and risk management. All other roles are well represented but these three are identified, take the leading roles from the table 1.

TABLE 2: FACTORS UNDERMINING TOWN PLANNING PROFESSION IN DISASTER AND RISK MANAGEMENT

	FACTORS UNDERMINING TOWN PLANNERS	Mean score	Rank
1	Inadequate funding	1.85	6th
2	Lack of base-map and location plans	1.75	10th
3	Political interference on planning matters	1.85	6th
4	Inadequate planning tools and convenient working environment	1.75	10th
5	Absence of adequate population data	1.85	6th
6	Poor plan implementation and enforcement	2.10	5th
7	Lack of functional infrastructure	1.80	9th
8	Government inconsistencies in policy formulation	2.30	1st
9	Change in regime/political party which thus result in project abandonment	2.15	4th
10	Town planners violation in the codes and conduct of their professional ethic	2.30	1st
11	Town planning profession lacks public involvement and participation of the people risk management	2.30	1st

Source: Kebbi NITP/TOPREC Study Group, 2017 and

Variables from Oyesku (2014).

Table 2 reflects the factors undermining town planners in disaster and risk management. The presentation indicates that the kebbi NITP/TOPREC study group identified factors of Town planners' violation in the codes and conduct of their professional ethic, Town planning profession lacks public involvement and participation of the people, and Government inconsistencies in policy formulation with a mean score of 2.30 as the first-three factor undermining town planning profession. Next to this score is Change in regime/political party which thus result in project abandonment accounting for a mean score of 2.15 followed by poor plan implementation and enforcement which account for 2.10.

5.0 CONCLUSION

The study revealed the three most important roles of town planners in disaster and risk management within Birnin Kebbi. These are town planners are involved in disaster and risk management of climate change, town planners' functions aid provision of a safer city and that layout plans are useful tools used in disaster and risk management. The study revealed that three most important factors undermining town planning profession as; town planners' violation in the codes and conduct of their professional ethic, town planning profession lacks public involvement and participation of the people, and Government inconsistencies in policy formulation.

REFERENCES

- [1] Alan, M. and Jorge, L. (2013). *Urban Planning for Disaster Risk Reduction: Establishing 2nd Wave Criteria*. SOAC 2013 Conference
- [2] Ammann, W. J. (2012). Official Opening Statement. In: AMMANN, W. J., ed. International Disaster and Risk Conference, Integrative Risk Management in a Changing World - Pathways to a Resilient Society, Davos, Switzerland. Global Risk Forum.
- [3] Boshier, L. (2014). Built-in resilience through disaster risk reduction: operational issues. *Building Research and Information* 42(2): 240–254.
- [4] Burby, R., Beatley, T., Berke, P., Deyle, R., French, S., Godschalk, D., Kaiser, E., Kartez, J. May, P., Ishansky, R., Paterson, R. & Platt, R. (1999). Unleashing the Power of Planning to Create Disaster-Resistant Communities. *Journal of the American Planning Association*, 4 (2), 247-258.
- [5] Hopkins, L. (2001). *Urban Development: The logic of making plans*, Washington, Island Press.
- [6] Intergovernmental Panel on Climate Change (ICPP), (2012). *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Special Report of the Intergovernmental Panel on Climate Change*, New York, Cambridge University Press.
- [7] Khan, H., Vasilescu, L.G., and Khan, A. (2008). Disaster Management cycle- A Theoretical approach. In Wahab, B., Atebije N. and Yunusa, I (2013). *Disaster Risk Management in Nigerian Rural and urban Settlement*. NITP/TOPREC Mandatory Continuing Professional Development Programme (MCPDP), Edited 2013
- [8] King, D., Harwood, S., Cottrell A., Gurtner, Y. And Firdaus, A. (2013). *Land Use Planning for Disaster RiskReduction and Climate Change Adaptation: Operationalizing Policy and Legislation At Local Levels*. Centre for Disaster Studies, James Cook University, Australia.
- [9] Kotter, T. (2003). *Prevention of Environmental Disasters by Spatial Planning and Land Management*. 2nd FIG Regional Conference Marrakech, Morocco, December 2-5, 2003.
- [10] Oyesku, K. (2014). *Managing Fast Growing Cities in Developing Countries: The Role of Urban and Reginal Planners*. Paper Delivered at the 27th Town Planning Registration Induction Ceremony in Abuja.
- [11] Patton, C.V. and Reed, K.E. (1988). *Guide to Graduate Education in urban and Regional Planning*. Sixth Edition. Milwaukee: Association of Collegiate Schools of Planning, Department of Urban Planning, School of Architecture and urban Planning University of Wisconsin.
- [12] Rydin, Y. (2007). Re-examining the role of knowledge within planning theory. *Planning Theory*, 6, 52-68.
- [13] Smith, K. (2013). *Environmental hazards: assessing risk and reducing disaster*, New York, Routledge.
- [14] UNDP. (2004). *Reducing Disaster Risk. A Challenge for Development a Global Report*. New York, United Nations Development Programme Bureau for Crisis Prevention and Recovery.
- [15] UNDP. (2010). *Urban risk management*. A United Nations Development Project. New York, USA.
- [16] UNISDR (2007b). In CHMUTINA, K., GANOR, T. and BOSHER, L., (2014). Role of urban design and planning in disaster risk reduction. *Proceedings of the ICE - Urban Design and Planning*, 167(3), pp.125-135.
- [17] UNISDR (2012). *Global Assessment report on Disaster Risk Reduction-Revealing Risk, Redefining development*. Geneva: UNISDR.
- [18] Wahab, B., Atebije N. and Yunusa, I (2013). *Disaster Risk Management in Nigerian Rural and urban Settlement*. NITP/TOPREC Mandatory Continuing Professional Development Programme (MCPDP), Edited 2013.
- [19] Zelloum, H. (2009). Urban seismic risk management: A methodology. *Journal of Geology and Mining Research*, Vol. 1(9) pp. 195-207. Available on <http://www.academicjournals.org/jgmr>.