

POST DISASTER HOUSING RECONSTRUCTION (PDHR) IN IBAJI AND LOKOJA, KOGI STATE-NIGERIA

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Abstract: The post-disaster housing reconstruction is a process distinct from the construction of housing when situations are normal, because reactive measures are put in place after disasters have occurred. It has been established that most of the time, emergency relief efforts are usually seen as being successful but the same cannot be said of post disaster housing reconstruction projects because they often fail to meet the set objectives. Hence, the study assessed post disaster housing reconstruction (PDHR) in Ibaji and Lokoja Local Government Areas of Kogi State, Nigeria. This was done through the self-administration of structured questionnaires to 56 professionals directly or indirectly involved on the reconstruction projects. Findings indicated that market and environment related factors have the most significant effects on resources availability during post disaster housing reconstruction. While the main challenges confronting post disaster housing reconstruction are inconsistencies in post disaster housing policy as well as insufficient capacity of the construction industry in the study area. However, PDHR has not achieved the desired objectives owing to challenges stymieing its effective implementation. Home owner-driven model therefore should be adopted for PDHR. The study is significant in that the PDHR challenges identified when measures are put in place to manage them, all the stakeholder beginning with victims will have a sustainable housing, government agencies will be up to date with robust approach to solving reconstruction issues and donors will have value for their money.

Keywords: *Disaster, flood, housing, Nigeria, PDHR, reconstruction.*

1.0 Introduction

There is no doubt that the world over, disaster occurrence has been on the rise and resultant effects on people in terms of human and economic losses are tremendous especially in the last decade (UNEP, 2007). Putting this succinctly, the World Disaster Reported in 2002 that close to 200 million people were affected with 180 deaths recorded per day and about 63 billion US Dollar was lost to disaster in the eighties to the

nineties as a result of the fact that people live in areas that have been affected by disaster at least once (World Disaster Report, 2002; Ruiz and Peduzzi, 2005). Therefore, sustainable development and disaster reduction and prevention are *sine qua non* towards mitigating disasters.

Pandey and Okazaki (2005) stated that managing disasters effectively can in the long run benefit all and sundry by ensuring sustainable development that will have positive impact on the environment and food security thereby serving an engine for national development. However, it must be borne in mind disasters especially the natural once have become an everyday occurrence as against a yearly occurrence (Kyung and Jae-ho, 2013). To this end, Nigeria cannot be said to be isolated from the catastrophic effects of natural disasters in all their ramifications, hence reconstruction efforts are needed at all times.

Reconstruction activities are the activities found during the recovery and rehabilitation phase of disaster risk management; these are the things done to return the facilities back to their existing state before the disaster struck or to possibly upgrade the pre-disaster living condition of the communities or to further worsening the conditions of the affected communities (Hidayat and Egbu, 2010; Chang, Wilkinson and Potangaroa, 2012). Based on this, reconstruction therefore, can be used as a development mechanism to help reduce disaster risks by making sure that attention is paid to areas that are prone to disasters (Shaw, 2006). Post disaster housing reconstruction is seen as a continuous process whereby expected functions of role players are interwoven; in addition to this, due to the suddenness of disasters, resources meant for the projects are constrained by time and space (Kyung and Jae- ho, 2013). According to Prieto and Whitaker (2011), post disaster housing reconstruction requires a paradigm shift in terms of skills and the processes required since the outcome is expected to improve the conditions of communities affected (Hidayat and Egbu, 2011). However, housing reconstruction is not the same as traditional construction due to the plethora of issues that people will have to contend with at the same time (Davidson *et al.*, 2007; Siriwardena, Haigh and Ingirige, 2009).

The mass movement of citizens from rural to urban areas has made the population the world over to be at risk due to the fact that many of these urban areas are situated near coasts and fault lines (Intergovernmental Panel on Climate Change IPCC, 2007). In Nigeria, Adeagbo *et al.* (2016) stated that floods and windstorms are common occurrence. In October 2012, flood devastated 14 States in Nigeria that included Kogi. In Kogi State alone, more than 500 thousand people were displaced; nine out of the 21 local government areas were affected by the flood. Lokoja and Ibaji Local Government Areas were included. The worst hit was Ibaji which was completely submerged (National Emergency Management Agency NEMA, 2012).

Mesurier, Rotimi and Wilkinson (2007) stated that there are inadequate laws to enable reconstruction projects holistically and that resource issues are causes for worry too. In a related development, Zhou and Wang (2015) asserted that stakeholders' management of post-reconstruction is often a neglected area of research as a result of its distinctness and the spontaneity of occurrence. As a result of this, various efforts such as post disaster housing reconstruction was put in place by the stakeholders in order to mitigate the effects created by the flood. According to Ophiyandri, Amaratunga and Pathirage (2012), rebuilding after disaster is expected to be better so as to be able to withstand future disaster but it is not always like that most especially in the housing sector. Seneviratne, Amaratunga and Haigh (2017) established that challenges such as lack of tenure security, inability to be proactive during construction and absence of user satisfaction survey if not adequately addressed could hamper the realization of project objectives in post disaster housing reconstruction. To this end, this paper reported post disaster housing reconstruction (PDHR) in Ibaji and Lokoja Local Government Areas from the perspective of the professionals in those areas because Sadiqi, Coffey and Trigunarsyah (2012) established that most of the time, emergency relief efforts are usually seen as being successful but the same cannot be said of post disaster housing reconstruction projects because they often fail to meet the set objectives. Hence answers were sought to the following research questions:

1. What are the roles and responsibilities of the stakeholders?
2. What are the factors affecting resource availability during post- housing reconstruction?
3. What are the hindrances / challenges to post disaster housing reconstruction?

2.0 Post-Disaster Housing Reconstruction

The post-disaster housing reconstruction is a process distinct from the construction of housing when situations are normal, because reactive measures are put in place after disasters have occurred (Quarantelli, 1997; Quarantelli, 2000 & Barakat, 2003). Post-disaster housing is defined by United Nations Disaster Relief Organisation (UNDRO, 1982) as "*housing policies and applications following a disaster for meeting the urgent, temporary and permanent sheltering needs of the survivors of the disaster*".

The post-disaster housing reconstruction process consists of four different periods: pre-disaster period, immediate relief period, rehabilitation period and reconstruction period (UNDRO, 1982). The pre-disaster period is the proactive phase at which far reaching decisions are taking that will result in policy formulation that will create avenue for database formation. The immediate relief period is important as it is the stage when assessments in terms of the extent of the damage and how the resources needed are carried out after the disaster. The rehabilitation period is the stage when plans pertaining to implementation are made and decisions reached by all the parties involved in the disaster management efforts. The reconstruction stage is the construction,

implementation and evaluation period of the permanent post-disaster houses. This last stage does not end when the houses have been constructed since follow up actions are needed which could last from 2 to 4 years. Essentially, there are pre-disaster and post disaster phases; there could be overlapping of activities in the 2 phases since it is not possible to complete the pre-disaster phase and freeze it before the commencement of the post disaster phase (UNDRO, 1982; UN-Habitat, 2001; Barakat, 2003).

3.0 Study Area

Lokoja is the capital of Kogi State since 1991, the town and its suburbs constitute Kogi Local Government Area (LGA). The town and its suburb also constitute the Kogi LGA. It lies on latitude $7^{\circ}49'$ N and longitude $6^{\circ}44'$ E at an altitude of 45-125m, on the western bank of the Niger River, close to its confluence with the Benue River. The annual rainfall is about 1150 mm which usually begins in March and reaches its peak in from June to September, while the dry season begins at about November (www.fulokoja.edu.ng/lokoja-at-a-glance.php on 14/04/2017). In a related development, Norbert and Ekwubile (2015) stated that Ibaji LGA comprises of Onyedega, Unale and Ujeh. It is situated between latitude $7^{\circ} 00' - 8^{\circ} 50'$ N and longitude $7^{\circ} 30' - 8^{\circ} 00'$ E. The vegetation of Ibaji LGA is Guinea savanna which is characterized by short grasses and trees that grow rapidly during rainy season. Majority of the inhabitants are fishermen and farmers.

4.0 Research Methodology

The paper reported a part of a larger study. Questionnaire survey was adopted in the study in line with similar study (e.g. Ophiyandri *et al.*, 2012). The study drew extensively from the studies of Chang, Wilkinson and Potangaroa (2012), United States Agency for International Development (USAID, 2012) and Hidayat, and Egbu (2010 & 2011) in drawing up the questions. The list of active professionals on the register of relevant professional bodies in Ibaji and Lokoja who the authors believed would have been involved directly or indirectly was obtained which amounted to 56 (8 in Ibaji and 48 in Lokoja); this list constitutes the population of the study and by extension the sample size. This category of respondents was considered to have the most complete knowledge about the reconstruction projects being investigated. Thus, 56 questionnaires were self-administered to these professionals on a 5-point Likert scale (see attached questionnaire sample), 49 were returned and used for the analyses as shown in Table 1 representing 87.5%. The data obtained were analysed using mean scores and ranked which formed the basis for the conclusion reached and the recommendations made.

5.0 Results and Discussion

Table 1 reveals that majority of respondents have between 6 to 15 years' experience with an aggregate percentage of 65.4%. This implies their possession of valuable knowledge in the built environment and therefore better placed to contribute meaningfully. Research findings reveal that registered professionals with HND qualification account for 20.4%, BSc account for 49.0%, MSc account for 26.5% and others which include those with PGD qualification account for 4.1%. This is an indication that majority of the professionals have requisite qualification and training for efficient delivery of responsibilities. Also, they are in a better position to offer professional advice with regards to the construction of the housing facility.

Table 1: Respondents profile

<i>Questionnaire</i>	<i>Frequency</i>	<i>Percentage</i>
Questionnaires administered	56	100
Questionnaires returned	49	87.5
<i>Years of experience</i>	<i>Frequency</i>	<i>Percentage</i>
1-5	2	4.1
6-10	16	32.7
11-15	11	32.7
16-20	11	22.4
Over 20	4	8.1
Total	49	100
<i>Educational qualification</i>	<i>Frequency</i>	<i>Percentage</i>
Higher National Diploma (HND)	10	20.4
Bachelor of Science (BSc)	24	49.0
Masters of Science (MSc)	13	26.5
Other	2	4.1
Total	49	100

With regards the causes of flooding, Sudden dam failure ranked 1st, Gap in hydrological data, Limited drainage capacity in urban cities, Gap in hydrological design, Excess encroachment in flood ways, Construction on flood paths thereby creating surcharges on water level, Poor drainage, Hydrological implementation problems, Deforestation of catchment's basins, Inappropriate land use, Solid waste, Construction sites, Traditional/cultural beliefs of the people, Mudflow ranked 2nd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th and 14th respectively. This is an indication that the respondents are well informed of the causes of the flooding based on their knowledge and information gathered. Odufuwa, Adedeji, Oladesu, and Bongwa, (2012) in their study asserted that inadequate land-use planning, unregulated development of disaster prone areas and neglects of building codes were among the causes of flooding in Nigeria. Nwigwe and Emberga (2014) established that illegal structures across drainage channels, erosion passages, inadequate drainage channels, collapsed dams/embankments and bridges,

nature of the terrain and poor waste management were the major causes of floods in South-West, Nigeria. Earlier, Actionaid (2012) reported that incidences of overflowing rivers, blocking drainages and submerging of dams due to overflowing reservoirs were the causes of flooding as it related to the 2012 flooding in Nigeria.

Table 2: Causes of Flooding

<i>Factors</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Sudden dam failure	49	218	4.45	2.011	1 st
Gap in hydrological data	49	214	4.37	1.995	2 nd
Limited drainage capacity in urban cities	49	214	4.37	1.995	2 nd
Gap in hydrological design	49	211	4.31	1.995	4 th
Excess encroachment in flood ways	49	202	4.12	1.983	5 th
Construction on flood paths thereby creating surcharges on water level	49	195	3.97	1.943	6 th
Poor drainage	49	194	3.96	1.910	7 th
Hydrological implementation problems	49	193	3.94	1.908	8 th
Deforestation of catchment's basins	49	181	3.69	1.903	9 th
Inappropriate land use	49	170	3.47	1.847	10 th
Solid waste	49	160	3.27	1.847	11 th
Construction sites	49	151	3.10	1.796	12 th
Traditional/cultural beliefs of the people	49	152	3.10	1.747	12 th
Mudflow	49	141	2.88	1.704	14 th
				1.704	
				1.646	

Findings as presented in Table 3 reveal that, in Lokoja all the respondents said they are mindful of the State Government's development of lodging office for surge casualties. While in Ibaji, they all said they were not mindful of State Government's construction of housing facility for flood victims. This further indicates that, there is no construction of housing facility for flood victims in Ibaji unlike Lokoja where there is. It also points to the fact that, PDHR has been politicized whereby efforts are concentrated mostly in urban centres where recognition could easily be given.

Immediate relief period as shown in Table 4 ranked 1st when it comes to the level of Government's commitment to PDHR process periods, Rehabilitation period, Reconstruction period and Pre-disaster period ranked 2nd, 3rd and 4th respectively. This is an indication that preventive, rehabilitation and reconstruction measures are not the priority of the government; the priority is mostly focused on immediate relief.

Findings on the extent of participation of stakeholders in PDHR reveal that, Government and its agencies at the local, state and federal levels ranked 1st, NGO/Donor agencies, Community leaders, Technical assistance provider and House owners ranked 2nd, 3rd, 4th

and 5th respectively as shown in Table 5. PDHR is a capital-intensive venture which is why government at federal, state and local levels are the principal party involved in the construction of housing facility for flood victims. The study is consistent with National Reconstruction Authority (2016) report that governments and their agencies are responsible for private losses especially when low-income group are affected or when risk mitigation strategies are unavailable; these are taking as government recovery and reconstruction financing priorities.

Table 3: Respondent's Awareness of State Government's Construction of Housing Facility for Flood Victims

<i>Are you aware that the state Government is constructing housing facility for flood victims?</i>	<i>Lokoja</i>		<i>Ibaji</i>	
	<i>Frequency</i>	<i>Percentage (%)</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Yes	43	100.0	-	-
No	-	-	6	100.0
<i>Total</i>	<i>43</i>	<i>100</i>	<i>6</i>	<i>100</i>

Table 4: Level of Government's Commitment to PDHR Process Periods

<i>Periods</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Immediate relief period	49	167	3.41	1.781	1 st
Rehabilitation period	49	163	3.33	1.762	2 nd
Reconstruction period	49	125	2.55	1.555	3 rd
Pre-disaster period	49	99	2.02	1.392	4 th

Table 5: Extent of Participation of Stakeholders in PDHR

<i>Stakeholders</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Government and its agencies at the local, state and federal levels	49	174	3.55	1.815	1 st
NGO/Donor agencies	49	168	3.42	1.784	2 nd
Community leaders	49	156	3.18	1.724	3 rd
Technical assistance provider	49	153	3.12	1.709	4 th
House owners	49	141	2.87	1.644	5 th

Among the roles of home owners, selection of the type of building, materials, and drawings 1st, whereas procurement of materials, payment for materials and the contractor, enter contractual agreement with the contractor and supervising the construction were ranked 2nd, 3rd and 4th respectively as shown in Table 6.

Among the different roles of community leaders as stakeholders in PDHR as shown in Table 7 (contractors, materials suppliers and government agencies) and Meetings with homeowners to resolve disputes that might have arisen ranked 1st. Resolving land rights and property boundary issues and selection of homeowners who qualify for the programme ranked 3rd and 4th respectively. According to World Bank (2010), community leaders are to come up with the type of reconstruction strategy that will be the most appropriate in collaboration with the government. During the reconstruction process, they should decide on the modality for organising themselves and also have the prerogative of selecting the agencies that will assist and the terms and extent of assistance.

Provision of funding for technical assistance and other works ranked 1st and management of the distribution of funds to homeowners or community group for materials and labour ranked 2nd as shown in Table 8 in terms of the roles of NGO's/Donors as a stakeholder in PDHR. Ingirige, Haigh, Malalgoda and Palliyaguru (2008) stated that external stakeholders usually consist of local and foreign relief organisations. External stakeholders provide mainly financial and technical assistance to communities where disasters occur. In disbursing their funds, there are rules regarding the timing of disbursement unlike the governments in such areas where the likelihood of misappropriating the funds is high.

Findings in Table 9 shows that Provision of building inspection ranked 1st among the different roles of government and its agencies as a stakeholder in PDHR. Management of the distribution of funds to homeowners or community group for materials and labour, production of easy-to-implement building standards and provision of certification programmes for builders, engineers, government officials ranked 2nd, 3rd and 4th. This reveals that providing inspection for buildings is the key responsibility of government and its agencies. However, Mesurier, Rotimi and Wilkinson (2006) concluded that enabling environment (legislation or policy) on post disaster reconstruction was not considered to address many disasters, in other words enabling environment created in terms of legislation or policy is usually not proactive on disasters issues.

Developing design, construction, siting and materials guidelines, related resources and tools in support of the government and in partnership with all stakeholders ranked 1st, Guide the homeowner through the design, builder selection, and construction process, Supervise construction and provide hands-on training to builders as needed and Provide training and capacity building to homeowners, builders, engineers, and government

officials ranked 2nd, 3rd and 4th among the different roles of Technical Assistance Provider as a stakeholder in PDHR as shown Table 10.

Table 6: Roles of Home Owners as Stakeholders in PDHR

<i>Home Owners Roles</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Selection of the type of building, materials, and drawings	49	152	3.10	1.704	1 st
Procurement of materials	49	142	2.89	1.649	2 nd
Payment for materials and the contractor	49	140	2.85	1.638	3 rd
Enter contractual agreement with the contractor	49	136	2.77	1.617	4 th
Supervise the construction	49	136	2.77	1.617	4 th

Table 7: Roles of community leaders as a stakeholder in PDHR

<i>Community leaders' roles</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Identify relevant stakeholders (contractors, materials suppliers and government agencies)	49	168	3.42	1.784	1 st
Meetings with homeowners to resolve disputes that might have arisen	49	168	3.42	1.784	1 st
Resolving land rights and property boundary issues	49	165	3.36	1.769	3 rd
Select homeowners who qualify for the programme	49	143	2.91	1.654	4 th

Table 8: Roles of NGO's/ Donors as a stakeholder in PDHR

<i>NGO's/ Donors' roles</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Provide funding for the technical assistance and other work	49	178	3.63	1.833	1 st
Manage the distribution of funds to homeowners or community group for materials and labour	49	169	3.36	1.769	2 nd

Table 9: Roles of government and its agencies as a stakeholder in PDHR

<i>Government and its agencies' roles</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Provide building inspections	49	180	3.67	1.843	1 st
Manage the distribution of funds to homeowners or community group for materials and labour	49	179	3.65	1.838	2 nd
Produce easy-to-implement building standards and guidelines	49	177	3.61	1.829	3 rd
Provide certification programmes for builders, engineers, government officials.	49	173	3.53	1.810	4 th

Table 10: Roles of Technical Assistance Providers as a stakeholder in PDHR

<i>Technical assistance providers roles</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Develop design, construction, siting and materials guidelines, related resources and tools in support of the government and in partnership with all stakeholders	49	180	3.67	1.843	1 st
Provide training and capacity building to homeowners, builders, engineers, and government officials	49	146	2.97	1.670	2 nd
Guide the homeowner through the design, builder selection, and construction process	49	141	2.87	1.644	3 rd
Supervise construction and provide hands-on training to contractors as needed	49	135	2.75	1.611	4 th

Findings on the effects of highlighted factors on Resource Availability in PDHR as shown in Table 11 reveal that among the market related factors, Price fluctuation of Resource in market ranked 1st, Local production capacity, Competition for resources from other existing construction projects ranked 2nd and 3rd respectively. On logistics-related factors, Transportation cost ranked 1st, Transportation method, Local transportation capacity and Location of depot ranked 2nd, 3rd, 4th and 5th respectively. Among Project-related factors, Project-design drawings ranked 1st, Project budget, Quantity of resources required, Type and method of construction, Project schedule, Project procedure method and Location of construction sites ranked 2nd, 3rd, 4th, 5th, 6th and 7th respectively. With respect to Organization-related factors, Qualification of contractor ranked 1st, Coordination among parties in construction, Cooperation of parties in construction, Communication with local authorities ranked 2nd, 3rd and 4th respectively; Selection of suppliers and Partnership and supplier management both ranked 5th, Contractor top management commitment, Contractor inventory, Competency of resourcing and Manager Supplier inventory ranked 7th, 8th, 9th and 10th respectively.

Qin, Chang-Richards and Wilkinson (2015) reported that it is sometimes difficult for the management team to place an order for the right quantity of materials at a short notice especially when there is a planning and design change. In terms of Environmental-related factors, the factor that ranked 1st is Social public attitude; Community influence/involvement, Legislation and policy, General economic environment, Local pre-event economic condition and Physical impact of the disaster ranked 2nd, 3rd, 4th, 5th and 6th respectively. This implies that the factor among market-related factors that affects resource availability in PDHR the most is price fluctuation of resource in markets, for logistics-related factors, Transportation cost affects it the most. Whereas, for Project-related factors, Organization-related factors and Environmental-related factors, Project-design drawings, Qualification of contractor and Social public attitude respectively affects it the most.

Ranking of the main factors reveal that Market related factors ranked 1st, Environmental-related factors ranked, Project-related factors, Organization-related factors and Logistics-related factors ranked 2nd, 3rd, 4th and 5th respectively. When compared with the study of Chang, Wilkinson and Potangaroa (2012) carried out in Indonesia and China, it showed that it was consistent with their findings on logistics and environment related factors. However, a reversal of results were found between China and this study; market related factors were ranked 1st in this study while in China they were ranked 5th. In a related development, logistics related factors were ranked 5th in this study but ranked 1st in China. A look at the Gross Domestic Products (GDP) of these countries showed that while China was ranked 2nd in its contribution to the industry which included construction, Indonesia and Nigeria were ranked 22nd and 29th respectively in the world (www.statisticstimes.com on 24 December 2015).

Table 11: Effects of Factors on Resource Availability in PDHR

<i>Factors</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>S.D</i>	<i>Rank</i>
Market Related Factors			(4.13)	1.945	1 st
Price fluctuation of Resource in market	49	223	4.55	2.03	2 nd
Local production capacity	49	195	3.97	1.910	2 nd
Competition for resources from other existing construction projects	49	188	3.87	1.887	3 rd
Logistics-related factors			(3.84)	1.881	5 th
Transportation cost	49	202	4.12	1.943	1 st
Transportation method	49	188	3.83	1.879	2 nd
Local transportation capacity	49	186	3.79	1.870	3 rd
Location of depot	49	178	3.63	1.833	4 th
Project-related factors			(3.89)	1.892	3 rd
Project-design drawings	49	223	4.55	2.032	1 st
Project budget	49	208	4.24	1.968	2 nd
Quantity of resources required	49	200	4.08	1.934	3 rd
Type and method of construction	49	194	3.95	1.906	4 th
Project schedule	49	191	3.89	1.892	5 th
Project procedure method	49	173	3.53	1.810	6 th
Location of construction sites	49	147	3.00	1.678	7 th
Stakeholders-related factors			(3.88)	1.890	4 th
Qualification of contractor	49	221	4.51	2.024	1 st
Coordination among parties in construction	49	203	4.14	1.947	2 nd
Cooperation of parties in construction	49	201	4.10	1.938	3 rd
Communication with local authorities	49	198	4.04	1.925	4 th
Selection of suppliers	49	189	3.85	1.884	5 th
Partnership and supplier management	49	189	3.85	1.884	5 th
Contractor top management commitment	49	182	3.71	1.852	7 th
Contractor inventory	49	181	3.69	1.847	8 th
Competency of resourcing Manager	49	179	3.65	1.838	9 th
Supplier inventory	49	160	3.26	1.744	10 th
Environmental-related factors			(4.08)	1.934	2 nd
Social public attitude	49	213	4.34	1.989	1 st
Community influence/ involvement	49	208	4.24	1.968	2 nd
Legislation and policy	49	206	4.20	1.969	3 rd
General economic environment	49	197	4.02	1.921	4 th
Local pre-event economic condition	49	193	3.93	1.901	5 th
Physical impact of the disaster	49	184	3.75	1.861	6 th

Inconsistencies in Post-disaster housing policy ranked 1st among the problems of PDHR, Insufficient capacity of the construction industry, Ineffectiveness in monitoring funds/corruption, Government's lack of planning and recovery strategies for post disaster reconstruction, Inappropriate conditions on the land provided and Inadequate community participation in local decision ranked 2nd, 3rd, 4th, 5th and 6th. While, Conflicts on land titles and Lack of communication and coordination among stakeholders both ranked 7th, Existence of hostilities in the affected communities and Affected community's indifferent behaviour ranked 9th and 10th respectively as shown in Table 12. The result is consistent with Chang *et al.* (2010) findings that reconstruction time and speed, inadequate transportation capacity, dysfunction of the construction market in terms of price escalation of basic materials such as cement and aggregates and insufficient engagement of the construction were some of the challenges experienced during post-Wenchuan reconstruction efforts in China. Echoing the same thing, Actionaid (2012) stated that inadequate capacity of statutory response agencies, inadequate infrastructure, inadequate legislation and policy frameworks and diversion of funds meant for ecological challenges are the bane of disaster preparedness in Nigeria.

Table 12: Problems of PDHR

<i>Problems</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Inconsistencies in Post disaster housing policy	49	221	4.51	2.024	1 st
Insufficient capacity of the construction industry	49	215	4.38	1.997	2 nd
Ineffectiveness in monitoring funds/corruption	49	211	4.30	1.997	2 nd
Government's lack of planning and recovery strategies for post disaster reconstruction	49	210	4.28	1.981	4 th
Inappropriate conditions on the land provided	49	206	4.20	1.976	5 th
Inadequate community participation in local decision	49	202	4.12	1.960	6 th
Conflicts on land titles	49	202	4.12	1.943	7 th
Lack of communication and coordination among stakeholders	49	198	4.04	1.943	7 th
Existence of hostilities in the affected communities	49	173	3.53	1.925	9 th
Affected community's indifferent behaviour				1.810	10 th

The model of PDHR that the respondents favoured the most is the Home owner-driven model which accounts for 51% of the respondents. Community-driven model accounts for 28.6%, this according to Shafique and Warren (2015) has not been implemented on ground; and Donor-driven models accounts for 20.4% as shown in Table 13. The

implication is that, respondents want to be involved in PDHR to enable them tailor the design and construction of the housing facility to meet their specifications and desires which at the end will ensure sustainability of the project. Also, it provides a more complete and structurally integrated solution to PDHR and at the end produces a more satisfied and empowered home owner. Thiruppugazh (2010) stated that in spite of the fact that owner-driven model cannot be relied upon in terms of performance in reducing future vulnerability, it is better than donor driven model. Abuzayan, White and Bell (2015) advocated for the involvement of end-users in the reconstruction efforts so that their needs could be taking into consideration; it is therefore not surprising that Vahanvati and Beza (2015) supported the owner driven model when compared with donor driven model. In making case for community driven model, Shafique and Warren (2015) established that non-involvement of communities in developing countries contributed to the failure often experienced in post disaster housing reconstruction and that community participation usually increases success rate.

Among technical, financial and social components that serve as determinants of a successful PDHR, technical component ranked 1st. Financial and social components ranked 2nd and 3rd respectively.

Table 13: Models of PDHR

<i>Recommendation of the model of PDHR to be used</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Home owner-driven	25	51.0
Community-driven	14	28.6
Donor-driven	10	20.4
Total	49	100

Table 14: Essential components to be put in place to ensure successful PDHR

<i>Components</i>	<i>N</i>	<i>Sum</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Rank</i>
Technical	49	209	4.26	1.972	1 st
Financial	49	208	4.24	1.968	2 nd
Social	49	200	4.08	1.934	3 rd

6.0 Conclusion

The major factors affecting resource availability for PDHR are price fluctuation of resource in markets, transportation cost and social public attitude. However, market related factors and environment related factors are the factors that affect resources availability in the areas studied. Also, the major hindrances to PDHR in Lokoja and Ibaji LGAs are inconsistencies in post-disaster housing policy, insufficient capacity of the construction industry and ineffectiveness in monitoring funds/corruption. Among

technical, financial and social components that serve as determinants of a successful PDHR, technical component is most ranked. The model of PDHR that the respondents favoured the most is the Home owner-driven model. This is as a result of flood victims wanting to be involved in PDHR to enable them tailor the design and construction of the housing facility to meet their specifications and desires, which at the end will ensure sustainability of the project. Also, the model provides a more complete and structurally integrated solution to PDHR and at the end produces a more satisfied and empowered home owner. The study is significant in that the PDHR challenges identified when measures are put in place to manage them, the entire stakeholder beginning with victims will have a sustainable housing, government agencies will be up to date with robust approach to solving reconstruction issues and donors will have value for their money.

The following are hereby recommended for effective post-disaster housing reconstruction in Ibaji and Lokoja Local Government of Kogi State:

1. Home owner-driven model should be adopted for PDHR. The housing facility provided should not be situated far away from the initial location, which can be achieved by the construction of flood-resistant buildings and elevating the foundation/floor level of buildings to between 3-4 metres above ground level. This will check the situation of beneficiaries of PDHR abandoning the housing provided in the former location and ensuring sustainability of PDHR projects.
2. Efforts should be made to avoid the politicization of PDHR, by ensuring equity, transparency and accountability in the planning, construction and allocation of PDHR housing facility.
3. Post-disaster housing policies should be consistent to ensure the success of the entire process of PDHR by having policy document in place to be adhered to irrespective of the government in place as this will guide against policy summersault.
4. Competent and qualified construction firms should be involved in PDHR which can be achieved through establishing a high standard of qualifications for construction firms and adherence to these standards.
5. Adequate monitoring mechanisms of the funds should be put in place to curb misappropriation of funds/corrupt practices.
6. Early flood warning systems should be put in place by the agencies responsible for disaster management at National, State and Local level to avoid sudden failures of dams.

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APPENDIX: SAMPLE QUESTIONNAIRE

SECTION A: Respondents (Professionals) general information Tick as appropriate[]

1. Name of respondent (optional).....
2. Respondent's profession: Architect [] Builder [] Town planner [] Quantity Surveyor [] Other, specify.....
3. Years of experience in the construction industry
1-5 years [] 6-10 years [] 11-15years [] 16-20years [] over 20 years []
4. Job designation/ post.....
5. Respondent's highest educational qualification
ND [] HND [] B.SC [] M.SC [] Other, specify.....

SECTION B: Post Disaster Housing Reconstruction (PDHR)

6. Rank the following identified causes of flooding.

Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree.

S/N	Causes	Responses				
		5	4	3	2	1
1	Surcharges in water level due to natural or man – made construction on flood path					
2	Sudden dam failure					
3	Inappropriate land use					
4	Mudflow					
5	Inadequate drainage capacity to cope with urbanization					
6	Excess encroachment in flood ways					
7	Deforestation of catchment's basins					
8	Solid waste					
9	Construction sites					
10	Poor drainage					
11	Gap in hydrological data					
12	Gap in hydrological design					
13	Hydrological implementation problems					
14	Traditional/cultural beliefs of the people					

7. Are you aware that the state Government is constructing housing facility for flood victims in this community? Ibaji Yes [] No []

Lokoja Yes [] No []

8. What is the level of government's (especially NEMA) commitment to the following post-disaster housing reconstruction (PDHR) process periods

Where 5-Very High, 4-Moderately High, 3-Neutral, 2-High 1-Not High

S/N	Periods	Responses				
		5	4	3	2	1
1	Pre-disaster period					
2	Immediate relief period					
3	Rehabilitation period					
4	Reconstruction period					

9. Rank the extent of participation of the following stakeholders in PDHR.
Where 5-Very High Extent, 4-High Extent, 3-Neutral, 2-Less Extent, 1-No Extent

S/N	Stakeholders	Responses				
		5	4	3	2	1
1	House owners					
2	Community leaders					
3	NGO/Donor agencies					
4	Government and its agencies at the local, state and federal levels					
5	Technical assistance provider					

10. Rank the following roles of home owners as stakeholder in PDHR
Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

S/N	Home-owner's roles	Responses				
		5	4	3	2	1
1	Select the type of structure, layout, materials, and architecture.					
2	Procure the building materials					
3	Hire the contractor					
4	Oversee construction					
5	Pay for building materials and pay the contractor					

11. Rank the following roles of community leaders as a stakeholder in PDHR
Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

S/N	Community leaders' roles	Responses				
		5	4	3	2	1
1	Select homeowners who qualify for the programme					
2	Assist in gathering homeowners for informational meetings and resolving disputes.					
3	Assist in resolution of land rights and property boundary issues					
4	Identify local builders, building materials suppliers, and other stakeholders					

12. Rank the following roles of NGO's/ Donors as stakeholders in PDHR
Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

S/N	NGO's/ Donors' roles	Responses				
		5	4	3	2	1
1	Provide funding for the technical assistance and other work					
2	Manage disbursement of financial subsidy to homeowner or community group for materials and labour, or oversee the distribution of funding by an implementing partner.					

13. Rank the following roles of Government and its agencies as a stakeholder in PDHR
Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

S/N	Government and its agencies' roles	Responses				
		5	4	3	2	1
1	Produce consensus-based, clear, easy-to-implement building standards and guidelines					
2	Provide certification programmes for builders, engineers, government officials.					
3	Provide building inspections					
4	Manage disbursement of financial subsidy to homeowner or community group					

14. Rank the following roles of Technical assistance provider as a stakeholder in PDHR
Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

S/N	Technical assistance provider's roles	Responses				
		5	4	3	2	1
1	Develop design, construction, siting and materials guidelines, related resources and tools in support of the government and in partnership with all stakeholders.					
2	Provide training and capacity building to homeowners, builders, engineers, and government officials					
3	Guide the homeowner through the design, builder selection, and construction process.					
4	Supervise construction and provide hands-on training to builders as needed.					

15. Rank the effects of the following factors on resource availability in PDHR
Where 5-Very High Effect, 4-High Effect, 3-Neutral, 2-Less Effect, 1-No Effect

S/N	Factors	Responses				
		5	4	3	2	1
1	Resource price fluctuation in market					
2	Local production capacity					
3	Competition for resources from other existing construction projects					
4	Local transportation capacity					
5	Transportation method					
6	Transportation cost					
7	Location of depot					
8	Project-design drawings					
9	Quantity of resources required					
10	Project schedule					
11	Project budget					
12	Type and method of construction					
13	Project procedure method					
14	Location of construction sites					
15	Qualification of contractor					
16	Selection of suppliers					

17	Partnership and supplier management					
18	Supplier inventory					
19	Contractor inventory					
20	Cooperation of parties in construction					
21	Communication with local authorities					
22	Contractor top management commitment					
23	Competency of resourcing manager					
24	Coordination among parties in construction					
25	Legislation and policy					
26	General economic environment					
27	Local pre-event economic condition					
28	Physical impact of the disaster					
29	Social public attitude					
30	Community influence/ involvement					

16. The following have been identified as problems of PDHR, what is the extent of your agreement?

Where 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree.

S/N	Problems	Responses				
		5	4	3	2	1
1	Inconsistencies in post disaster housing policy					
2	Conflicts on land titles					
3	Inadequate community participation in local decision					
4	Inappropriate conditions on the land provided					
5	Ineffectiveness in monitoring funds / Corruption					
6	Insufficient capacity of the construction industry					
7	Affected community's indifferent behaviour					
8	Government's lack of planning and recovery strategies for post disaster reconstruction.					
9	Lack of communication and coordination among stakeholders					
10	Existence of hostilities in the affected communities					

18. In your own opinion, recommend the model of PDHR to be used.

Homeowner-driven [] Community-driven [] Donor-driven []

19. Rank the following factors in order of their relevance as essential components to be put in place to ensure successful PDHR.

Where 5-Most Important, 4-Very Important, 3-Neutral, 2-Important, 1-Not Important

S/N	Factors	Responses				
		5	4	3	2	1
1	Technical component					
2	Financial component					
3	Social component					