

# Professionals' Perception on Post Disaster Housing Reconstruction in Kogi State-Nigeria

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**Abstract:** One of the indelible events that happened between August and October 2012 was a massive flood in Nigeria which affected nine states with Kogi precisely Ibaji and Lokoja LGA's as the worst hit. The havoc caused by the flood has huge impact on the people especially in the study areas where great devastation on the built environment was recorded. In April, 2013, Kogi state government commenced the post flood housing scheme with 272 housing units for the 2012 flood victims and six (6) years after, the intervention is yet to be completed. This paper attempt to evaluate professionals' perception on the post disaster housing reconstruction (PDHR) process so as to unravel problems that hindered and proffer solutions where necessary. The study employed quantitative method using structured questionnaires. 60 questionnaires were distributed and 49 (82%) were screened and analysed using SPSS. The findings reveal insufficient knowledge on PDHR, politicization of PDHR by the government in favour of urban areas, and home owner driven model as the most favoured. Further research focuses on bottom-up approach (owner driven model) for the sustainability of post disaster housing and livelihood recovery interventions.

**Keywords—** Floods; impact; Professionals' perception; PDHR, Stakeholders, Lokoja-Nigeria

## 1. INTRODUCTION

Flooding as an environmental trauma is an age-old phenomenon. Year 2012 was a tragic period to Nigeria as a country in general and Kogi state in particular. One of the indelible events that happened between August and October 2012 was a massive flood in the country which affected nine states with Kogi precisely Ibaji and Lokoja LGA's as the worst hit. The havoc caused by the flood has huge impact on the people resulting to great devastation on the built environment. The 2012 flood experience was a national disaster according to then President of the country, Dr Goodluck Ebele Jonathan (Nigerian Television Authority, 2012). Considering the magnitude of destruction, the flood was named "worst in times past". These sort of damaging occurrences place huge pressures on the government both nationally and locally, due to the severely increasing housing demand (Rotimi, Wilkinson, Zuo & Myburgh, 2009). This serious housing shortage could be substantially improved by building the right type of housing and supporting infrastructure in a more sustainable, timely and efficient manner. It is appropriate to say that reconstruction after disasters is as critical as the provision of sustenance to the affected communities due to the chaos they have faced, principally with regards to the severe destruction of their housing (Osama, 2012). It is in the light of this that, Joshua, Mari & Luka (2015) said the shock of 2012 flood in Nigeria on socio-economic activities automatically affects the nation's stability and economic growth. The study

recommends that emergency action plans should be put in place for unpredicted future events bearing in mind that "prevention is better than cure" and "better safe than sorry". This means an intervention needs to be made available to address these issues and mitigate the effects of floods in the future with the utmost focus of securing lives and properties as well as creating sustainable economic growth in a sustainable manner.

Acknowledging the level of damage to houses and seeing housing reconstruction as a key element of post-disaster recovery initiatives in developing countries such as Nigeria; the Federal government and the Kogi state government embarked on the construction of houses to help ameliorate the increasing housing demand resulting from the disaster. However, funds allocated and released for relief purposes have been reportedly mismanaged by authorities in charge thereby subjecting flood victims to untold hardship (Sunday trust.com, 19/1/2014). Thus making it difficult for them to attain requisite relief or even recover over five (5) years after the disaster.

In April, 2013, Kogi state government commence the post flood housing scheme with two hundred and seventy two (272) housing units for the 2012 flood victims. According to the schedule, all the houses being constructed in phases were expected to be fully completed and handed over to the flood victims after three (3) months but about five (5) years after, the project is yet to be completed. The delay in housing provision shows incompetence with a lot of opportunity for necessary progress (Roosli & Collins, 2016). Hence, giving

clear direction for this research to be undertaken so as to evaluate the perception of professionals in the built

## 2. POST DISASTER HOUSING RECONSTRUCTION

Post disaster housing reconstruction (PDHR) suggests an outstanding prospect to invest in and grow a healthier and resilient constructed environment. Conversely, in third world nations to be precise, several housing reconstruction interventions have intensified vulnerabilities even and therefore become incompetent to achieve a “bounce back better” for the disaster troubled communities (Seneviratne, Baldry and Pathirage, 2010). The inability to utilize the exceptional prospects by creating progressive enhancements in disaster flexibility, confirms the word of Lyons (2009) that, PDHR interventions or schemes have often recorded failure in the delivery of their resolved intentions. Several invitations for sufficient investigation on disaster risk reduction and recovery relating to the built environment have been made (Godschalk 2003; Boshier, Dainty, Carrillo, Glass & Price, 2007; Haigh & Amaratunga 2010). Shortcomings on housing delivery are caused by several factors among which are shortages of human resources, bureaucratic and institutional hitches, complications in harmonizing the scores of organizations, operational problems (Vebry, Manu & Berman, 2007), land acquisition complications, predominantly for relocation case (ACARP, 2007), and nonexistence of road networks (OXFAM, 2006). In a concise statement, it can be said that PDHR suffers largely from managerial problems. Effective project team and management of the reconstruction course have explicitly been acknowledged as central for positive housing reconstruction and for guaranteeing that disaster threat reduction actions are integrated (Johnson, Lizarralde & Davidson, 2006; Johnson 2007; Ahmed 2011). Shafique (2015) vindicated that the core reason for failure of reconstruction projects is extrication of community. It is proven that community or beneficiaries or users participation has strong potentials for success of PDHR; and the participation of community should be applied in practical, in developing countries too. Furthermore, Ahmed (2011) called for the improvement of universal good practice guidelines for PDHR mentioning that, while several reconstruction guidelines exist, scarcely any are generally authorized. This study is ultimately aiming to address these issues by ensuring that the community interests received principal significance while designing or planning for post disaster reconstruction programmes.

### 2.1 Post Disaster Housing Reconstruction Approaches

One of the most intricate responsibilities being faced by recovery managers in the aftermath of disaster regardless of the form is to decide and execute the correct approaches to housing reconstruction. Jha, Barenstein, Phelps, Pittet & Sena (2010) opined different methods through which PDHR

environment on the process of post disaster housing reconstruction in the study areas.

can be achieved in terms of a household's degree of control over the reconstruction procedure. The selection of an appropriate reconstruction delivery approach depends on several influences including resource availability, speed, efficiency, capacities and experience, technological and socioeconomic views (Barenstein, 2006; Davidson, Johnson, Lizarralde, Dikmen & Sliwinski, 2007; Hayles, 2010; Chang, Wilkinson, Brunsdon, Seville & Potangaroa, 2011). International Recovery Platform (2007) and the World Bank (2010) advised that the choice of reconstruction approaches to be engaged should be based on context and should give attention to many fundamental factors such as; broader political environment and operational criteria, cultural background, cost of reconstruction, improvement in housing and community safety, reinstatement of livelihoods, and hopes and priorities of the most affected individuals. A number of approaches are recognized in the literature such as contractor-driven, technology-driven, community-based, participatory, and so on (Barakat, 2003; Barenstein, 2006; Twigg, 2006). In this paper, the concentration is limited to linking the two general delivery approaches referred to in the literature in order to show the wide variety of delivery possibilities that exist between them. The two approaches expected to be discussed in this paper are:

(a) Top-down, contractor-driven approach: Housing reconstruction is contracted to construction specialist companies that are regularly accountable for both the designing and construction of the houses. This approach is classified into two varieties (Barakat, 2003; Barenstein, 2006):

- i. In-situ referring to a scenario where housing is reconstructed on the unchanged or same location that was hit by the disaster (no relocation) and
- ii. Ex-nihilo referring to a situation where the reconstruction is carried out in a new location (relocation). A typical example is the case of the study area Lokoja.

Observation from authors including Barenstein (2006) and Félix, Branco & Feio (2013) show that the top-bottom approach also known as contractor-led approach is quicker and operational in urban settings. On the other hand, the basic shortcomings associated with this approach include inadequate thoughtfulness or consideration for affected communities, socio-cultural needs and the initiation of construction materials and skills that may not be suitable for the environment in which they are being applied and this may result to satisfactoriness and maintainability concerns (Barenstein, 2006; Shaw & Ahmed, 2010).

(b) Bottom-up, community-driven approach: This approach recognizes the affected communities by putting the community in the know of the reconstruction process which is critical to the success of the intervention.

Contribution of disaster affected communities in housing reconstruction is serious to the accomplishment of the

proposal (Lawther, 2009) and cannot be overemphasized. The community-led or bottom-up approach does not necessarily embroil potential owners doing the reconstruction of their houses themselves but does give recognition by placing the community at the centre of the reconstruction procedure with external assistance delivered in the form of building materials, educating, funding, technical services and supervision (Barenstein, 2006). Community-led approaches have gained popularity with donor agencies and, under the accurate settings, among other benefits provide employment and livelihood benefits and they can help survival to relief the trauma, stress, depression and hopeless feelings that they suffered. They can support community empowerment and competence development, cost effectiveness, better housing quality, early occupation of housing units and enhance long-term maintenance predictions (Barakat, 2003; Barenstein, 2006; Fallahi, 2007). Community driven approach can be seen as proficient ways not just to reconstruct houses but a sense of belonging or ownership and superiority among beneficiaries is created in addition. The manner with which community-based approach application was done boasted beneficiaries' satisfaction in a high level (Ophiyandri, Amaratunga & Pathirage, 2010). Though, the exploitation of the bottom-up approach is no panacea. Additional sustainable factors comprising stakeholder harmonization, active management processes and resource accessibility are largely responsible for its success (Bilau, Witt & Lill, 2016). The implementation of this approach is not void of hitches as operation is not always smooth and problems free. Its precision can be limited by the technical complication and

**4. RESULTS AND DISCUSSION**

This section presents the findings for this study.

In Ibaji and Lokoja LGAs, 30.6% are Architects, 32.7% are Builders and 36.7% are Town Planners. The distribution of

magnitude of the housing reconstruction (Barakat, 2003; Barenstein, 2006; Lizarralde & Massyn, 2008; Lawther, 2009).

It is evidently clear that community based approach could lead to high satisfaction among beneficiaries or homeowners which is the core objective of reconstruction. Also, it will help the affected community to gain back their confidence and ease the trauma they suffered as well as building the social capital of the survivor.

**3. RESEARCH METHODOLOGY**

The methods employed for this study embrace extensive searching of relevant literatures connecting to the study such as journals, textbooks, magazines and of course the internet. Primary data were collected in Ibaji and Lokoja LGA's of Kogi State. The sample frame for this study comprised of Architects, Builders and Town planners. 60 structured questionnaires were administered to the respondents (Architects 20, Builders 20 and Town planners 20), after selecting them by means of a simple random sampling technique. On the whole, a total of 49 (82%) questionnaires were returned completed in a usable format. After preliminary analysis of the data, the screened questionnaires for analysis accounted for: 15 from Architects; 16 from Builders; and 18 from Town Planners. Data analyses were undertaken using descriptive statistics by the application of Microsoft excel and Statistical Packages for Social Sciences (SPSS) where frequency means and percentages were employed to interpret the results.

professionals showed adequate representations as their contributions will help to source reliable findings (Table 1).

**Table 1:** Distribution of Professionals

Profession	Frequency	Percentage (%)
Architect	15	30.6
Builders	16	32.7
Town Planners	18	36.7
Total	49	100

Findings as shown in Table 2 reveals that majority of respondents have between 6 to 15 years of experience with an aggregate percentage of 65.4%. This indicates their

possession of valuable knowledge in the built environment and therefore better placed to contribute meaningfully.

**Table 2:** Experience of Respondents in the Construction Industry

Years of Experience	Frequency	Percentage (%)
1-5	2	4.1
6-10	16	32.7

11-15	16	32.7
16-20	11	22.4
Over 20	4	8.1
Total	49	100

Table 3 findings reveal that registered professionals with HND qualification accounted for 20.4%, BSc accounted for 49.0%, M.Sc. accounted for 26.5% and others which include those with PGD qualification accounted for 4.1%. This is a proof that majority of the professionals possessed requisite

qualification and training for efficient delivery of responsibilities. Furthermore, they are in a better position to offer professional advice with regards to the construction of the housing facility.

**Table 3:** Respondents Educational Qualification

Educational Qualification	Frequency	Percentage (%)
ND	-	-
HND	10	20.4
B.SC	24	49.0
M.SC	13	26.5
Others	2	4.1
Total	49	100

With regards to Table 4, receiving warnings from National Emergency Management Agency (NEMA), State Emergency Management Agency (SEMA) and Local Emergency Management Agency (LEMA) prior to the flooding, majority

(59.2%) of respondents said there was no warning from NEMA. While, 65.0% said there was warnings from SEMA and LEMA which could also be related to the severity of impact of the flooding.

**Table 4:** Warnings from Government Agencies prior to the Flooding

Response	NEMA		SEMA		LEMA	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Yes	20	40.8	32	65.0	32	65.0
No	29	59.2	17	35.0	17	35.0
Total	49	100.0	49	100.0	49	100.0

Findings in Table 5 reveal that a majority (63.3%) of respondents indicated that there was no enforcement by government to evacuate people residing in vulnerable areas.

This could further be in consistence with the brutality of the flood in Ibaji and Lokoja revealed in the introduction

**Table 5:** Enforcement by Government to Evacuate People Living in Vulnerable Areas

Response	Frequency	Percentage
Yes	18	36.7
No	31	63.3
Total	49	100

Research findings as presented in Table 6 reveal that, in Lokoja all the respondents said they are aware of the State Government's construction of housing facility for flood victims. While in Ibaji, they all said they were not aware 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.

**Table 6:** Respondent's Awareness of State Government's Construction of Housing Facility for Flood Victims

Awareness	Lokoja		Ibaji	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Yes	43	100.0	-	-

No	-	-	6	100.0
Total	43	100	6	100

Immediate relief period as shown in Table 7 ranked 1<sup>st</sup> when it comes to the level of Government’s commitment to PDHR process periods, Rehabilitation period, Reconstruction period and Pre-disaster period ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. This is an indication that preventive, rehabilitation and

reconstruction measures are not the priority of the government which is mostly focused on immediate relief. Perhaps, for the benefits derived from the huge assistance in term of money and materials from both local and international organisations.

**Table 7:** Level of Government’s Commitment to PDHR Process Periods

Periods	N	Sum	Mean	Rank
Immediate relief period	49	167	3.41	1 <sup>st</sup>
Rehabilitation period	49	163	3.33	2 <sup>nd</sup>
Reconstruction period	49	125	2.55	3 <sup>rd</sup>
Pre-disaster period	49	99	2.02	4 <sup>th</sup>

Findings on the extent of participation of stakeholders in PDHR reveal that, Government and its agencies at the local, state and federal levels ranked 1<sup>st</sup>, NGO/Donor agencies, Community leaders, Technical assistance provider and House owners ranked 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> respectively as

shown in Table 8. 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. Beneficiaries who are supposed to be the major stakeholder were not engaged

**Table 8:** Participation of Stakeholders in PDHR

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

Among the perceived roles of home owners, selecting the type of structure, layout, materials, and architecture ranked 1<sup>st</sup>, whereas procurement of the building materials, payment for building materials and contractor and overseeing of the

construction ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively as shown in Table 9. The respondents valued the inputs of the beneficiaries but were not given the opportunity to contribute their quota as shown in Table 10.

**Table 9:** Perceived Roles of Home Owners in PDHR

Home Owners Roles	N	Sum	Mean	Rank
Select the type of structure, layout, materials, and architecture	49	152	3.10	1 <sup>st</sup>
Procure the building materials	49	142	2.89	2 <sup>nd</sup>
Pay for building materials and pay the contractor	49	140	2.85	3 <sup>rd</sup>
Oversee construction	49	136	2.77	4 <sup>th</sup>

Research findings as shown in Table 10 reveal that 51% of respondents said there is distinction between procurement methods and that of routine projects compared with 49% that said there is no difference between the procurement methods

and that of conventional projects. This further stressed that the process of PDHR used in the study area has no compliance with the general principles as indicated by Jha et al. (2010).

**Table 10:** Are the Procurement methods that suit PDHR different from Conventional Projects?

Response	Frequency	Percentage (%)
Yes	25	51
No	24	49

Total	49	100
Inconsistencies in Post-disaster housing policy ranked 1 <sup>st</sup> among the problems of PDHR, Ineffectiveness in monitoring funds and corruption, Government’s lack of planning and recovery strategies for post-disaster reconstruction, Inappropriate conditions on the land provided and non-involvement of community local decision ranked 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> and 5 <sup>th</sup> respectively. While, Lack of communication and coordination among stakeholders, Existence of hostilities in the affected communities and Affected community’s indifferent behaviour ranked 6 <sup>th</sup> , 7 <sup>th</sup> and 8 <sup>th</sup> respectively as presented in Table 11 (Rotimi et al., 2009; Bilau, Witt & Lill, 2016).		

**Table 11:** PDHR Problems

Problems	N	Sum	Mean	Rank
Inconsistencies in Post disaster housing policy	49	221	4.51	1 <sup>st</sup>
Ineffectiveness in monitoring funds and corruption	49	215	4.38	2 <sup>nd</sup>
Government’s lack of planning and recovery strategies for post disaster reconstruction	49	211	4.30	3 <sup>rd</sup>
Inappropriate conditions on the land provided	49	210	4.28	4 <sup>th</sup>
Non-involvement of community in decision makings	49	206	4.20	5 <sup>th</sup>
Lack of communication and coordination among stakeholders				
Existence of hostilities in the affected communities	49	202	4.12	6 <sup>th</sup>
Affected community’s indifferent behaviour	49	198	4.04	7 <sup>th</sup>
	49	173	3.53	8 <sup>th</sup>

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% and Donor-driven models accounts for 20.4% as shown in Table 12. 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 (Ophiyandri, Amaratunga & Pathirage, 2010; Ahmed, 2011).

**Table 12:** Recommendation of the model of PDHR to be used

Model	Frequency	Percentage (%)
Home owner-driven	25	51.0
Community-driven	14	28.6
Donor-driven	10	20.4
Total	49	100

Research findings reveal that among the benefits of home owner-driven model, Producing of a more satisfied and empowered homeowners ranked 1<sup>st</sup>, Provide a more complete, structurally integrated solution; Result in a disaster-resistant building and Reducing the overall cost per house ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. While Stretch the donor’s fund further by reducing the donor contribution per

house and Stimulate investment in local businesses, which creates jobs ranked 6<sup>th</sup> and 7<sup>th</sup> respectively as presented in Table 13. The response buttressed their unalloyed support for the owners/ beneficiaries driven method as there are many benefits associated with it (Shafique & Warren, 2015: 2016).

**Table 13:** Benefits of homeowners-driven model for effective PDHR

Benefits	N	Sum	Mean	Rank
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Produced a more satisfied, empowered homeowners	49	211	4.30	1 <sup>st</sup>
Provide a more complete, structurally integrated solution	49	209	4.26	2 <sup>nd</sup>
Result in a disaster-resistant building	49	206	4.20	3 <sup>rd</sup>
Reducing the overall cost per house	49	203	4.14	4 <sup>th</sup>
Increase the technical capacity of the workforce	49	202	4.12	5 <sup>th</sup>
Stretch the donor’s fund further by reducing the donor contribution per house	49	201	4.10	6 <sup>th</sup>
Stimulate investment in local businesses, which creates jobs	49	199	4.06	7 <sup>th</sup>

Among determinants of a successful PDHR in Table 14, technical component ranked 1<sup>st</sup>, Financial and social components ranked 2<sup>nd</sup> and 3<sup>rd</sup> respectively. This indicate that the stakeholders with technical know-how especially beneficiaries should be giving greatest consideration in

decision making and room for active participation as this will promote sustainability of the scheme which is meant to bring succour to the victims and better their lives more than the disaster met them (Shafique & Warren, 2015: 2016; Sadiqi, Trigunaryyah & Coffey, 2017).

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

Components	N	Sum	Mean	Rank
Technical	49	209	4.26	1 <sup>st</sup>
Financial	49	208	4.24	2 <sup>nd</sup>
Social	49	200	4.08	3 <sup>rd</sup>

**5. CONCLUSION**

With the incongruence or unevenness of opinion regarding the procurement methods that suits PDHR and conventional projects amongst professionals in Lokoja and Ibaji, it exposes insufficient knowledge and information on PDHR. The roles of government in PDHR indicate politicisation in favour of urban areas particularly Lokoja LGA. Furthermore, the major hindrances to PDHR are inconsistencies in post-disaster housing policy, insufficient capacity of the construction industry and ineffectiveness in monitoring funds/corruption. Development of technical component is seen as the best determinant of a successful PDHR. The model of PDHR that the respondents favoured the most is

the Home owner-driven model. As it enables users tailor the design and construction of the housing facility to meet their specifications and desires ensuring sustainability of the project. Further research should focus on bottom-up approach (owner driven model) and government should avoid politicization of PDHR by promoting equity and transparency in all stages of PDHR. Users of the housing or affected community should be incorporated in PDHR process as this will enhance a more sustainable and resilient communities where satisfaction and acceptability of the intervention will be evident and government (donors) will also have value for their money.

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