

IMPACT OF DECISIONS OF PROVIDERS ON THE QUALITY OF HOUSING IN POST-DISASTER RELIEF CAMPS: USERS' PERSPECTIVE

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Abstract

Against the backdrop of recurring humanitarian crises, the study addresses the pressing issue of housing quality in post-disaster relief camps and aims to enhance the well-being of displaced populations. The purpose of the research is to examine the influence of providers' decisions on shelter conditions. The study examines how provider choices affect the standard of housing in relief camps in Nigeria using a descriptive survey. It encompasses four camps with a combined population of 20,982 people, two in Lagos and two in Abuja. Through stratified sampling, 378 respondents were selected using Yemane's formula. Over a year, information from internally displaced people (IDPs) was gathered through standardized surveys. The study reveals that decision-making processes significantly affect housing quality, and residents' voices are often inadequately considered. The study's conclusions help comprehend the living circumstances at the relief camps in Nigeria. The originality of this study lies in its emphasis on decision-making in post-disaster housing provision. This research supports the United Nations Sustainable Development Goal 11 which aims to enhance the quality of life for marginalized communities through living conditions.

Keywords: Decision making, Humanitarian crisis, Housing quality, Nigeria, SDG 11, Relief camps

1.0 Introduction

Following disasters, conflicts, and humanitarian crises relief camps are set up to offer shelter, to displaced people (Manirambona et al., 2023; Clancy et al., 2022; Zaman et al., 2020). These camps are run by groups such as organizations, government bodies, and non-governmental organizations known collectively as "providers" (Costello, 2023; Harrison, 2023; Vega & Roussat, 2019). The living conditions in these camps, and the housing standards are crucial, for the welfare and dignity of those impacted.

Sustainable Development Goal 11 (SDG-11), as outlined by the United Nations, emphasizes the importance of "sustainable cities and communities" (Marzouki et al., 2021). While relief camps are inherently temporary, they too must adhere to the principles of sustainability. This includes providing adequate housing that not only meets the immediate shelter needs of displaced populations but also ensures their safety, health, and overall welfare.

Nigeria, a country susceptible to various natural disasters, conflicts, and displacement, has been no stranger to the establishment of relief camps (Okeke-Ihejirika et al., 2020;

Olanrewaju et al., 2019). These encampments serve as provisional dwellings for numerous individuals who have been displaced from their original residences. The choices made by the organizers in developing strategies, establishing, and overseeing these settlements exert a significant influence on the quality of housing, subsequently impacting the well-being, both physically and psychologically, of the residents of these encampments.

The decision-making process concerning the management, layout, and establishment of temporary shelters is heavily swayed by various factors such as the type of disaster, local contextual factors, level of urbanization, and the cultural values of the affected population. Therefore, it is crucial to investigate how governmental and non-governmental organizations allocate and utilize their resources when prioritizing speed over quality in emergencies. The primary objective of this investigation is to analyse the intricate connection between choices made by stakeholders and the standard of post-disaster housing in humanitarian settlements in Nigeria, with a focus on their congruence with the principles of SDG-11 and the wider objective of promoting sustainable and resilient communities, especially in demanding situations.

2.0 Review of literature

Sustainable Development Goal 11 and Post-disaster Housing Quality

The establishment of sustainable urban regions and societies is imperative, as emphasized by Sustainable Development Goal 11 (SDG 11). This importance is particularly emphasized in the aftermath of humanitarian emergencies, such as calamities of a natural nature (Marzouki et al., 2021). An integral aspect of SDG 11 is ensuring that displaced persons have suitable housing access in relief camps. It is vital to have designated shelters that are specifically designed to meet the requirements of displaced individuals and their families to protect their welfare and respect (Manirambona et al., 2023). Nevertheless, the actions taken by various bodies, including governmental institutions, non-governmental organizations, and humanitarian groups, have a significant impact on the quality of housing offered in these camps, leading to inequalities (Costello, 2023). Research carried out in Nigeria highlights the crucial role of policymakers in setting housing standards in relief camps and emphasizes the necessity for enhanced decision-making procedures (Harrison, 2023). This research delves into the significance of housing quality in relief settlements, examining how providers' decisions influence housing conditions and their alignment with the objectives of SDG 11. By concentrating on the advancement of sustainable urban regions and societies as its primary aim, the study corresponds with SDG 11 (Marzouki et al., 2021). Through scrutinizing the repercussions of provider choices on housing standards in relief camps, the study contributes to the broader aim of fostering resilient urban environments, even in challenging situations.

The United Nations Human Settlements Programme (UN-HABITAT), the United Nations Educational, Scientific, and Cultural Organization-Institute for Statistics (UNESCO-UIS), and the United Nations International Strategy for Disaster Reduction (UNISDR) are among the institutions mandated with overseeing advancements towards these objectives, to be realized by 2030. Alleviating the adverse impacts of natural

disasters, diminishing the ecological footprints of urban regions, supplying secure and inclusive green and communal areas, creating cost-efficient and sustainable transportation systems, implementing comprehensive and sustainable urban growth, and conserving the global cultural and natural legacy (Mwaniki & Ndugwa, 2021; Habitat, 2018).

Post-disaster camps and decisions of providers on the type of housing in relief camps

Post-disaster camps represent a critical means of providing intermediate refuge and assistance to the affected population after a given natural calamity, conflict, or another form of humanitarian disaster (Manirambona et al., 2023; Clancy et al., 2022). The camps are generally run by different organizations, ranging from government bodies to non-governmental and international organizations “providers” (Costello, 2023; Harrison, 2023). Creation and administration of the camps are vital to securing the lives, well-being, and fair treatment of the people who have been forced to leave their homes. Post-disaster camps are essential for providing immediate shelter and aid to displaced populations following natural disasters, conflicts, or other humanitarian crises (Manirambona et al., 2023; Clancy et al., 2022). These camps are typically managed by a variety of organizations, including government agencies, non-governmental organizations (NGOs), and international bodies, collectively referred to as “providers” (Costello, 2023; Harrison, 2023). The establishment and management of these camps are crucial for ensuring the safety, health, and dignity of displaced individuals.

Decision-Making and Housing Quality

The quality of housing is among the most critical factors that determine the well-being of people residing in post-disaster camps (Maiteh & Zoltán, 2023; Jayakody et al., 2022; Fayazi & Lizarralde, 2019). For camp providers, making the decisions on the type of housing, the resources to be devoted to its construction, and the extent to which sustainability principles should be implemented determines the acceptable standard of living for the population of such settlements (Wardeh & Marques, 2021).

Factors Influencing Provider Decisions

Several determinants or influencers affect providers’ decision of which type of housing to use in the post-disaster camps, such as:

- i. *The disaster’s nature:* Depending on whether the disaster was an earthquake, a flood, or a conflict, the immediate post-disaster needs and the type of housing that could be most quickly delivered differ (Marzouki et al., 2021). For example, floods would require housing to be above the ground, whereas areas that are frequently struck by earthquakes would require especially robust, quake-resistant housing.
- ii. *Local context:* Harrison, (2023) stipulates that local cultural, social, and economic dynamics greatly influence the most suitable type of housing. For this reason, consideration of the cultural acceptability of the design is vital to avoid rejection by the target population.

iii. *Resource availability*: The choice of housing is also affected by the availability of materials, and financial resources, which determines both the types and qualities of housing provided. A limited resource would also drive the provider to ensure more houses are built, and this might affect the quality of the housing (Wardeh & Marques, 2021).

iv. *Long-term use and sustainability*: Although the camps are temporary, the kind of housing provided tends to become semi-permanent. As such, the housing options should be in the best interest of long-term use to ensure safety (Manirambona et al., 2023).

Case Studies and Best Practices

Insights from a variety of post-disaster settings can lead to the formulation of best practices in housing provision. For instance, in Sri Lanka, following the 2004 tsunami, international NGOs faced challenges in balancing speed and quality. Studies highlight the importance of involving local communities in decision-making to ensure that housing solutions are culturally appropriate and meet long-term needs (Bruen et al., 2013). Also in Jordan, in the Palestinian refugee camps, the quality of housing has been significantly influenced by the policies and resources of international aid organizations. Effective decision-making processes that consider local conditions and involve residents in planning have been shown to improve housing outcomes (Alnsour & Meaton, 2014).

The impact on Sustainable Development Goals (SDG 11)

Decisions made by housing providers in post-disaster scenarios are critical for achieving Sustainable Development Goal 11 (SDG 11), which aims to make cities inclusive, safe, resilient, and sustainable. Providing adequate housing in relief camps aligns with the objectives of SDG 11 by ensuring that displaced populations live in secure and dignified conditions, even in temporary settings (Marzouki et al., 2021). The decisions of providers regarding the type of housing in post-disaster camps are pivotal in determining the quality of life for displaced populations. These decisions must balance immediate needs with long-term sustainability, cultural appropriateness, and resource constraints. By focusing on inclusive decision-making processes and sustainable housing solutions, providers can significantly improve the living conditions in relief camps and contribute to broader sustainable development goals.

The study therefore examined the influence of providers' decisions on the quality of housing in post-disaster relief camps, with a focus on the users' perspective. This research seeks to understand how the choices made by those who manage and provide these camps affect the living conditions and overall well-being of Internally Displaced Persons (IDPs) in Nigeria.

Objectives of the study were to:

- i. investigate how different decision-making processes adopted by providers influence the quality of housing in post-disaster relief camps.
- ii. assess the relationship between resident involvement in decision-making processes and the perceived quality of housing.

iii. examine how the decisions made by providers align with the principles of sustainable development goal 11, which aims to make cities and human settlements inclusive, safe, resilient, and sustainable.

Evaluating the Hypothesis

A hypothesis was devised to scrutinise the aim of the research as stated below:

H₀: Decisions made by the relief camp providers in post-disaster scenarios do not exert a notable impact on the housing quality within the camps

H₁: Decisions made by the relief camp providers in post-disaster scenarios significantly affect the housing quality within the camps

3.0 Methodology

The study utilized a descriptive survey research design to investigate the effects of decisions made by providers on the housing standard in relief camps in Nigeria. This particular design facilitates systematic data collection and analysis to obtain a comprehensive comprehension of the subject matter (Siedlecki, 2020). The research's population comprised 20,982 individuals, consisting of inhabitants from four distinct relief camps in Nigeria: Agbowa (Camp A), Igando (Camp B), Durumi (Camp C), and Kuchingoro (Camp D). The first two are situated in Lagos State (the financial hub) while the latter are located in Abuja (Federal Capital Territory). To ensure manageable data collection and analysis, a sample size of 378 participants was established using Yemane's formula for a finite population. A stratified sampling method was employed to choose participants for the research. Stratification entails dividing the population into various strata depending on the camp population. This method enhances the representativeness of the sample (Lewis et al., 2003; Saunders et al., 2003). The selection procedure consisted of three phases: Initially, the population was categorized into the four relief camps, and the total population was computed. The sample size was then determined using the Taro Yemane formula. Subsequently, a targeted sample was selected from each camp and proportionally distributed. The specific allocation of participants is detailed in Table 1.

In Camp A 72 questionnaires were administered of which 70 were returned and 69 were satisfied valid, Camp B administered 63 questionnaires of which 59 were returned and 57 were satisfied valid, while in Camp C 127 questionnaires were administered of which 122 were returned and 119 were satisfied valid, and Camp D 116 questionnaires were administered of which 109 were returned and 105 were satisfied valid.

Table 1: Descriptive Results of the response to questionnaire administered

| Questionnaire | Camps | | | | Total | % |
|------------------------|-------|----|-----|-----|-------|-----|
| | A | B | C | D | | |
| Administered | 72 | 63 | 127 | 116 | 378 | 100 |
| Returned | 70 | 59 | 122 | 109 | 360 | 95 |
| Not used for the study | 1 | 2 | 3 | 4 | 10 | 3 |
| Used for analysis | 69 | 57 | 119 | 105 | 350 | 93 |

Source: Field survey, (2019)

Data collection was carried out through a survey using a structured questionnaire to assess the impact of provider decisions on housing quality in the relief camps. The survey focused on Internally Displaced Persons (IDPs) residing in the designated camps, with 378 respondents taking part in the study. Spanning from August 2018 to September 2019, the survey was conducted over a one-year timeframe, enabling a thorough evaluation of housing conditions and their correlation with provider decisions. This extended data collection period allowed for the exploration of potential seasonal fluctuations or consistent trends in the relief camps. By employing these methodologies and approaches, this research offers valuable insights into the interplay between provider decisions and housing quality in relief camps, with a specific focus on the designated camps in Nigeria.

4.0 Results and Discussion

To evaluate the influence of decisions enacted by housing providers on the quality of post-disaster housing within the research locale, a structured questionnaire survey was employed. The survey specifically focused on Internally Displaced Persons (IDPs) residing in the study area, to assess diverse factors in housing conditions. An outline detailing the operationalization of these factors is presented in Table 2.

Table 2: Operationalisation of the variables

| Objective | Variable Required | Measurement of variable | Tools of Analysis | Scale | Authority |
|---|---|---|---|---------|--|
| Determine the effect of the decisions by the providers on the quality of housing in the relief camps. | Policy guiding access of inmates to the camp, Timely publicity of the camp opening, Ease of allocation process at the camp, Length of permitted residency, Type of dwelling unit/space allocated, State of disrepair of housing facilities, Allocation of recreation areas, Consideration of Walkways, Consideration for vehicular circulation, Planned Greenery/natural landscape, Sizes of dwelling units, Size of the eating area, Sanitary provisions within the camp, Provision of allocation according to social status (married, single, elderly, etc.), Allocation with cultural needs (e.g. Feeding arrangements provided, Design of Entrance to a relief camp, Building setbacks within the camp, Provision of social facilities, Density allowed per dwelling (e.g. crowding), Density allowed Population within the relief camp, Security measures within & around the camp, Street design, Repairs & maintenance schedules, Landscaping of camp environment (i.e. trees, hedges, grass, etc.), | Likert-like scale having a value ranging from 1-5 (Not a priority) to (essential) | Multiple Linear Regression (MLR) using a Stepwise Backward Model. | Ordinal | (Hany Abulnour, 2014); (Alnsour & Meaton, 2014); (Bruen et al., 2013)) |

Management rules &
regulations on this camp

(Source: Fieldwork, 2019)

The investigation scrutinized various factors encompassing the decision-making procedures and methodologies of providers of housing after disasters, as presented in Table 2. Participants were requested to assess the suitability of each of these factors utilizing a 5-point Likert scale, where a score of 1 was assigned to "very inappropriate," 2 to "inappropriate," 3 to "fair," 4 to "appropriate," and 5 to "very appropriate." The data gathered from the field during the research were then scrutinized to assess the repercussions of these provider decisions on the standard of housing after disasters in the designated relief areas. The subsequent sections provide an elaborate examination and discourse on the discoveries linked to each of these factors and their collective impact on the quality of housing after disasters within the specified relief camps. To derive the optimal regression equation, the backward stepwise multiple linear regression technique is employed. In this model, ten variables are subsequently considered as the explanatory/predictor or regressor variables for the quality of housing after disasters in the relief camps within the research area, as illustrated in Table 3.

Table 3: Specifications of variables

| S/N | NAME | CODE |
|-----|---|--------|
| 1. | Ease of allocation process at the camp | ALLPRO |
| 2. | Type of dwelling unit/space allocated | TYPDWE |
| 3. | State of disrepair of housing facilities | DISREP |
| 4. | Planned greenery/natural landscape | GREENY |
| 5. | Sizes of dwelling units | SIKDWE |
| 6. | Sanitary provisions (toilet/bath) within the camp | SANITA |
| 7. | Density allowed per dwelling (e.g. crowding) | DENDWE |
| 8. | Security measures within and around the camp | SECCAM |
| 9. | Choice of quality of the relief house structure | QUALHS |
| 10. | Repairs & maintenance schedules | REPAIR |

(Source: Field survey, 2019)

The least-square algorithms for the model are presented in Equations 1 and 2 based on results obtained from the linear regression (Table 4) as follows:

$$\ln(Q_h) = \ln(\beta_0 + \beta_1\text{ALLPRO} + \beta_2\text{TYPDWE} + \beta_3\text{DISREP} + \beta_4\text{GREENY} + \beta_5\text{SIKDWE} + \beta_6\text{SANITA} + \beta_7\text{DENDWE} + \beta_8\text{SECCAM} + \beta_9\text{QUALHS} + \beta_{10}\text{REPAIR}) \dots \dots \text{Equation 1}$$

$$\ln(Q_h) = \ln(1.636 - 0.095\text{ALLPRO} - 0.350\text{TYPDWE} + 0.169\text{DISREP} - 0.1565\text{GREENY} + 0.331\text{SIKDWE} + 0.268\text{SANITA} + 0.087\text{DENDWE} + 0.523\text{SECCAM} - 0.252\text{QUALHS} + 1.400\text{REPAIR} + 0.316) \dots \dots \text{Equation 2}$$

Where Q_h = Housing quality, β = Constant value, ε = error

Table 4. Results of linear regression analysis with simultaneous entry

| Variables | B | SE | β | ρ |
|---|-------|------|---------|--------|
| Ease of allocation process at the camp | -0.09 | 0.05 | -0.10 | 0.08 |
| Type of dwelling units/space allocated | -0.35 | 0.13 | -0.35 | 0.01 |
| State of disrepair of housing facilities | 0.16 | 0.07 | 0.15 | 0.03 |
| Planned greenery/natural landscape | -1.57 | 0.23 | -1.65 | 0.00 |
| Size of dwelling units | 0.33 | 0.12 | 0.33 | 0.01 |
| Sanitary provisions (toilet/bath) within camp | 0.27 | 0.09 | 0.31 | 0.01 |
| Density allowed per dwelling (e.g. crowding) | 0.09 | 0.05 | 0.09 | 0.08 |
| Security measure within and around the camp | 0.52 | 0.11 | 0.50 | 0.00 |
| Choice of quality of relief house structure | -0.25 | 0.10 | -0.27 | 0.01 |
| Repairs & maintenance schedules | 1.40 | 0.21 | 1.41 | 0.00 |

Note * $p < 0.05$

Interpretation of Results

From the estimates model above, when holding all other variables Constant, the state of disrepair of housing facilities (DISREP), the sizes of dwelling units (SIZDWE), the level of sanitary provision within camp within camp (SANITA), density allowed per dwelling (DENDWE), security measure within and around the camp and state of repairs and maintenance of deterioration of the building had positive effect on the quality of housing with the constant value of .169, .331, .268, .087, 523 and 1.400 respectively. On the other hand, the allocation process was relatively easy, the type of dwelling unit/space allocated, Greenery/natural landscape, and the quality of the relief house structure had a negative effect on the quality of housing with the value of -.095, -.350, -1.565 and -.252 respectively. Out of the ten variables, only seven variables (TYPDWE, DISREP, GREENY, SANITA, SECCAM, QUALHS, and REPAIR) were significant with the P-value (.012; .033; .000; .005; .000; .013 and .000) in determining the quality of housing in the camp.

In addition, the value of R - square of 0.209 signifies that 21% of the total variation in the quality of post-disaster housing was explained by the Decisions of the providers in the relief camps, while the remaining 79% variation in the quality of post-disaster housing was caused by other factors not included in the model (Table 5).

Table 5: Model Summary of Hypothesis

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| | 0.460 ^w | 0.209 | 0.186 | 0.791 |

a. Dependent Variable: Quality of Housing

ah. Predictors: (constant), Density allowed per dwelling (e.g. crowding), The sizes of dwelling units, The ease of allocation process, Sanitary provision within the camp, Maintenance of housing facilities, State of repairs and maintenance of deterioration of the building, The quality of the relief house structure, security measures within and around camp, Type of dwelling units/space allocated, greenery/natural landscape.

(Source: Field survey, 2019)

The F-test had a value of 8.976 with a corresponding P-value of 0.000. with the P-value < 5% level of significance. Hence, there is enough reason to reject the null hypothesis that the decisions of the providers of the relief camps have no significant influence on the quality of post-disaster in the study area. The study thereby rejected the null hypothesis and accepted the alternative. By accepting the alternative hypothesis, the study thereby concluded that the decision of the providers of the relief camps had a significant influence on the quality of post-disaster housing in the study area (Table 6).

Table 6: Test for significance of Quality of housing and Decision of Housing Providers

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|-------|-------------------|
| | Model | Sum of Squares | df | Mean Square | F | Sig. |
| 23 | Regression | 56.118 | 10 | 5.612 | 8.976 | .000 ^x |
| | Residual | 211.951 | 339 | 0.625 | | |
| | Total | 268.069 | 349 | | | |

(Source: Field survey, 2019)

The model of the quality of post-disaster housing was regressed with variables of the decision of the housing provider. The findings indicated that the regression model predicts the dependent variable significantly well which implies a relationship between the decision of the housing provider and the quality of housing in post-disaster relief camps in the study area. This agrees with a previous study by (Bruen et al., 2013) who described the quality of housing as a product of the decision of the housing providers with the design and delivery of low-cost sustainable post-disaster in developing countries. Similarly, (Alnsour & Meaton, 2014) focused on the decision of key stakeholders as the most common indicators of the quality of housing to provide rich empirical information toward sustainable design.

Implication of findings

The research findings align directly with Sustainable Development Goal (SDG) 11, which is centred on "Sustainable Cities and Communities." The study indicates that choices made by housing providers have a significant influence on the standard of post-disaster housing in the research locations. These decisions involve a range of factors such as inmate allocation, types and sizes of dwelling spaces, conditions of housing facilities, presence of greenery and natural surroundings, maintenance strategies, sanitation provisions, safety precautions, and the quality of relief housing structures. Within the framework of SDG 11, these findings underscore the significance of housing decisions in fostering sustainable and resilient urban communities. The research underscores the necessity for housing providers to adopt a well-rounded approach, where the well-being of residents plays a pivotal role. The study proposes that excessively comfortable housing may not be optimal, as it could result in inefficiencies or wastage of resources, while extreme discomfort should be avoided as well. Hence, the inference

drawn is that housing decisions should strive for a balanced strategy that enhances housing standards while upholding sustainability and resilience in post-disaster scenarios.

5.0 Conclusion and Recommendations

In conclusion, the research underscores the significance of housing decisions in influencing the quality of post-disaster housing within the study areas. These results hold direct relevance to Sustainable Development Goal 11, which focuses on establishing sustainable and resilient cities and communities. The decisions taken by housing providers have a substantial impact on the overall quality of housing during disaster recovery and resilience efforts. The study has identified ten crucial variables that form the basis of the optimal regression model in this scenario. These variables include inmate allocation processes, types and sizes of dwelling spaces, conditions of housing facilities, green spaces, natural landscapes, maintenance plans, sanitary provisions, safety measures, and the quality of relief housing structures. These factors are closely linked to the objectives of SDG 11, which aim to foster secure, inclusive, resilient, and sustainable urban communities. Drawing from the research findings and their alignment with SDG 11, the following recommendations are proposed:

- i. *Optimal Comfort*: It is advised that housing providers adopt a balanced approach in designing post-disaster housing. While prioritizing residents' comfort is crucial, excessive comfort may not always be sustainable. Decision-makers should focus on offering comfortable housing that fulfils basic needs while avoiding unnecessary luxury, resource consumption, and extravagance.
- ii. *Resilience-Oriented Design*: This involves integrating disaster resilience into housing decisions. Housing providers should promote post-disaster housing structures and camps capable of enduring and recovering from disasters more efficiently by adhering to resilient design principles, which align with the SDG 11 objective of establishing resilient communities. Environmentally Friendly and
- iii. *Sustainable Practices*: Housing providers should promote the integration of green practices and sustainability in post-disaster housing. This can improve the quality of living spaces, support eco-friendly environments, and contribute to SDG 11's goals of sustainable urban development.
- iv. *Community Involvement*: Post-disaster housing providers should involve affected communities in housing decision-making processes. Inclusivity and the engagement of residents in housing decisions can result in more efficient and sustainable housing solutions, in line with SDG 11's emphasis on inclusive and secure communities.
- v. *Routine Maintenance and Safety Measures*: Housing providers should prioritize the regular maintenance of post-disaster housing facilities and the enforcement of safety protocols. This ensures the durability and safety of housing structures and contributes to SDG 11's objective of establishing safe and sustainable urban environments.

By adhering to these recommendations, post-disaster housing providers and policymakers can progress towards meeting the targets of SDG 11, ultimately fostering more sustainable, resilient, and inclusive cities and communities amidst post-disaster housing challenges.

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