



## Impact of Workforce Planning on Project Accountability and Delivery Outcomes in Humanitarian Infrastructure Programmes in Northeast Nigeria

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### Abstract

The Boko Haram insurgency in Northeast Nigeria has severely worsened socio-economic vulnerabilities, disrupting food security, livelihoods, and community infrastructure. This volatile environment hinders humanitarian actors in delivering essential projects like schools, health centres, and water systems. The conflict restricts access, complicates workforce deployment, weakens accountability, and heightens risks of delays, cost overruns, and poor outcomes, eroding donor confidence, beneficiary trust, and long-term sustainability. This quantitative study examined the impact of workforce planning on project accountability and delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria. Using a survey research design, data were collected from 300 professionals working in non-governmental organisations (NGOs), government agencies, contractors, and donor organisations. The research applied reliability tests, correlation analysis and multiple regression models for data analysis. All measurement scales demonstrated excellent internal consistency, with Cronbach's alpha values exceeding 0.97. The results revealed strong positive relationships between workforce planning and project accountability ( $r = 0.951$ ,  $p < 0.001$ ) and between workforce planning and delivery outcomes ( $r = 0.951$ ,  $p < 0.001$ ). Regression analysis further indicated that workforce planning significantly predicts project accountability ( $\beta = 0.951$ ,  $p < 0.001$ ;  $R^2 = 0.905$ ) and delivery outcomes ( $\beta = 0.951$ ,  $p < 0.001$ ;  $R^2 = 0.904$ ), implying that approximately 90.5% and 90.4% of the variance in accountability and delivery outcomes, respectively, are explained by workforce planning. This clarifies that the beta coefficients reflect the strength and direction of influence, while the  $R^2$  values indicate the proportion of variance explained by the independent variable. These findings highlight that thoughtful staffing decisions directly strengthen responsibility structures and improve project success in fragile humanitarian settings. It is therefore recommended that organisations operating in Northeast Nigeria institutionalise systematic workforce planning frameworks, incorporating competency mapping, structured staffing, and continuous capacity development within project life cycles to enhance governance, improve performance outcomes, and ensure sustainable infrastructure delivery.

**Keywords:** Workforce planning, Project accountability, Humanitarian infrastructure, Northeast Nigeria, Human resource management

### 1.0 INTRODUCTION

Workforce planning is regarded as one of the essential human resource managements (HRM) activities in recent times (Ayandibu & Kaseeram, 2020). Khadilkar (2022) emphasises that effective human resource planning is a systematic and continuous process that aligns organisational objectives with the strategic development of personnel capabilities. The study establishes that workforce planning enhances institutional performance by ensuring the right number of employees with appropriate competencies are available at the right time, thereby reducing skill gaps, redundancy, and inefficiencies. Thus, workforce planning as articulated by Peck (2025), serves as a strategic linchpin for ensuring organisations possess the right skills

and numbers to fulfil future demands, directly underpinning effective project execution. This foundational approach gains heightened urgency in humanitarian infrastructure programmes in Northeast Nigeria, where volatile security, displacement crises, and resource constraints amplify the stakes for project accountability and timely delivery.

The persistence of the Boko Haram insurgency in Northeast Nigeria has exacerbated socio-economic vulnerabilities, including severe disruptions to food security, livelihoods, and community infrastructure (Eke-okocha & Eze, 2023). Such instability creates a highly volatile operational environment for humanitarian actors tasked with delivering essential infrastructure projects, including schools, health centres, and water systems. According to Samuel (2024) and Obafemi & Orhero (2025), the insurgency in the Northeast, Nigeria not only impedes physical access and logistical coordination but also complicates workforce deployment, undermines accountability mechanisms, and increases the risk of project delays, cost overruns, and substandard delivery outcomes. Additionally, these challenges undermine donor confidence, reduce beneficiary trust, and compromise long-term sustainability as pointed out by studies such as Ceesay (2020) and Mahmoud Saleh & Karia (2024).

While external constraints such as insecurity and funding volatility are well documented, limited empirical research has examined the role of workforce planning in shaping infrastructure project outcomes. Poor manpower forecasting, inadequate technical staffing, weak succession planning, and insufficient competency alignment may contribute significantly to implementation inefficiencies. This study aims to examine the impact of workforce planning on project accountability and delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria. As such, there is a need for empirical evidence to determine whether workforce planning significantly influences project accountability and delivery outcomes in humanitarian infrastructure programmes in conflict affected regions. Consequently, understanding how workforce planning can ease these challenges is significant for ensuring both effective accountability and successful project delivery in humanitarian infrastructure programmes operating under conflict-affected conditions.

The main objective of this study is to examine the impact of workforce planning on project accountability and delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria. The following hypotheses were formulated and tested in the study:

H1: Workforce planning has a significant positive influence on project accountability in humanitarian infrastructure programmes in Northeast Nigeria.

H2: Workforce planning has a significant positive influence on project delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria.

H3: Project accountability has a significant positive influence on project delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria.

## **2.0 LITERATURE REVIEW**

### **2.1 Conceptual Review**

Workforce planning is widely conceptualised as a strategic and systematic process through which organisations forecast, acquire, develop, and deploy human resources in alignment with institutional objectives (Armstrong & Taylor, 2020; Elugbaju *et al.*, 2024; Makhanya, 2024). Evolving from traditional manpower planning models that focused primarily on headcount projections, contemporary workforce planning emphasises competency mapping, succession planning, flexibility, and long-term capability development as critical drivers of organisational performance (Afriyie, 2019). Meredith *et al.* (2017) emphasised that, within project-based

environments, workforce planning extends beyond administrative staffing to encompass skills alignment, workload balancing, and dynamic resource allocation throughout the project life cycle. This perspective suggests that effective workforce planning is integral to both accountability and delivery outcomes. This is corroborated by John (2023) asserting that, proper skills alignment strengthens technical quality and compliance with standards, workload balancing reduces delays and operational bottlenecks, and dynamic resource allocation enhances adaptability in unstable environments such as the Northeast Nigeria situation. Furthermore, empirical and conceptual studies suggest that inadequate workforce forecasting and poor competency matching contribute significantly to inefficiencies, delays, and quality deficiencies in infrastructure projects (Ekwuno, 2022; Sanusi, 2024). In humanitarian settings, where volatility and uncertainty are heightened, workforce planning assumes additional importance due to rapid deployment needs, high turnover rates, and the necessity for contextual sensitivity (Kovács & Spens, 2007; Haavisto & Goentzel, 2015). Thus, the conceptualization of workforce planning in this study integrates forecasting, skills alignment, recruitment strategy, training, and adaptability as multidimensional constructs influencing project governance and delivery performance.

As opined by Nwafor *et al.* (2019) project accountability and delivery outcomes are equally central constructs within the conceptual framework of infrastructure programme performance. Accountability is generally defined as the obligation of organisations to explain and justify their actions to stakeholders, particularly in contexts involving public or donor funds (Ahmed *et al.*, 2022). In humanitarian and development programmes, accountability encompasses financial transparency, monitoring and evaluation systems, stakeholder engagement, and compliance with regulatory standards (Hlahla *et al.*, 2025; Sata, 2024). Delivery outcomes, traditionally assessed through the “iron triangle” of time, cost, and quality, have expanded to include beneficiary satisfaction, sustainability, and long-term impact, especially in development-oriented infrastructure projects (Charles *et al.*, 2022; Joslin & Müller, 2015). Conceptually, effective workforce planning strengthens project management and accountability by clarifying roles, enhancing monitoring capacity, and ensuring competent oversight, which in turn improves delivery metrics (Malawige *et al.*, 2023). Therefore, existing literature suggests an interdependent relationship among workforce planning, accountability mechanisms, and project delivery outcomes, forming a coherent conceptual foundation for examining humanitarian infrastructure programmes in complex environments.

## 2.2 Theoretical Review

As proven by Amin *et al.* (2024), agency theory provides a foundational lens for understanding accountability dynamics in humanitarian infrastructure programmes. Originally advanced by Michael Jensen and William Meckling, the theory explains relationships in which one party (the principal) delegates authority to another (the agent) to perform tasks on their behalf (Boukerma, 2022). In the context of humanitarian infrastructure programmes in Northeast Nigeria, donors, government institutions, and funding agencies act as principals, while implementing organisations, contractors, and project managers function as agents. Because agents typically possess more information about operational processes than principals, information asymmetry may arise, creating risks of inefficiency, opportunism, or resource misallocation. Agency theory therefore emphasises monitoring mechanisms, reporting systems, performance evaluation structures, and incentive alignment as tools to minimize agency costs (Matinheikki *et al.*, 2022; Hossain *et al.*, 2024). Workforce planning becomes essential within this framework because properly selected and trained personnel, such as

compliance officers, monitoring and evaluation staff, and project supervisors, strengthen transparency and reduce the likelihood of accountability failures. Thereby, workforce planning helps mitigate agency risks and enhances both accountability and delivery outcomes in donor-funded humanitarian infrastructure projects.

Conversely, stakeholder theory, developed by R. Edward Freeman, emphasises that organisations operate within networks of diverse stakeholders rather than simple principal-agent relationships (Freeman *et al.*, 2018; Freeman *et al.*, 2020). In humanitarian infrastructure programmes in Northeast Nigeria, key stakeholders include donors, government agencies, NGOs, contractors, and local communities. Each group has distinct expectations regarding transparency, quality, timeliness, and social impact. Organisational effectiveness depends on balancing and responding to these competing interests. Workforce planning therefore becomes a strategic tool for stakeholder alignment. It requires deploying not only technical experts but also social and monitoring personnel. Effective workforce planning thus enhances inclusive accountability, strengthens trust among stakeholders, and improves delivery outcomes by ensuring that projects meet both technical standards and community expectations.

Meanwhile, contingency theory argues that no single management approach is universally effective; success depends on alignment with environmental conditions (Wadongo & Abdel-Kader, 2014). Humanitarian infrastructure programmes in Northeast Nigeria operate in volatile contexts marked by insecurity, political sensitivities, and funding instability. Therefore, workforce planning must adapt to these contextual realities rather than follow rigid, standardized models. In stable environments, long-term staffing structures may be adequate. Moreso, WHO (2022) emphasised that, conflict-affected regions require flexible deployment systems and multi-skilled personnel. Adaptive workforce models enhance resilience and responsiveness to sudden disruptions. Such flexibility helps maintain accountability and sustain project delivery performance. Combined with agency and stakeholder theories, contingency theory reinforces the need for context-sensitive workforce planning in complex humanitarian settings.

However, agency theory provides the most relevant and strong theoretical foundation for this research because it directly addresses the principal-agent relationship that characterises humanitarian infrastructure programmes. In the context of Northeast Nigeria, donors and government agencies (principals) engage NGOs, contractors, and implementing partners (agents) to execute projects. Workforce planning serves as an important mechanism to minimise agency problems by ensuring the right personnel with appropriate competencies are selected, roles are clearly defined, and accountability structures are strengthened. This alignment reduces information asymmetry, enhances monitoring, and improves project delivery outcomes. While stakeholder theory highlights the importance of managing multiple interests and contingency theory acknowledges the influence of the volatile operating environment, Agency Theory most precisely explains the causal link between workforce planning, project accountability, and delivery outcomes observed in the study.

### **2.3 Empirical Review**

Gujrati (2025) examined human resource planning for construction projects, employing a qualitative, desk-based methodology that synthesised evidence from multiple case studies within the construction sector. Data were collected through secondary sources, including project reports and industry documentation, and analysed using thematic content analysis. The study found that effective workforce planning and human capital management significantly enhance project performance through improved coordination and resource optimisation. The study concluded that proactive workforce planning is a critical determinant of project success.

Yap et al. (2019) examined construction industry challenges in developing countries, using a quantitative research design with a sample of 117 construction professionals (clients, consultants, and contractors) in Malaysia. Data were collected through questionnaire surveys and analysed using mean score ranking and factor analysis. The study found that poor workforce planning, skill shortages, and weak project management practices are among the most critical factors affecting project delivery. The authors concluded that addressing human resource deficiencies is essential for improving project outcomes in developing economies.

Nyarko et al. (2024) investigated leadership challenges in humanitarian operations, adopting a qualitative approach based on a sample of 367 humanitarian aid workers participating in NNPHL training programmes between 2016 and 2022. Data were collected through interviews and reflective accounts and analysed using thematic analysis. Findings indicated that high staff turnover, limited technical expertise, and volatile operational environments undermine effectiveness and accountability. The study concluded that strengthening human resource capacity and leadership development is crucial for improving humanitarian project delivery.

Khadilkar (2022) examined human resource planning, processes, and development, using a conceptual and qualitative review approach based on organisational case evidence. Data were derived from secondary sources and analysed through descriptive and thematic techniques. The findings showed that organisations implementing proactive HR development strategies experience improved productivity, clearer role definitions, and stronger monitoring systems. The study concluded that systematic HR development is fundamental to organisational effectiveness, operational efficiency, and long-term sustainability.

### **2.3.1 Synthesis and Identified Gap**

Across the reviewed studies, empirical evidence consistently shows that workforce planning, competency development, and human resource alignment significantly influence project performance. However, these studies predominantly examine these variables in isolation, with limited integration of accountability mechanisms and delivery outcomes, particularly within humanitarian infrastructure contexts. This establishes a clear empirical gap regarding the combined effect of workforce planning, accountability, and project delivery within humanitarian infrastructure programmes in Northeast Nigeria.

## **3.0 METHODOLOGY**

This study adopted a quantitative cross-sectional survey design to examine the impact of workforce planning on project accountability and delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria. A quantitative approach was considered appropriate because the study seeks to empirically test hypothesized relationships among clearly defined constructs and to generalize findings across multiple humanitarian infrastructure projects. The cross-sectional design enabled the collection of data from relevant stakeholders at a single point in time, allowing for statistical analysis of relationships among workforce planning practices, accountability mechanisms, and delivery performance indicators. The study was conducted in Northeast Nigeria, a region comprising states significantly affected by insurgency and humanitarian crises. Humanitarian infrastructure programmes in this region include the construction and rehabilitation of schools, health centres, water supply systems, internally displaced persons (IDP) camps, and community facilities. The target population consisted of professionals directly involved in humanitarian infrastructure programmes, including project managers, site engineers, human resource officers, monitoring and evaluation (M&E) officers, procurement officers, representatives of donor agencies, contractors and implementing partners out of which a sample size of 350 was gotten for this

study. In 2025, the Nigeria Humanitarian Needs and Response Plan (HNRP) involved 137 humanitarian partners implementing various projects across the BAY states (UN-OCHA, 2026). These respondents were selected because of their direct involvement in staffing decisions, accountability processes, and infrastructure delivery execution.

A multi-stage sampling technique was employed. First, purposive sampling was used to identify active humanitarian infrastructure projects within selected states in Northeast Nigeria. Second, stratified sampling ensured representation across different stakeholder categories (such as implementing NGOs, contractors, government agencies, and donor representatives). Following the guidelines recommended by Tabachnick & Fidell (1996), a sample size of 300 is regarded as good for quantitative studies involving multivariate statistical techniques such as correlation and multiple regression analysis. Their classification describes sample sizes of 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1,000 as excellent. Additionally, the sample of 350 exceeds the minimum requirement of 10–15 cases per predictor variable for reliable regression analysis and provided adequate statistical power to detect the strong relationships observed in the study. The excellent reliability coefficients achieved (Cronbach's alpha = 0.974–0.980) and very high R<sup>2</sup> values (above 0.90) further confirm the adequacy of the sample size. Primary data were collected through a structured Google Form questionnaire organised into sections covering demographic characteristics, workforce planning, project accountability, and delivery outcomes.

Measurement items were rated on a five-point Likert scale ranging from Strongly Disagree to Strongly Agree. Reliability was assessed using Cronbach's Alpha, with a threshold of 0.70 considered acceptable. Data were analysed using SPSS, beginning with descriptive statistics to summarise respondent characteristics and variable distributions, followed by Pearson correlation analysis to examine the strength and direction of relationships among key constructs. Ethical approval was obtained from the relevant authority, and the study adhered to principles of voluntary participation, informed consent, confidentiality, anonymity, and secure data management. No pilot test was conducted in this study. The validated instruments used in the study were adapted from established scales in project management and human resource literature, which had previously shown strong reliability. Additionally, due to the volatile security situation in Northeast Nigeria, a pilot study was avoided to minimise risks to respondents and field enumerators. The main study achieved excellent reliability (Cronbach's alpha = 0.974–0.980), confirming the suitability of the instruments.

## 4.0 RESULTS

### 4.1 Descriptive Analysis

#### 4.1.1 Administration of Questionnaire

The administration, retrieval, and utilisation of questionnaires for the study are summarised in Table 1 below.

Table 1: Questionnaire Administration and Response Rate

Number of questionnaires administered	Number Retrieved	Questionnaire Analysed	Response Rate (%)
350	310	300	85.6

Source: Author's fieldwork (2026)

A total of 350 structured questionnaires were administered electronically through Google Forms to professionals involved in humanitarian infrastructure programmes across Northeast Nigeria. Out of the 362 questionnaires distributed, 310 were retrieved, representing a response rate of 85.6%. After screening, 10 questionnaires were discarded due to substantial missing data and inconsistent responses. Consequently, 300 properly completed questionnaires were used for data analysis.

#### 4.1.2 Demographic Characteristics

The demographic characteristics of the respondents are presented in Table 2. The study involved three hundred (300) participants from organisations engaged in humanitarian infrastructure programmes.

**Table 2: Demographic characteristics of respondents**

Variable	Category	Frequency	Percentage (%)
Gender	Male	186	62.0
	Female	114	38.0
Age	20–30	78	26.0
	31–40	126	42.0
	41–50	70	23.3
	51 and above	26	8.7
Education	Diploma	32	10.7
	Bachelor's	148	49.3
	Master's	102	34.0
	PhD	18	6.0
Organisation	NGO	120	40.0
	Government	80	26.7
	Contractor	64	21.3
	Donor	26	8.7
	Others	10	3.3

Source: Author's fieldwork (2026)

Male respondents accounted for 62.0% (n = 186) while females represented 38.0% (n = 114). Most respondents were between 31 and 40 years old (42.0%). Respondents aged 20–30 years accounted for 26.0%, while 23.3% were between 41 and 50 years. Only 8.7% were aged 51 years and above.

Regarding educational qualification, bachelor's degree holders formed the largest group (49.3%), followed by master's degree holders (34.0%). Diploma holders accounted for 10.7%, while 6.0% reported having a PhD. In terms of organisation type, 40.0% of the respondents worked in non-governmental organisations. Government agencies accounted for 26.7%, while

21.3% were contractors involved in project implementation. Donor agencies represented 8.7% of the respondents.

Human Resource Officers represented 18.0% of the respondents, while Monitoring and Evaluation Officers accounted for 12.7%. Project Managers represented 8.0% of the sample. Other project roles accounted for the remaining respondents. Most respondents reported between 4 and 6 years of experience in humanitarian infrastructure projects (42.0%). Respondents with 1–3 years of experience accounted for 25.3%, while 24.0% reported 7–10 years of experience.

The demographic distribution shows that many respondents have relevant educational qualifications and several years of experience in humanitarian infrastructure projects. This suggests that the information was provided by individuals familiar with project implementation.

### 4.1.3 Reliability

The reliability of the measurement constructs was assessed using Cronbach's alpha. The results are presented in Table 3.

Table 3: Reliability statistics

Construct	Items	Cronbach's Alpha
Workforce Planning	15	0.978
Project Accountability	12	0.980
Project Delivery Outcomes	12	0.974

Source: Author's fieldwork (2026)

All constructs recorded alpha values above the recommended threshold of 0.70, indicating satisfactory internal consistency.

## 4.2 Inferential Analysis of Data

### 4.2.1 Test of Hypotheses

Three hypotheses were formulated and tested using Pearson correlation and multiple regression analysis.

H1: Workforce planning has a significant positive influence on project accountability in humanitarian infrastructure programmes in Northeast Nigeria.

Pearson correlation analysis (Table 4) revealed a very strong positive relationship between workforce planning and project accountability ( $r = 0.951$ ,  $p < 0.01$ ). Regression analysis (Table 4) further showed that workforce planning has a significant positive effect on project accountability ( $\beta = 0.951$ ,  $p < 0.001$ ), explaining 90.5% of the variance in project accountability ( $R^2 = 0.905$ ;  $F = 2844.792$ ,  $p < 0.001$ ). Therefore, H1 is supported.

Pearson correlation analysis was conducted to examine the relationships among the study variables. The results are presented in Table 4.

Table 4: Correlation matrix

Variables	Workforce Planning	Accountability	Delivery Outcomes
Workforce Planning	1		
Accountability	0.951**	1	
Delivery Outcomes	0.951**	0.961**	1

Note:  $p < 0.01$

Source: Author's fieldwork (2026)

H2: Workforce planning has a significant positive influence on project delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria.

Table 5: Workforce planning and project accountability

Variable	B	Std. Error	Beta	t	Sig
Constant	0.117	0.063		1.864	0.063
Workforce Planning	0.994	0.019	0.951	53.337	0.000

Source: Author's fieldwork (2026)

The results show that workforce planning has a strong positive relationship with project accountability ( $r = 0.951$ ,  $p < 0.01$ ) and project delivery outcomes ( $r = 0.951$ ,  $p < 0.01$ ). Project accountability is also strongly correlated with project delivery outcomes ( $r = 0.961$ ,  $p < 0.01$ ). Regression analysis was conducted to examine the influence of workforce planning on project accountability and project delivery outcomes. The results in Table 5 show that Workforce planning shows a significant positive effect on project accountability ( $\beta = 0.951$ ,  $p < 0.001$ ), explaining 90.5% of the variance in accountability ( $R^2 = 0.905$ ;  $F = 2844.792$ ,  $p < 0.001$ ). Thus, H2 is supported.

H3: Project accountability has a significant positive influence on project delivery outcomes in humanitarian infrastructure programmes in Northeast Nigeria.

Table 6: Workforce planning and project delivery outcomes

Variable	B	Std. Error	Beta	t	Sig
Constant	0.194	0.061		3.169	0.002
Workforce Planning	0.962	0.018	0.951	53.044	0.000

Source: Author's fieldwork (2026)

A second regression model examined the effect of workforce planning on project delivery outcomes. The results are presented in Table 6. Workforce planning also shows a significant positive effect on project delivery outcomes ( $\beta = 0.951$ ,  $p < 0.001$ ). This explains 90.4% of the variance in delivery outcomes ( $R^2 = 0.904$ ;  $F = 2813.636$ ,  $p < 0.001$ ). H3 is therefore supported.

These results indicate that workforce planning shows a significant positive effect on project accountability and project delivery outcomes.

### 4.3 Discussion of Results

The results indicate that workforce planning is strongly associated with both project accountability and delivery outcomes in humanitarian infrastructure programmes. The strength of the relationships suggests that workforce planning practices play an important role in shaping governance and performance within project environments.

The positive relationship between workforce planning and project accountability suggests that structured staffing processes support clearer responsibility allocation, monitoring, and transparency in project implementation. This aligns with Kerzner (2025), who notes that workforce planning helps define roles and responsibilities within project teams, thereby strengthening accountability mechanisms. Similarly, PMI (2021) emphasises that systematic planning improves reporting procedures and oversight practices in project management.

The findings also show that workforce planning significantly influences project delivery outcomes. Effective workforce planning helps ensure that the required competencies are available for project activities, which contributes to improved project implementation. This result is consistent with Chan & Chan (2004), who identified human resource management as a critical factor influencing construction project performance. Projects tend to achieve better outcomes when workforce capacity is aligned with project requirements.

In addition, Ofori (2015) highlights the importance of skilled personnel in infrastructure delivery, noting that competent staffing supports timely and efficient project execution. The strong association observed between accountability and delivery outcomes also supports the argument by Müller *et al.* (2017) that accountability structures strengthen project performance through improved oversight and decision-making processes. The findings indicate that workforce planning plays an important role in both accountability practices and delivery performance in humanitarian infrastructure programmes in Northeast Nigeria.

### 5.0 CONCLUSION AND RECOMMENDATIONS

The evidence gathered in this research leaves little doubt that workforce planning is a powerful driver of both accountability and successful project delivery in humanitarian infrastructure programmes in Northeast Nigeria. The exceptionally high correlations and explanatory power of the regression models show that organisations investing in strategic staffing create clearer lines of responsibility and deliver stronger results on the ground.

Consequently, through positioning of people, skills and project needs, teams operate with greater transparency and focus. These outcomes matter deeply in a region where infrastructure efforts must navigate limited resources, security challenges and urgent community needs. The study therefore confirms what many practitioners have long sensed: effective workforce planning is not a side issue but a core requirement for turning humanitarian commitments into lasting infrastructure gains.

This study recommends that organisations involved in humanitarian infrastructure should therefore make workforce planning a standard part of every project cycle. This means conducting thorough skills audits at the planning stage, matching staff competencies to specific tasks and building flexible rosters that can adapt to changing conditions.

Project leaders need to integrate accountability checkpoints into staffing plans, such as regular role reviews and transparent reporting lines. Training programmes should focus on building both technical and oversight skills so that teams understand their responsibilities from day one.

Government agencies and donors can support these efforts by requiring clear workforce plans in funding proposals and by offering technical assistance to smaller NGOs. Finally, future studies could explore how digital tools or local labour-market data might further strengthen workforce planning in similar conflict-affected environments.

## REFERENCES

- Afriyie, D. (2019). Aligning strategic workforce planning with future-of-work trends through advanced performance management and digital HR infrastructure. *World Journal of Advanced Research and Reviews*, 4(2), 207-226.
- Ahmed, A. H. A., Zainol, Z., & Mokhtar, N. (2022). An insight of accountability practices in non-governmental organisations (NGOs): The case of Yemen. *International Journal of Research in Business and Social Science*, 11(1), 178-186.
- Amin, H., Malik, M., & Scheepers, H. (2024). An agency theory unpacking of how monitoring and evaluation affect international development project impact. *International Journal of Project Management*, 42(8), 102654.
- Armstrong, M., & Taylor, S. (2023). *Armstrong's handbook of human resource management practice: A guide to the theory and practice of people management*. Kogan Page Publishers.
- Ayandibu, A. O., & Kaseeram, I. (2020). The future of workforce planning. In *Human capital formation for the Fourth Industrial Revolution* (pp. 127-156). IGI Global.
- Boukerma, H. (2022). The agency theory of corporate governance. 5(2), 101-112. <https://asjp.cerist.dz/en/article/198487>
- Ceesay, L. O. (2020). *Institutional sustainability in the context of international donor funded programmes in fragile and post-conflict communities of West Africa: (The cases of CDDP funded decentralised village development institutions in the Gambia and Sierra Leone)* (Doctoral dissertation, Dissertation, Erfurt, Universität Erfurt, 2021).
- Chan, A. P., & Chan, A. P. (2004). Key performance indicators for measuring construction success. *Benchmarking: an international journal*, 11(2), 203-221.
- Charles, S. H., Chang-Richards, A., & Yiu, T. W. (2022). New success factors for construction projects: a systematic review of post-2004 literature. *Construction Innovation*, 22(4), 891-914.
- Eke-okocha, N. P., & Eze, C. G. (2023). Boko Haram Insurgency on North-Eastern Nigeria, How Has This Influenced Food Insecurity in the Region?. In *Integrated Approaches to Peace and Sustainability* (pp. 89-102). Singapore: Springer Nature Singapore.
- Ekwuno, A. O. (2022). Research to study the damage caused to the construction projects due to the lack of workers on site. *International Journal of Scientific and Research Publications*, 12(12), 361-382.
- Elugbaju, W. K., Okeke, N. I., & Alabi, O. A. (2024). Human resource analytics as a strategic tool for workforce planning and succession management. *International Journal of Engineering Research and Development*, 20(11), 744-756.

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- Freeman, R. E., Harrison, J. S., & Zyglidopoulos, S. (2018). *Stakeholder theory: Concepts and strategies*. Cambridge University Press.
- Freeman, R. E., Phillips, R., & Sisodia, R. (2020). Tensions in stakeholder theory. *Business & society*, 59(2), 213-231.
- Gujrati, R. (2025). Human Resource Planning for Construction Projects. In *Handbook of Construction Project Management* (pp. 1067-1083). Singapore: Springer Nature Singapore.
- Haavisto, I., & Goentzel, J. (2015). Measuring humanitarian supply chain performance in a multi-goal context. *Journal of Humanitarian Logistics and Supply Chain Management*, 5(3), 300-324.
- Hlahla, V., Mupa, M. N., & Danda, C. (2025). Donor-funded project financial management: Lessons from global development initiatives for US community-based programmes. *World Journal of Advanced Research and Reviews*, [online], 27(2), 1812-1821.
- Hossain, M. Z., Hasan, L., & Hasan, M. H. (2024). Corporate governance as a global phenomenon: evolution, theoretical foundations, and practical implications. *Journal of Financial Risk Management*, 13(2), 342-375.
- John, B. I. (2023). Data-driven resource optimization approaches enhancing capacity planning, labor utilization, material efficiency and continuous improvement across manufacturing project lifecycles. *GSC Advanced Research and Reviews*, 17(3), 220-236.
- Joslin, R. & Müller, R. (2015). The relationship between project governance and project success. *International Journal of Project Management*, 34(4), 613–626.
- Kerzner, H. (2025). *Project management: a systems approach to planning, scheduling, and controlling*. Hoboken, NY: John Wiley & Sons.
- Khadilkar, S. M. (2022). Planning, Process, And Development of Human Resources. *Special Education*, 2(43), 2283.
- Kovács, G., & Spens, K. M. (2007). Humanitarian logistics in disaster relief operations. *International journal of physical distribution & logistics management*, 37(2), 99-114.
- Mahmoud Saleh, F. I., & Karia, N. (2024). Management of Donors. In *Value-driven Management for International Development and Aid Projects* (pp. 119-132). Singapore: Springer Nature Singapore.
- Makhanya, M. T. (2024). Strategic workforce planning: Integrating human capital needs with organisational goals for optimal performance in the public sector. *Journal of Public Administration*, 59(3), 542-557.
- Malawige, N., Weligamage, S., & Ranjani, R. P. C. (2023). Impact of project management methodology on project management success in the Sri Lankan construction industry. *Journal of Accountancy & Finance*, 10(2), 1-16.

- Matinheikki, J., Kauppi, K., Brandon-Jones, A., & van Raaij, E. M. (2022). Making agency theory work for supply chain relationships: a systematic review across four disciplines. *International Journal of Operations & Production Management*, 42(13), 299-334.
- Müller, R., Zhai, L., & Wang, A. (2017). Governance and governmentality in projects: Profiles and relationships with success. *International Journal of Project Management*, 35(3), 378–392. <https://doi.org/10.1016/j.ijproman.2017.01.007>
- Nwafor, M. I., Uduokhai, D. O., Ifechukwu, G. O., Stephen, D., & Aransi, A. N. (2019). Developing an analytical framework for enhancing efficiency in public infrastructure delivery systems. *Iconic Research and Engineering Journals*, 2(11), 657-670.
- Nyarko, G., Marnicio, A., & Bollettino, V. (2024). Understanding leadership challenges faced by humanitarian aid workers: insights from the experiences of NNPHL training participants. *Journal of International Humanitarian Action*, 9(1), 15.
- Obafemi, S. I., & Orhero, A. E. (2025). Combating Boko Haram insurgency: The role of Nigerian Military. *Qualitative Research of Business and Social Sciences*, 3(1), 12-29.
- Ofori, G. (2015). Nature of the construction industry, its needs and its development: A review of four decades of research. *Journal of construction in developing countries*, 20(2), 115.
- Peck, W. J. (2025). Workforce planning: a review of methodologies. *Annals of Operations Research*, 352(1), 251-294.
- Project Management Institute. (2021). *A guide to the project management body of knowledge (PMBOK® guide) (7th ed.)*. Project Management Institute.
- Samuel, F. S. (November, 2024). The Impact of Insurgency on Economic Development in Nigeria: A Socioeconomic Analysis of Boko Haram's Disruption. In *Book of Proceedings 2024 UNIOSUN FSS International Conference* (p. 860-870).
- Sanusi, B. O. (2024). The role of data-driven decision-making in reducing project delays and cost overruns in civil engineering projects. *SAMRIDDHI: A Journal of Physical Sciences, Engineering and Technology*, 16(04), 182-192.
- Sata, S. K. (2024). Advancing the Design and Implementation of Integrated Monitoring and Evaluation Frameworks: A Strategic Approach for Enhancing Accountability and Impact Assessment in Non-Profit Organisations. *World Journal of Arts, Education and Literature*, 1(4), 1-8.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). NY: HarperCollins.
- UN-OCHA (2026). North-East Nigeria: Borno, Adamawa and Yobe States Humanitarian Dashboard (January - December 2025). Retrieved from <https://www.unocha.org/publications/report/nigeria/north-east-nigeria-borno-adamawa-and-yobe-states-humanitarian-dashboard-january-december-2025>, 14<sup>th</sup> April, 2026

Wadongo, B., & Abdel-Kader, M. (2014). Contingency theory, performance management and organisational effectiveness in the third sector: A theoretical framework. *International Journal of Productivity and Performance Management*, 63(6), 680-703.

World Health Organisation. (2022). *The work of WHO in the South-East Asia Region: report of the Regional Director, 1 January–31 December 2021* (No. SEA/RC75/2). World Health Organisation. Regional Office for South-East Asia.

Yap, J. B. H., Chow, I. N., & Shavarebi, K. (2019). Criticality of construction industry problems in developing countries: Analyzing Malaysian projects. *Journal of Management in Engineering*, 35(5), 04019020.