# Investigation of Environmental Factors Causing Dysfunctions within Project Teams in the South-South Geopolitical Zone of Nigeria [1]

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## ABSTRACT

The study aimed at investigating the environmental factors causing dysfunctions within project teams with a view to improving the sub-optimal performance experienced by construction project teams in south-south geopolitical zone of Nigeria. To achieve this, the study identified and ranked the environmental factors causing dysfunction within the project teams in the study area. The study adopted the triangulation method otherwise known as the mixed method approach for its methodology. The population of this study is 380 consisting of the three major construction stakeholders, namely; the client, consultants and contractors from which 327 questionnaires were sampled using stratified random sampling. Data for this study were gathered for both qualitative and quantitative purposes using questionnaires, focus group meetings and interviews. The results were analyzed using descriptive and inferential, statistics (Mean, Percentage, t-test which was used to test the hypotheses guiding this study) and the findings were presented using tables and figures. The findings revealed that inadequate project financing, community disturbances / interferences and political instability were major environmental factors causing dysfunctions in a project team. In addition to this, access to new technologies, unconducive work environment, regulatory framework, laws and policies, level of authority/organizational reporting structure, unrealistic timeliness, delay of payment, lack of adequate training and professional development were found to be among the top 8 leading environmental factors causing sub-optimal performance in a project team. The study concludes that since community restiveness, youth interference are among the top leading environmental factors leading to sub optimal performance of these construction project stakeholders, there should be a proper sensitization of community and youths through their community heads and leaders. This sensitization will let them know that the projects are in their favor and not against them. These projects will stimulate economic growth, reduce employment and other social vices in the area.

[1] How to cite this work: George, D.A.K., Okolie, K.C., Ezeokoli, F.O., Okongwu, M.I. (2021). Investigation of Environmental Factors Causing Dysfunctions within the Project Teams in the South-South Geopolitical Zone of Nigeria, *PM World Journal,* Vol. X, Issue IX, September.

**Keywords:** Environmental Factors, Sub-Optimal Performance, Construction Project Stakeholders, Construction Project Managers (CPM).

## 1.0 INTRODUCTION

Project failures are estimated to cost hundreds of billions of Euros yearly (McManus and Wood-Harper, 2008) and are not limited to any specific region or industry (Flyvbjerg, Bruzelius, and Rothengatter, 2003; Nicholas, Sharma and Spires, 2011; Pinto and Mantel, 1990). Nigeria has become the world's junk yard of abandoned and failed projects worth billions of naira (Hanachor, 2012). This phenomenon is worrisome and one of the major reasons for these failures are human and environmental factors amongst construction project stakeholders.

The 21st century brings with it many challenges for Construction Project Managers (CPM) in the construction industry (Bhargav Dave and Koskela, 2009), and these challenges are highlighted by the perception that construction industry stakeholders' performance is sub-optimal, both nationally and internationally (Egan, 1998; Carr and Tah, 2001; Aibinu and Jagboro, 2002; Takim, Akintoye and Kelly, 2003; Ballard and Howell, 2004b; Leung, Ng and Cheung, 2004a; Assaf and Al-Hejji, 2006; Xue, Wang, Shen and Yu, 2007; Emuze, 2011; Xianhai Meng, 2012; X Meng, 2012). Egan emphasizes that: "the industry will need to make radical changes to the processes through which it delivers its projects" (Egan, 1998). This poor performance has had a negative toll on the performance of projects.

In the constant search for a solution to the enigma of project success, researchers of related literature as would be shown in the review have over an extensive period of time identified many quantifiable variables, models, success factors and other related issues. These efforts highlighted that, in most cases, project success is a top priority and an outcome when undertaking a project (Alzahrani and Emsley, 2013). The CPM's role in the attainment of success has also been widely researched, especially with regards to the impact, influence, methods and tools related to the discipline (Shenhar, Dvir, Levy and Maltz, 2001; Collins and Baccarini, 2004; Shokri-Ghasabeh and Kavousi-Chabok, 2009; Hefer, 2012). Nevertheless, the general concern remains, that industry performance is currently sub-optimal, especially in meeting cost, quality and schedule requirements.

With reference to the above mentioned challenges and the identified performance factors (Scholl, 2003; Werner *et al.,* 2011; McShane and von Glinow, 2013), it can be argued that motivation and the environment in which role-players operate in the construction industry, would affect their performance (Herzberg, 1965, 1968). The notion of environmental factors is much more general, referring to all circumstances surrounding the project during its execution; thus we can consider environmental factors as all the conditions that are beyond the direct control of the project team and which impact positively or negatively on the project (information technology management platform, 2015). External environmental factors on the other hand are those factors that are largely beyond the control of construction project stakeholders. Variables that measure external

environmental factors include the political environment, economic environment and social environment. Gudiene, Banaitis, Banaitene and Lopes (2013) developed a conceptual critical success factor model for construction projects. The identified factors were classified into seven main groups; external factors, institutional factors, project related factors, factors related to project management, team member's factors related to clients and factors related to contractors. The variables measuring external factors include the political environment, the economic environment and the social environment, amongst others.

A literature scan on current debate and discussions relating to research in the construction industry reveals that the construction role-player performance in South-South Nigeria is sub-optimal. Now the question is, how can role-players be motivated and the operating environment improved to optimize performance in a construction project? This study therefore seeks to provide a better understanding of the current sub-optimal performance of construction role players in the project environment as a result of the environmental factors.

A study of the above constructs would lead to a better understanding of issues or facts that causes dysfunctions within the project towards optimum performance; not just to achieve, but exceed construction client goals in the 21st Century.

## 2.0 LITERATURE REVIEW

### 2.1 Construction industry performance

Lueng and Chueng (2004) described the performance of the construction industry relative to other industries as sub-optimal. This was also supported by Egan (1998). Ayangede (2009) noted that the contribution of the Nigerian construction industry to what is yet to measure up with those of the western world like the U.K and U.S.A due to a myriad of factors including those of construction industry players. The project management 'iron triangle' had for several years remained the parameter for the measurement of the performance of a construction project and these parameters of time, cost and quality was developed by Barnes (1988) who had serious interest in defining performance of projects. Oke and Ukaeke (2013) described the construction industry as multi-disciplinary with three key participants namely clients, contractors and consultants and that the efforts and contributions of these key stakeholders are required for a project to be successful.

### 2.2 Performance of teams

Adair (1986) defined a team as a body of people that possesses a definable membership; members think themselves as a group with collective perception of unity, sense of shared purpose, interdependence and interaction. Neither finance technology nor strategy remain the ultimate competitive advantage but teamwork because is so powerful (Lencioni, 2005).

Factors responsible for effective and ineffective teams need to be known as this will provide a measurement basis for the evaluation of team performance (Lencioni, 2005). Project team effectiveness is achieved with the team leader geared toward team members' performance in completion of tasks, goal achievement, empowerment, information sharing and team's ability to create and sustain a good working environment (Bougault, Drouin and Hamel, 2008). By losing vision, a team can lose the whole purpose of coming together in the first instance and good team members always have that at the back of their minds (Eicholz, 1997).

An effective team, according to Lencioni (2005) is one which is built on commitment to deliver results and each person in the team is ready to be held accountable for their actions which could lead to success or otherwise.

Oke and Ukaeke (2013) listed the factors responsible for team effectiveness and team performance as accountability, healthy conflict, trust, strong commitment by team members and attention to results whereas Bourgaul *et al* believes that the team leader has a great role to play in the achievement of success by the team.

### 2.3 Environmental factors causing dysfunction in construction project teams

The notion of environmental factors is much more general, referring to all circumstances surrounding the project during its execution; thus we can consider environmental factors as all the conditions that are beyond the direct control of the project team and which impact positively or negatively on the project (information technology management platform, 2015).

All conditions must be considered in construction project management and vary significantly in type and nature depending on the organization (ITM Platform, 2015). As a reference, the main environmental factors that can affect project management can be classified into three categories; Organizational environmental factors, Human resource environmental factors, and Technology environmental factors (ITM Platform, 2015)

#### A. Organizational environmental factors

The environmental factors inherent in an organization are:

1. Shared vision, mission, values, beliefs and expectations of the organization;
2. Culture, structure and organizational governance/leadership;
3. Availability of facilities, resources, infrastructure and materials;
4. Industry, government standards and policies that affect the organization and
5. Internal standards, policies, methods and procedures.

B. **Human resource environmental factors**

The human resource environmental factors that can affect construction project stakeholder positively or negatively are:

1. Existing human resources, skills and knowledge;
2. Personnel management, motivation systems and reward systems or incentives;
3. Perception of leadership, hierarchy and authoritative relationship;
4. Organizational risk tolerance and
5. Project stakeholders and organizational stakeholders.

C. **Technological environmental factors**

Technological environmental factors that can positively or negatively affect construction project teams or construction project corporate entities are:

1. Operational environment and company authorization systems;
2. The formal and informal communication channels established in the organization;
3. Available databases;
4. Project management information systems (PMIS) and
5. Technological changes or disruptions.

## 2.4. Classification of environmental factors

The environmental factors that could cause a dysfunction in construction project teams or construction project entities can be further classified as internal and external factors. While the internal factors will be stable for each organization independent of the project, external factors are more susceptible to change and require superior analytical attention from the project manager; for example, the location of the project in a state or country where it has never been worked will expose itself to an unknown regulatory environment, generating many risks in terms of legal feasibility, construction methods, available materials and the labour framework (ITM Platform, 2015).

It is important that organizations and project teams know the particular internal factors that causes poor performance and dysfunction amongst the stakeholders and which conditions are the drivers of the project and project teams.

The classification of a project as a success or a failure, is to a certain degree subjective (Ika, 2009). Muller and Jugdev (2012) describe project success as "predominantly in the eyes of the beholder" meaning one stakeholder may consider a project successful, whereas another stakeholder may consider it a failure. To reduce this subjectivity, a common understanding is required. To achieve this, success criteria should be defined in the initiating phase of the project (PMI, 2013). Morris and Hough

(1987) defined success criteria as the measures used to judge the success or failure of a project; these are independent variables that measure success.

When subjective criteria are mixed with objective criteria, which collectively determine whether a project is considered a success, projects with diverse groups of stakeholders are unlikely to reach unanimous agreements (Ika, 2009). Project successes criteria have evolved from simple to quantifiable time, scope and cost measures (iron triangle), which primarily are related to project efficiency (Bryde, 2005), to measures that have a longer term perspective directly relating to effectiveness and organizational impact (Belout, 1998; Jugev, Thomas, *and* Delisle, 2001; Shenhar, Levy, *and* Dvir, 1997).

For each project, not only should success criteria be defined from the beginning of the project, but the relevant success factors also need to be identified and incorporated in a timely manner across the project life cycle (Pinto *and* Prescott, 1988).The failure of project stakeholders to key into the corporate goals of clients, contractors and consultants have caused dysfunction in many project teams and organizations; this in turn has a negative effect on the success of the delivery of projects and has led to financial loses and low productivity.

## 3.0 METHODOLOGY

This research was carried out in south-south geopolitical zone of Nigeria particularly Akwa-Ibom, Bayelsa, Cross-Rivers, Delta, Edo and Rivers States using a triangulation of methods otherwise known as 'mixed methods' as the research design. The population of the study consists of the principal stakeholders (clients, consultants and contractors) involved in construction project in the south-south geopolitical zone of Nigeria.

The population of the contractors and consultants were obtained from list of registered contractors and consultants with Bureau of Public Procurement and ministry of works in the respective states (see Table 1). The population of clients was gotten from the active construction sites in the study area during the period of this study.

**Table 1: Population of the study**

| S/N | POPULATION | NUMBER |
|---|---|---|
| **1** | Clients | 752 |
| **2** | Consultants | 1505 |
| **3** | Contractors | 5268 |
| | **Total** | **7525** |

**Source: Research's field survey (2021)**

The sample size for the study was determined using Taro Yemeni's formula $\boldsymbol{n = \frac{N}{1+N(e)^2}}$

Where N = sample size

$\boldsymbol{e^2}$ = margin of error (assumed 5%)

1 = Unity or constant

Therefore = $\frac{\mathbf{7525}}{\mathbf{1+7525(0.05)^2}}$

= $\frac{\mathbf{7525}}{\mathbf{1+18.813}}$

= $\frac{\mathbf{7525}}{\mathbf{19.813}}$ = 379.50

The sample size of 380 was adopted for this study.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Data Presentation and Analysis

**Table .2: Distribution of Questionnaire and Percentage Response**

| S/N | Number of questionnaires distributed | Number of questionnaires received | Percentage (%) |
|---|---|---|---|
| **Total** | **380** | **327** | **86.1** |

Source: Research's field survey (2021)

Table 2 shows the profile of Questionnaire distribution and percentage response. From Table 2, a total of three hundred and eighty (380) copies of questionnaire distributed across the locations in the study area, about three hundred and twenty-seven (327) copies were correctly filled and returned for analysis. The 327 copies represent about 86.1% of the total questionnaire distributed across the study area.

**Table 3 Respondents' opinion on environmental factors causing dysfunctions in a project team**

| Environmental factors causing project dysfunction within a project team | Responses and Level of Importance 5 | 4 | 3 | 2 | 1 | $W_iX_i$ | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| **Regulatory framework laws and policies.** | 48 (14.7%) | 82 (25.1%) | 120 (36.7%) | 52 (15.9%) | 25 (7.6%) | 1057 | 3.23 | 6 |
| **Political instability** | 78 (23.9%) | 90 (27.5%) | 89 (27.2%) | 46 (14.1%) | 24 (7.3% | 1133 | 3.46 | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Community disturbances / interferences** | 72 (22.0%) | 97 (29.7%) | 101 (30.9%) | 45 (13.8%) | 12 (3.7%) | 1153 | 3.53 | 2 |
| **Access to new technologies** | 42 (12.8%) | 111 (33.9%) | 107 (32.7%) | 36 (11.0%) | 31 (9.5%) | 1078 | 3.30 | 4 |
| **Inclement weather** | 19 (5.8%) | 64 (19.6%) | 112 (34.3%) | 84 (25.7%) | 48 (14.7%) | 903 | 2.76 | 12 |
| **Availability of working tools and materials** | 29 (8.9%) | 71 (21.7%) | 130 (39.8%) | 55 (16.8%) | 42 (12.8%) | 971 | 2.97 | 9 |
| **Work pressure / working hours** | 18 (5.5%) | 56 (17.1%) | 123 (37.6%) | 79 (24.2%) | 51 (15.6%) | 892 | 2.73 | 13 |
| **Complexity of project** | 14 (4.3%) | 53 (16.2%) | 95 (29.1%) | 90 (27.5%) | 75 (22.9%) | 822 | 2.51 | 15 |
| **Size of project** | 16 (4.9%) | 40 (12.2%) | 87 (26.6%) | 92 (28.1%) | 92 (28.1%) | 777 | 2.38 | 16 |
| **Physical condition of site** | 22 (6.7%) | 57 (17.4%) | 104 (31.8%) | 80 (24.5%) | 64 (19.6%) | 874 | 2.67 | 14 |
| **Unrealistic timeliness** | 36 (11.0%) | 86 (26.3%) | 89 (27.2%) | 75 (22.9%) | 41 (12.5%) | 982 | 3.00 | 8 |
| **Natural disasters- flood, erosion etc.** | 35 (10.7%) | 62 (19.0%) | 83 (25.4%) | 86 (26.3%) | 61 (18.7%) | 905 | 2.77 | 11 |
| **Materials suppliers** | 30 (9.2%) | 72 (22.0%) | 108 (33.0%) | 74 (22.6%) | 43 (13.1%) | 953 | 2.91 | 10 |
| **Level of authority / organizational reporting structure** | 35 (10.7%) | 76 (23.2%) | 108 (33.0%) | 72 (22.0%) | 36 (11.0%) | 983 | 3.01 | 7 |
| **Inadequate project financing** | 96 (29.4%) | 114 (34.9%) | 69 (21.1%) | 23 (7.0%) | 25 (7.6%) | 1214 | 3.71 | 1 |
| **Unconducive work environment** | 49 (15.0%) | 100 (30.6%) | 101 (30.9%) | 52 (15.9%) | 25 (7.6%) | 1077 | 3.29 | 5 |
| **Cluster mean** | | | | | | | **3.01** | |

**Source: Research's field survey (2021)**

From the descriptive statistics result in Table 3, the leading environmental factors that causes dysfunctions within project team include: inadequate project financing (with a strata mean value of 3.71 and rank 1); community disturbances / interferences (with a strata mean value of 3.53 and rank 2); political instability (with a strata mean value of 3.46 and rank 3); access to new technologies (with a strata mean value of 3.30 and rank 4); unconducive work environment (with a strata mean value of 3.29 and rank 5); regulatory framework, laws and policies (with a strata mean value of 3.23 and rank 6); level of authority / organizational reporting structure (with a strata mean value of 3.01 and rank 7), and lastly unrealistic timeliness (with a strata mean value of 3.00 and rank 8).

Also, the response in Table 3 revealed that Size of project (2.38), Complexity of project (2.58), Physical condition of site (2.64), and Work pressure / working hours (2.73) ranked 16$^{th}$, 15$^{th}$, 14$^{th}$

and 13th position in the ranking index. Despite ranking low, it was discovered that their mean is below the cluster mean of 3.01 as shown in Table 3 including inclement weather (2.76), Natural disasters- flood, and erosion etc. (2.77), and Materials suppliers (2.91). Since, their mean is below 3.01 the group cluster mean. They could be judge to less significant in the study area.

### 4.2 Test of Hypothesis

$H_o$: Identified environmental factors do not cause significant dysfunctions within the project team.

$H_1$: Identified environmental factors cause significant dysfunctions within the project team.

**Table 4: Test of significance for H1**

| **One-Sample t-Test:** Test Value = 3.00 | | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| Mean responses | .152 | 15 | .041 | .01437 | -.1872 | .2159 |
| Level of Significance (α) = 0.05 | | | | | | |

From the result in Table 4

**Test statistic: t** = $\frac{\bar{x} - \mu_o}{\frac{s}{\sqrt{n}}} = 0.152$

**P-value** = 0.041

**Decision Rule**: Reject $H_o$ of p-value < 0.05 otherwise do not reject

The t-calculated value (t-stat.) of 0.152 and associated probability value of 0.041 < 0.05 confirmed that the identified environmental factors causes significant dysfunctions within a project team

## 5.0 CONCLUSION AND RECOMMENDATIONS

CPMs in the Nigerian construction industry are tasked with the management of projects within the Built Environment from conception to completion, including the management of related professional services. The project teams who are made up of individuals from a range of organizations which provide multidisciplinary inputs must therefore work in a harmonious manner to see that the ultimate goal of the project is achieved successfully (Shelbourn *et al.*, 2006). Project teams are in most cases diverse in nationality, culture, social background, ethics religions and seniority in business (Horwitz and Horwitz, 2007).

With respect to the environmental factors affecting the performance evaluation of construction project stakeholders in south-south geopolitical zone of Nigeria, community restiveness, inadequate project financing, youth interference, public relationship, insecurity, unrealistic timeline and the lack/difficulties in obtaining adequate technologies/software that will aid greatly in the discharge of their duties were among the major environmental factors contributing the most to this sub-optimal performance experienced by the construction project teams.

Since community restiveness, youth interference are among the top leading environmental factors leading to sub optimal performance of these construction project stakeholders, the study recommends for community and youth sensitization through their community heads and youth leaders. This sensitization will let them know that the projects are in their favor and not against them. These projects will stimulate economic growth, reduce unemployment and other social vices in the area.

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### Dakorinama A. K. George

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**Dakorinama Alabo Kelly George**, **FNIQS, RQS, FASP;** popularly called George-Kelly is a Rivers man of Kalabari extraction born by late Evangelist Alabo K.F George; a Russia trained radar engineer, an air force retiree from Buguma in Asari-Toru LGA of Rivers State and Mrs. Mary George, a retired medical practitioner from Ikom in Cross-River State. He has distinguished himself as a world class-chartered Quantity Surveyor and Cost Engineer, highly experienced in Project Management, Cost Planning, Value Engineering, Risk Management and Civil Engineering. After his primary and secondary education in Benue State and Rivers State respectively, George-Kelly proceeded to the Rivers State University of Science & Technology, where he obtained successive degrees - a Bachelor of Technology Degree in Quantity Surveying and Post Graduate Diploma in Civil Engineering. He furthered his studies in the Enugu State University of Technology where he acquired a Masters of Science Degree in Quantity Surveying/Cost Engineering and also emerged as the best graduating student in the department of Quantity Surveying/Cost Engineering. He is at the verge of completing his PhD. program in building (Construction Management option) in the premiere Nnamdi Azikiwe University, Awka; which is at the external defense stage.

George-Kelly continued to excel professionally. He received the award as the Best Overall Performing Candidate in the Federation - NIQS Test of Professional Competence examination and Professional Competence Interview in 2006. He was also presented the prestigious CAP Plc Best Quantity Surveyor Award - 2006/2007. He is a corporate member of several professional bodies including the Nigerian Institute of Quantity Surveyors (Chartered), Quantity Surveyors Registration Board of Nigeria, Association for the Advancement of Cost Engineers Int'l, USA, Institute of Strategic Management of Nigeria (ISMN), etc. He is a fellow of the Nigerian Institute of Quantity Surveyors and the immediate-past National Secretary on Marketing & Corporate Affairs at the NIQS national executive council.

As a Principal Manager (Infrastructure) in NDDC, he initiated, planned and managed over 500 Civil Engineering and Building Projects. As well as being a member of the Alumni and other

institutions he attended, he is currently serving as the Vice Chairman - League of Rivers Professionals, an aggregation of sharp-witted professionals of Rivers origin.

George-Kelly has practiced both in the Project Monitoring Directorate; Environmental Protection and Control Directorate and Utilities/Infrastructural Development Directorate, for 14 years in the NDDC. He served as the Technical Assistant to the Rivers State Representative (NDDC) in 2006 and also served in several high-profile technical committees in NDDC. While in NDDC, he took his level of excellence steps further - and showcased himself as a good team builder, strategic manager and human resource manager. He is also a Principal Consultant to three construction consultancy firms in Nigeria. In March 2020, he resigned his appointment with the NDDC to take up appointments with the Government of Rivers State.

His public life is common knowledge. He socializes with like minds, believes in developing people and loves the art of politics of wit and strategy. This interest started when he was National President of NURSS in his university days. He was appointed a member of the governing council of the Ken Saro-Wiwa Polytechnic, Bori from June, 2015 to November, 2019. In November 2017, he was appointed as the Special Adviser on Special Projects to the Governor of Rivers State. In 2019 till date, he was reappointed as the Special Adviser to the Rivers State Governor & Head, Bureau for Special Projects. In his current capacity as the Special Adviser to the Rivers State Government, he has managed over 100 projects; some completed and others at various levels of completion. George-Kelly He is married to Mrs. Inkoba D.A. George and blessed with three kids, a girl and a set of twin boys (Vera Owanari D.A. George, God'sson Dakorite D.A. George & God'swill Tamunosaki D.A. George).

The first sport to interest him was table tennis, a sport he still enjoys actively to this day. He is a fan of Manchester United Football Club. George-Kelly enjoys dancing and he is often described as a friendly and relaxed character – always willing to help the needy.

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