

## Assessment of Factors Responsible for High Cost of Labour in Construction Projects in Uyo, Nigeria

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### ABSTRACT

The aim of this study is to assess the nature of factors responsible for high cost of labour of construction projects in Uyo, Nigeria. The objectives of the study include identifying the factors responsible for high cost of labour of construction projects and determining the significance of the factors from stakeholders' perspective. A field survey of 57 consultants, 44 contractors and 37 labour operatives is conducted with the aid of structured questionnaire. Data are analysed using mean score, one-way analysis of variance at 0.05 level of significance and Gabriel's post hoc test. The study reveals that the general economic climate, shortage of manpower, standard of living, transportation cost, distance and required skill are the first five significant factors responsible for high cost of labour of construction projects. The result also reveals that there is no significant difference among respondents' perception of the factors responsible for high cost of labour (*p*-value). The study recommends that government should improve on the economy and be resilient in its efforts to diversify from hydrocarbon-based economy to other productive engagements in ensuring viable and sustainable growth of the economy for its citizenry.

**KEYWORDS:** construction industry, labour operative, labour cost, professionals, Uyo.

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### I. INTRODUCTION

The construction industry is a major segment in the economy of any nation. The industry plays a vital role in both developing and developed countries in terms of providing basic infrastructure which promotes socio-economic existence of the country. The construction industry measures the performance of construction projects majorly through cost parameters in addition to time and quality which are also important (Chan and Chan, 2004; Ali and Kamaruzzaman, 2010). Cost performance in particular stands significant in measuring the success or failure of construction projects (Choge and Muturi, 2014). The production process and delivery of various milestones of construction projects are highly dependent on cost factors. Despite the importance and emphasis on project cost, the situation of cost performance of construction projects has not improved as expected. According to Azhar, et al. (2008) cost overrun is almost associated with nearly all projects in the construction industry. Ramli (2003) also observes that cost management in construction industry is less effective compared to time management and other project performance measures. Over the years, construction projects have consistently witnessed increase in cost due to various factors attributed to increase in cost of production inputs (Rahman et al., 2013). The problem of increase in construction cost in the industry is a fundamental issue in both developing and developed countries. Tze (2013) expressed dismay at high annual increases in housing prices in Malaysia as totally out of sync with annual increase in the general population. Results of the findings of Osei-Tutu and Adjei-Kumi (2002) reveal that housing provision in the urban areas in Ghana is characterized by high and ever-increasing cost for both residential and public buildings. Study by Nnadi (2015) points out that Nigeria pays more for construction contracts than any other country in the world. Okpala and Aniekwu (1988) earlier investigate the causes of high costs of construction in Nigeria. Comparing the situation then to the present, the cost of construction still remains very high. Researches towards reducing construction cost and improvement on cost performance of construction projects have therefore taken a centre stage in literature and this effort is still ongoing (Omion, 2001, American Institute of Architects, 2007; Memon et al., 2010; Amusan, 2011).

Several studies have shown that labour which is one of the major production inputs contribute significantly to poor cost performance of construction project (Capano and Karshenas, 2003; Koushi et al., 2005; Gambo and Ashen, 2012; Azis et al., 2013). Results of the research undertaken by Windapo and Iyagba (2007) indicate that the model developed by the authors for housing construction cost in Nigeria only responds

to changes in labour cost out of seven other indicators considered in the study. Labour cost has not only increased the overall project costs but has led to the reduction of construction work especially in the developing countries including Nigeria. In addition, management of construction labour cost has posed a serious concern to project managers since his responsibility is to manage and deliver the project within estimated budget. The Nigerian construction industry like many other developing countries of the world depends on labour for project execution since machine and equipment are not sufficient. Apart from manufacturing companies, the construction industry is the highest employer of labour in any economy. The industry relies heavily on human resource to provide numerous services and products. According to Soham and Rajiv (2013) construction workforce is the supreme asset of every organisation that specializes in construction. Labour is dynamic and can be regarded as a driving force in the production of projects and services. Soham and Rajiv (2013) posit that construction workers are the only productive resource in the construction industry. Labour constitutes a significant percentage of construction cost, and the quantity of labour hours in performing a task in construction is susceptible to labour control by management effort through motivation, incentives, performance assessment, and recognition (Geneva, 2001). Construction labour represents the most significant construction variable that attracts a significant percentage of construction cost (Kazaz et al., 2008). Having recognized the immense importance of labour in the delivery of construction projects, Olomolaiye and Egbu (2004) remark that the construction industry must consider construction human resources function as the main focus when planning for organisations business strategies with the view to achieve success.

The cost of labour in recent times is a great concern to the construction industry. Akewusola (2008) posits that the number of skilled labour that exists in the construction industry is far below the total housing units that are expected to be produced in the country and has led to the increase in the cost of labour beyond any allowable budget. In an attempt to cope with the economic reality of a nation, the labour force has tremendously increased prices and forced it on the contractors through various jobs and this in effect has significantly increased the construction cost. Hartey and Okamoto (1997) affirm that construction has experienced increase in cost of labour of about 33% on average. The situation has not only resulted into increase in construction cost but has also affected staffing and has reduced the volume of construction projects across the nation. In addition, most contractors in developing countries have resorted to the use of informal and temporary employed labour as a measure to cut down on labour costs in order to maximize profits (Mitullah and Wachira, 2003). The incessant increase in labour costs of construction projects calls for thorough investigation particularly in the study area. It is against this backdrop that the investigation into the factors responsible for high cost of labour of construction projects with the view to achieve effective project delivery in terms of cost becomes a subject of importance. The aim of this study is to provide an insight to the nature of labour cost of construction projects in Uyo, Nigeria. The objectives of the study include assessment of the factors responsible for high cost of labour of construction projects and determining the significance of the factors from stakeholders' perspective. It is expected that the outcome of this study will be useful to stakeholders for the management of labour cost, improving project performance and add to knowledge of tackling current and future construction operatives' challenges.

## **II. LITERATURE REVIEW**

### **2.1 The nature of construction labour**

Labour and manpower stand as important assets during production in any construction project. The construction industry is regarded as a labour intensive sector because of its dependency on labour for execution of most projects (Azis et al., 2013). Without labour especially in the developing nations, a project can become abandoned and the contractor will need to terminate the contract. Construction sector's level of manpower ranges from highly skilled professional to unskilled labour. The trade specializations in construction include but are not limited to Masonry, Carpentry, Tiling, Steel Work, Painting, Electrical, and Plumbing. The labour force can be broadly categorized into two, namely: skilled labour or craftsmen and unskilled labour. Skilled labour ranges from apprentices to trades foremen or supervisors while unskilled labour on the other hand is a category of workers that require no special skill and is defined as any way of making a living with little or no degree of security of income and employment. Labour requires the exertion of body and mind or both to achieve a given task. Labour plays a coordinating role of combining other production inputs such as materials, plant, equipment and finance in order to produce a desirable product (or project). The supply of labour is not fixed but also relatively varies from one location to another. The availability of labour seems to be higher in the rural areas compared to towns and cities where demands for their services are on the increase. They reside mostly in the rural areas due to financial constraint in coping with daily demands in the cities. They operate according to the traditional economic model of migration, that "people migrate to the city for jobs and higher income, considering monetary and psychic costs" (Rudzitis, 1991). They are mostly known for their usual rural-urban migration from time to time seeking for greener pasture which also contributes to socio-economic growth of a nation. Rural-urban migration has been referred to as the main driver of urban growth in

the past few decades (Sun and Nor, 2015) in which construction labour plays a major role. However, labour can be problematic to control and this can affect overall objectives of construction projects (Soham and Rajiv, 2013). It is also worth mentioning that construction operatives are exposed to risks and other variety of health hazards which include: noise, resulting in noise induced hearing loss (NIHL); skin diseases from close contact with irritant or sensitizing materials; respiratory irritation from dusts, fumes and gases; as well as developing more serious lung diseases related to exposure to asbestos and other fibrogenic materials (Smallwood and Ehrlich, 2001). Cases of low productivity and poor performance of labour have been mentioned as some of the common problems affecting construction site workers. The reason for poor performance of labour is occasionally attributed to the complexity and dynamism involved in the construction environment (Raiden et al., 2003, Enshassi et al., 2009). Other challenges of labour include poor remuneration, lack of incentives and risk. Construction operatives are equally faced with a lot of environmental uncertainties which affect not only their health but also their productivity.

## **2.2 Construction Labour Cost**

Labour cost can be referred to as the cost incurred by the contractor in the engagement of services of labour in the delivery of construction projects. Labour cost is a major component of production cost apart from cost of materials, plant and equipment, and other expenses as identified by Chitkara (2006). Labor cost can be direct or indirect to a project such as wages, non-wage benefits, recruitment costs, labor fees, insurance, end of services, energy subsidies, use of public services and infrastructure, security and social risks. Study by Ayeni (1987) on causes of differential in labour cost reveal that the percentage of labour costs varies between 20% and 90% of various trades of building projects. Achuenu and Ujene (2006) establish that the average proportions of labour costs vary between 23% and 58% in both public and private projects in Nigeria. The study by Adu and Lamptey-puddicombe (2015) which focuses on public procurement projects in Nigeria reveals that the proportion of labour cost in production varies from 20.49 to 35%. Similarly, the results of the survey undertaken by Construction Industry Development Board (CIDB) (2015) on factors that impact on the productivity of construction workers reveal that labour cost constitutes wages of 77% and transport of 70%. Labour costs are mostly expressed as wages and salary of construction labour and stands as motivating factors for workers.

Job satisfaction is an important tool for employee motivation and retention in any organisation including the construction industry. According to Diaz-Serrano and Cabral (2005), job satisfaction can be described as a strong predictor of overall wellbeing of an individual.

## **2.3 Factors affecting labour cost**

Labour costs in the construction industry are susceptible to many factors which are either internal or external. Basically, factors affecting labour cost are supposedly concerned with the demand and supply of different types of labour services and the operations of different kinds of labour market. Labour market is very significant in the determination of cost of labour operatives. Labour market is viewed as a special market which cannot be analysed in the same way as the exchange of ordinary commodities (Omotola and Anigbogu, 2004). Increase in demand for labour in other sectors has resulted in shortage of skilled labour in the construction industry; consequently, this has contributed enormously to the problem of increase in labour cost. Due to shortage in labour supply many construction projects were delayed or not able to meet client's need (Assaf and Al-hejji, 2006). Erkelens and Egmond (2007) identify the major causes of shortage of skilled labour which include: low motivation, varying working conditions, poor public perception that construction artisanship are the preserve of those who cannot cope with the rigour of academic work, and poor government support. Offei-Nyako et al. (2014) however blame the scarcity of skilled labour on the failure or inability to handle modern technology which forces them out of the market while the few who are still in the system are expensive to hire. Project location has also been noted for its clear influence on project cost and completion time due to mobility of project workers and materials to the site (Adebiyi et al., 2015). The fact that work situation of construction workers is characterized by uncertainties, both in duration of each job and the number of jobs they can obtain each year (Omotola and Anigbogu, 2004) subjects labour cost to a lot of variation. The usual practice in the industry is to hire labour at commencement of a new project and disband them immediately the work is completed. This one-off nature of the construction industry has been suggested as one of the reasons for the non participation of construction workers in any trade unionism (Fagbenle et al., 2011). This in a way affects their salaries or wages even productivity in work place because this situation is disincentive. Some negative factors or incidences are found to reduce the performance and effectiveness of labour (Fagbenle et al., 2011). For instance, factors such as age of worker, transportation cost, distance from work, location, time of the year, familiarity with the job, volume of work, skill acquired standard of living, economic climate, taxation, social security, training programme and health services are common factors responsible for high cost of construction labour.

## **II. METHODOLOGY**

The study seeks to investigate the factors responsible for high cost of labour of the construction projects. The study adopts survey approach involving the use of structured questionnaire. Sample population of the study comprising of consultants (architects, builders, engineers, and quantity surveyors), building contractors, and labour (skilled) operatives are identified from different local labour markets and construction sites. The study deems it fit to sample the opinion of these categories of respondents and compare their responses. The study adopts purposive sampling technique for data collection based on the previous study of Lewis and Sheppard (2006). A sample of 58 consultants, 47 contractors and 52 construction site operatives is drawn, a size proportional to the population, as in Zikmund (2003). It is believed that since the respondents are involved in estimation, negotiation and payment of labour cost; the study will be able to collect accurate and reliable data from respondents. Data collected are through two sets of questionnaires: one was designed for contractors and consultants; the other is for labour operatives in the formal (permanent employment) and informal (casual employment) sectors. Each questionnaire is structured to obtain information about background of the respondents and data on prevalence of factors responsible for high cost of labour in the construction industry in study area using a five points Likert scale, namely: nil, low, moderate, high, and very high. The score attributed to the scale is as follows: nil = 1, low = 2, moderate = 3, high = 4, and very high = 5. The questionnaires are personally administered by the researchers and trained field assistants which also gave them the opportunity to interact with the respondents. From the 157 samples of questionnaires administered on the study population, 134 were valid which is used for the analysis. This consists of 57 consultants, 44 contractors and 37 labour operatives. Though the process of retrieving the questionnaires from the respondents was rigorous, the response rate is encouraging. The response rate therefore stands at 91% of consultants, 94% of contractors and 71% of labours operatives respectively. The ranking of the factors responsible for high cost of labour is determined based on the mean score of each item. The mean rating of the data collected from each of the three categories of respondents for each item and the corresponding overall mean rating for each are processed using Statistical Package for Social Sciences (SPSS). The computed mean ratings are compared with the theoretical mean rating (assuming normal distribution of responses above neutral) of 3.50 as a cut-off for high significance factor to determine very high factors responsible for high cost of labour in the construction industry. The decision rule is that a computed mean of an item exceeding 3.50 indicates highly significant cause of the factors that cause high cost of labour, on the other hand values below 3.50 signify low or minor cause of factors responsible for high cost of labour.

Further analysis is conducted to determine whether or not there is any statistically significant difference among the three categories of respondents by comparing their mean ratings using one-way analysis of variance (ANOVA) at the 0.05 level of significance. Where significant differences were established, the Gabriel's post hoc test (or a Turkey) was used to make multiple comparisons of means to determine differences in the ratings of consultants, contractors and labour operatives on the factors responsible for high cost of labour in the construction industry. The ANOVA was preceded by a test of homogeneity of variances to verify the homogeneity assumption since there is disparity in the sample sizes of the three categories of respondents (i.e., n<sub>1</sub> = 57, n<sub>2</sub> = 44, n<sub>3</sub> = 37).

## **III. RESULTS AND DISCUSSION**

### **3.1 Characteristics of Respondents used for the study**

Four characteristics of the respondents that supplied data were obtained for the purpose of understanding of the parties whose perceptions were investigated for the study. This includes gender, academic qualification, organization of respondents, and year of experience. The characteristics of the respondents who participated in the survey are summarized in Table 1.

**Table 1. Descriptive Results of Characteristics of Respondents used for the Study**

Category	Number of respondents	Percentage (%)
Gender		
Female	23	17
Male	111	83
Total	134	100
Academic Qualification		
Ph.D degree	6	4
M.Sc. degree	21	16
B.Sc./HND degree	55	41

Diploma	29	22
Others	23	17
Total	134	100
Organization		
Consulting	57	42
Contracting	44	31
Labour	37	27
Total	134	100
Years of experience		
Under 10 years	28	21
10-20 years	53	40
20 – 30 years	36	26
Over 30 years	17	13
Total	134	100

Result of Table 1 shows that the respondents and their organizations are qualified to give useful information for the study. The result indicates that majority of the respondents (76%) were male, while that of female respondents are 22%. The result did not come by surprise since the male dominance of the construction industry has long been established (Menches and Abraham, 2007). The participants have good academic qualifications which are adequate for their respective involvement in this study out of which seventy two of the respondents which represents 61% have first degrees and above. The participants from the different groups targeted for the study were well represented. All the participants have several years of experience out of which 53 respondents representing 39% have been in the construction industry for more than 20 years while 53 (40%) respondents have between 10 to 20 years which enabled them to understand the problems of the study as well as supplying accurate and reliable information.

### **3.3 Evaluation of Factors Responsible for High Cost of Labour in Construction Projects**

The results of the questionnaires on factors responsible for high cost of labour in construction projects are analysed focusing on the construction sectors in Uyo, Nigeria using mean score (MS). A total of 157 questionnaires are distributed to the respondents. The respondents are divided into three groups: consultants, contractors and construction site operatives. The results are presented in Table 2.

**Table 2: Factors responsible for increase in labour cost of construction projects in Uyo, Nigeria**

S/N	Factors	Consultant Ratings		Contractor Ratings		Labour Ratings	Operative Ratings	Overall Mean	
		Mean	Rank	Mean	Rank			Mean	Rank
1	General economic climate	4.55	2	4.47	2	4.66	1	4.56	1
2	Shortage of manpower	4.65	1	4.63	1	4.28	4	4.52	2
3	Standard of living	4.38	3	4.34	3	4.53	2	4.42	3
4	Transportation cost	4.28	4	4.19	4	4.41	3	4.29	4
5	Distance from work	3.85	8	3.63	8	4.06	5	3.85	5
6	Required skill	3.85	8	3.97	5	3.59	8	3.80	6
7	Location	4.00	5	3.50	9	3.84	6	3.78	7
8	Familiarity with the job	3.93	6	3.63	8	3.66	7	3.74	8
9	Availability of health services	3.83	10	3.72	6	3.16	10	3.57	9
10	Local/environment factor	3.58	12	3.25	11	3.50	9	3.44	10
11	Time of the year	3.85	8	3.34	10	2.97	11	3.39	11

12	Volume of work	3.68	11	2.81	15	2.84	12	3.11	12
13	Social security	3.05	13	3.19	12	2.72	13	2.99	13
14	Age	2.88	14	3.03	14	2.63	14	2.84	14
15	Training programme	2.48	15	3.06	13	2.22	15	2.59	15
16	Taxation	1.15	16	1.16	16	1.13	16	1.14	16

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As highlighted from Table 2, general economic climate, shortage of manpower, standard of living, transportation, and distance from work are unanimously agreed on by the three groups of respondents as the leading factors responsible for high cost of labour on construction projects in the study area with MS of 4.56, 4.52, 4.42, 4.29 3.85 respectively. The MS for the factors by other groups of respondents include 4.55, 4.65, 4.38, 4.28 and 3.58 respectively (for consultants); 4.47, 4.63, 4.34, 4.19 and 4.63 respectively (for contractors); and 4.66, 4.28, 4.53, 4.41, and 4.06 respectively (for labour operatives). The least factor responsible for increase in labour cost of construction projects which is unanimously agreed on by all the respondents is taxation with MS of 1.15, 1.16, and 1.13 for consultants, contractors and labour operative respectively. The results in Table 2 also indicate that, among the factors rated by the respondents, general economic climate is the highest ranked factor which means that this cause is the most significant factor responsible for high cost of labour of almost every construction project as agreed by the overall group as well as labour operatives group of respondents. However, consultants and contractors groups have different views of the ranking of the factor since it was ranked second by both of them. Shortage of manpower is ranked second in the overall group of respondents. However, the factor was given the greatest preference by consultants and contractors groups as observed in the ranking. The factor was rather placed fourth by labour operatives group. The standard of living is the third ranked factor responsible for high cost of labour based on overall respondents' perception. The ranking of consultants and contractors groups are in agreement with the overall ranking of third position of the factor. Labour operative group was however in disagreement with the ranking as it is ranked second.

The transportation cost is ranked fourth as a major cause of increase in labour cost which is also in agreement with the ranking orders of consultants and contractors groups of this factor. The factor is rather ranked third by labour operatives. Distance is ranked fifth based on the overall perception of the respondents which is also in agreement with the ranking of labour operatives. However, there is a conflict between contractors' and consultants' groups concerning the ranking of the factor. The results in Table 2 also reveal that the factor is ranked sixth by contractors while consultants placed it seventh. Required skill is ranked sixth in the overall response group but fifth by the contractors. The factor is however ranked eighth by consultants and labour operatives groups. Location is considered among the first ten major factors responsible for the high cost of labour of construction projects. The factor is ranked seventh in the overall ranking but the three groups of respondents have different views of ranking order of the factor. The factor is ranked fifth by the consultants followed by labour operatives of sixth position while the contractors ranked it ninth. Familiarity with the job is the eighth significant factor that causes increase in labour cost based on the overall group rank which also agrees with the ranking position of contractors group. The factor is rather ranked sixth by consultant group and placed seventh by labour operatives group. Based on the overall ranking order of the respondents in Table 2, the three least ranked factors responsible for high cost of labour in this study are age, training programme and taxation.

The result of the factors responsible for high cost of labour of construction projects in Table 2 shows that, general economic climate is the most significant factor based on the overall perception of the respondents. The factor is of great importance in every nation especially in the developing nations. It directly influences personal income of individuals including labour operatives. The factor is very critical because of its multiplier effect. The importance of the factor may also not be unconnected with the current recession being experienced in the country. Generally, construction activities reduce during economic recession. The result of the study is in agreement with the findings of Fisk (1997) which reveals that economic condition is one of the influential factors that may affect a construction project. It is not surprising that shortage of labour rates very high as responsible for high cost of labour as it is equally identified in similar studies. The result is consistent with the findings of Offei-Nyako et al. (2014) and Trendle (2008) who attributes the current shortage of construction labour to unusually strong demand for labour in other sectors and demands for new construction projects which has resulted to increase in the cost of labour. The result also conforms with the finding of Sweis et al. (2014) in which the respondents rank shortage of construction labour as leading factor directly affecting contractor performance of construction projects in Jordan. The result also agrees with Memon et al. (2014) who ranked shortage of site workers as third major factor affecting cost performance of construction projects. Based on the result of the study, it shows that standard of living has a very high influence on cost of labour. Standard of living on the other hand has direct relationship with economic climate of a nation since improved economy boosts the standard of living of the citizenry while bad economy results in poor standard of living, vice-versa.

### **3.4 Difference in Perception among the three Groups**

The study was conducted to explore the major causes of high cost of labour of construction site workers in Uyo, Nigeria. The population of the study is divided into three groups which includes consultants group, contractors group, and labour operatives group (Group one – consultants); Group two – (contractors) and Group three – (labour operatives). The mean score of each of the three sub-groups for each factor and corresponding overall mean scores are computed. It is appropriate to determine whether there is any statistical significance in the mean scores of the sixteen causes responsible for high cost of labour in construction projects among the groups using ANOVA at the 0.05 level of significance as presented in Table 3. The ANOVA proceeded by a test of homogeneity of variances due to the disparity in the sample sizes of the three sub-groups ( $n_1 = 57$ ,  $n_2 = 44$ ,  $n_3 = 37$ ). The significance value (Sig.) for Levene's test  $0.664 > 0.05$  shows that assumptions for homogeneity of variance has not been violated. There was no statistically significant difference at the  $p < .05$  level in the stakeholders population for the three groups of respondents:  $F(2,45) = .286$ ,  $p = .753$ . This means that there was no statistical significance in the result, despite the fact that the actual difference in mean scores between the groups was not small. This signifies that the respondents accord the same importance to the factors due to the fact that they are well aware of the general situation affecting labour and share this in common. The effect size, calculated using eta squared, was 0.01. Post-hoc comparisons using the Tukey HSD test did not indicate any significant difference among the groups. The descriptive statistics also did not show profound difference of mean scores for Group one from Group two, group two from group three and vice-versa.

**Table 3: One-Way Analysis of Variance at 0.05 level of significance**

<b>Respondent groups</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Levene Statistic</b>	<b>Levene Sig.</b>	<b>F-value</b>	<b>ANOVA Sig.</b>
Consultants` Ratings	3.6244	0.88167	0.414	0.664	0.286	0.753
Contractors` Ratings	3.495	0.82674				
Labour Operatives` Ratings	3.3875	0.95065				

## **IV. CONCLUSION AND RECOMMENDATIONS**

The focus of the study is to explore the underlying factors responsible for high cost of labour of construction projects from the views of consultants, contractors and labour operatives. In view of this, the study measures the differences in the collective perspectives of the respondents and establishes the relationship among the identified factors. Based on the findings, the study concludes consultants', contractors' and labour operatives' perceptions of the factors responsible for high cost of labour of construction projects are the same. This implies that they agree on the factors that significantly and insignificantly impact on construction labour cost. As a result, `general economic climate`, `shortage of manpower`, `standard of living`, and `transportation` are the first five significant factors responsible for high cost of construction labour cost in the study area. The study observes that the other stakeholders in the construction industry, that is, consultants and contractors have the same consent with the labour operatives of the effect of general economic climate on cost of labour in the study area. The result further concludes that there are no significant differences among respondents' perception of the factors responsible for high cost of labour. The study recommends that government should improve on the economy of the nation and be resilient in its efforts to diversify from hydrocarbon-based economy to other productive engagements in ensuring viable and sustainable growth of the economy for its citizenry. The study also recommends the need for effective management of labour operatives through provision of incentives and other actions capable of fostering commitment and relationship between them and project organisation. This can be in the form of money because it is usually appreciated as a source of reward or incentive to most people which involves commissions and bonus. An incentive has been proved to be effective in providing motivation in any construction industry for better performance and is therefore strongly recommended in order to reduce the cost of labour. Construction labour operatives should be creative and acquire new skills in other trades as a guarantee for continuous services in order to sustain their economic wellbeing.[2]

## **REFERENCES**

- [1]. Adebiyi, R., Kasimu, M. and Olorunwole, L. (2015). Impact of environmental factors on public project delivery in Lagos State, Nigeria. Proceedings of NIQS 2<sup>nd</sup> Research Conference(NIQS ReCon2), Federal University of Technology, Akure. 1<sup>st</sup> – 3<sup>rd</sup> September, 137-146.

- [2]. Achuenu, E. and Ujene, A. (2006). Evaluation of material and labour costs of building elements in Nigeria. Nigerian Journal of Construction Technology and Management, **7**(1), 99.
- [3]. Adu, E. and Anjiba, D. (2014). Evaluation of the proportions of the components of production cost of building project in Nigeria. In: J. Uyanga and E. A. Ikurekong (Eds). Environmental Planning and Resource Development in the Niger Delta Region, Nigeria: A Book of Reading, Department of Urban and Regional Planning, Faculty of Environmental Studies, University of Uyo, Uyo, Akwa Ibom State, Nigeria.
- [4]. Akewusola, W. (2007). Effect of economic trade cycle on final cost of construction projects in Nigeria. The Quantity Surveyor-The Journal of the Nigerian Institute of Quantity Surveyor, **55**(2), 31-40.
- [5]. Ali, A. and Kamaruzzaman, S. (2010). Cost performance for building construction projects in Klang valley. Journal of Building Performance, **1**, 110-118.
- [6]. American Institute of Architects (2007). Factors affecting building costs excerpted and adapted from The Architect's Handbook of Professional Practice, 13th edition Revised February.
- [7]. Assaf, A. and Al-Hejji, S. (2006). Causes of delay in large construction projects. International Journal of Project Management, **24**(4), 349-357.
- [8]. Amusan, L. (2011). Study of factors affecting construction cost performance in Nigerian construction sites. Unpublished article, assessed from: [http://eprints.Covenantuniversity.edu.ng/121/1/COST\\_PERFORMANCE2.doc](http://eprints.Covenantuniversity.edu.ng/121/1/COST_PERFORMANCE2.doc), date assessed 28/05/2011.
- [9]. Ayeni, O. (1997). Principles of Tendering and Estimating. (2<sup>nd</sup> ed.), Lagos: Builders Magazine.
- [10]. Azis, A., Memon, H., Rahman, S. and Karim, A. (2013). Controlling cost overrun factors in construction projects in Malaysia. Research Journal of Applied Sciences, Engineering and Technology, **5**(8), 2621-2629.
- [11]. Azhar, N., Farooqui, R. and Ahmed, M. (2008). Cost overrun factors in construction industry in Pakistan. Proceeding of First International Conference on Construction in Developing Countries (ICCID-E-1), 4-5 August, Karachi, Pakistan, 499-508.
- [12]. Azis, A., Memon, H., Rahman, A. and Karim, T. (2013). Controlling cost overrun factors in construction projects in Malaysia. Research Journal of Applied Sciences, Engineering and Technology, **5**(8), 2621-2629.
- [13]. Capano, C. D. and Karshenas, S. (2003). Applying economic indicators to predict cost escalation for construction. ASC Proceedings of the 39th Annual Conference, Clemson University Clemson, South Carolina, 277-288.
- [14]. Chan, A. and Chan, A. (2004). Key Performance Indicators for measuring construction success. Benchmarking, An International Journal, **11**(2), 203-221.
- [15]. Chitkara, K. (2006). Construction project management, planning, scheduling and controlling. 11th ed., New Delhi:Tata McGrawhill Publishing Company Limited.
- [16]. Construction Industry Development Board (CIDB) (2015). Labour and work conditions in the South African construction industry; status and recommendations, 1-30.
- [17]. Diaz-Serrano, L. and Cabral, V. (2005). Low pay, higher pay and job satisfaction within the European Union: Empirical evidence from fourteen countries. IZA Discussion Papers No. 1558, Institute for the Study of Labour (IZA).
- [18]. Erkelens, P. and Egmond-de, W. (2007). Achieving sustainable building education the case of Polytechnics in Ghana. HEJ: ARC-081226-B, 1-6.
- [19]. Enshassi, A., Mohamed, S. and Abushaban, S. (2009). Factors affecting the performance of construction projects in the Gaza strip. Journal of Civil Engineering and Management **15**(3), 269-280.
- [20]. Fagbenle, O. I., Ogunde, A. O. and Owolabi, J. D. (2011). Factors Affecting the Performance of Labour in Nigerian Construction Sites. Mediterranean Journal of Social Sciences, **2**(2), 251-257.
- [21]. Fisk, E. R. (1997). Construction Project Administration, 5th edition.
- [22]. Gambo, M. and Ashen, J. (2012). Application of economic indicators in predicting construction cost escalation for residential buildings in Nigeria. International Journal of Economic Development Research and Investment, **3**(1), 27-32.
- [23]. Geneva (2001). Tripartite meeting on the construction industry in the twenty first century: Its image, employment and Skill requirement: International labour Organisation, pp. 1- 68.
- [24]. Hartley, J. and Okamoto, S. (1997). Concurrent engineering: shortening lead times, raising quality and lowering costs. Productivity Press, Shelton, Connecticut.
- [25]. Kazaz, A., Manisali, E. and Ulubeyli, S. (2008). Effect of basic motivation factors on construction workforce productivity in Turkey, Journal of Civil Engineering and Management, **14**(2), 95-106.
- [26]. Koushki, P., Al-Rashid, K. and Kartam, N. (2005). Delays and cost increases in the construction of private residential projects in Kuwait. Construct. Manag. Econ., **23**(3), 285-294.
- [27]. Lewis, J. L. and Sheppard, S. R. J. (2006). Culture and communication: Can landscape visualization improve forest management consultation with indigenous communities? Landscape and Urban Planning, **77**, 291-313.
- [28]. Menches, C. I. and Abraham, D.N. (2007). Women in construction – Tapping the untapped resources to meet future demands. Journal of Construction Engineering and Management, **133**(9), 701-707.
- [29]. Memon, A., Rahman, I., Abdullah, M. and Azis, A. (2010). Factors affecting construction cost in Mara large construction project: Perspective of project management consultant. InternationalJournalof Sustainable Construction Engineering and Technology, **1**(2), 41-54.
- [30]. Mitullah, W. and Wachira, I. (2003). Informal labour in the construction industry in Kenya: A case study of Nairobi. International Labour Office Working Paper, Pp 1.
- [31]. Nnadi, E. (2015). An evaluation of cost of construction projects on Nigerian economy. In:Proceedings of the Nigerian Institute of Quantity Surveyors: 2<sup>nd</sup> Research Conference – NIQS ReCon2, 1–3 September,Akure, 692-705.
- [32]. Offei-Nyako, K., Osei-Tutu, E., Fugar, F. and Adinyira (2014). Skilled artisanal availability in the Ghanaian construction industry. Covenant Journal of Research in the Built Environment (CJRBE), (Maiden Edition), **1**(1).
- [33]. Okpala, D. and Aniekwu, A. (1988). Causes of high costs of construction in Nigeria. Journalof Construction Engineering and Management, **114**(2), 233–244.
- [34]. Olomolaiye, A. and Egbu, C. (2004). The significance of human resource issue in knowledge management within the Construction Industry- People, Problems and Possibilities. Journal of Association of Researchers in Construction Management, **1**, 533-540.
- [35]. Omion, E. (2001). Factors that contribute to cost of building projects in Nigeria. Real-Estate/Building-a-Home.Retrieved from: [http://EzineArticles.com/?expert=Emmanuel\\_Omion](http://EzineArticles.com/?expert=Emmanuel_Omion).Date assessed: 24/05/2011.
- [36]. Omotola, I. and Anigbogu, N. (2004). An appraisal of labour market for construction operatives in Abuja. Journal of Environmental Sciences, **8**(2), 128-133.

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- [37]. Osei-Tutu, E. and Adjei-Kumi, T. (2002). The cost trend of residential housing provision in urban areas of Ghana from 1991-2001. Building and Road Research Institute (BRRI), CSIR, Kumasi. An Unpublished Paper Retrieved from; <http://www.auhf.Okeiweb.com/..../ghana/construction-in-ghana.html>. Date assessed: 20/05/2011.
- [38]. Rahman, I.A., Memon, A.H., Azis, A.A.A. and Abdullah, N.H. (2013). Relationship between factors of construction resources affecting project cost. Modern Applied Science, 7(1), 67-75.
- [39]. Raiden, B., Dainty, J. and Neale, H. (2003). Current barriers and possible solution to effective project team formation and deployment within a large construction organisation. International Journal of Project Management, 22, 309-316.
- [40]. Ramlil, M. (2003). The need for systematic project management in construction industry. Malaysia, Macroworks.
- [41]. Rudzitis, G. (1991). Migration, sense of place, and nonmetropolitan vitality. Urban Geography, 12(1), 80-88.
- [42]. Smallwood, J. and Ehrlich, R. (2001). Occupational health in the South African construction industry: Management and worker perceptions. African Newsletter on Occupational Health and Safety, 11(1), 10-12.
- [43]. Soham, M. and Rajiv, B. (2013). Critical factors affecting labour productivity in construction projects: A case study of South Gujarat region of India. International Journal of Engineering and Advance Technology, 2(4), 583-591.
- [44]. Sun, Q. and Nor. (2015). An alien land or home: investigating rural-urban migrants' senseof place in the city during China's rapid urbanization. Proceeding of 3<sup>rd</sup> International Conference on Liveable Cities 2015 (ICLC2015), 163-175.
- [45]. Trendle, B. (2008). Skill and labour shortages – definition, causes and implications. Department of Education, Training and the Art. Retrieved from <http://www.trainandemploy.qld.gov.au/resources/employers/pdf/wp54-skill-labour-shortage.pdf>.
- [46]. Tze, S. (2013). Factors affecting the price of housing in Malaysia. Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB). An Online International Monthly Journal, 1(5).
- [47]. Windapo, A. and Iyagba, R. (2007). Modelling the determinants of housing construction costsin Nigeria. Proceedings of the Annual Research Conference of the Royal Institution of Chartered Surveyors held on 6th and 7th September at Georgia Tech., Atlanta, USA, 1-6.
- [48]. Zikmund, W. (2003). Business Research Method (Thomson-south-Western), 89-388.

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