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Full Length Research Paper

Human Elements and factor contribution and consideration in construction Projects towards completion (the Nigeria Experience)

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Abstract

Engineering construction projects seem to strive towards Excellence as a result of professional inputs in most countries of the world, while there are other countries (e.g. Nigeria) where there are daily recorded Failures of Human Elements and factor contribution and consideration in construction projects towards completion. The failures that have occurred on most construction projects are simply Human Element or the action caused by those that are involved in carrying out or executing such construction projects this is common every where and it is easily notice. This paper examined the human elements and factor contribution and consideration as it affects the execution of construction project in Nigeria and suggest the way forward.

Key words: Human element, factor contribution, consideration, construction projects, completion.

INTRODUCTION

Human elements and factor contribution and construction project towards completion is an important aspect of civil and building Engineering profession in project construction execution and is accepted are known as the major key vehicle that drive the construction of any project either a small construction project or a big construction project to a final stage This is a world-wide phenomenon in Engineering project. The extent to which Human factors contribution and consideration has yielded a tremendous and quick results, is the reason why the economics of many countries of the ward has escalated.

The less the attention, especially the construction sector of Nigeria is the present level of the country's, economics position. This does not depends on the many numbers of construction companies in existence, but the performance rate and the activeness of human elements

and the dynamism that is put into action for the completion of any construction project, either at federal, state and local government level in the country,

MATERIALS AND METHODS

A several visits to many construction companies in Nigeria was conducted especially to those operating in Abuja, Niger state, and Kwara state. The findings from the visits shows that the constructions projects execution either owned by the Federal, state, and Local Government are either completed at the right time or slow down or even abandoned along the way. The findings also includes political instability in the country, change of government and also environmental climate change.

Reports collected from consultants', private developers of different construction projects in Nigeria and even stakeholders also provide that human elements and factors contribution and consideration in construction projects should be giving proper attention and review in order to move the construction sector of the country forward, since it is the economy of the country.

DISCUSSION

Construction project cannot take place or be completed by a single person, but it requires a group of person generally known as team work with specific duties to be performed by each person. The combination of factors is what is called the human elements contribution and consideration towards projects completion. When the owners of a project recognizes a dare need for any project, the first step he takes is to employ an engineer who prepares the project drawings. The Engineer then design the project which will satisfy the need of the owner (client) at the lowest possible cost. After this, the owner (client) will then engages a contractor for the successful execution of the project economically, under the strict supervision of the Engineering term. The members on the project are also carry along for the successful completion of the project. The chain is a circle which must be respected in order to meet the target. The Non functioning of the Human Elements is the reason why some construction projects are abandoned without completion or even stop half way. A few of the human element factors are discussed below:

The Client Factor

The owner (client) may have a clear vision, or aims and objectives for the project and the feasibility but may have the following problems:-

- Poor conception of the project feasibility and its intended use.
- Inadequate funds to start the project, but because of personal motives, the project may be started and after sometime be abandoned.
- Lack of ability to understand the design difficulties on the part of the consultants. This can actually push the client to assist in some critical design decision which can lead to project failure.
- Personal desire for project supervision or administration by the client is often seen as a critical problem, where the client would want to administer the execution of the project along side with the consultants.
- The non implementation of contract obligations in term of financial responsibility to the consultant and the contractor. Several times especially with local construction industry the client has always failed to apply those penalty clauses that are his duties

The Consultant's Factors

The consultants are the ones responsible for the designs of the structures, prepares the drawings, estimates, invites tenders, bills of quantities, advice the owner as well as the contractor, and finally gives the project for possession after completion. It is still common to trace the following problems to the consultants:-

- Poor planning for implementation – the consultants of any building project is usually saddled with the responsibility of carrying out proper planning before the execution of the project. Inadequate time plan, resource plan, equipment supply plan, inter – linking not anticipated and poor organization planning can comes in to the project and cause a set back for the implementation.
- Under – Estimation of building project quantities and rate – This is closely related to poor planning for implementation. Where the consultant's schedule of rates is not current with the dynamics of the market economy, this becomes a major problem for the client and the contractor who is eager to finish the project under the given and approved rates.
- Lack of co-ordination and directional flow – This is sometimes attributed to a lack of team spirit, which usually result in to internal conflicts, poor human resources management and labor strikes. The consultant is a co-ordinator of any project. He plays a critical role and can as well determine it's success or failure. The consultant is equally the bridge between the client and the contractor, interpreting the contract conditions and as well giving the client the required professional advice. Construction projects generally are seen as dynamics, and inevitably changes and problems are bound to be encountered. It is the responsibility of the consultant to deal promptly and effectively with every problem and disagreement between the contractor and the client that may arise. The over-runs of some conflicts and problems in any project is always as a result of lack of cohesion on the various professionals who constitutes the body of the consultant.

The Consultant's Instruction' Factor

Often amendment to the originally contracted scope or nature of work may become necessary, and thus variation to the original contractual documents or terms are necessitated. The conditions of contract require that only variation for which the contractor has been instructed in writing shall be honored. Most consultants issue formal instructions on a standard form while others issue instructions through letters.

In any case, the instruction should be duly signed and should state whether the instruction carries any financial obligation on the part of the client. A consultant may

issue instructions that would result in the variations of the original contract terms under the following circumstance:

- Discrepancies in the contract document
- In compliance with statutory requirements
- Instructions regarding setting out
- Opening up of any covered works for inspection or testing
- Removal of works, materials or good failing to comply with the contract requirements
- Variation in design, quality and quantity of works
- Expenditure of provision sums and prime cost items.
- Making defects good
- Postponement of the execution of any part of the work
- Instruction regarding nominated subcontractors and nominated suppliers works
- Protection of the works in the event of war
- Action in the event of damaged caused by war

The Contractor's Factor

The contractor is the third party in any building project that usually carry out the execution of the work under the proper supervision. He employs all the labors, arranges materials and equipment required for the execution of the project, get paid for the work done till the completion of the project. A few problems that are associated with the contractor especially with local construction industry are discussed below:

- **Poor pre-tender and planning** – Most contractors don't usually carry out pre-tender planning and necessary investigation on the project when they are invited to tender for it. The pre-tender planning should be on the project, while the investigation should be on the following:-
 - (i) The client of the project
 - (ii) The consultants
 - (iii) Brief description of the type and nature of the project, including the constructional system, the area or the site of the project.
 - (iv) The contract dates, commencements, completion, defects, liability period, ascertained damages and the conditions that are related to the contract payments.
- **Contractual obligations** – In every construction project to be executed, there are standards, regulations and forms of instructions to tenders which are relevant for carrying out the executions of the project. They generally cover building contracts and other similar construction projects. The responsibilities and obligations are usually defined to guide the contracts. The disregard to these obligations is the result of some projects failures most of the time by the contractors.
- **Poor co-ordination**- This is a vital key in the construction industry generally. Just as co-ordination is in the consultants activities, so it is to the contractor. It is the responsibility of the contractor to carry out the

practical work of construction with different supervisors and foremen on site. Where the contractor has no ability to co-ordinate all human resources for various sections and activities, with detailed management information, The project will end up being delay with an effect on duration and cost estimates for the project.

Selecting a Contractor

It has become very popular to select the contractor with the lower evaluated bit for award of contract. This practice has become a general sickness and phenomenon in Africa as a whole. This approach has led to a number of problems throughout the construction projects. For example, appointing the design consultant solely on the basis or lower evaluated bit price without sufficient regard to the quality of the design proposal can result in the design team spending too little time on the design of a building in order to keep within the contract price; making an appointment without sufficient consideration of design consultants. Lack of competence can result in problems of build-ability or unnecessary creation of health and safety risks during the construction phase. Such approaches can lead to problems during the associated cost increase and in the quality of the final building. In addition, because construction firms know that price is likely to be the key factor determining whether they will win a contract, they compressively submit a tendered below cost. Firms have generally tendered on the assumption that there would inevitably be design changes, delays new requirements environment or physical construction which would increase cost, and allowing them to make substantial claims and profit margins. A government sponsored study (Aniekwu 1989) showed that three – quarters of the 68 price added up to 50%. And Agreeing to a contract price that is too low and barely allows contractors to seek every opportunity to increase cost through claim often leading to lengthy litigation.

Pre- Contract and Post –Contract Services

At the pre- contract stage, which refers to all transaction prior to the award of the contract, the consultant is required to design the project in question, prepare all related working drawings and contract document (Figure 1). At the post – contract stage, the consultant's role is to supervise the implementation of the design requirement and term of the contract, in such a manner as to optimize the client's requirement in quality, time and money. He is require to administer the contract, control the cost and schedule of construction, manage submittal, negotiate change orders, co-ordinate and inspect the works. While he is required to supply all possible information to the contractor, he is not expected to give periodic supervision as may be necessary to ensure the execution of the

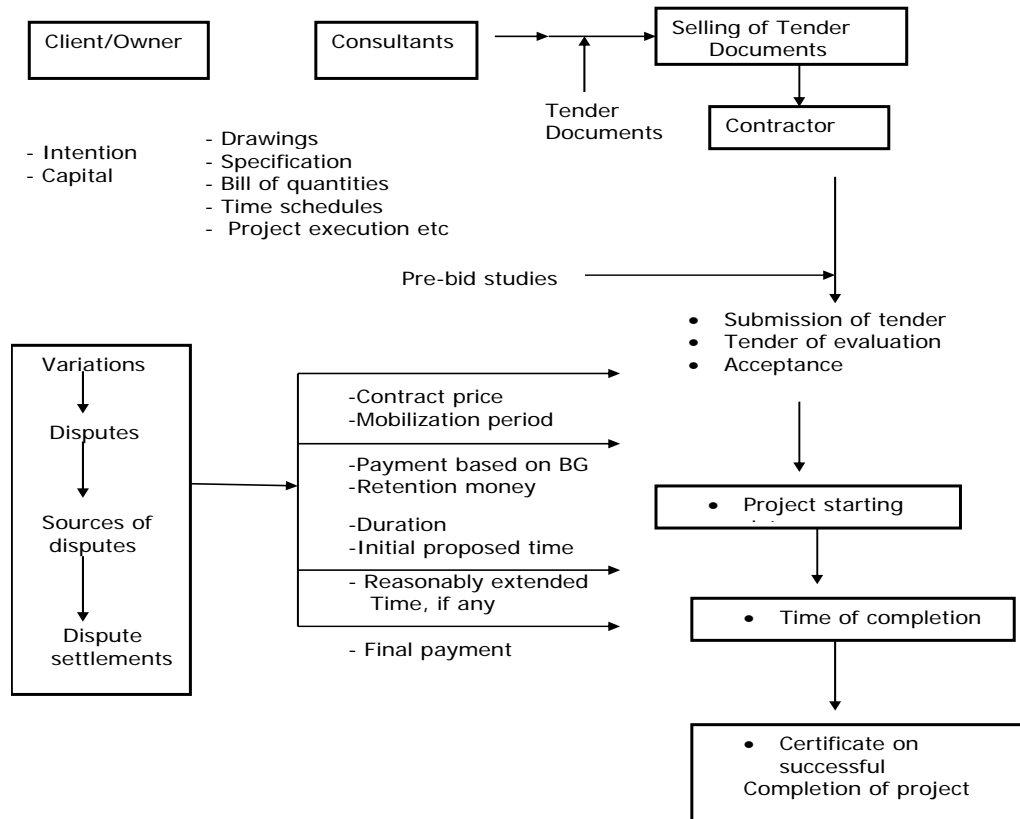


Figure 1: Showing the project design by the consultant

work in accordance with the contract requirements. Should periodic supervision be necessary, a resident supervisor must be employed?

Although the consultant is appointed by the client to cater for his interest, he has very serious responsibilities to the contractor as well and must act quite impartially and fairly between the client and the contractor. One of the most important jobs of the consultant as the leader of the design team is to coordinate and harness the contributions of all the specialists in the project, including the contractor in compatibility with all project objective. To this extent, the principal aim of the consultant should be the prompt delivery of the project, so that the client can begin to draw the benefits of the project. In order to achieve this, the welfare and the ability of the contractor to perform must be of great concern to the consultant, and he must do all within his power to ensure a conducive atmosphere in which the contractor can perform optimally.

Poor Planning For Implementation

When a project is conceived, the client appoints a consultant to carry out the planning and subsequent supervision of the construction. It is this stage that major

problems that lead to project failure are created by lack of experience; acts of omission, pressure from the client to quickly package the deal, deliberate assumption and a host of other extraneous factors. Variation and to some extent fluctuations have their origin from these. In most cases, the project design is not comprehensive and detailed enough to cover all that the client intended for the project. What the consultant present to the client in term of financial plan is a summary, leaving out important details that will have serious financial implication during construction, and at most time the information may be too late to be accommodated financially. The axiom that when you fail to plan, you plan to fail is true in project planning.

Under Estimation Of Quantities Rates

Closely related to poor planning is under – estimation of quantities and basic rates which inevitably result in too much variation and fluctuation claims. In most cases, the consultant's schedule of rate is neither current or without consideration to the dynamics of the economy. Unfortunately, the contractor who is eager to win a contract accepts the rates but ensure that fluctuation clauses are included in the contract conditions. Project

cost is largely determined by material quantities and rates where this is messed up by the consultant, danger will loom over the project.

Inadequate project formulation

The poor field investigation, inadequate project information from the client to the consultant, bad cost estimates, lack of experience, inadequate project analyses by the consultant, and poor investment decision ends up to project failure.

- **Poor conception and wrong motives**
- **Inadequate funds**

Variation and Fluctuations

Variation and fluctuations, when excessive can bring a project down. The amount of variation in some projects call for question, whether the consultant ever did his design and planning in the first place and when it emanates from the client, one begins to wonder if he ever knew what he wanted before embarking on the project. Variation lead to project cost escalation and extension of the duration.

Fluctuations are result of lack of planning projection especially in the type of economy we operate. What beats one's imagination is why are fluctuations clauses allowed in most of our projects with heavy advance payment, which is intended to cover materials prone to fluctuation in our fluid economy. Variation and fluctuation can double or triple the cost of a project with unquantifiable cost in loss of time and value to the client.

Lack of project management during execution

Inefficient and in effective workings, delays, change in scope of work and endless reasons for non- fulfillment of project objectives are common with consultants. Failures can be due to unforeseen natural calamities like earthquakes, floods and natural disasters. Failure can also result form deliberate attempts made by manipulators during the feasibility stage by incorporating inaccurate time and cost estimates.

Poor pre- tender planning

Once a contractor is invited to tender for a project, it call for a carefully planned investigation. It is unfortunate that some contractors tender for jobs without carrying out necessary investigations. Such investigations are in two stages before reaching a decision to tender. Briefly the contract appreciation stages are as follows:

stage 1:

- Name, Business address of client

- Name and address of the architect and any other consultant named.
- A brief description of the project which would include:
 - (a) The site address
 - (b) Brief particulars of the construction including the constructional system, the area of the building (S) and the site plan.
 - (c) The contract dates, commencement, completion, defects, liability period, liquidated and ascertained damages and conditions related to payment. When these facts become available, the estimator arranges a preliminary meeting with some executives to consider the suitability of otherwise of the project. If suitable, then contract appreciations.

STAGE 2: Follows for more detailed information on the client, consultants and the contract documents.

Haphazard post – tender planning

It is not enough to win a contract if there is no post – tender planning where the reality of construction of the project is properly articulated. The project will definitely run into troubled in terms of execution. Planning in this regard will cover the following:-

- Job Program-** The tender programmes should be updated and more ambitions, to possibly gain time and reduce the project duration. It requires breaking down all operations and coming up with monthly and weekly programmes of activities.
- Scheduling-** Material schedules and procurement should be drawn up with time for items to be manufacture locally or off shore.
- Plant and equipment selection** – Leaning or outright purchase including spares and maintenance schedule.
- Human resources-** Technical and administrative labor schedule should match programmes or synchronized them.
- Schedule of progress meetings**
- General cash flow for the project** – projecting monthly income and expenditure drawn up form the general programmes of work.

When a contractor fails to plan, he plans to fail and it is usually very easy to plan to fail. There are very few contractors that have planners and other competent personnel (Engineers, quantity surveyors etc) to carry out post-tender planning before actual commencement of work. They end up with fire brigade approach to material procurement resulting to delays.

Fund diversion

There is hardly any contract without advance payment which is anything from Twenty Five to Fifty percent, depending on the peculiarity of the project. The aim of this mobilization payment is to enable the contractor procure materials liable to fluctuation amongst other

things that will help the contractor mobilize effectively for construction operations. Today advance payment is used for other purposes and leaving the project to suffer cash flow problems. A good percentage of it goes into settlement of “commitments”, while the rest are spread between the contractors, other than the purpose for which the money was paid. The consultant is partly to be blamed for this fund which is to ensure strict implementation of advance payment.

Money is the life wire of every project and once it is shortly supply for materials, plant and labor, delay sets in as the contractor waits to get funds from another source. This could set off a chain reaction that may lead to project failure.

Poor co- ordination

Just as co- ordination is vital in the consultants’ activities, so it is to the contractor. The contractor has the responsibility to carry out the practical project work of construction, which involves lots of activities going on simultaneously by different supervisors and foremen. When all human resources for various sections and varied activities are not properly co- orientated including information management, the project will suffer under delays which will have far reaching consequences on duration and cost.

Disregard of contract conditions

There are adequate and explicit provisions which will obviously guarantee project success if implemented properly. If this is not done, the consultant should share the blame because he is the person who supposed to interpret and enforce the contract condition especially if the contractor is deliberately or ignorantly disregarding or circumventing it. When this is not done, the result is very obvious because outright disregard or circumvention of contract conditions will precipitate confusion and ultimately lead to project failure.

Insincerity, fraud and corruption

Project failure is all about fraudulent activities and corruption. The contractor is always the facilitator as he collides with the consultant and representatives of the client to cheat the organization. This is a cankerworm that has eaten deep into the fabric of construction industry, both in the public and private sectors of the economy. Contracting and construction are the theatres of this absurd where the client, consultants and the contractors are the principal actors. Corruption has almost become a way of life and the only way out of construction industry is a complete re- orientation of our value system.

Labor productivity out-put In Nigeria construction projects

The skilled and unskilled Labor forces in Nigeria construction industry need to be followed up for efficient use of materials and the human resources that are always available in a construction site. The control mechanisms and the degree may very depending on the type of contract and their nature; the established working conditions and the environment or the belongingness set up for the workers mind. The contractor’s employees at different levels also need a follow –up with actual scientific management on the handling and Utilization of the capital and other material resources for the entire project execution. The lack of incompetent personnel on behalf of the contractors on sites, which most of the time is difficulty to proof has been accepted as a means for the diversion of funds meant for the payment of labor work done for some specific tasks. Generally, Labor productivity output in Nigeria construction project varies from one project to another, but the combination may also involve some common similar terms like the services of masons, carpenters, iron benders, painters, electricians, plumbers, etc.

In Nigeria construction projects:-the skilled and unskilled labour forces in Nigeria construction industry need to be followed up for efficient use of materials and the human resources that are always available in a construction site. The degree may very depending on the type of contract and their nature, the established working conditions and the environment or the belongingness set up for the workers scientific management on the handling and utilization of the capital and other material resources for the entire project. Incompetent personal on behalf of the contractor on sites which most of the times is difficulty to proof has been accepted as a means for the diversion of founds meant for the payment of labor work done for some specific tasks.

Wages Factor

Wages are the remuneration paid to the workers for the work done by them. It may be a contract in sum fixed between the employers and the workers, where workers will sell their labor for money and employers will purchase execution of work. The remuneration paid daily or weekly to the ordinary skilled or unskilled workers is known as wages. Experience in the past with many constructions in Nigeria proved that payment of wages, areas, leaves bonus, and other approved financial benefit were abused by some big construction companies workers and were treated beyond measures, and that led to court case between such construction companies and the workers. The end result of the case did not favor the workers.

Changes in technological advancement in Nigeria

The change in technological advancement includes design. Methods, Materials and cost implications on construction materials, and introduction of for technology against local technology construction projects that started with local technology and later exchanged with foreign technology, which has in several occasion affected the final completion of the project.

RECOMMENDATION

i. The human elements factor contribution and consideration in any construction project towards complement is vital and should be giving adequate attention with respect, whether in federal, state, and local government construction of civil and building Engineering projects in Nigeria.

(ii) Regulations should be put in place by the appropriate Authorities that would promote the services of Human Elements in Nigeria construction companies.

(iiv) Professional Engineering bodies should be set up as a monitoring committees to enforce professional ethics in the activities of construction in Nigeria.

(iv) Competent personnel should always be engaged in managing construction projects, and always checks all Human Element services in construction companies

CONCLUSION

The subject matter is such a wide area that definitely can not be adequately deal it within a paper such as this. What has been done in this paper is only to introduce the subject and draw attention to some major aspects of Human Elements factor contribution and consideration in construction projects towards completion in Nigeria. It is important that all the Human Elements within construction sector in Nigeria understand the team spirit of

construction projects and the quintessential aim of the system, which is the attainment of a given construction objectives. All efforts should therefore be made to promote and encourage all Human Elements within construction sector. The realization of this is one of the key factors towards raising Nigeria to balance Economic stability.

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