



AN APPRAISAL OF LABOUR PRODUCTIVITY IN
SAND CRETE BLOCK MAKING FACTORIES IN
MINNA, NIGERIA

BY

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ABSTRACT

Sandcrete block are composite building material produced of sand, cement and water, moulded in different sizes. The recognition and widespread of sandcrete blocks and their general application as walling material in Nigeria and other developing countries cannot be overemphasized. Hence, caused serious demand for it, and oblige its high production. As a result, production industries are expected to put more concern on the improvement of efficiency and effectiveness of labour productivity in the production process due to the increasing demand of the materials. Productivity enhancement in any production industries is powered by the level of increase in labour productivity. The aim of any production company is to realize a higher productivity as it was explained to be cost savings and eventually into manager's additional benefits. This study aimed at exploring the process of producing sandcrete block and its labour productivity, identifying and ranking the key management and site related factors on factories in Minna, Nigeria. The data was collected from 84 factories registered under standard organization Nigeria (SON), using structured questionnaire. Findings in this study, shows different stages and standards used for the sandcrete block production. It was found that market, management strategies, delay in materials delivery, equipment breakdown, weather and absenteeism/turnover are the main factors affecting labour productivity in sandcrete block making factories in Minna. In addition, some varieties of techniques were identify to mitigate or minimize the effect of the above mentioned factors. Findings from this study is expected to assist the managers on how to efficiently improve labour productivity in other to meet up the growing demand of sandcrete block in the market and will also serve as a reference material in the future regarding how to enhance labour productivity, contributing to the existing body of knowledge.

Keywords: Sandcrete block, Labour Productivity, Management related, Site related, Techniques.

خلاصة البحث

البلاطة الرملية هي مواد البناء المنتجة من الرمل والاسمنت والماء، مختلفة في أحجامها. ولا يمكن المغالاة في التأكيد على الاعتراف بالبلاطة الرملية وانتشارها على نطاق واسع وتطبيقها العام كمواد البناء في نيجيريا وغيرها من البلدان النامية. وإلزام إنتاجها العالي. ونتيجة لذلك، من المتوقع أن تثير الصناعات الإنتاجية مزيدا من القلق بشأن تحسين كفاءة وفعالية إنتاجية العمل في عملية الإنتاج بسبب الطلب المتزايد على المواد. إن تعزيز الإنتاجية في أي صناعات مدعوم بمستوى الزيادة في إنتاجية العمل. إن هدف أي شركة الإنتاج هو تحقيق إنتاجية أعلى كما تم شرحه على أنه وفورات في التكاليف وفي نهاية المطاف إلى فوائد إضافية من المدير. تهدف هذه الدراسة إلى استكشاف عملية إنتاج البلاطة وتقييم إنتاجية العمل في مصانع تصنيع البلاطات من خلال تحديد وترتيب عوامل الإدارة الرئيسية والموقع ذات الصلة التي تؤثر على إنتاجية العمل في مصانع تصنيع البلاطة في مينا، نيجيريا. وعلاوة على ذلك، لتوصية الاستراتيجيات التي يمكن تنفيذها للحد من التحديات أو التخفيف منها. وقد جمعت البيانات من 84 مصنعا مسجلة في إطار منظمة قياسية نيجيريا (سون)، وذلك باستخدام الإستبيانة المنظمة. لقد توصل الباحث إلى النتائج التي يظهر فيها مراحل مختلفة والمعايير المستخدمة لإنتاج البلاطة. إلى جانب ذلك، حددت العوامل العامة التي تؤثر على الإنتاجية على مستوى الإدارة والموقع على حد سواء في مصانع تصنيع البلاطة في المينا. وبالإضافة إلى ذلك، تم تحديد مجموعة من التقنيات لتخفيف أو تقليل تأثير العوامل المذكورة أعلاه. ومن المتوقع أن تساعد نتائج هذه الدراسة المديرين على كيفية تحسين إنتاجية العمل بكفاءة في بلدان أخرى لتلبية الطلب المتزايد على البلاطة في السوق، كما ستعمل أيضا كمرجع في المستقبل فيما يتعلق بكيفية تعزيز إنتاجية العمل والمساهمة إلى الواقعي المعرفي القائم.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion; it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Asset and Facilities Management).

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Labour productivity in the Building construction industry is the units of work done for the unit of labour (Wilcox, 2000). Worldwide, the building segment of the construction industry is fundamentally concerned with the assembly of building components and materials which are supplied by the manufacturing industries and delivered to the site for the production of building. However, most of the industrial production works still relies heavily on manual labour in their assembly. Mbiti (2008), opined that the construction industry in Nairobi, Kenya hired not less than 800,000 workers who are essential to deliver the built facilities to the clients" on time, within budget and maintaining the standards of quality. Productivity has grown to be a subject of interest and concern ever since the establishment of industrialization. It has also grown to be important and core part in the production industries which greatly contributed to the world success. High productivity can be an essential source of competitive improvement for industries and most essential variables governing economic production in the nation.

The notion of productivity has been discussed widely by numerous authors which resulted in different explanation (Tangen, 2005). Nevertheless, it is very important to understand that labour productivity is the measure of the total effectiveness of an operating process in utilizing Labour, capital and equipment as an input to convert into useful output. Thus, Productivity enhancement in production industries is powered by the level of increase in labour productivity. According to Hancher and Abd-Elkhalek (1998), the aim of any production company IS to realize a

higher productivity as it was explained as the cost savings and eventually into manager's additional benefits. Some of the problems that are contributing to the deficiency in labour productivity in most of the projects include material and tools, deficiency in material and equipment supply, waiting period, lack of management and motivation, accidents, change of work orders and lack of attitudes of the workers at the site (Adrian, 2002).

Sandcrete block are composite building material produced of sand, cement and water, moulded in different sizes (Awolusi, Soyngbe, Oyeyipo, & State, 2015). Sandcrete blocks are produced almost every parts of Nigeria as not less than 95% of buildings are being constructed with sandcrete blocks. This makes it an important and common material used for building construction. However, it is not only recognized and used in Nigeria, but many other African countries such as Ghana, Niger republic, Benin republic (Awolusi et al., 2015) . Sandcrete block is used as both bearing and non-bearing wall units. Though, the blocks produced vary in qualities for every industry outstanding to the different materials and technique engaged in the making and the properties of the ingredient used (Awolusi et al., 2015).

1.2 STATEMENT OF THE PROBLEM

Workforces are the key essential factor to the enhancement of the production process. Therefore, understanding its input to the performance is very significant. Moreover, the monitoring of workers, getting them to put more effort, assigning individual worker to the most suitable job, setting good payment scheme, deciding on the workers that should be retained and which to be promoted, all required management judgement on the work performance.

Awolusi, Soyngbe, and Oyeyipo, (2015) noted that blocks manufactured by the manufacturers are sold at prices far below rate a quality sandcrete block should price. Ewa, and Ukpata (2013) discovered that for a long time sandcrete blocks were produced in some states Nigeria short of due reference to any specifications either acceptable to the local building standard or for good quality work. More so, Bemolak and Stainer (1997) realized that most of the managers in production sector don't know the importance of productivity to the core business success, and are also lacking knowledge on how to measure productivity, analyzed and make improvement. Poor labour productivity plays a major influence in industry activities (Gopal, & Murali, 2016). Block making industry is an area influenced by many different factors such as labor, material, equipment and construction methods etc. Among these factors, human resources come first without which, other resources would not be utilized or transformed into productive use. Any improvement in labor productivity would contribute a great deal to the improvement of the overall productivity as identified by Hashim (1995). Labor productivity is becoming the prime factor because labor costs generally account for 30% to 50% of overall project costs in construction (Harmon & Cole, 2006). However, the continual need to study how to manage labour productivity and its outcome cannot be neglected if successful delivery and running of the blocks making factory should be accomplished. This study is anticipated to investigate the key factors that critically affect labour productivity in block making factories in Minna, Nigeria and the way to overcome it. Still, this judgment requires knowledge on worker productivity and the influencing factors that affect it.

The study' of Labour productivity management in general construction perspective and in sandcrete block factories is much related, since Human resource, materials and equipment are the general subject matter. Though this is only focusing

to find out the key factors that affect labour productivity in sandcrete block making factory, the ranking base on severity and the strategies that will be needed to mitigate or minimized the effect of management and site related factors on low labour productivity in the sand crete block making factories. Conclusively, without the knowledge and proper understanding on how to manage labour productivity is very obvious to have low productivity and low quality product which would directly resulted to additional cost implication and inability to meetup the challenges of future high demand. Hence, the research was aimed at address the following questions:

1.3 RESEARCH QUESTIONS

1. What are the processes involved in sandcrete block production?
2. How do the management and site related factors affect labour productivity level in sandcrete block making factory?
3. What are the Strategies in place to mitigate or minimize the challenges of management and site related factors on low labour productivity in the sandcrete block making factories?

1.4 AIM AND OBJECTIVES

The study aimed to achieve the following objectives:

The main aim of the study is to evaluate effects of management and site related factors on labour productivity in sandcrete block making factories. In relation to the production of sandcrete blocks, the objectives of this study are:

- 1- To evaluate the process involved in sandcrete block production
- 2- To identify and rank key management and site related factors that affect labour productivity.

- 3- To propose strategies to mitigate or minimize the challenges of management and site related factors which result to low labour productivity in the sandcrete block making factories.

1.5 HYPOTHESIS

To organize productivity factors through their level of influence, the following hypotheses were stated:

H₁: Management related factors affect the labour productivity in sandcrete block production factories.

H₂: Site related factors affect the labour productivity in sandcrete block production factories.

1.6 SCOPE

This study is centered toward determining the factors that affect labour productivity in sandcrete block making factories in Minna capital city of Niger state, Nigeria and their ranking in severity effect of management and site related factors on low labour productivity in the sandcrete block making factories. As was note by (Ewa and Ukpata 2013) that sandcrete blocks produce in Nigeria are poor in quality. Gopal, & Murali, (2015) discovered that labor productivity is critical to the success of the industry. Therefore this study will be confirmed to factors affecting labour productivity and the ways to overcome them in sandcrete block making factories in Minna capital city of Niger state. In addition, it also serve as focusing point in enlighten the managers on how to effectively and optimally manage labour productivity in the block making factories to meet up the challenges of future high demand and also to minimize the cost of production.

1.7 JUSTIFICATION OF THE STUDY

A number of studies are conducted on the factors that influence labour productivity in different segments especially in construction industries. Base on my findings, no study compares or find out the effect of management and site related factors on low labour productivity in the sandcrete block making factories. Therefore, this study hopes to fill this gap by looking at labour productivity in Sandcrete block making industries, in Minna, Niger state, Nigeria.

1.8 SIGNIFICANCE OF THE STUDY

The essential of this study is to contribute to the understanding of the factors that affect labour productivity in sandcrete block production specifically in Nigeria and how to minimize or mitigate the effect to increase output of the production and quality of products. However, this can be achieved by exposing the differences in output and cost implication on the production caused by any of those factors which need to be addresses by the producers in other to meet up the quality and high demands of market. Additionally, the study will unveil the better strategies by which sandcrete block producers need to respond to this delinquent in the future. Moreover, the study contributes to the existing body of knowledge on the effect of various factors on the labour productivity.

1.9 OUTLINE OF METHODOLOGY

Quantitative research method was used to achieve the objectives of the study. A quantitative research method is situation where the researcher collects quantitative data, analyses it, thereby interpret the quantitative result, for a particular study

Creswell (2014). The diagram of the research design adopted by this study is presented in figure 1.1 below:

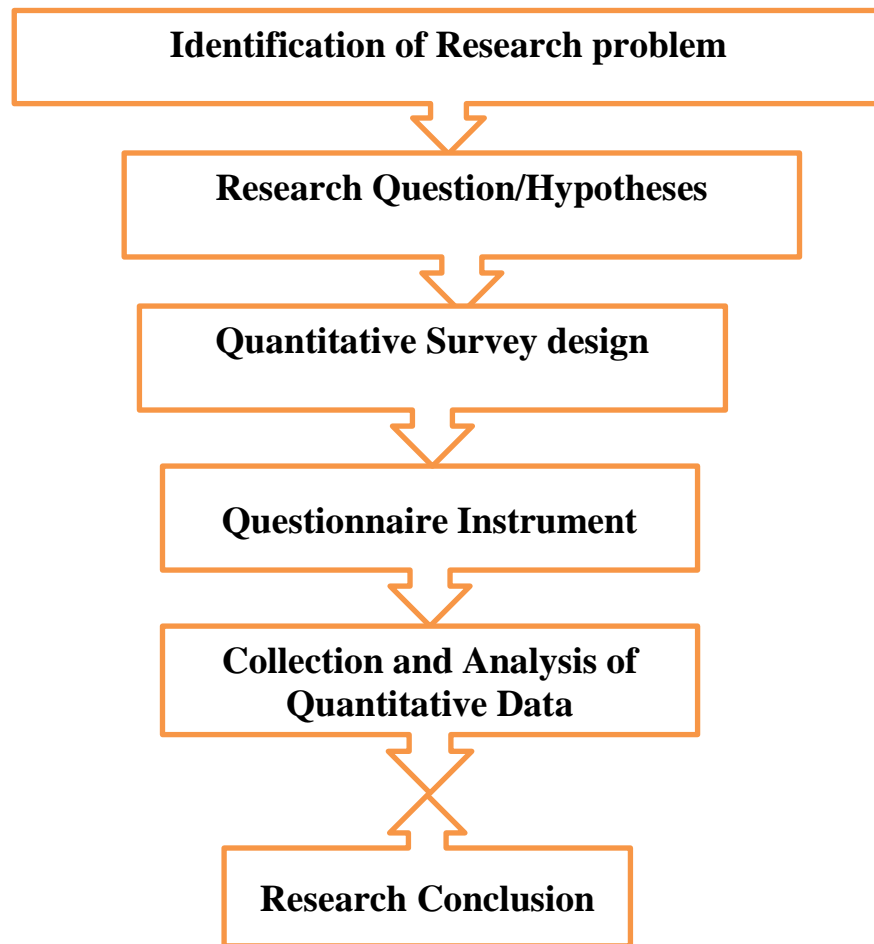


Figure 1.1 Outline of Research methodology

1.10 CHAPTER OUTLINES

This research is structured into five (5) chapters as followed:

1.9.1 Chapter one presents the background of the study, by telling information on the trend and the importance of block as a building material, labour productivity in the construction industry and in the block making factory. However, it also tells the contribution to the national economy and also continues to explain the problem statement, research questions, aims and objective, statement of hypothesis, justification and significant of the study, as well as the scope of the study.

1.9.2 Chapter two presents a review of literature on the process of sand crete block production, different relevant issues on productivity, management of labour in block making factories and in the construction industry in general. Moreover, it explained the concepts of management and motivation, and also opined different studies that unveil the factors that affect labour productivity

1.9.3 Chapter three comprises of the details on the method and procedure of the study, which will be used to achieve the stated objectives. The items in this chapter cover about the research design, respondents, the population, sample and sampling technique, instrumentation, reliability of the items, content validity, pilot study, technique of data collection and method of data analysis all employed to achieve the aim and objectives of the study.

1.9.4 Chapter four provides the findings, interpretation and analysis of result. Finally, it further discusses the findings obtained.

1.9.5 Chapter five provides the summary of the procedure and conclusion of the research. Additionally, it also offers recommendations for the best way to tackle the problem of labour productivity.

1.11 CONCEPTUAL FRAMEWORK

In order to enhance labour productivity on any working place, there is need to study the management and site related factors that influence Labour productivity. Below in Figure 1.2 is the conceptual framework for the study presenting how productivity (Dependent variable) is affected by some factors (independent variables).

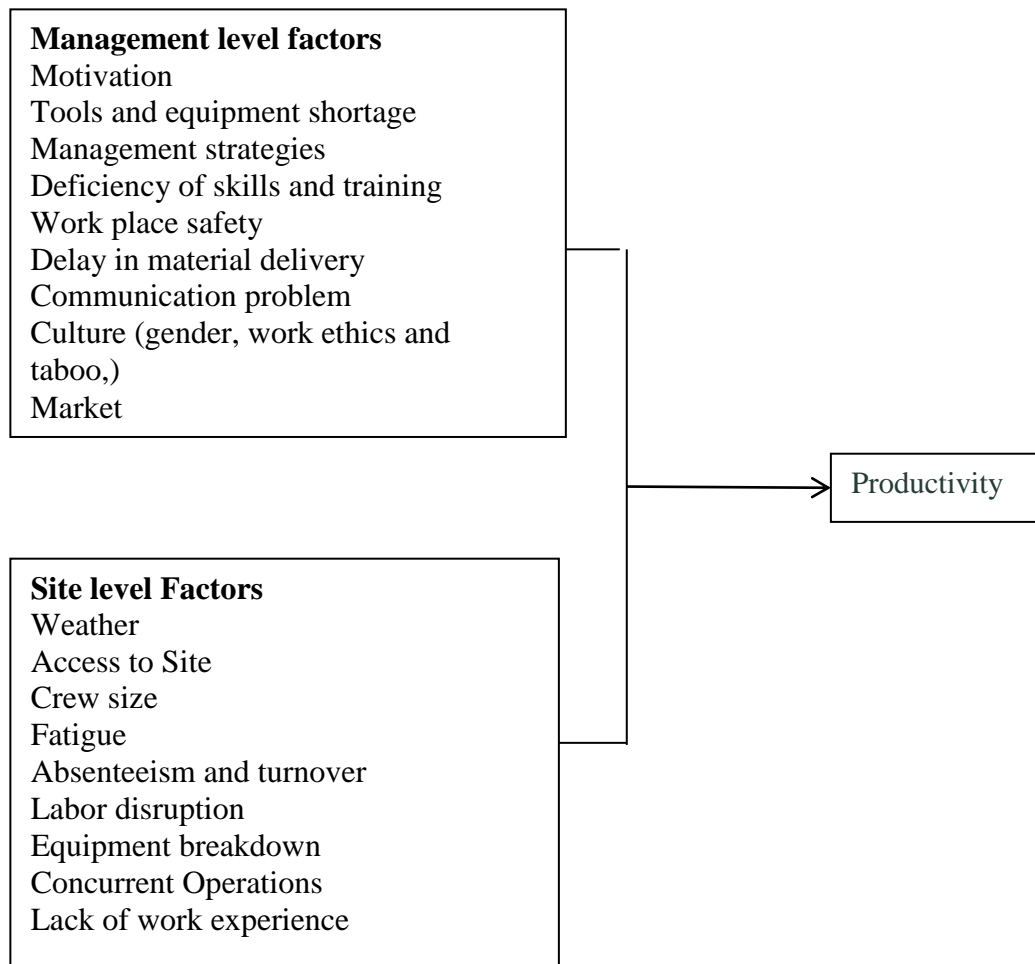


Figure 1.2 Conceptual frame work
Source: Author, (2017)

1.12 SUMMARY

This chapter contains a background of the proposed study and also continue to define the problem statement, research questions, research objectives, statement of hypothesis, scope, justification and significant of the study. Moreover, this chapter thereby concluded with the organization of the chapters and a framework of the research. The arrangement of chapters describes in detail the content of each chapter in the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter highpoints the process of Sandcrete block making and the materials in detail especially in Nigeria, and also explores several research outcome related to the factors influencing job-site and labour productivity in general, the role of management and motivation in enhancing the labour productivity, the incentive scheme which have been published on the issue of evaluating and rating labour productivity, and also expose the knowledge gap that exist in the literature with respect to factors negatively affecting labour productivity.

2.2 SANDCRETE BLOCK AND PRODUCTION PROCESS

This section of the chapter explained about sandcrete block and it important as building construction material in Nigeria and other places. Furthermore, it explains the process of producing sandcrete block.

2.2.1 Sandcrete Block as a Building Material

Not less than 90% of buildings are being constructed using sandcrete blocks in Nigeria (Odeyemi, et al., 2018). For this reason, Sandcrete blocks become very important building construction material. It is commonly used in Nigeria and many other African countries such as Niger Republic and Ghana. According to Awolusi, Soyingbe, Oyeyipo, & State (2015), the qualities of blocks produced differs from each factory due the different types of constituents materials used and method of production.

However, In Nigeria, sandcrete blocks are manufactured in various parts of the country without any reference to suit local building requirements or good quality work (Oyekan and Kamiyo, 2008). In the year 2000, and in an attempt to enhance the best materials and production practice of sandcrete block in Nigeria, the Standard Organization of Nigeria (SON) produce a reference document which lay down the minimum requirements and uses of different kinds of sandcrete blocks (Nigerian Industrial Standards: known as (NIS 87:2004) series (Awolusi et al., 2015). Nevertheless, this NIS document also makes sure that all block producers meet the lowest specified standard, so as to control the quality of the block.

2.2.2 Sandcrete Block Production

Sandcrete block is a big brick used for building construction, and it is prepared of sharp sand, cement and water. Sandcrete block is produced with a hole at the center in order to reduce the heaviness, and it is generally used for partition walling and load bearing wall when it support with the concrete beams and columns. Sandcrete block can be decorated with a plaster, paint, stucco etc. it is an ideal fit for an area where moisture and hygiene issues are more serious.

Moreover, Anosike & Oyebade (2012), explained that the ingredient materials used for the block is usually (1 :6) mix of cement (binder) and fine aggregate (sharp sand) with a small quantity of water added. Admixture is added in some situations to the mix to change some of its properties. It is then moulded and dried naturally in an open space. Additionally, Sandcrete block is produced either in solid and hollow rectangular types and sometimes perforated in different patterns, shapes, designs, sizes which are used for screen wall or sun protector. The thickness of the beddings for joining is always in both the normal and screen wall.