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## **RELATIONSHIP BETWEEN PROJECT PLANNING AND PROFITABILITY OF BRIQUETTES INDUSTRIES IN GHANA**

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### **ABSTRACT**

**Purpose of the Study:** To assess the relationship between project planning and profitability of the briquettes industries in Ghana. Project planning is at the heart of the project life cycle, and tells everyone involved where you're going and how you're going to get there. The planning phase is when the project plans are documented, the project deliverables and requirements are defined, and the project schedule is created. It involves creating a set of plans to help guide your team through the implementation and closure phases of the project. The plans created during this phase will help you manage time, cost, quality, changes, risk, and related issues. They will also help you control staff and external suppliers to ensure that you deliver the project on time, within budget, and within schedule. It is an essential aspect for success.

**Problem Statement:** Briquette manufacturing is fairly new in Ghana and most companies have an amazing concept but dismally fail at execution due to lack of planning. Production in Ghana dates back to the 70s but it has been limited to small scale only recently are more studies being done on briquettes and their use, which has sparked a market frenzy. Globally, 52% of the world's population are using non-renewable energy for cooking and heating. This represents a huge market share for the briquette industry globally. The projection in growth of profitability is directly attributable to unavailability of cooking fuels especially in developing countries and briquettes are mostly preferred due to low emissions. The uptake of briquettes in Africa has however been low due to lack of awareness by consumers of clear advantages of the product. This study aimed at determining the role of project planning in influencing Profitability of the briquettes industry in Ghana.

**Methodology:** The study was a literature based in which a desk top review was conducted to derive themes.

**Result:** The study found a positive and significant relationship between financial resource planning and Profitability. The results also indicated that human capital planning and Profitability were positively and significantly related, material requirement planning and Profitability were positively and insignificantly related.

**Conclusion:** The study concluded that the aspects of project planning adopted in this study: financial resource planning, human that capital planning and time management planning positively and significantly influences profitability volume in Briquettes Company, except for material requirements planning which was found to positively but insignificantly influences Profitability.

**Recommendation:** The study recommended that the management of company should strive to implement project planning strategies such as financial resource planning, human capital

planning, time management planning and material requirements planning because they have been found to influence Profitability.

**Keywords:** *Project, Planning, Profitability, Briquettes, Ghana, Human capital.*

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## 1.1 BACKGROUND OF THE STUDY

The planning phase refines the project's objectives, which were gathered during the initiation phase. It includes planning the steps necessary to meet those objectives by further identifying the specific activities and resources required to complete the project. Now that these objectives have been recognized, they must be clearly articulated, detailing an in-depth scrutiny of each recognized objective. With such scrutiny, our understanding of the objective may change. Often the very act of trying to describe something precisely gives us a better understanding of what we are looking at. This articulation serves as the basis for the development of requirements. What this means is that after an objective has been clearly articulated, we can describe it in concrete (measurable) terms and identify what we have to do to achieve it. Obviously, if we do a poor job of articulating the objective, our requirements will be misdirected and the resulting project will not represent the true need. In Ghana, briquettes production dates to the 1970s, production was nonetheless done in small scale. Uptake of briquettes was not high during this time because many consumers preferred the use of charcoal in their households.

Every project needs a roadmap with clearly defined goals that should not change after the first phase of the project has been completed. All stakeholders benefiting from the outcome or involved in executing the project should be named and their needs stated during the initial project planning process. In the previous decades, the government banned the use and transportation of charcoal, which led to the adoption of alternative sources of fuel such as briquettes. Currently, 3 billion people, which represent 41% of the world's population, are using non-renewable energy for cooking and heating (Energy 4 Impact, 2019). Energy 4 Impact discovered the briquette sector because of the high uptake of biomass briquettes as an alternative fuel. The global market for briquettes is also increasing rapidly due to the world's transition to green energy. The global briquette market research report, 2019, estimated that the briquettes industry will grow at a composite annual growth rate of 7.8% in the next five years, from 2019-2024. The global briquette market research report also indicated that the global profitability of briquettes would increase from \$6,760 million to \$106,600 in the next five years. The projection in the growth of profitability has been directly attributed to the unavailability of cooking fuels, especially in developing countries. Additionally, briquettes are preferred because of low emissions compared to fossil fuels. Globally, the European Union has accounted for the highest briquette fuel production, which is approximately 79.68% of the total global production (Absolute Reports, 2019).

In Africa, the briquette market is growing at a faster rate compared to the world because most developing nations are in Africa. A high percentage of the population in Sub-Saharan Africa rely on firewood and charcoal as a source of energy, estimated to be above 90% (Njenga et al., 2019). Adu-Gyamfi et al (2019) found that in Ghana, 82% of urban households and 34% of rural households use charcoal. The uptake of briquettes in Africa, especially Sub-Saharan Africa, has been low due to the lack of awareness by consumers of clear advantages of briquettes (Mwampamba, Owen, & Pigaht, 2013). The low uptake has led to insufficient Profitability in the briquettes industry. Additionally, the African populace has many misconceptions of briquettes, and this has hindered the growth of briquettes industry in Africa.

In Ghana, 82% of the population uses wood and charcoal to cook (Cohen & Marega, 2013). In 2018, Ghana lost 9.8% tree cover due to deforestation (World Resources Institute, 2018). Deforestation occurred because many people were cutting trees to use it in their households as firewood. Briquettes were introduced in Ghana as an alternative to charcoal and coal. A study by GVEP International (2010) revealed that the briquette industry in Ghana had achieved growth because the use of charcoal had reduced by 5-10%. World Agroforestry (2019) notes that Ghana needs to transition from using charcoal to briquettes because Ghana needs to achieve 10% forest cover by 2030.

Based on the background of the study, it is undeniable that the briquettes industry is experiencing exponential growth. Notably, though, the briquettes industry is facing low Profitability because of unawareness by the Ghana populace and the lack of project planning for briquette producing companies in increasing the Profitability. For that reason, this research will attempt to discover the role of financial resource planning, human capital planning, material requirements planning, and time management planning and its impact on Profitability of the briquettes industry in Ghana.

## **1.2 STATEMENT OF THE PROBLEM**

Most project managers fail to plan for the relevant projects, and this leads to organizational failure. The main problems experienced in projects are financial planning and human capital planning (Abdul-Jalil, Dzuljastri, & Ferdous- Azam, 2013). Project managers perceive project planning as non-sustainable, and this has led to neglect of project planning. Project managers concentrate on short-term goals, instead of focusing on long-term plans, which affect continued growth of the Profitability of the company.

Ghana's briquette industry is growing rapidly and project planning will play a major role in increasing the profitability in this industry. Project planning is becoming increasingly relevant for industries because of the changing business models and because it is fundamental to the success of the organization. This study sought bridge this gap by determining the role of project planning in increasing the Profitability in the briquettes industry in Ghana.

## **1.3 OBJECTIVES OF THE STUDY**

- i) To assess the effect of human capital planning and its impact on Profitability of the briquettes industry in Ghana.
- ii) To determine the effect of material requirements planning and its impact on Profitability of the briquettes industry in Ghana.

## **1.4 RESEARCH QUESTIONS**

- i) How does human capital planning impact Profitability of the briquettes industry in Ghana?
- ii) How does material requirements planning impact Profitability of the briquettes industry in Ghana?

## **2.1 Empirical Review**

Forecasting is estimating financial outcomes by using historical accounting and profitability data as well as market and economic indicators to determine a company's growth over a period of time (Samonas, 2015). The goal of any company or industry is to experience growth and with this additional equipment, staff and funds are required thus anticipating and planning on how to continuously adjust is vital to support growth. In a manufacturing environment, capacity planning helps to identify the current production and maximum levels expected to determine alterations needed depending on the company's growth trajectory. Profitability targets should

align with production capacity to avoid lost profitability, long waiting time or low quality products resulting from rushed production.

Funding is an important aspect for successful growth to take place which ensures expenditures associated with additional assets are met. High Profitability of briquettes is achieved by having the right number of employees needed in the profitability team, production as well as administrative team, adding on equipment to ensure increased production capacity as well as higher marketing budgets. Thus forecasting on the additional funding needed to increase profitability is required. Additional funding can be sourced through bank loans, grants or investors in support of future developments and also be a cushion against economic fluctuations. A study by GVEP International (2010) revealed that financial planning skills in the briquettes industry in Ghana are rudimentary. For instance, briquettes industry in Ghana does not know how to determine competitive prices for briquettes, and this has a detrimental effect on the Profitability of the briquettes. Financial resource planning has a direct and positive impact on the Profitability of the briquette industry in Ghana. This study filled this gap by explaining how financial planning decisions can affect Profitability of the briquette industry in Ghana.

Human capital planning helps organizations develop resource plans and strategize on human capital needs. A study done by Behara (2005) revealed that organizations that do not embrace human capital planning would face product and profitability erosion, and employee malaise. Human capital planning skills ensure that an organization has the right number of employees, with the right skills, and at the right time (Muhammad, Zulfqar, & Iqbal, 2012). According to Muhammad et al., human capital planning acts as a competitive advantage in organizations because it identifies current and future human skills required in a firm. The findings in this study recorded that employee past activities had a positive impact on future profitability of an enterprise.

Workforce planning is alignment of an organization's human capital with the strategic objectives and direction by analysing the available workforce, identifying future needs and establishing the gap between the current and future then providing solutions to ensure the organization meets its goals (Bhattacharyya, 2012). Briquette manufacturing and distribution business is fairly new in Ghana thus there is limited expertise on the products, machinery needed or marketing strategies thus trial and error is mostly employed in all these components. There is also a lack of planning for the future since the market is considered fluid thus a much shorter perspective is taken into consideration. This limits how fast a company can adjust and meet a sudden demand for briquettes which could be key in making the market aware of the product and its benefits impacting on future profitability. Contingent staffing is the norm in most briquette making company's due to the limited expertise as well as high cost of full time employment however they only serve as a short term solution and do not help in laying structures for future demands especially if they exit prematurely.

Competency management is the practise of identifying, managing and advancing employee abilities, knowledge and capabilities (Bhattacharyya, 2012). Competency management helps to align employee capabilities and behaviours with organizational goals. Organizations that use competency management as a structure to recruit, advance, engage and maintain its employees' gains competitive advantage. Workforce optimization, leadership development, succession planning and business continuity planning are elements that ensure competency management in an organization is practised (Bhattacharyya, 2012). In recruitment, it is essential to ensure your potential employees have the competencies to carry out their jobs well, projecting your needs into the foreseeable future to guide in assessing growth track and needed training.

Leadership development helps to equip its employees to advance in their careers and gain the needed skill to perform competently (Bhattacharyya, 2012). This can be achieved by periodically performing a skills assessment gap to identify the appropriate training. Succession and business continuity planning is vital so there is a need to prepare your employees to take on leadership roles as well as prepare for unexpected events. The logging ban introduced in Ghana in February 2018 provided a great opportunity for alternative sources of energy to increase their profitability levels, this was however not the case since most briquette dealing companies are either individually owned with a handful of employees or large but not able to meet market demand due to rudimentary methods of operation. This clearly highlights the lack of planning for the unexpected and having measures in place for preparedness.

Companies in briquette manufacturing are started out by entrepreneurs or charitable organizations seeking to create a source of income for people in low income areas thus operations are rudimentary and structures often lacking. This highly contributes to the failure rate of such companies and lack of growth in the briquettes industry. Organizations should adopt human capital planning practices to give employees the opportunities to develop their capabilities and improve profitability of an organization (Bhattacharyya, 2012). When employees increase their commitment, organizational profitability increase, and the organization achieves its goals and objectives.

Human capital practices improve firms' performance by improving profitability growth and stock growth (Collins & Clark, 2003). Companies must use a selective and effective hiring process to ensure that the right employees are hired for the job. Organizational strategic objectives must be achieved by having a clear human capital planning roadmap, which must be integrated into the organizational culture (Collins & Clark, 2003). Additionally, business leaders should develop appropriate human capital planning practices that are aligned to the organizational objective and environmental changes. Human capital planning fuels employee job performance, and organizations cannot perform optimally without an adequate workforce. A company needs enough work force to increase production and this will increase the production capacity. A high production capacity supports increase in profitability of a company. This research looked at the role of human capital planning and its impact on Profitability in the briquettes industry.

Lack of material usage planning may lead to a decrease in resources, which leads to a loss in marketing opportunities and competitive advantage (Asaolu, Agorzie, & Unam, 2012). According to Romallosa (2017), resources used in briquettes production were wasted a lot by unnecessary production processes. Effective material usage planning also needs a mix of market place demand. Having consumer intelligence on their order demands, quantities required and when the need should be fulfilled avoids lost orders which supports high Profitability and return customers for future profitability. An accurate estimation of demand can only be achieved by determining market size as well as conducting a market segmentation. Market segmentation classifies the consumer-base which directs on appropriate marketing methods for each segment to yield high Profitability. In the briquette industry, consumers are classified as commercial or domestic users, marketing to each group requires a different approach and product demand is met differently due to usage levels.

Project planning plays an integral part in material usage planning because it helps to identify the required resources for purchasing (Osawaru et al., 2018). Furthermore, project planning covers the availability of the resources, and transfer from supplier to the project site (Caldas, Menches, Reyes, Navarro, & Vargas, 2015). The efficiency of material control avoids potential material shortage (Osawaru et al., 2018). Efficient material usage planning increases the output of an organization thereby increasing the Profitability of the industry. Therefore, briquette



companies in Ghana should ensure effective material usage planning such as inventory management, scheduling production, and cost of purchasing raw resources. The studies above looked at material usage planning and productivity in an organization. These studies failed to look at material usage and marketplace demand and its impact on the Profitability. However, this study filled this gap by looking at how material requirements planning affects Profitability in Ghana's briquettes industry.

### **3.0 Research Methodology**

The study found that financial resource planning and Profitability were positively and significantly associated human capital planning was found to be positively and significantly associated with profitability volume The results also indicate that there was positive and significant association between material requirement planning and Profitability. Finally, the results showed that there was a positive and significant association between time management planning and Profitability. The correlation result implies that an improvement in financial resource planning, human capital planning, material requirements planning and time management planning leads to an improvement in Profitability in Ghana. The correlation analysis results are consistent with the findings of (Dow & Han, 2017) which indicated that finances are important in any business because they help to support the business and it guarantees going concern, lack of finances triggers profitability and market freeze, while finances ensure that the flow of money throughout the business is adequate. The results in addition in agreement with the findings of a study by Behara (2005) which revealed that organizations that do not embrace human capital planning would face product and profitability erosion, and employee malaise. Human capital planning skills ensure that an organization has the right number of employees, with the right skills, and at the right time.

The study also found that all the aspects of project planning (were satisfactory variables in explaining Profitability Ghana. The study form the review of literature found that financial resource planning and Profitability are positively and significant related. The results also indicated that human capital planning and Profitability are positively and significantly related Material Requirement Planning and Profitability were positively and insignificantly related. Finally, the results showed that time management planning was positively and significantly related with Profitability. These results imply that an improvement in financial resource planning, human capital planning, material requirements planning and time management planning leads to an improvement in Profitability. The regression analysis results are consistent with the conclusion made by Mislick and Nussbaum (2015) that, development of realistic estimates of the projected costs of production, profitability and administrative operations will ensure there is adequate allocation of resources and thus more likelihood of achieved business objectives. Mislick and Nussbaum (2015) also affirmed that accuracy in cost estimating is vital as prices are affixed on products or services based on this and high estimation leads to highly priced services or goods resulting in lack of competitiveness in the market. Cost estimation plays an important financial planning role in support of Profitability of the briquette industry. The regression analysis results are also concurs with the assertions of Asaolu, Agorzie and Unam (2012) that business managers should concentrate on the following significant variables to attain material usage planning; inventories, management of resources and purchasing of raw resources.

### **5.0 CONCLUSIONS**

Based on the findings of this study, a number of conclusions can be made. The study concludes that most of the employees are aware of the existence of cost estimation and forecasting metrics in their company, however, some employees are still not aware of the existence of such. The

study also concludes that forecasting and cost estimation are useful in driving Profitability in an organization, having proper expense outlay means that a company is able to enhance Profitability in the organization, profitability and operations planning strategies are important in a company because they ensures that customers' demands are met in timely manner enhancing profitability volume, it is important for briquette companies to adopt resource planning since it has been found to enable the business to properly plan ahead boosting profitability volume, cash flow management is also vital in improving the profitability volume of an organization.

Additionally, the study concludes that human capital planning is very important in Briquettes Company as an aspect of project planning since it enables such companies develop resource plans and strategize on human capital needs for the future. It is therefore important for briquette companies to embrace human capital planning as project panning strategy as a way of improving their products and profitability. The study also concludes that, by adopting human capital planning, the company will acquire the skills that will ensure that the company has the right number of employees, with the right skills, and at the right time.

Regarding material requirement planning, the study concludes that material requirement planning strategy as an aspect of project planning is important in Briquettes Company in enhancing Profitability. Based on the descriptive statistics results, the study concludes that material requirement planning is very vital in Briquettes since it determines the cost of production and Profitability of the organization. In this regard, it is important for such companies to adopt material requirements planning strategy as a way of enhancing their Profitability must. The study concludes further that availability of raw material, raw material and cost of labour are the main aspects of material planning being adopted. Proper usage of material planning results into an increases in the output of an organization hence increasing the Profitability of the industry. It is therefore important that briquette companies in Ghana adopt effective material usage planning such as inventory management, scheduling production, and cost of purchasing raw resources as one way of boosting their profitability.

Concerning time management planning, the study concludes that, time management planning is important in helping employees' exhibit good time management behaviours, time management planning results in high job performance, time management planning increases organizational commitment of employees and that time management planning influences job performance, which enhances profitability volume. The study also concludes that it is important for briquettes companies in Ghana to adopt time management planning strategies because time management planning helps a company to differentiate between what needs to be done urgently and what needs to be done later which brings on the aspect of work prioritization. In addition to that, it is of great importance for the profitability team in such briquettes companies to have set targets which provides direction as well as increase the likelihood of meeting them.

## **6.0 RECOMMENDATIONS**

Based on the findings and conclusions made, the study recommends that the management company should strive to implement project planning strategies such as financial resource planning, human capital planning, time management planning and material requirements planning because they have been found to influence Profitability. The study recommends to the management company that, they should always strive to ensure they have a proper and an effective financial resource planning strategy such as cost estimation in place because accuracy in cost estimating is very important since prices are affixed on products or services based on this and high estimation leads to highly priced services or goods resulting in lack of

competitiveness in the market. Therefore it is important for the management to know that cost estimation plays an important financial planning role in support of Profitability of the briquette industry.

The findings from this study will help the management to identify those project planning related issues that can slow productivity in the workplace and that affect Profitability. The policy makers would be able to use the findings of the study in coming up with policies that would guide the implementation of project planning strategies in companies in Ghana so that there is uniformity in adoption process. The study also recommends that for the management of companies to have successful implementation of project planning strategies, there is need for a clear roadmap with clearly defined goals that should not change after the first phase of the project has been completed and that all stakeholders benefiting from the outcome or involved in executing the project planning should be named and their needs stated during the initial project planning process.

This study contributes to Theory of Change by Beisser 1970 which help to predict the product quality in all the stages of product development. Project planning is important in material requirements planning because it will help in predicting the quality of material used to develop briquettes. The study hence recommends that that the management of companies to always strive to embrace change theory in improving product quality in their establishment to enhance their Profitability. Finally, the study recommends to the future researchers and academicians to conduct similar study by adopting different variables such as scope management planning, quality management planning, project change management planning and risk management planning and findings compared with those of the current study.



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