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A Qualitative Study Investigating the Operational Activities of a Distribution Center of Ghana Cocoa Marketing Company

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Abstract: This paper uses a single qualitative interview with the Warehouse and Ports Operations (WPO) Officer to investigate the operations of Kaase Inland Port as a distribution center of Ghana Cocoa Marketing Company. The findings of the study revealed that during offloading all stakeholders must be present to accept the result; stacks are built to protect the cocoa bean's health and the quality control division issue purity certificate after analyzing the cocoa beans in the laboratory. The main conclusion drawn from study was that best practices were strictly followed under the inbound and outbound logistics but warehousing was not up to the task. The paper suggests newer and better methods of warehousing technologies.

Keywords: Distribution center, Qualitative study, Interview, Ghana Cocoa Marketing Company.

1. Introduction

Ghana is well known for its cocoa cultivation and export worldwide. The nation depends on cocoa as an essential contributor to the economy of Ghana and the nation as a whole. The Government of Ghana in its wisdom established the Ghana Cocoa Board (COCOBOD) in 1947 to regulate and oversee to the trade of its cocoa business and all other things pertaining to cocoa as a commodity.

Distribution centers and warehouses are a vital part to the local and global drive of goods in the supply chain activities of any organization. Gattorna (2003) noted that distribution centers are places where goods are stored and handled at a geographical area to supply and shipped it to another geographical area as demanded. He further went on to say that a warehouse which stored finished goods can be said as a distribution center where the manufacturer or supplier uses it as a point of supply source to serve customers. This makes the supply chain agile to provide speedy access to range of products to customers; this is achieved by receiving goods in bulk and breaking it into assortment to meet the exact requirement as demanded by customers as asserted by Sadler (2007).

Inefficient operations have been a problem to most distribution companies and distribution centers in Ghana, and Kaase Inland Port of Cocoa Marketing Company, Ghana is no exception. The inability of distribution centers to manage their supply chain effectively normally affects the flow of goods from the farmland, through warehouse to the shipment ports. The supply chain of Ghana's cocoa sector faces congestion that disrupts the cocoa flows from one destination to another; this has been the headache of the Licensed Buying Companies (LBCs) due to long processing time along the supply chain flow of cocoa.

2. Literature Review

2.1. Inbound and Outbound logistics

Logistics is a strand running through all the traditional functional aspects of the supply chain from raw material supply, purchasing and manufacturing, to delivery to the customer. According to Harrison and Van Hoek (2002) explained the movement and storage of goods based on procurement through the organizations channels to fulfill the orders of customers can be termed as logistics.

Coyle *et al.* (2013) noted that meeting the anticipated needs and wants of customers through the associated resources to optimize the goods or service-producing network to fulfill customer requests and utilizing the resources in a timely manner to fulfill the customer requests is a process called logistics.

Though it is assumed that receiving of goods is a simple process but this is deceptive as a lot goes into receiving goods to the distribution centers not as simple as it seem. According to Ackerman (1997), in practice, there are eleven steps that can be followed in receiving goods into a warehouse. It is context specific; room must be created in the planning of receiving goods though not all are needed in every situation.

There should be a notification of the inbound truck with all the relevant information of the trucker concerning its consignment and its arrival time/day. Upon arrival, a warehouse staff verifies the notification waybill for its confirmation; the truck arrives and is assigned to a specific offloading point; the truck then will safely secured at the offloading point; a staff from the organization will inspect the seal and break it in the presence of the representative of the truck; the load is inspected for its acceptance or rejection based on the state of the goods; the goods will then be unloaded; floor loaded, all unloaded items are stayed for count and final inspection; it is then dispose properly and goods stored with the assigned locations.

Outbound logistics is as important as the other parts along the supply chain; this is associated with the movement of goods from the point of origin to the intended customers by fulfilling their orders through the distribution of goods. Outbound logistics basically is the movement of goods from point of origin to the point of consumption.

2.2. Warehousing

Warehousing is a major component of the logistics functions if it is well integrated together can be a competitive advantage within the supply chain for the purposes of lean and agile performance. This is the way forward as in the past it function basically was tactical with storage of raw materials and finished goods.

According to [Ross \(2004\)](#), due to the change of role and level of impact with the supply chain, the term warehousing is being replaced by the term distribution center. [Lambert et al. \(1998\)](#) pinpointed that warehousing plays an important role in a firm's logistics system by storing goods at source and between the source and point of consumption moreover feed management with the relevant information on the status condition and disposition of goods being stored in the warehouses.

Storage is the physical holding of inventories awaiting transport to customers ([Hines, 2004](#)). Type of storage system and nature of product can influence the design of the warehouse. [Ross \(2004\)](#) noted that packing, shelf life, stacking limitations throughput targets and number of units stocked are among others are some of the product characteristics.

Large-item and smaller-item are normally classified as the two main classes of storage type as suggested by [Ross \(2004\)](#). Further to this, he went on to say that an expert knowledge of product is necessary to the usage of either or both classes in a given warehouse. The extension of the expert knowledge is the ability to determine the capacities and the capabilities of the available storage type to the requirements of the stock balance; for instance, large-item is suitable for open floor storage, pallets racks, cantilever racks among others. [Ross \(2004\)](#), continue to state that static and dynamic classifications are the main categories of small-item. Small-item storage is suitable for storage system that allows access to the items in the warehouse in a designed way such as the use of automation.

Safety and health protection in warehouses and distribution centers is a must, but surprisingly not a serious attention has been given to it. Cost of goods stored in warehouses continues to increase and the product must be protected from damage not to the disadvantage of many thousands incidents that take place everyday in most of the warehouses and distribution centers.

According to [Swartz \(1999\)](#), management has to focus on the near miss, product damage, and property damage in order to reduce injuries to workers. Some of the hazards that could harm employees include: lack of personal protective equipment, poor ergonomic controls, unguarded machines, hazardous chemical exposure, poor product storage, product handling and lack of a lockout/tagout program.

It is important for management to reduce the risk of injuries and illnesses thereby making cost saving. [Swartz \(1999\)](#) affirm that to accomplish this, management must look at safety as an investment in the company's profitability. Protecting the bottom line and the health and safety of the warehouse workers is vital to any location.

3. Materials and Methods

3.1. Study Area

The Kumasi Metropolitan District is one of the twenty-seven (27) districts of Ashanti Region. It has Kumasi as the district's capital. The Kumasi Metropolis is centrally located in the Ashanti Region. It is the second largest city in the country and the administrative capital of Ashanti. It is estimated that 48%, 46% and 60% of the Metropolis are urban, peri-urban and rural respectively, confirming the fast rate of urbanization.

3.2. Design

The object of gaining a deeper understanding of the operational activities at the Kaase Inland Port as a distribution center of Ghana Cocoa Marketing Company made it appropriate and suitable to conduct this study from a constructivist viewpoint. The qualitative interview is one of the suitable methods for carrying out user perspective studies.

Interviews are guided question-answer conversations, or an interaction between two persons discussing a theme of interest to them by Klave and Brinkmann, (2009) as cited in [Tracy \(2013\)](#). Qualitative interview give the interviewee the opportunity to describe experiences in detail and to give their perspectives and interpretations of these experiences ([Holloway, 2005](#)).

The purpose for using interview but not other methods is that it helps to obtain unique information or interpretation held by the person interviewed. Finding out about "a thing" that the researcher were unable to observe themselves ([Stake, 2010](#)).

According to Seidman (2006), for the interviewer, there is always an element of being there with the interviewee which can afford the opportunity for observation above and beyond what the interview itself is designed call forth. Furtherance to the above, the interview is an encounter and interaction between interviewer and interviewee. Anastas (1999) said that from the standpoint of the researcher there are many advantages of being present as the informant encounters the interview questions, pauses, hesitations, and facial expressions may affect how a verbal answer should be interpreted. This is so because the interviewer can draw on observational data from the interactions to better understood the responses offered. Consequently, data were collected via semi structured interview with the Warehouse and Ports Operations Officer (WPO Officer)

3.3. Recruitment

One Senior Officer was recruited for the study in the person of Warehouse and Port Operations Officer (WPO Officer). Recruitment of the WPO Officer as the interviewee was based on a purposive sampling. This is because the holder of the position/ office is well placed to respond to the interview guide questions. The criteria of choosing the WPO Officer was affected solely on her knowledge and insight of the inbound, warehouse management and outbound logistics of the distribution center. The WPO Officer is at the heart of the operational activities among others which were realistically available to the researchers affected the sample size. The study focuses on inbound logistics (receiving cocoa from farmlands), warehousing (storage of cocoa beans) and outbound logistics (evacuation of cocoa beans).

Ritchie *et al.* (2003) provided reasons why samples for qualitative studies are generally much smaller than those used in quantitative studies. They said that there is a point of diminishing return to qualitative sample as the study goes on more data does not necessarily lead to more information. This is because one occurrence of a piece of data is all that is necessary to ensure that it becomes part of the analysis framework. Frequencies are rarely important in qualitative research, as one occurrence of the data is potentially as useful as many in understanding the process behind the topic. Crouch and McKenzie (2006) reported that qualitative research is concerned with meaning and not making generalized hypothesis statements, this study is representative enough in terms of meaning and insight in the topic. Though one person, she represent the larger population with the knowledge on the interaction. The sample criterion for this study is in alignment with Ritchie *et al.* (2003). Jette *et al.* (2003) suggested that expertise in the chosen topic can reduce the number of participants needed in a study. Jette *et al.* (2003) suggestion strengthens the sample size for this study.

Interviews were conducted by the researchers in March 2015. It took the researchers two days to do the interview due to the busy schedule of the WPO Officer. The duration of the interview was approximately to one and half hours. The interview took place at the office of WPO Officer. Informed consent was obtained in written form before the interview. The WPO Officer agreed to grant the authors the interview if only it will not be recorded in audio or digital so the recording was done verbatim on a notepad. Since it was not audio or digital recording the interviewee was more relaxed to go over once more if the need arise. Though field notes has advantages such that it is fast, cheap and records initial thoughts but its limitation is that it is not replayable, can be biased, loss of information and overall lack reliability. This was minimized by this study as after each interview day, the field notes were typed and stored electronically which was further converted from text to speech to avoid loss of information. In designing the interview guide substantial sources of information were drawn on the literature; the use of open-ended questions was to encourage descriptive and reflexive answers.

3.4. Analytical Strategy

The approach to the data analysis was qualitative. The purpose of the data analysis was to bring out a better meaning and understanding of the findings from the study. The study adopted the Wolcott (1994) approach which he based his analysis of the qualitative data into three levels/styles as cited by Brinkmann (2013). He went on to explain the approach as description, analysis and interpretation. In which the description touch on what you want your readers to see what you saw, while the analysis looked at what you want your readers to know that you know. The interpretation which is the last stage considers what you want your readers to understand what you think you yourself have understood. This interview analysis adopted Wolcott (1994) three dimensions of qualitative research approach. The paper looks into the analysis of the data from one respondent in the larger case study.

4. Results and Discussion

4.1. Results

In the following three sections, we report the results of the interview with the Warehouse and Port Operations (WPO) Officer. These are excerpts from an interview with the WPO Officer which was centered on inbound logistics, warehouse (storage) and outbound logistics.

a) Inbound Logistics

How does the port receive trucks for offloading?

[...] *A truck arrives at the security or entrance of the warehouse with a bush waybill which is a document prepared by the District Officer that bought the cocoa. The document is detailed the truck number, bush waybill, station of dispatch, station marks, the category of cocoa and the driver's name and license number among others.* (WPO)

What is the security officer's role in the offloading?

[...] *You see the truck bush waybill is received by the security officer on duty and cross checked the information with the truck and details registered. (WPO)*

What role does the licensed company representative plays in the offloading process?

[...] *'Um, the first point is that the licensed buying company representative collects the bush waybill from the security, raised an internal waybill on it and then registers at the operations office which is one of the warehousing and port operations office where the waybills will be registered and sent to the weighing bridge for the first weighing and then proceeds to the assigned warehouse for offloading. (WPO)*

What is the procedure for accepting the cocoa beans?

[...] *'Yeah it is important that during the offloading all stakeholders must be present. During the process samples are taken by the quality control officers from each cocoa bag, and then analysed in their laboratory to see if it meets the standard of Cocoa Board to pass or fail the bag. (WPO)*

Why the weighing bridge?

[...] *'Yes, this is the equipment that checks the accurate measurement of the cocoa beans, all the trucks with loads whether inbound or outbound must pass through the weighing bridge. The truck upon passing then proceeds to the weighing bridge to weigh for the second time. This is done to refuse taking short weight cocoa into our warehouses. If the cocoa passes, it will be stacked and treated until time for evacuation. The treatments are two main, one is forging which is done three (3) times a week and the other one is fumigation which is done once the stack reaches its highest level. (WPO)*

b) Warehousing

How many warehouses are operated at the Kaase Inland Port?

[...] *Though thirty-two (32) sheds but not all are in operation in the port. Though it is warehouses but we call it shed. (WPO)*

Is there a training program designed for the employees in the shed (warehouses)?

[...] *'Hhmm' no serious laid down training program for them. Averagely five (5) days on site and specific training as the needs demands. This is a big challenge for the warehouses to adhere to safety and housekeeping practices. (WPO)*

Can you elaborate on how loading or offloading are done in the shed (warehouses)?

[...] *'Ok' it depends on the shed, generally manual and forklifts are use, but other sheds use conveyer belt. It is one area of concerned to the distribution center as at peak period can be challenging to smoothing the process. (WPO)*

Is there security to safeguard the goods within the warehouses?

[...] *It is mainly by the security personnel and security alarm systems. (WPO)*

How do the cocoa beans received to the port?

[...] *'Ok' we take this seriously, all the haulage trucks transporting the cocoa beans passes through confirmation from quality control and the weighing bridge. (WPO)*

Is there any way to keep the cocoa beans to meet the standards?

[...] *'Yes for sure, stacks are built. This is done by arranging the cocoa in a grid form that has the length of 22 and width of 24. When the warehouse becomes full then the warehouse keeper will apply to quality control to cover the cocoa with a sheet filled with strong medicines that will kill any insects that may try to attack the cocoa's bean health. Mostly it is covered for a week before it can be taken off. (WPO)*

Why covering the stacks?

[...] *'You see it is a good practice, before the stacks are covered fumigation with medicated smoke that kills flying insects are used to protect the cocoa beans. This work is done by the quality control clerks but supervised by the warehouse keeper this is done three times a week. (WPO)*

What does the Warehouse Keeper do in this process?

[...] *The warehouse keeper builds the stack history in their ledger books to keep track of cocoa received and evacuated. (WPO)*

How was the cocoa bean kept?

[...] *It must be noted that cocoa should be offloaded onto a pallet. It should not be on the bare floor to keep it from getting spoilt. Before any warehouse will start receiving and store cocoa the warehouse will have to be properly swept sprayed with insecticides. The walls must be whitewashed to keep the walls dry and the room temperature not too hot to create moisture in the cocoa bags due to heat. Any warehouse that is having cocoa must be opened every morning for proper ventilation. (WPO)*

Can you educate me on any major problem in the shed operations at the distribution center?

[...] *'Hhmmm, indeed there are problems but a peculiar instance is getting someone to fill a temporal vacancy if a trained employee is sick and shortage of labour especially during the peak season, all these comes down to human resource. Another issue which is outside the office control has to do with information technology issues, this can slow down the supply chain when the data entry clerk is redundant when the computerized systems hang up which halts the flow of the warehouse operations. (WPO)*

c) Outbound Logistics

Who or which department sells the cocoa beans?

[...] The marketing department sells the cocoa which ever tonnage to the buyer which can either be local factories or international. They then forward the sale document to either the WPO Manager or Shipping Manager depending on the destination. (WPO)

How do the cocoa beans leave the port? Kindly take me through the procedure?

[...] 'Ok' will sum it up for this interview. In the ports, a copy of the letter is given to all departmental heads. The security prepares a list of trucks and the quantities they are supposed to load whiles cross checked with the tonnage and this is sent to the WPO Operation office where the chit for loading will be issued out indicating the contract details for each truck. The chits are given to the weighing bridge for the first weight of the trucks to be taken; they then take it to the warehouses to be loaded. (WPO)

What role does the Quality Control plays in the process?

[...] 'Let me tell you the role of that section of the port cannot be overemphasized. The samples of the cocoa beans will be analysed by the Quality Control Officers in their laboratory. Then purity certificate will be given to the driver based on the information on the chit and waybill raised by the warehouse keeper indicating the quantity that was loaded and other information on the chit. (WPO)

What is the function of the weighing bridge in the outbound logistics?

[...] The truck then moves to the weighing bridge once again to weigh for the second time. A weighing bridge ticket is then issued out with the details of the waybill and purity certificate and the weight recorded. The truck is then directed to the security office for documentation and finally moves to the security gate and finally checks out to the final destination. (WPO)

4.2. Discussion

4.2.1. Inbound Logistics

It is of best practice that goods entering a distribution center must be inspected and recorded to check the items/goods in the truck and all the relevant documents supporting the goods to make it easier to be received into the distribution center. According to Ackerman (1997), receiving and storage of inventory are very important flow control activities in the product management chain. This was also affirmed by Christopher (1998) who said that inspection of good received must always be done.

Security in any form is a requirement in manning a distribution center for the purposes of security surveillance in and around the distribution center to check possible theft from staff and visitors. The duty of the security officers is to double check that items received correspond to the waybills. This was in alignment with Swartz (1999) who said that management of organisations must look at safety as an investment in the organisation's profitability.

All the relevant stakeholders must be presence before any offloading must be done to protect their interest and also avoid challenging any discrepancies that is why the representative(s) do follow up and play a major part of the flow of these activities; this was affirmed by Ackerman (1997) in his eleven sequential steps in receiving goods. The weigh bridge ensures that the accurate measure of cocoa bean(s) are not compromise so as to meets the standard. This is best practice as if the right thing is not done then it will go against the distribution center for the losses if any.

4.2.2. Warehousing

The loading and unloading are done manually which does not suit modern day warehouses considering how warehouse and distribution center are very important in a supply chain network according to (Hines, 2004). Which means at peak periods the Kaase Inland Port cannot be that efficient and effective in justifying the role of distribution centers as suggested by Ross (2004), distribution centers handle most products in two ways, receiving and selling rather than storage and also the distribution centers normally hold minimum inventories but focused on the high-demand items most of the time.

The workers not having a planned training program is in disagreement with Swartz (1999) indicated that it is the duty of management to put policy in place to reduce the risk of injuries and illness through training of housekeeping and the provision of safety gadgets for the workers.

Though thirty-two sheds were found in the distribution center but not all of them were in operation, it was difficult to accept that as during the research we saw both loaded trucks and empty trucks for offloading and evacuation of cocoa beans respectively waiting outside while some of the sheds were idle thereby making the cocoa supply chain slow. This can be contributed to lack of adequate financial funds to invest in the infrastructure of the Inland Port to accommodate the pressure at the warehouses.

4.2.3. Outbound Logistics

There exists a thorough procedure to be followed before any truck leaves the distribution center by informing all the departmental heads on the truck leaving the distribution center. Quality control play a major part before any truck of cocoa beans is evacuated. The discussion was in agreement with Coyle *et al.* (2013) and Harrison and Van Hoek (2002) were of the view that logistics must be integrated and align along and with the supply chain management.

4.4. Conclusion and Recommendation

This paper aimed at investigating the operational activities of a distribution center within the Kaase Inland Port context in the Kumasi Metropolis of Ghana. A single qualitative interview approach was adopted for this phenomenon (study). This paper provides evidence which suggests several reasons on the operational activities of

the distribution center, the most insightful findings were all trucks arriving at the Port must have a bush waybill; the security men check the bush waybill for its authenticity before registering it accordingly; all relevant stakeholders must be present during the offloading to accept the process and weigh bridge is there for measurement purposes.

Moreover, stacks are built to protect the cocoa beans health; the warehouse keeper keeps track of the stack history in the ledgers books before evacuation; the biggest problem is the manpower management as replacing a trained staff is difficult in his/her absence and the Quality Control Officers issue purity certificate after analysing the cocoa beans in the laboratory.

Warehouse and Ports Operations (WPO) Officer was happy with the inbound and outbound logistics, the main challenge was found under the warehousing. It can therefore be concluded that the inbound logistics activities of the Kaase Inland Port followed best practices by ensuring that trucks coming to the distribution center can be tracked with the processes available. Warehouse facilities and equipment leaves much to be desired. The outbound logistics in the area of trucks leaving the distribution center follows strict procedures.

It is to the Distribution Center advantage to make use of state of the art warehousing technologies; hence it is recommended that the Port must install newer methods where there is a scope of automation that will make the warehousing system effective and efficient. A further study in the form of a comparative study on distribution center operational activities can be undertaken on two inland ports of the Ghana Cocoa Marketing Company.

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