



International Journal of Research Publications

Ethical issues in Cocoa purchasing and transportation. Perspective of Social consumerism with Christian blending from Proverbs 11:1

Federick Santuoh , Solomon Arhin

Christan Service University College,P.O.Box 3110,Kumasi,Ghana

Christan Service University College,P.O.Box 3110,Kumasi,Ghana

Abstract

Pragmatically, there has been hot debate on the way Cocoa industry is managed in Ghana. These problems, mostly ethical in nature relate to Cocoa Purchasing and Transportation. Social Consumers have argued these out from Christian and Biblical perspectives such as proverbs 11:1. Christian critics in the industry argue that their career in the industry raises a lot of ethical and moral questions .These include not only the integrity and objectivity of the measuring instrument used in measuring the commodity from the producers level, but also the monopolization of cocoa exports and lack of new value creation activities in the industry as well as streamlining the activities of handling losses through the transportation of the raw materials to their points of conveyance. One will however, envisage that Christian organizations have not wholly been involved in the establishment of firms in Cocoa industry as commonly observed in financial and educational sectors in Ghana where, many of such firms belong to several religious organizations. The carefulness and integrity of these honorable Christian men and women in tempering with the controversial measurement scale as per the policies of the License Buying Companies (LBCs) have been questioned because the fragility of the industry makes people so susceptible to dishonesty and corruption which create a lot of ethical issues. According to a UK Department for Environmental, Rural and Food Affairs (DEFRA), more than half of consumers in the country said they will not try to buy products whose ethics they disagree with.

The objective of this study is to assess the ethical issues and current innovations on cocoa purchases in relation to the controversial scale and to understand the reasons for lack of value added creation activities. The methodology involved data collection (a survey) and use of the theoretical framework. Secondary data on cocoa purchases for the ten years period, between 2001-2010 were used for the analysis. In addition, responses from eighty-seven marketing clerks representing two major License Buying Companies (LBCS) were collected as a basis for generalization and thirdly, experts' opinion from two members of COCOBOD were gathered to provide descriptive analysis on the current condition in the COCOBOD.

The main finding of this research is that there is no tracking mechanism on cocoa purchases in the country by COCOBOD. Further, the research found out that unlike previous years, manufacturing of cocoa beans are found to be on the increase compared to the previous four years under study.

© 2018 Published by IJRP.ORG. Selection and/or peer-review under responsibility of International Journal of Research Publications (IJRP.ORG)

Keywords: License Buying Companies (LBCs); Weighing Scale; Innovations; Tempering with; Ethics.

Introduction

The saying 'Cocoa is Ghana, Ghana is Cocoa' portrays the important role cocoa plays in the economy of Ghana. Cocoa (*Theobroma cacao* L.) is the third largest export Commodity of Ghana and represents the most important source of revenue for numerous small scale farmers. (Daily Graphic, Thursday March, 10, 2016, page 72). In Ghana, exports account for 30% of the Ghana's Gross Domestic Product (GDP) with Agriculture contributing around 40% of export earnings. Cocoa is the largest contributor to these earnings. Ghana remains world second largest producer of cocoa with the best quality which earns a premium price from its sale on the international market. There is therefore the need for extensive research into Cocoa industry in Ghana to provide enough secondary data for future researchers.

Research into cocoa is very paramount in our opinion especially in the period where Ghana is mentioned as the seventh least corrupt country (<http://www.transpaency.org/country/GHA#>)

Though the research results from transparency international may be taken with a pinch of salt, it communicates clearly to the external world. The actual importance of this research is to discuss ethical issues in cocoa industry in Ghana from the perspective of social consumerism with Christian flavour from Proverbs 11:1 "Dishonest scales are an abomination to the Lord, but a just weight is His delight". (King James Version-KJV). Other Translations use different expressions "A false balance is an abomination to the Lord but a just weight is His delight".

1.1 Problem Statement

Intellectually gifted scholars in Ghana argue out that cocoa purchasing in Ghana poses a lot of problem according to public complaints and that value added chain should be created to enable "made in Ghana" products to be affordable to both the producers and consumers. Besides, many farmers and producers have complained that they cannot afford to purchase cocoa products for their wards in schools and colleges. Moreover, many Christians have pondered over the reason why religious bodies have not fully

participated in the cocoa procurement as prevailing in the financial and educational sectors. Therefore there remains a gap in the research to assess the issues of ethical practices in cocoa industry to provide enough and reliable data for future research.

1.2 The purpose of the study

The purpose of this research in a nutshell is to examine the key ethical issues from procurement of Cocoa, the management of the controversial measuring instrument, the Scale and the monopolization of cocoa exports in Ghana and lack of value creation activities on the raw products. Many honest Christians have refused engagement into Cocoa industry due to the controversial measuring scale and the fact that their integrity will be questionable when it comes to receiving the just weight for the cocoa purchased as required by their private License Buying Companies (LBCs) vis-a-vis the weight specified by government agencies. What (extra) margin should be put on each weighed bag of the agreed 64 kilograms to ensure the figure stays the same for the marketing companies after the bags have been tempered with at the ports to test for their quality? Integrity, in this context is used to mean the consistency and reliability of measuring scale. It is upon this purpose that this research is being undertaken.

1.3 Objective of the study

Chief Cocoa farmers argue sharply and blame purchasing clerks of both the private and public License buying companies (LBCs) on the inappropriate adjustment of measuring instrument used in weighing cocoa beans. : This occurred during an interaction with Ghana news agency staff at Asamankese in the West Akim Municipality of the Eastern Region of Ghana. (<http://www.ghananewsagency.org>). Therefore, the objective of this study is to assess the impact of the scale adjustment and other ethical issues pertaining to transportation of cocoa.

1.4 Research questions

The main questions this research seeks to address include: what is the allowable margin of errors in the controversial measuring instrument “the Scale”?

What are the best methods for handling shortages and shrinkages in the cocoa products delivered to the district managers and ports of exports?

What are the transportation networks in major cocoa producing areas in Ashanti region?

What are the Information, Communication and Telecommunication (ICT) or innovative tracking mechanism and various hindrances to the value creation to the raw cocoa beans?.

1.5 Limitation of the study

The research is limited to the observations that were done in the selected areas. However, since cocoa industry is controlled by one major entity in Ghana - (COCOBOD), secondary data on the quantities of metric tonnes produced was obtained from COCOBOD website. The results obtained can be carefully generalized to all other regions of Ghana. The time for the research was when the light crop season has actually ended. During the light crop seasons many district depots are closed. An ideal time is during the main season when crops are on the trees for observation purposes and many depots are opened to gather large primary data.

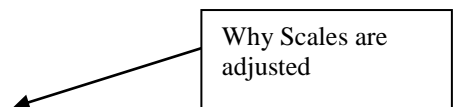
1.6 Construction of references

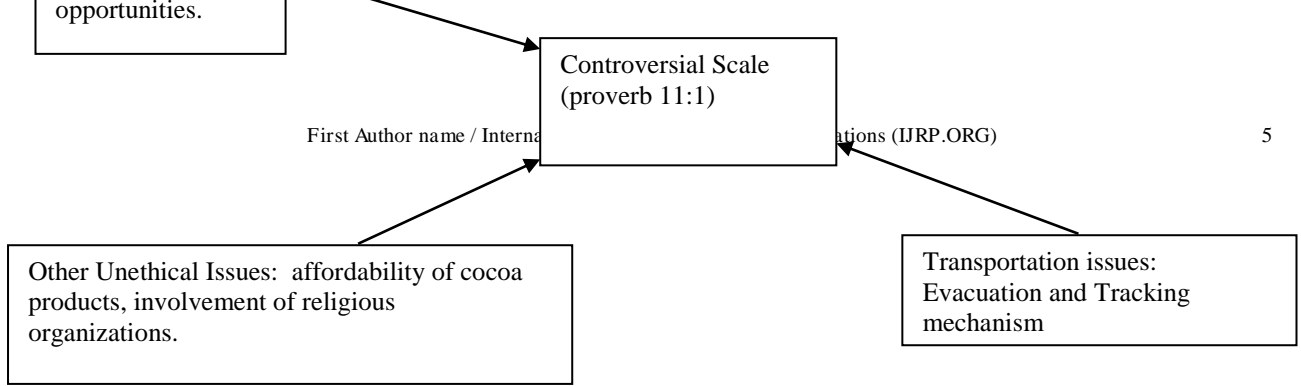
References should be added at the end of the paper, and its corresponding citation will be added in the order of their appearance in the text. Authors should ensure that every reference in the text appears in the list of references and vice versa. Indicate references by Clark et al., 1962 or Deal and Grove, 2009 or Fachinger, 2006 in the text. The actual authors can be referred to, but the reference citation(s) must always be given.

Some examples of how your references should be listed are given at the end of this template in the 'References' section, which will allow you to assemble your reference list according to the correct format and font size.

2.0 Theoretical and conceptual framework

Section headings should be left justified, with the first letter capitalized and numbered consecutively, starting with the Introduction. Sub-section headings should be in capital and lower-case italic letters, numbered 1.1, 1.2, etc, and left justified, with second and subsequent lines indented. You may need to insert a page break to keep a heading with its text.





The diagram shows the main controversial scale at the center with reference from Proverb

The diagram shows the main controversial scale at the center with reference from Proverb 11 :1 as stated in the topic.

Annual Report from Cocoa Research Institute of Ghana (2009), which was conducted by the division of Cocoa Management Trust into problems on cocoa marketing revealed the measuring scale adjustment by purchasing clerks to be the main concern of farmers. The problem is widespread and appears institutionalized. Whilst liberalization of the internal trade has helped in some communities, it has failed to stop or reduce the scale of the practice. From the diagram above, the biggest discussion is on the question, why scales are adjusted? This cannot be easily answered but it can be attributed to losses due to transportations, evacuations and lack of tracking mechanism from the clerks' societies to the depots. The genuine cause calls for the involvement of religious bodies to add their voices not only to the problem of scale tempering but unaffordability of general public to buy cocoa products on the markets. These contribute to low enthusiasm for value creation activities in the cocoa industry because the friction between chief famers ,marketing clerks and the licensed buying companies on the scale adjustments are not resolved to create new incentives and ideas for added value creation activities .Other unethical practices include high carting costs and pilfering of cocoa beans by neighbours . In the light of this study, it is still evident that tempering with weighing scale is the most controversial issue in the cocoa industry preventing many hardworking but willing individuals to enter the industry

Similar research done by Cocoa research institute of Ghana, (2010) indicated otherwise to old unethical behavior of ignoring women in the industry. Women are now actively involved in cocoa production as most of them are the owners of their cocoa farms. Though these women have a general positive attitude towards cocoa production, they face many constraints including inadequate access to capital and labour and poor extension support. The women, however, appear well informed on child labour issues. Scale adjustment once again was found to be the main marketing problem of farmers. The perception of farmers is that the liberalization of the internal marketing of cocoa has not helped to address marketing malpractices in the cocoa sector. Government should put in place measures such as introducing standard weights in all the buying centers so that farmers can verify whether the scales have been tampered with or not before having their beans

weighed. This research also perceives the scale adjustment as the main issue, therefore, our decision to put the controversial scale in the centre of our framework.

3.0 Methods /Approach

For the purpose of this study, secondary data was obtained from Ghana COCOBOD website. Secondary data has always proved to be the most refined form and readily available source of data for analysis (<http://keydifferences.com/difference-between-primary-and-secondary-data.html>). The secondary data include cocoa tonnes produced per year per each region in Ghana. For the purpose of primary data, two strong license buying companies operating in Ghana with the branches at Obuasi –Adansi (Ashanti –region) and Wassa Akropong (Western Region) were sampled through questionnaires. Eighty –seven purchasing clerks were asked to provide their candid opinion on the questionnaire.

Apart from the secondary data on cocoa production and the sampling of the opinion of eighty-seven purchasing clerks, this research also tried further to enrich the data by contacting two top-level experts who are working directly with COCOBOD. Experts' opinions add extra details and distinguish results obtained from quantitative or qualitative data. The results obtained from both the experts opinion and the primary data collected from the purchasing clerks can be carefully applied to similar situations in other local cocoa growing areas.

4.0 Results and Discussion

The result and the discussion is on the controversial scale which raises an ethical issues for honest and willing Christians who want to go into cocoa business. The Statistics describing cocoa purchases and its relationship and its effect on scale adjustment in Ghana are depicted in Table 1 .

Effect of 2.5 scale kilogram adjustment on Cocoa purchases in Ghana cedis(Gh¢).

Crop year	Tonnes	Price per Tonnes	Price per bag =price per Tonne/16	Price per kilogram= Price per bag/64kilos	Amount earned by 2.5k adjust.=Tonne *2.5k*price per kilo
2000/2001	389772	438	27.375	0.427734375	6,668,755.313
2001/02	340563	438	27.375	0.427734375	5,826,820.078
2002/03	496846	850	53.125	0.830078125	16,496,839.84
2003/04	736976	900	56.25	0.87890625	25,909,312.5
2004/05	599318	900	56.25	0.87890625	21,069,773.44
2005/06	740458	900	56.25	0.87890625	26,031,726.56
2006/07	614533	915	57.1875	0.893554688	21,964,753.71

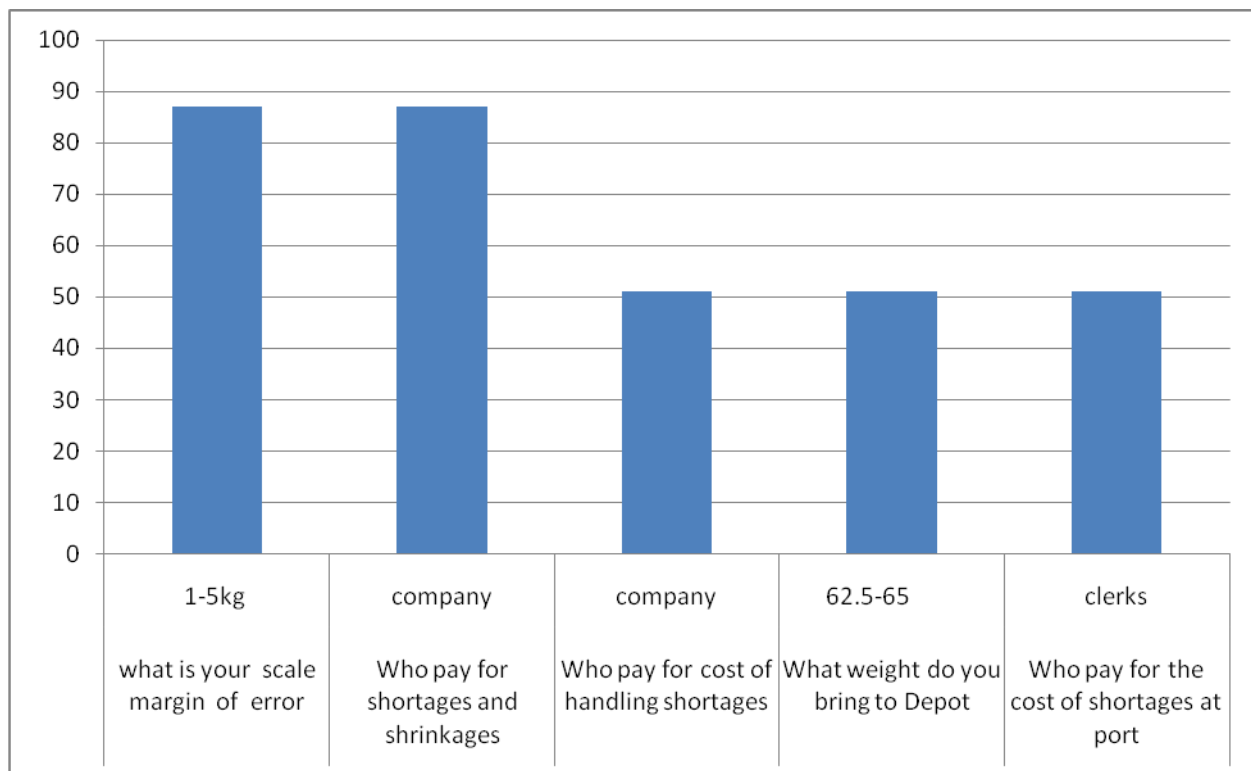
2007/08	680781	1200	75	1.171875	31,911,609.38
2008/09	710642	1632	102	1.59375	45,303,427.5
2009/10	650941	2400	150	2.34375	61,025,718.75

Source: https://www.cocobod.gh/weakly_purchase.php

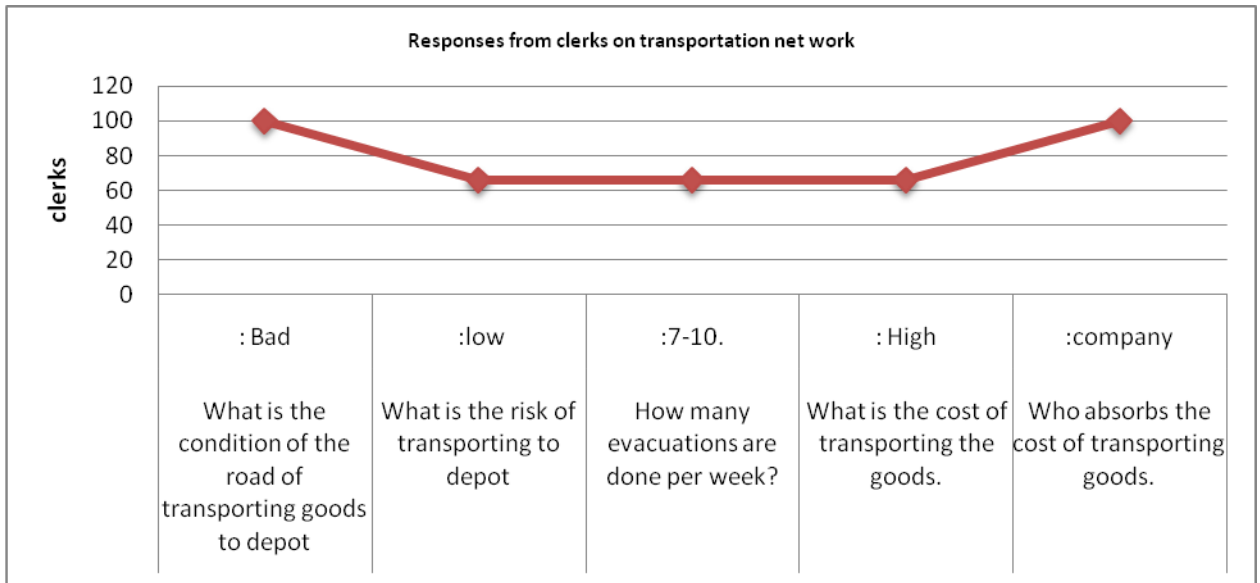
Table 1: shows calculation of total amount realized due to controversial scale adjustment of 2.5 kilogram on 2001 to 2010 purchases. Ethically, it can be argued out that a standard weight is required so that farmers can test the weighing scales as these measures are subjective. The key ethical issues is that tempering with scales generate additional high income but these incomes are only used by the marketing clerks and their managers, therefore the farmers have strongly supported the idea that cocoa industry promotes unfair practices and exploitation, because farmers who are the producers have no means of checking the weights of their products before they are sold out. This raises a lot of ethical issues especially if the marketing clerk is a religious figure who must ensure objectivity and integrity in the measuring instrument to win the peoples trust. The problem raises future research concern that if the influence of these religious and honest individuals in tempering with the scale is false, that may be one of the reasons deterring churches to enter the industry as churches do not want their names to be associated with unjust measurement of products.

To obtain further responses from the marketing clerks who deal with the farmers directly, questionnaire were sent to eighty-seven marketing clerks in the two major selected companies in Obuasi-Adansi(Ashanti-Region) and Wassa Akropong(Western Region) and their responses are depicted in the diagrams below :

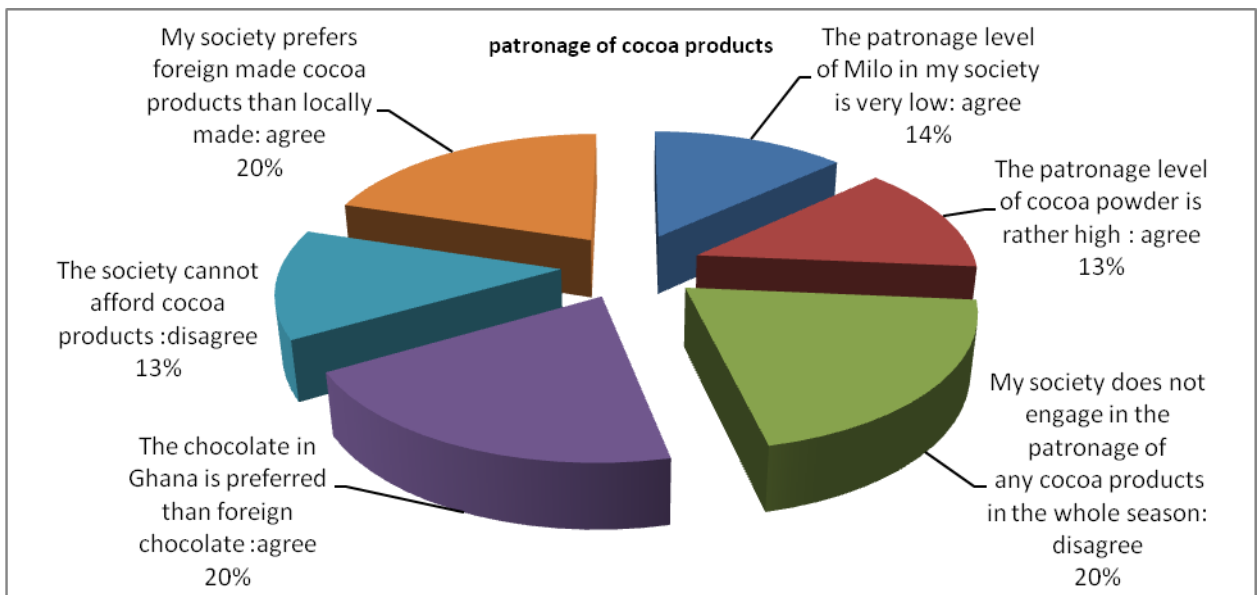
Responses from 87clerks on measuring scale



From the responses it can be inferred that although tempering with scale is unethical, the cost of shortages at the ports are borne by marketing clerks. While this reason does not permit the clerks to unjustly temper with scales, it also raises serious unethical concern on why some License Buying Companies (LBCS) ask their clerks to absorb the cost of shortages at ports.

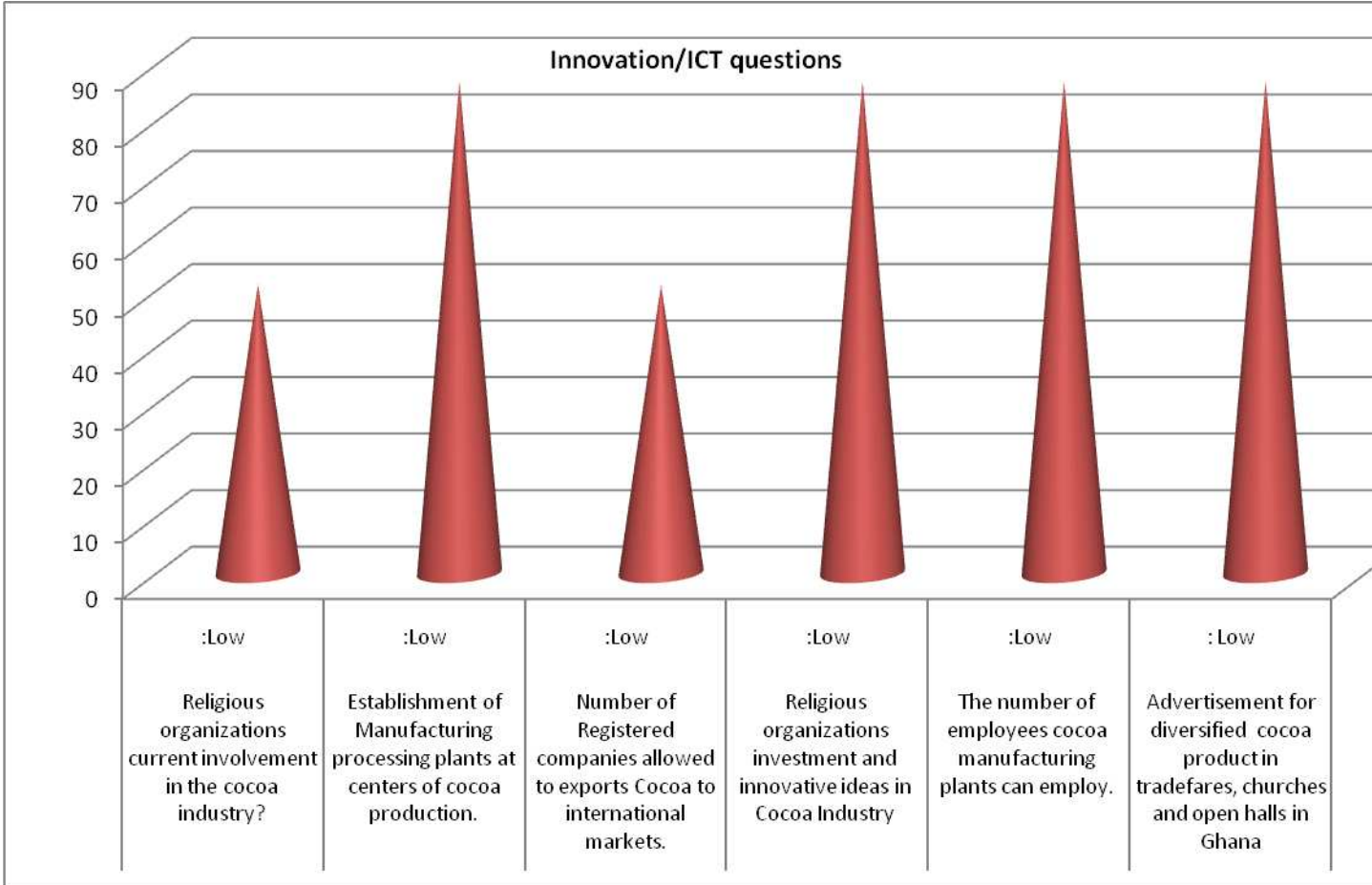


While some of the marketing clerks see the risk of transportation of the products to be low, most admit that the conditions of the roads are very bad creating high transportation cost for the company. The major ethical issue is on the aspect of frequent evacuation of 7-10 times per week on the bad roads which will compel the marketing clerks to send cocoa beans with high moisture content to the depots.



On the aspect of patronage of cocoa products most marketing clerks agree with the farmers that foreign made cocoa products are preferred because they cannot afford the local products even though the chocolate in

Ghana is of different taste than foreign ones. This raises a lot of ethical concerns that producers of cocoa products cannot afford their own products after some value has been added to them.



The innovative responses were very important as they reveal the level of involvement of religious organizations in the industry. Almost all the respondents answered that the innovation and investment from religious bodies are not extended into the cocoa industry and manufacturing facilities also very low. This raises key ethical concern why churches are not wholly entering the sector to form their own registered License Buying Companies (LBCS) as commonly seen in education, health and financial institutions. Social Consumers have argued these out from Christian and Biblical perspectives such as proverbs 11:1 but there might be more ethical reasons that warrant further research. Manufacturing industries at centers of cocoa production that can employ many people are also very few.

The next approach was the contact made to two top level (COCOBOD) executives to respond to some of the ethical issues in Cocoa purchasing, transportation and monopolization of cocoa export as well as the limited

value added creation activities in major cocoa growing areas. The executives were seen as experts and were asked to provide their candid opinion on the tracking mechanism of cocoa transported from various License Buying Depots to their ports of Exports. This can be a single system or software in place that enable COCOBOD to track transportation of cocoa with the Buying Companies. The experts' responses to the first question were that Ghana COCOBOD does not have a system to track the transportation of cocoa to the take-over centers or ports of export by the Licensed Buying Companies (LBCs). Even though COCOBOD has interest in the cocoa during transit, the beans are not yet COCOBOD's stock until they have been delivered by the LBCs at the Takeover Centre. Much as COCOBOD has interest in the delivery of the cocoa to the port of export, the Licensed Buying Companies (LBCs) equally have interest in ensuring the delivery of the beans to Cocoa Marketing Company (CMC) or COCOBOD at the port to ensure that they earn the margins for which they are in business. Therefore the idea of tracking the transportation of the cocoa beans with software or any other means is not a priority consideration by COCOBOD.

On ethical ground, we feel that the Licensed Buying Companies (LBCs) bear higher risk on transportation. We feel that there should be mutual support and care between COCOBOD and the 41 Licensed Buying Companies (LBCs) in transporting the products from district Depots to ports of exports to deploy a single integrated tracking software that can provide real-time information on cocoa transports from depots as soon as they are dispatched from depots with addition to the accompany document.

The second important question is on the monopolization of cocoa export by Cocoa Board. What are some of the qualifications required for a Licensed Buying Companies (LBCs) to qualify to export its own cocoa products to the international market?

The expert response revealed that the Government of Ghana is the sole owner of all cocoa produced in Ghana. By law, Government has mandated COCOBOD - the regulator of the cocoa industry in Ghana, to export all cocoa produced in Ghana, or otherwise sells and delivers to local processing factories. This is to ensure that Government has absolute control of the foreign exchange proceeds generated from the sale of cocoa to support the local currency.

Some Licensed Buying Companies (LBCs) have recently been granted approval to collaborate with the Cocoa Marketing Company (CMC) to export a minimum of 30% of their traceability cocoa purchases to foreign buyers which they have contracted themselves. Such export must still be handled by Cocoa Marketing Company (CMC), which is a subsidiary of COCOBOD, with the requisite experience in cocoa sales or shipment dating back many years. The Licensed Buying Companies (LBCs) involved in the traceability of cocoa supply chain normally have special arrangements with their foreign buyers who require specific conditions such as minimum pesticide residue levels in the beans (organic cocoa), traceability of the cocoa to

its source of production (the farm), and specific social responsibility requirements towards the farmers by the Licensed Buying Companies (LBCs) concerned. The fulfilment of such contractual agreements by the Licensed Buying Companies (LBCs) earn them a premium, part of which are paid to the farmers who produce such specialized cocoa and sell to the Licensed Buying Companies (LBCs)

The ethical concern, in our opinion is that few of the Licensed Buying Companies (LBCs) are granted such an opportunity to export even less than 50% of their own purchases. This brings unfair competition in the international market. Cocoa exports should be made in proportion to purchases by the various Licensed Buying Companies (LBCs). Selling to COCOBOD should be the sole prerogative of the Licensed Buying Companies (LBCs) who have met the standard set by COCOBOD. COCOBOD should only provide oversight on the quality of the product exported by these Licensed Buying Companies (LBCs). This will enable these qualified Licensed Buying Companies (LBCs) to expand and increase their competitive edge in the international markets.

The third and the most impotent question was on the aspect of value added to cocoa through manufacturing beans into other products which currently seem limited. Experts were asked to comment on the main reasons why manufacturing sector is not expanding into major cocoa growing areas for the processing of beans and the employment of local people.

The response from the experts revealed that, the cocoa manufacturing sector has expanded in the last ten years, with processing firms currently numbering about eleven as opposed to about four ten years ago. The increase is due to the setting up of multinational processing companies in Ghana such as Cargill B.V. Barry Callebaut, Cocoa Touton and ADM Cocoa. COCOBOD as the regulator of the cocoa industry does not have specific mandate to go into manufacturing, apart from the current 57% stake it has in Cocoa Processing Company (CPC) Limited. Government, through COCOBOD encourages local processing of cocoa by giving discount on the light crop sized beans sold to the local processing companies. Other motivations include tax incentives, and this accounts for the reason why many of the local cocoa processing companies, including the multinationals mentioned above are located in the free zones enclave to take advantage of the tax incentives. Government and COCOBOD are still encouraging the expansion of local processing. The only challenge is that the percentage of light crop sized beans in the total to annual production is decreasing; hence local processors have sometimes experienced beans shortages, with Barry Callebaut importing about 15,500 metric tons light crop sized beans from Cote D'Ivoire in the 2014/15 year to supplement its beans requirements as stated by Ghana's Finance Minister, Seth Terkper (<https://asokoinsight.com/news/ghana-imported>). Also COCOBOD requires more of the main crop sized beans which are the beans described as exportable, to collateralize the annual syndicated loan required for cocoa purchases. Thus, much as local processing is being

encouraged for its many benefits including employment generation, COCOBOD is also mindful of sustaining its ability to obtain the exportable and collateral quantity required to source for the international syndicated loan for annual cocoa purchases.

In our opinion this also creates an important ethical concern because even though the local manufacturing firms are increasing, they are being starved by the action of COCOBOD for lack of raw beans. It is evident that only the light crop beans are allowed to be offered to local manufacturers since main crop beans have been marked for exports. If this trend continues, smuggling of cocoa from neighboring countries will increase as local manufacturers will be in shortage of raw materials and gradually this will reduce the quality and the taste for the Ghanaian chocolate.

5.0 Conclusions and Recommendations

There are some important considerations in coming to conclusions and recommendations for Future researchers. The most important thing is a strong policy formulation on measuring scale tempering, its implementation, monitoring and evaluation not only by a standard board but also from the producer's level. There are lots of institutional inefficiencies leading to exploitation of producers and unlawful gains by the marketing clerks and the Licensed Buying Companies (LBCs) in the industry. It is observed that most of the clerks were unwilling to disclose information on the tempering of their scales when it comes to the weight brought to the depot. It is therefore imperative for COCOBOD to implement policies that will provide appropriate alternative mechanism for farmers to check and know the levels of scale adjustment of their clerks before produce are sold. The saying that "Osofo Nto kookoo", "a priest does not buy Cocoa" is an expression of how public view religious people going into cocoa industry.

Ghana Cocoa farmers survey (2004) which was Reported to Ghana Cocoa Board also suggests that structural policies designed to reduce the monopolistic market power of Licensed Buying Companies (LBCs) may result in improved service provision and higher productivity levels in the villages.

Cocoa is an important agricultural commodity in the world economy. The bulk of output is concentrated in West Africa (approximately 70%), Asia (17%) and Central and South America (13%). In fact, eight countries, of which 4 are in Africa, are responsible for 90% of world production. Therefore there should be mutual support and care, and strong network between COCOBOD of each country and the various Licensed Buying Companies (LBCs) to develop single tracking systems from the district depots to port of exports and to establish single database to provide accurate cocoa data on purchases and exports for research purposes in Africa.

Currently COCOBOD has licensed 41 companies to engage in the internal marketing of cocoa. The PBC Limited (PBC) continues to be the leading buyer of cocoa with 33.15% share of the market. Akuafio Adamfo

and Armajaro Ghana Limited followed in second and third places with market shares of 13.13% and 10.94% respectively. The other twenty-nine (29) companies together accounted for 42.78% of the market. These twenty-nine (29) companies need to be equipped in order to ensure fair competition or encouraged to merge with each other to ensure better performance.

Lastly, several efforts by Universities, both private and public, Training Colleges and Polytechnics must compliment the University of Ghana school of graduate studies effort to offer PHD scholarships on cocoa agroforestry program. The University of Ghana is currently giving scholarship to applicants with MSC/MPhil to pursue program in Cocoa agroforestry to improve agricultural innovations. These efforts are commendable as applicant will do their PhD research in cocoa fields in Ghana and will ultimately produce quality research paper on Cocoa for future research. It is hoped that other universities will follow suit in designing and running academic programs leading to award of degrees in Cocoa agroforestry either at the undergraduate level or postgraduate level to supplement the example set by the University of Ghana, school of agriculture.

References/Bibliography:

- Proverbs 11:1 "Dishonest scales are an abomination to the Lord, but a just weight is His delight". (*King Jams Version-KJV*).
- Ghana Daily Graphic, (2016). PHD scholarships on cocoa agroforestry program, university of Ghana, March, 10, 72.
- Ahenkorah, Y. et al (2009). Cocoa Research Institute of Ghana, New Tafo-Akim, 1-182.
- Ahenkorah, Y. et al (2010). Cocoa Research Institute of Ghana, New Tafo-Akim, 1-199.
- Ahenkorah, Y. et al (2011). Cocoa Research Institute of Ghana, New Tafo-Akim, 1-175.
- Teal, F. Zeitlin, A. and Maamah, H. (2006). Ghana Cocoa farmers' survey 2004: Report to Ghana Cocoa Board. Retrieved from: <https://www.researchgate.net/publication/241205997>.
- Lueandra, N. and Andrew, J. (2007). Competitiveness of Cocoa Production Systems in Trinidad and Tobago. Proceeding of the 26th West Indies Agricultural Economics Conference. Caribbean Agro-Economics Society, 1-10.
- Karimu, A., Adomako, B., and Ampomah, Y. (2006). Cocoa introductions into Ghana. Ghana Journal of Agricultural Science, 38(2): 227-238.
- Karimu, A. and Takrama, A. F. (2005). Biochemical indices of the quality of beans of Theobroma cacao cultivars, Proceedings, 14th International Cocoa Research Conference, Accra, Ghana, 899-904.
- Frimpong, E. B., Ampomah, Y., Dwapanyin, A. O. and Karimu, A. (2005). Efforts to re-establish cocoa in denuded areas in Ghana, Proceedings, 14th International Cocoa Research Conference, Accra, Ghana, 2003. 317-

324.

Ackonor, J.B., and Amoah, F.M. (2007). A field study on the impact of mulching on incidence of termite pests on cocoa seedlings. Proceedings, 15th International Cocoa Research Conference, San Jose, Costa Rica, 1259-1273.

Ackonor, J.B., Sarfo, J.E., Karimu, A. and Nkansah, A. (2005). Studies on termite preferences for cocoa progenies. Proceedings, 14th International Cocoa Research Conference, Accra, Ghana, 835-843.

Adomako, B. (2006). Combining ability analysis of blackpod disease incidence in cocoa genotypes in Ghana. Tropical Science, 46(4): 201-204.

Adomako, B. (2007). Causes and extent of yield losses in cocoa genotypes. Tropical Science 47: 22-25.

Acheampong, R., Ackonor, J. B. (2005). Seasonal occurrence, spatial distribution and control of the cocoa stem borer *Eulophonotus myrmeleon* in Ghana. Tropical Science, 45, 129-132.

Acheampong, R.; Ackonor, J. B. (2005). The effect of imidacloprid and mixed pirimiphos-methyl and bifenthrin on non-target cocoa arthropods. Tropical Science, 45, 157-158.

Ampomah, Y., Ollennu, L. A. A.; Adomako, B. (2005). Sources of resistance to cocoa swollen shoot virus disease. Proceedings, 14th International Cocoa Research Conference, Accra, Ghana, 643-651.