# Analyses of gender roles in the oil palm industry in Kwaebibirem District, Ghana

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## Abstract

*This study examined emerging gender roles in the oil palm industry in Kwaebibirem District, Ghana. Qualitative and quantitative methodologies were used to elicit information from actors in the oil palm production chain. Results show that gender roles differ at various stages in the cultivation of the oil palm. Though processing of palm fruits is stressed to be women's industry, men were also operating in the industry as palm oil processors, mill owners, caretakers, agents, sub-agents, palm oil traders, and transport owners. Men also dominated in the cultivation of the oil palm. This was due to the fact that few women had access to productive resources such as land, credit, equipment and technologies. In spite of the gendered roles played in the industry, the study discovered that: men were increasingly processing palm fruits; and men were necessary labour needed by women in the mill. It was concluded that gendered roles would easily be swap when the need for income and employment arises. The study recommends that policymakers and Non-Governmental Organization should provide resources and gender responsive equipment to support women's productive activities.*

**Keywords:** Gender, oil palm, palm oil, processors

## *1. Introduction*

Agriculture is the engine that drives socio-economic development in most developing countries. In spite of it contribution to development, it is characterised by low productivity (Raney, et al., 2011). This has inferences on income generation and food security for most of it practitioners. Amidst discussions on factors affecting productivity in agricultural sector, a view is often expressed that gender plays a role in this phenomenon. This is as a result of the fact that men and women have diverse tasks to fulfill in agricultural production systems (Adeola & Ayoade, 2009).

According to Raney et al. (2011), men and women operating in agricultural sector are faced with varied constrains. Differences in roles executed by men and women in agricultural sector arise from cultural and socio-economic environments (Raney et al. 2011). Food and Agriculture Organisation's (FAO) (2011) study on the role of gender in agricultural development also indicates that gender plays a part in food crop production. The report further indicated that women's major role is, cultivation of food crops in sub-Sahara Africa.

A report by Ghana Statistical Service (GSS) (2014) stated that 45.9% and 38.3% of men and women were respectively engaged in agricultural sector. The sector employs large number of men than women, especially, in rural areas in Ghana (FAO, 2012). According to the Ghana Living Standard Survey (GLSS) round 6, about 80% of women were responsible for processing agricultural products, whiles 32.9% and 31% of men and women respectively, were trading agricultural products (GSS, 2014). In spite of the roles carried out by women in agricultural sector, they are constrained by access to agricultural inputs (Ogunlela & Mukhtar, 2009). And this is largely attributed to their gender in society (FAO, 2011).

In more recent past, agricultural policies in Ghana have attempted to improve productivity of cash crops and non-traditional crops. A key crop that has attracted state attention is the oil palm. Due to policy considerations accorded the crop, its production increased in the early 2000s. About 10, 000 hectares of small scale farms were cultivated with high yielding varieties of seedlings in some selected districts in Ghana (Fold & Whitefield, 2012). An oil palm master plan stated that the crop is mainly cultivated on smallholder basis by men whilst women dominate in the processing of palm fruits (MASDAR, 2011).

In spite of state initiatives directed towards the growth of the industry, oil palm production has been declining (Fold & Whitefield, 2012). Motivated by the need for a thorough investigation on oil palm production in Ghana, and in the light of recent policies, theoretical and empirical contributions in the literature, there is a need to analyse gendered roles in the sector. The study analysed the following questions, what gendered roles exist in the oil palm industry? Can the level of palm oil production result in changes in gendered roles? In order to provide answers to these questions, the study examined emerging roles played by men and women in the oil palm industry in Kwaebibirem District, Ghana.

## *2. Description of study area*

This study was carried out in Kwaebibirem District, an oil palm growing area consisting of many small scale oil palm farms and processing centers. Kwaebibirem District is in the Eastern region of Ghana with Kade as it capital (Kwaebibirem District Assembly, 2006). It lies within latitude $6^0$22`N-latitude $5^0$75`S and longitude $1^0$0`W-longitude $0^0$35`$E^0$ and spreads over 1230 $km^2$ area of land. The district has an estimated population of about 113,721 (GSS, 2014). The sex distribution of the population in the district is about 55,746 and 57, 975 for males and females respectively. Oil palm is cultivated and processed in almost every community in the district. Though there is a large scale, and several medium scale oil palm plantations and processing mills, small scale palm oil production and processing activities dominate in the district (Kwaebibirem District Assembly, 2006).

## *3. Data collection*

Two focus group discussions (FGD) were held with processors, farmers, millworkers. The first FDG was held for 10 (5 men and 5women) palm fruit processors. Equal numbers of sexes were selected in order to give different chances of representation of views; and to allow responses to be ranked. The second FGD consisted of mill workers, labours, traders, agents and mill attendants numbering 15 (9 men and 6 women). Five male and female palm fruit processors were interviewed. The study also conducted interviews with farmers, caretakers of mills, mill owners, traders and agents in each of the selected communities. Afterward, 80 individual palm fruit processors were interviewed with structured questionnaire. A multi-stage sampling procedure was adopted to sample respondents. Data collected through FGDs, in-depth and questionnaire interviews were complemented with observations on different farms and mills for two weeks. Observation focused on male and female actors in the oil palm industry. The study also drew from literatures on gender, oil palm and palm oil processing sector. Data generated from the survey was analysed with SPSS version 2.1 to generate percentages, mean, and frequencies. The net-profit approach was also used to calculate income differentials among men and women processors based on roles played at the processing stage of the oil palm production streams.

## *4. Theoretical underpinnings of the study*

Gender roles in the oil palm industry are discussed in the light of Gender and Development (GAD) framework. GAD framework seeks to understand men and women's roles as constructed by society and how their activities actualise definitions ascribe to them by society (Razavi & Miller, 1995). The theory focuses mainly on division of labour and power relationship entrenched in social institutions (Reeves & Baden, 2000). GAD consists of gender roles and social relationship analysis. Gender roles refer to expectations resulting from masculinity, feminism and social identities in households (Razavi & Miller, 1995). Social relation aspect of GAD analyses social dimensions of hierarchical power relations in social institutions. It also determines the influences men and women have over each other as a result of the relative positions held by them in society (Razavi & Miller, 1995). This position is perceived to discriminate against women (Reeves & Baden, 2000). The GAD approach is not concerned specifically with women, but it seeks to understand how people ascribe roles, duties and expectations to women and men. GAD explains the ways in which men and women work together; and it aims at explaining results in unbiased terms of economics and efficiency. GAD policies aims to redefine traditional gendered role expectations and participation.

## *5. Results and Discussion*

### 1.1. Men and women's participation in the cultivation of the oil palm

Cultivation of the oil palm involves raising seed nuts in a nursery between 8-12 months before seedlings are transplanted. For seed nuts to germinate, it involves various activities, some of which include land preparation, agronomic practices, soil nutrient management and other related activities. Each of these stages was monitored to ascertain gender involvement.

### *5.1.1. Gender and seed nut germination*

In Ghana, the Oil Palm Research Institute (OPRI) of the Center for Scientific Industrial Research (CSIR) is responsible for the production of improved oil palm variety called 'tenera'. Improved seed nuts were germinated, bagged, and sold to farmers who wish to raise the seedlings on their farm. Alternatively, seed nuts were raised in pre-nurseries at OPRI before seedlings were sold to farmers at a fee. The production of oil palm seedlings by individuals were largely owned and carried out by men in the district. Reasons why men operate mostly in the nurseries were attributed to the fact that they were experienced, knowledgeable and had adequate time to cater for seedlings. According to male nursery owners, oil palm seedlings require a lot of attention at the early stages of it development. They mentioned that since women have reproductive roles to play, they had little time and interest in this activity. Duffy (2007) theorized that women are likely to operate in a specific economic activity due to constraints resulting from reproductive labour carried out at home. The application of fertilisers, insecticides and weedicides were carried out mainly by men. Women were however employed to: fill plastic bags with soil; arrange seedlings in rows; pick weeds; irrigate seedlings; and carry seedlings to the farm (Table 1). Technical activities such as preparation of pre-nursery unit, germination of oil palm seed nuts, planting of seed nuts, soil quantity, application of fertilisers and other important decisions regarding the growth of the crop were carried out by men. As such, women's roles in the nursery were nominal as they were hardly involved in 'technical' activities.

**Table 1: Gender and activities in the oil palm nursery**

| Activities | Gender |
|---|---|
| Filling, carrying and topping small plastic bags | men/women |
| Lining, Holing and placing big bags | Men |
| Placing small bags in the pre nursery/ main nursery | Men/Women |
| Planting seed nuts | Men |
| Fertiliser application | Men |
| Top/interrow weeding | Women |
| Interrow mulching/ Top mulching | Men |
| Watering of seedlings/ seed nuts | Women |
| Root pruning/ lower pruning/top pruning | Men |
| Cutting bamboo | Men |
| Filling, carrying and topping big plastic bags in the nursery | men/women |
| Cutting wire mesh and fixing wire nets around the seedlings | Men |
| Transplanting seedlings (Carrying seedlings) | Men/Women |
| Loading seedlings for the field | Men |

### *5.1.2. Gender roles in the cultivation of the oil palm cultivation*

Findings of the study show that men carry out most of the activities involved in the cultivation of the oil palm. Women were specified to be assisting in activities that were less tedious. Again, women's contribution to reproductive labour limited their participation in the cultivation of the oil palm. This affirms the notion that women were mostly active in economic activities that were reproductive in nature (Duffy, 2007). Women may own oil palm plantations but they made arrangement with men to assist in executing some task on the farm. Ofosu-Budu and Sarpong (2013); and Mensah-Bonsu et al.'s (2009) findings on gender roles in the oil palm industry confirms this finding that, men dominate in the cultivation of the oil palm. In FDGs, some women indicated that there were times that they attempt to clear weeds, apply fertilizer and plant oil palm seedlings. Though, participants mentioned that the specified activities were traditionally carried out by men (Table 2). The assertions made by participants in FDGs and key informants shows that men may have more influence and control in the cultivation of the oil palm.

**Table 2: Outline of production activities**

| Plantation activities | Gender |
|---|---|
| Leasing of land | Men |
| Clearing of weeds | Men/Women |
| Felling of tree stumps | Men |
| Burning and Stamping | Men/Women |
| Lining and pegging | Men |
| Transplanting (digging and planting) | Men/Women |
| Wire meshing | Men |
| Fertiliser application | Men |
| Pruning | Men/women |
| Harvesting | Men |
| Fruit collection | Women |
| Transportation | Men |

While few women owned oil palm plantations, the sizes of their farmland were less than 1 hectare. Other sizes of plantation owned by females ranged between 1-5 hectares. To buttress contentions made by participants in FGDs and individual interviews with farmers, Ofosu-Budu and Sarpong's (2013) study on oil palm cultivation in Kwaebibirem District shows that few (28%) women were involved in the cultivation of the crop. Out of the 28% women identified, 21% and 7% women were cultivating the oil palm on small and medium scales respectively. No woman was cultivating the oil palm on large scale. The few women who were cultivating the oil palm were attributed to the fact that they have difficulty in accessing land under the customary system (FAO, 2011).

### 5.2. Gender of palm fruit processors

Traditionally, palm fruit processing is carried out by women. Result on the sex distribution of palm fruit processors in table 3 shows that 68% and 33% women and men respectively were processing palm fruits. This result is consistent with studies carried out in the district by Adjei-Nsiah, Zu, and Nimoh (2012a); Ofusu-Budu & Sarpong (2013); and Osei-Amponsah (2013) on the fact that women dominate in the processing of palm fruits. Palm fruit processing is stressed to be traditional to women in Ghana and other parts of Africa where the oil palm thrives (Hartley, 1988). However, 33% of male palm fruit processors were identified in the survey. This may be a sign that men were finding a niche in the processing of palm fruits. Participants in the study stated that palm oil processing industry is no longer traditional to women.

An economic sector is gendered when there is the presence of less than 25% of a specific sex operating in that area (Organisation for Economic Cooperation and Development (OECD), 2012). The operation of men in women's occupation is made evident by some figures presented by previous studies conducted in the study area. For illustration, Adjei-Nsiah et al., (2012) identified 11% men to be processing palm fruits. A higher figure (20%) was also recorded by Osei-Amponsah et al. (2012) and Ofusu-Budu and Sarpong (2013). More so, in Nigeria, Koledoye and Deji (2014) recorded that 50% of men were processing palm fruits in Bayelsa State. Apart from the number of men identified to be processing palm fruits, processors specified that they also employ a number of men to assist at various stages in the production and sale of palm oil.

#### *5.2.1. Gender of labourers employed by palm fruit processors*

The average number of people employed by oil palm fruit processors was 10. In the FGDs, participants stated that, each processor employs at least 5 men and 4 women to assist in processing palm fruits. About 28% of processors employ 6 men. Apart from differences existing in the employment of labour, men and women played other roles in the small scale mills.

##### *5.2.1.1 Gender and Ownership of palm fruit processing Mill*

Processors of palm fruits converge at a mill of their choice. Mills were chosen based on proximity, socio-economic characteristics, and social relations established among processors, labourers, mill attendants and mill owners. Mills were either owned by men or women. A study by Adjei-Nsiah et al., (2012a) shows that 80% of the mills in the study area were owned by men. The number of men who claimed ownership of mills is suggestive of the presence of 'men' in the sector. The role of mill owners involved acquisition of land for the establishment of mills. They provide processing equipment such as digesters, cooking pot and barrels. The type of equipment found in a mill is dependent on the decision made by its owner.

A male mill owner said: "*the amount of money I have is what I have used to purchase this type of equipment. I am aware that the digester screw press performs better than the hand spindle press. But I have little funds to acquire electricity, buy palm kernel crackers, and big drums in my mill"* (Personal communication, March 15, 2014*)*. This occurrence subsequently influences the variety and quality of palm oil production.

*5.2.1.2. Gender and mill attendants/caretakers*

The position occupied by mill attendants mimics a manager in a formal organization. Attendants were mostly men who work in the mill. "*Rarely are women appointed to assume this position.* A female processor from Kade narrated that: "*Only female with extra-ordinary skills were employed as caretakers because there is a tendency that females will compromise their position*" (Personal communication, February, 20, 2014). Appointment to assume such position depends on the possession of some key qualities acceptable to all actors in a mill. Their roles include: ensuring good functioning of equipment; admittance of all workers, and accounting for total income.

*5.2.1.3. Gender, agents and buyers of palm oil*

Palm oil is mostly traded by processors in the mill. In this instance, buyers were agents of exporters of palm oil to the informal export market. With the exception of women who buy palm oil to trade in urban markets in Ghana and Togo, most male buyers export palm oil to Niger, Burkina Faso, Mali, and Nigeria. There were exceptions to this case as some men were reported to be trading palm oil in urban markets in Togo. In the mill, there were sub-agents who were either women or men and were responsible for buying palm oil for male agents. Exporters were male contractors who usually receive money from their clients abroad. The contractor subsequently distributes money to their agents to buy palm oil from various mills in each community. These agents have connections with sub-agents who were either processors or caretakers. A number of agents doubled as mill attendant. Some agents, mostly men, also own tricycle motors, kia trucks, and pick-ups. Ownership of these vehicles ensured mobility between mills in the communities. Possession of vehicles is also a sign of physical power owned by men in the industry. Interviews revealed that ownership of these vehicles allowed men to purchase palm oil from processors before their female counterparts in the lean season. Traders were of the view that their agents supply them with oil; so, their work is not gendered.

The rise in the number of men processing palm fruits in the study area can be attributed to the profitable nature of processing palm fruits. Further probing on this issue revealed that processing of palm fruit is a kitchen business reserved for women. However, men indicated that in reality, a man can also cook. Since unemployment and underemployment rate is increasing in the study area, men have taken advantage of the numerous mills in the district to process palm fruits. The increment in the number of men who were processing palm fruits can be explained as an issue of changes in gender roles in response to changing economic situations. Agadjanian (2002) observed that in developing countries, men's movement into women's occupations is often initiated by socioeconomic crises and the accompanying overall reduction of employment opportunities, or by major technological changes. This observation seems to be evident in the oil palm industry. Therefore, whiles general gender philosophy states that women are located in labor market characterized with low income and prestige (Duffy, 2007), it seem that some men in Kwaebibirem District have defy this viewpoint and have rather established a niche in women's industry.

The extent to which men will face discrimination in an occupation asserted to be women's, is dependent on their comparative number. Kanter's (1977) theory of tokenism posits that as long as an unusual group remains a nominal minority in any specific profession it will face discrimination and stigma. However, this assertion was not validated in the oil palm industry in Kwaebibirem District because men adopted various strategies to establish their domain among women. Some strategies were: some male labourers and processors invited male relatives or friends to join them in their endeavors. Through this means, their numbers increased in the mills and they end up capturing some of the activities from female labours.

Men who were processing palm fruits also adopted psychological measures to conceal the reality of their gender in the mill. They were involved in what Lupton (2006) called regendering and degendering in a nontraditional economic activity. In the mill, the traditional customs and practices of women or men's activities were eliminated. And new rules were reset to favour each sex. Some men were also observed to take on women's characteristics in the mills as some wear women's attire (skirt and blouse).

Although there were circumstances where men were degendering and regendering their positions in the mill, women mentioned that they could not envisage the possibility that this development will disempower them. The presence of the men, they stated, is to complement their efforts in producing palm oil to meet demands from urban and the informal export market. However, it was evident that some forms of power relation exist among men and women in the mill. Because, women reported that they wait for the men to come to the mill before decisions were taken on a day's activity. In some mills, men were reported to set rules on when or how palm fruits could be processed. Male processors were reported to easily negotiate with male labourers to boil, digest or press palm fruits before women arrive in the mill. Since women had reproductive labour responsibilities to fulfill, they arrive in the mills between 7am-8am, whereas men could come early or close late.

According to Agadjanaian (2002), re-gendering of workplace is symmetrical to de-gendering. Men's entry into the oil palm industry inevitably reestablishes gender differences and inequalities. These were manifested in the type and quantity of products sold. Men were mostly engaged in the production of *'ngo'* or *'saminango'* (palm oil meant for soap making). Whiles women could easily produce any type of oil. Similarly, male agents and traders were mostly engaged in trading *'saminango'* and *'ngo'* in the informal export market. Although '*dzomi*' commands higher price than the latter types, men were mostly not producing it because it requires boiling of palm oil with salt to produce dark sludge desired by consumers in Ghana. In some instance, male processors team up with female labourers to produce '*dzomi'* and remain in their shadow by packaging the oil in bottles. The fact that women mostly produce '*dzomi'* is a sign of physical and financial power over their male colleagues.

Although palm oil processing and it related activities seem to be reducing gender barriers in the mill, men received derogatory remarks when they leave the mills and enter gender structured communities. Therefore, gender boundaries are likely to remain evident in activities where traditional gender ideology and stereotypes are upheld. A male processor said: *"when am in the mill I do not hear derogatory comments but once I close from work and hangout with my friends who are taxi drivers and so on, they always remark that I am involve in women's work"* (Personal communication, April, 13, 2014). Male participants purported that they were rarely sidelined by women in the mills. Few interviewees admitted that they were only ridiculed in communities for participating in women's work.

Gendered aspirations were also assumed by men and women in the mill. Whereas most women processors, traders and labourers assume processing of oil palm fruits as their ultimate employment for life, their male counterparts viewed their current occupation as temporary. Male participants in female dominated palm oil mill anticipated an upward move in the hierarchy of the industry by owning: oil palm plantations and nurseries, processing mills, and vehicles. The real picture underlying the wishes expressed by men seem to point to the fact that they have aspiration to exit from processing palm oil into more secure, lucrative, and prestigious jobs which is commensurate with their dominant gender status in society. To clarify why female processors required men to assist them in their business, the study analysed the stages of processing palm fruits.

*5.2.2. Gender Involvement at various stages of processing palm fruits*

Result of the survey shows that 57% respondents were oil palm farmer-processors and 43% were only palm fruit processors. Out of the number of farmer-processors recorded, 21% were males whiles 36% were females. The outcome shows a reverse of the results generated from interactions with famers, and, other studies carried out on oil palm farming in the study area (Ofusu-Budu & Sarpong, 2013; and Loggoh, 2013). The explanations given for this occurrence is that female farmer-processors assumed that they jointly possessed oil palm plantations owned by their relations.

A total of 20% male farmer-processors were personally involved in harvesting palm fruits from their plantations. Result in table 3 show majority of women (38%) hired labour to harvest palm fruits. This proves a point that even when women owned oil palm plantations, they would require assistance from men to carry out certain duties on the farm. FDGs further revealed that the low participation of females in harvesting oil palm is connected to socio-cultural reasons. *"We mostly harvest the fruits with long poles but woman cannot do this because the pole is heavy. Men can climb oil palm trees as well but it is not appropriate for a woman to climb a tree. Women may harvest the fruits at the early stages of the development of the crop but they cannot raise the harvesting poles to do this work when the crops have increased in height"* (Personal communication, February, 30, 2015). At the harvesting stage, women were involved in transporting fresh fruit bunches (FFBs).

Participants reasoned that women were efficient in ensuring that palm fruits had few bruises. A study conducted by Mensah-Bonsu, Amegashie, and Gyasie (2009) indicated that women were paid four times higher prices than their male counter parts for carrying FFBs. This occurrence confirms Simpson's (2004) notion that men or women are likely to attract higher prices when they perform nontraditional activities because they are able to execute task better than original operators. Accordingly, though men were noted to be harvesters of palm fruits, their female counter parts attracted higher prices, a symbol of power because, they could collect loose fruits and carry FFBs.

There is power play between male famers and female processors especially during the peak and lean season. Every processor has an informal relationship with farmers. This is evident during peak seasons (Febuary-May) when palm fruits were in abundance. Farmers have few buyers for their harvest. They give palm fruits to women on credit and a reversal takes place in the lean season (September-December). During this period, some processors pay farmers ahead of harvesting of palm fruits. Some women offer higher prices to farmers in order to secure palm fruits. Hence, production seasons were period whereby male farmers exercise power over female processors and vice versa. There were no formal ways of weighing palm fruits and oil because scales were not available. More so, participants indicated their displeasure on the use of formal scale because there is the tendency that scales could be adjusted to favour buyers. The 'eyes' were used to determine the tonnes of FFBs. Women were also good at bargaining prices of FFBs to lower rates or they require that farmers add some bunches to what has been purchased; locally called, 'ntosoo'.

When FFBs are delivered in the mills, men were engaged to split it with an axe. All processors, male and female indicated that they hired male labourers to carry this activity. Picking involves removing fruits from spikelet before boiling. Results in table 3 show that majority (28%) of male processors were not involved in picking while 63% of female processors were involved. FGDs revealed that male processors usually allow female labourers and children to perform this operation. A male respondent from Kade said: "*Picking is a work for women and children. It is an easy task and so we assist women if we have less work to do*" (Personal communication, May, 10, 2014). Results from FDGs and interviews also confirmed findings of the survey.

Threshing of dirt from palm fruit is carried out before fruits were boiled. Few (8%) male processors were involved in this activity whiles majority (49%) of female processors were involved. Processors, who were not personally involved, hire female labourers to assist in this activity. Most (69%) female processors were engaged in fetching water to process palm fruits whiles 15% male processors were involved in this activity.
Majority 58% and 26% male and female processors respectively, were personally involved in boiling palm fruits. However, 10% female processors indicated that they hire male labourers to carry out these activities but they were always involved to oversee activities. Digesting involves grinding boiled palm fruits with a digester to help in easy flow of oil from the fiber. All female processors hired male labourers to carry out this activity. FGDs also revealed that more male processors were personally engaged at this stage. A male attendant asserted that: "*The machine is difficult to start and it handle is also stiff. Once we start operating, women need to fetch palm fruits hurriedly. Else, we will waste a lot of fuel. Women cannot do this job, so we hire mill attendant and his boys to digest the boiled fruits for us*" (Personal communication, May 15, 2015).

Majority (30%) of male processors were personally involved in pressing of palm oil from the mesocarp of palm fruits. No female processor was engaged in this activity. Women processors who claimed to be involved in this activity indicated that they assist in fetching palm oil. A male mill attendant from Asuom also indicated that: "*no woman in this district can attempt to press oil with the hydraulic and hand spindle press. The metal plate is heavy to lift and the screw is also difficult to rotate. When you are pressing the oil with this equipment, you will have to move around it and so if you are not strong enough, you will feel dizzy and fall. In this community, it is not every man who attempts to do this kind of job o! Hmmm, it takes strong people to work on these equipment*" (Personal communication, March 20, 2014). The few female processors who were involved at this stage of production implied that pressing may involve a lot of energy. Men's ability to press oil from mesocarp fibers is a physical power exercised in the industry. Men who enter women's businesses give up part of their gender identity as well as part of their dominant status, but at the same time, gender hierarchy and inequality were inevitably recreated in the new settings through restructuring and reconceptualization of occupational niches (Lupton, 2006). Male processors were likely to benefit more than their counterparts because they would not hire labour to assist in digesting and pressing palm oil. Therefore, they have more income accrue to them in their activity as this will be illustrated in subsection.

Findings of the study corresponds with Ohimain and Izah's (2014) study on small scale palm oil processing in Ondo state, Nigeria, which shows that men contributed 69% of manual energy whiles women generate few (31%) of manual energy.

Processors clarify oil with heat to separate water and other solid materials. Majority (44% and 20%) of female and male processors respectively, were involved at this stage. The rest (24% and 13%) of male and female processors respectively were not clarifying oil because they were producing palm oil meant for soap production. The residue derived from processing palm fruits is, palm kernel mixed with fiber. None of the processors interviewed were involved in sorting palm kernel from the fiber. Majority of female (65%) and male (33%) processors indicated they hire female labourers to fulfill this activity. Findings show that all the male and female processors interviewed were involved in palm fruit processing but at different levels.

**Table 3: Distribution of gender of processors at various stages of palm fruits processing**

| Activities | | Number of female processors engaged in a particular activity | Number of male processors engaged in a particular activity |
|---|---|---|---|
| 1. | Splitting FFB | - | 5% |
| 2. | Picking | 63% | 28% |
| 3. | Winnowing | 49% | 8% |
| 4. | Fetching of water | 69% | 15% |
| 5. | Boiling | 58% | 26% |
| 6. | Digesting | - | 19% |
| 7. | Pressing of oil | - | 30% |
| 8. | Clarification | 44% | 20% |
| 9. | Sorting of palm kernels from fiber | 65% | 33% |

*5.2.3. Men's motivations for entering gendered palm fruit processing business*

The study came out with the finding that, the type of equipment used in the mill is a more cogent reason for the involvement of men in the processing of palm fruits. A participant in the FGD indicated that this is the point of entering for men in the industry. Apart from this reason, increasing demand for palm oil in Ghana, and in the informal export markets in Togo, Nigeria, Niger, and Burkina Faso also accounted for the need for men to assist women in various ways to produce palm oil in large quantities. Participants in FGD were asked to explain why men were involved in carrying out certain activities. Their responses were:

"*The volumes of fruit to be processed have increased because the tanks have been designed to boil palm fruits in large quantities of about 5 tonnes of palm fruits"* (Personal communication, March 14, 2014).

*"In this district, the only mechanised stage of processing palm fruits is at the digesting and pressing stage. Hydraulic press, hand spindle press and digester screw press are equipment used for this activity. Digesting is a tedious process which demands constant supply of palm fruits so men are needed to assist women to make palm oil production effective"* (Personal communication, June 4, 2014).

It was also observed that there were differences in the execution of activities in some selected communities. For example, in Kade and Asuom, some activities like boiling and loading of boilers with palm fruits were solely carried out by men. Therefore, it can be asserted from the responses generated that male labourers and processors employed in the mill were necessary to assist in the processing of palm fruits due to the high demand for palm oil; the type of processing equipment available; and the need to for employment. Participants ranked gender irresponsive equipment as a main reason why men were operating in women's industry.

Though it is variously stated by participants that equipment is the main reason why men were operating in women's industry, their actual motives were questioned. Varied motivations were indicated by male participants. Some men indicated that they were actively seeking for job and they ended up in the oil palm industry. Other men also claimed that they found the job to be lucrative when they were taking decision on the economic activity they would want to carry out for a living. Few men indicated that they have come to settle in women's business after they had tried variety of masculine jobs. The men indicated that they enjoyed doing women's work and were attracted to assist in only the difficult part of their activities. Simpson (2004) reflected on the decision taken by men to join women's industry and stated that men's behavior on this note can be describe as finders, seekers and settlers in nontraditional employment.

So, the real motive for men's participation in women's industry is to seek for income. They do not feel fully bound by the perceptions of men's pride which is entrenched in the traditional social structure of the study area. Expressing their views on masculinity in women's business, male participants indicated that it has nothing to do with their ego because they were mostly involved in the use of equipment which identifies them as men. They also indicated that their roles differed as a result of the quantity they produce a day. Men reported that their presence had positive effect on production in the mills. They purported that they have changed the phase of women's industry; and have introduced competition into the industry. A leader of palm fruit processors at Subi however lamented that women were currently confined to some specific activities such as fetching of water and palm fruits, and sorting of palm fruits and kernels. She stressed that should automatic strippers, steamers and clarifers be introduced later in the industry, it is likely that few women will find a niche in their traditional occupation. Subsequently, the study sought to find out about the type of equipment used for processing palm fruits to ascertain whether it is actually the cause of demand for men in the industry.

*5.2.4. Types of equipment used for processing palm fruit by men and women*

Results in table 4 show a percentage distribution on the type of equipment male and female respondents use in a mill. Axe is used to split FFBs. While only 4% male used cutlass to split FFBs. Findings of the study revealed that an axe is not gender responsive equipment as few female used it in the study area. More so, none of the respondents (male and female) indicated the availability of rotary stripper for removing fruits from the spikelet. Women used their hands to remove fruits from spikelet. Sometimes, women use sticks to strike spikelet in order to collect loose fruits.

A metal drum locally called '*loko*' is usually used for boiling palm fruits. The metal tanks range in several sizes and some can contain about 15 tonnes of FFBs. Due to the sizes of the metal tanks, women processors indicated that they could not boil palm fruits alone. This is an indication of how male mill owners exercise power over the quantity of palm fruits processors can produce. When women want to boil palm fruits on their own, they use cooking pot or small drum that can hold about 1-3 tonnes of palm fruits.

Men fetch boiled fruits with buckets into a pan carried by women and then transfer it into a digester for mashing. Majority (100%) of male and female processors indicated that digesters were available in the study area. This equipment replaced traditional pounding of boiled fruits with mortar and pestle.

Table 4 also indicates that more men and women 20% and 38% respectively used the combine digester and hydraulic press. About 16% women and 10% men use the digester screw press respectively. Majority of processors do not use the combine digester and hydraulic press because mill owners could not afford it. The use of digester and hydraulic press is one main physical symbol of power men have over women in the mills.

Furthermore, none of the processors use clarifier to process palm oil. This could account for the high percent of free fatty acid (FFA) found in the palm oil produced in the district as indicated by Tagoe, Dickson, and Apetorgbor (2012) and Zu, Adjei-Nsiah, and Bani (2012). This occurrence does not help small scale processors to sell palm oil to the industrial sector. The fact that women and men participated in different activities could mean that income accrued from their roles may be different.

**Table 4: Gender and types of equipment used for processing palm fruits**

| Sex of respondents | Type of processing equipment | | | Total |
|---|---|---|---|---|
| | Axe | Cutlass | | |
| Male | 29% | 4% | | 32% |
| Female | 68% | - | | 68% |
| | Metal tank (loko) | Cooking pot | | |
| Male | 30% | 3% | | 33% |
| Female | 58% | 10% | | 68% |
| | Hand spindle press and digester | Hydraulic press and digester | Digester screw press | |
| Male | 3% | 20% | 10% | 33% |
| Female | 4% | 48% | 16% | 68% |
| Total | 6% | 68% | 26% | 100% |

*5.2.5. Gender and income differentials*

It was discovered that female respondents make higher income from processing palm fruits. This is evident by a cost benefit analysis conducted with net profit approach that proved that female and male palm fruit processors earned GH¢ 392.21 ($ 150.19) and GH¢ 340.61 ($ 130.43) respectively from 1 tonne of palm fruits. This finding corresponds with Koledoye and Deji's (2014) finding that female processors earned more income than their male counterparts in Ondo state, Nigeria. The fact that female processors generate more income may be as a result of the fact that: females have better marketing strategies; and they negotiate good prices with traders. Female processors are likely to generate more income for the sale of palm oil because they produce *'dzomi'*. The price of '*dzomi*' is always 10% higher than other varieties of palm oil.

**Table 5: Average Income generated from processing 1 tonne of palm fruit by women**

| Production variables | Male | Female |
|---|---|---|
| Total gross return (TGR) | 701.00 | 692.76 |
| Total Variable Cost (TVC) | 340.61 | 288.81 |
| Total Fixed Cost (TFC) | 12.09 | 11.74 |
| Total Cost (TVC + TFC) | 352.7 | 300.55 |
| Gross Profit (TGR-TVC) | 360.39 | 438.69 |
| Net profit (TGR- TC) | 340.61 | 392.21 |

Exchange rate US $1 = GH ¢ 3.19 (2014)

The situation is however different on the parts of labour employed in the mill. Female labourers receive low income for activities carried out in the mill due to the fact that they were engaged in less laborious task. In Kade for instance, a female employee indicated that she is paid GH¢ 0.30 pesewas ($ 0.09) for sorting 1 cage of palm cake (pressed fiber). While all the activities engaged by men were perceived to be highly paid jobs. For instance, the average amount paid for pressing and digesting 1 tonne of palm fruits ranged between GH¢ 8-¢120 ($ 2.50-$ 37.61) per activity. The amount is commensurate with the sizes of palm fruits processed. Men were also paid GH¢ 8 ($ 2.50) for splitting 1 tonne of fresh fruit bunch (see table 6 for the prices of other activities). Thus, the fact that, men were able to expound their physical energy-a sign of physical power, it translates into increased income thereby enhancing their financial power over female labours in the mill.

Comparing prices paid to workers in table 6, it can be asserted that female labourers in the oil palm industry were rewarded less than their male counterparts. When women move to join men's work, they are discriminated by their male counter parts and excluded from informal networks. And it is generally known that females dominate in businesses which are characterized by low pay and prominence (Williams, 1993). However, in the case of the oil palm industry, men benefited from their minority status; which is demonstrated by the amount received from activities they carry out in the mill. This establishes a fact that male workers in the mill get preferential treatment over female labourers. Payment of money is made to labourers based on informal methods of assessment. This also depends on the mill and it laid down rules. Labourers were paid GH¢ 25–GH¢ 0.60 pesewa ($ 7.83- $ 0.18) based on the size of a bowl, pan, and cage of the hydraulic press available in the mill per an activity.

**Table 6: Average wages paid to male and female and their related activities**

| Activities | Gender | Price of activities |
|---|---|---|
| Transportation of FFB | Men | GH¢ 20–50 |
| Splitting of FFB | Men | GH¢ 7–8 |
| Removal of fruits per a bucket | Women | GH¢ 0.30-0.50 |
| Loading fruit into boilers per a cage | Men/women | GH¢ 0.30–0.50 |
| Boiling of 1 tonnes of ffb | Men/Women | GH¢ 8 |
| Fetching of boiled fruits from the boiler per bowl | Men/Women | GH¢ 0.30-0.50 |
| Carrying of boiled fruits to the digester | Men/Women | GH¢ 1 |
| Digesting of 1 tonne of fruit | Men | GH¢ 8 |
| Pressing of 1 tonne of fruit | Men | GH¢ 8 |
| Carrying a bowl of pressed oil | Women | GH¢ 0.50 |
| Clarification of 250 liters of | Women | GH¢ 5 |
| Sorting 1 cage of kernel | Women | GH¢ 0.30 |

Exchange rate US $1 = GH ¢ 3.19 (2014)

## *6. Conclusion*

The study found out that men and women participate in specific sectors of oil palm industry in Kwaebibirem District. Men dominated in the cultivation of oil palm due to the fact that they were considered to carry labourious task. More so, few women were cultivating the oil palm due to the fact that they had little access to productive resources such as land. Most women participated in the processing of palm fruits because it is ascribed as a 'kitchen' business. In spite of the explicit gendered roles in the oil palm industry, it was discovered that there were significant number of men who were processing palm fruits. Men were also found to be participating in the oil palm industry as mill attendants, traders, agents and owners of oil palm mills. Participants inferred that there is a change in gender roles in the oil palm industry. Apart from the need to gain employment and generate income, the rise in the number of men in the processing sector of the oil palm industry is largely attributed to the use of gender irresponsive equipment. Some female processors feared that in the future, men are likely to completely take over the industry should strippers, steamers and clarifier be introduced in the industry.

The study concludes by suggesting that pertinent equipment like strippers, steamers and clarifers should be made available to processors at each mill at a low cost. This will help in easy and timely removal of fruits to forestall the growth of free fatty acids in palm fruits. It will also reduce injures in the mills as some women complained that their hands or fingers get maimed in the process of removing fruits from the spikelet. Most processors recommended that more sophisticated machines should be invented to do away with manual procedures. Equipment should also be modified to enable women participate in entire stages of palm oil production. Findings of this study should be considered relevant in designing strategies to effectively monitor and protect minority groups in nontraditional occupations; specially, policy implementations on women's poverty, gender equality, food security and rural development.

**Reference**

Adeola, R.I. &Ayoade, A.R. (2009).Effects of gender differences on access to Technologies among farmers in Ibadan/Ibarapa Agricultural Zone of Oyo State, Nigeria.*Ozean Journal of Social Sciences 2*(2). Retrieved from http://ozelacademy.com/OJSS_v2n2_Adeola.pdf

Adjei-Nsiah, S., Zu, A. K. S., &Nimoh, F. (2012b).Technological and financial assessment of small scale palm oil production in Kwaebibirem District, Ghana. *Journal of Agricultural Science, 4*(7). Retrieved fromwww.ccsenet.org/journal/index.php/jas/article/download/15727/11494

Agadjaian, V. (2002). Men doing "women's work": masculinity and gender relations among street vendors in Maputo, Mozambique. *The journal of men's studies, 10*(3), 329-342. Retrieved from http://men.sagepub.com/content/10/3/329.full.pdf+html

Duffy, M. (2007). Doing the dirty work: Gender, race, and reproductive labour in historial perspective. *Gender& Society, 21*(3), 313-336. Retrieved from http://gas.sagepub.com/content/21/3/313.full.pdf+html

Food Agriculture Organisation. (2011). *The State of Food and Agriculture Report 2010-2011. Women in agriculture: Closing the gender gap for development*. Retrieved from www.fao.org/docrep/013/i2050e/i2050e.pdf

Food and Agricultural Organisation. (2012). *Gender inequalities in rural employment in Ghana: An overview*. Retrieved from www.statsghana.gov.gh/.../Gender/FAO_GHANA_COUNTRY_PROFIL...

Fold, N., & Whitfield L. (2012). Developing a Palm Oil Sector: The experiences of Malaysia and Ghana compared. Retrieved from http://subweb.diis.dk/graphics/Publications/WP2012/WP2012-08-Palm-Oil-Malaysia-Ghana-Whitfield-Fold-web.pdf

Ghana Statistical Service. (2014). *Ghana Living Standard Survey Round 6 (GLSS6)*. Main report. Retrieved from http://www.statsghana.gov.gh/docfiles/glss6/GLSS6_Main Report.pdf

Ghana Statistical Service. (2014). *2010 population and housing census national analytical report*. Retrieved from http://www.statsghana.gov.gh/docfiles/2010phc/National_Analytical.Report.pdf

Hartley, C. W. S. (1988). *The oil palm (Elaeisguineensis*Jacq) (3rd ed.). Tropical Agriculture Series. Essex, Longman Group.

Kanter, R. (1977). *Men and Women of the Corporation*. New York: Basic Books.

Koledoye, G.F. &Deji, O.F. (2014).Gender analysis of technology utilisation among small scale oil palm fruits processors in Ondo State, Nigeria. DOI: http://dx.doi.org/10.15446/acag.v64n1.42908

Kwaebibirem District Assembly. (2006). *Kwaebibirem District profile*. Retrieved from http://www.kwaebibirem.ghanadistricts.gov.gh

Loggoh, B. (2013). The contribution of outgrower scheme to farmer's livelihood-a case of oil palm farmers in the kwaebibirem district of Ghana. Master's Thesis, University Of Ghana. Retrieved from ugspace.ug.edu.gh/.../Loggoh%20Bright_Contribution%20of%20Outgro...

MASDAR. (2011). *Master Plan Study on the Oil Palm Industry in Ghana: Final report*. Retrieved fromwww.masdar.com/news/

Mensah, A., Amegashie, D.P.K., Gyasie, S. (2009). The structure of labour market and demand for hired labour for oil palm production in the western region of Ghana. Journal of Science and Technology, *29*(3), 102-113. Retrieved from www.ajol.info/index.php/just/article/download/50059/36378

Organisation for Economic Cooperation and Development. (OECD). (2012). *Gender equality in education, employment and entrepreneurship: Final report to the MCM*. C/MIN 5. Retrieved from http://www.oecd.org/employment/50423364.pdf

Ofosu-Budu, K., & Sarpong, D. B. (2013). Oil palm industry in Africa: A value chain and smallholder's study for Ghana. In Aziz, E. (Eds.), In *Rebuilding West Africa's food potential: Policies and market incentives for smallholder-inclusive food value chains.* Rome: FAO.

Ogunela, Y. 7 Mukhtar, A. (2009). Gender issues in agriculture and rural development in Nigeria: The role of women. *Humanity & Social Sciences Journal 4*(1), 19-30. Retrieved fromhttp://www.idosi.org/hssj/hssj4(1)09/3.pdf

Ohimain, E.I. & Izah, C.S. (2014).Manual energy contribution to palm oil processing by semi-mechanized mill in Bayelsa state, Nigeria. *International Journal of Farming and Allied Sciences 3*(7), 729-732. Retrieved from http://ijfas.com/wp-content/uploads/2014/08/729-732.pdf

Osei-Amponsah, C. (2013). Improving the quality of crude palm oil: Transdisciplinary research on artisanal processing in Kwaebibirem District, Ghana.PhD thesis, Wageningen School of Social Sciences. Retrieved from http://www.edopot.wur.nl/283402

Osei-Amponsah, C., Visser, L., Adjei-Nsiah, S., Struik, P. C., Sakyi-Dawson, O., & Stomph, T. J. (2012). Processing practices of small-scale palm oil producers in the Kwaebibirem District, Ghana: A diagnostic study.*NJAS- Wageningen Journal of Life Sciences 6*(60/63), 49-56. Retrieved from https://www.wageningenur.nl/de/Publicatie-details.htm?publicationId...

Raney, T., Anríquez, G., Croppenstedt, A., Gerosa, S., Lowder, S., Matuschke, I., &Skoet, j. (2011). Gender differences in assets. ESA Working Paper No. 11-12. Retrieved from http://www.fao.org/docrep/013/am317e/am317e00.pdf

Tagoe, S. M. A., Dickinson, M. J., & Apetorgbor, M. M. (2012). Factors influencing quality of palm oil produced at the cottage industry level in Ghana. *International Food Research Journal 19*(1), 271-278. Retrieved from www.ifrj.upm.edu.my/.../(36)IFRJ-2011-142%20Sheila.pdf

Williams, C. (1993). *Doing "women's work" Men in non-traditional occupations*. London, Sage publications

Simpson, R. (2004). *Masculinity at work: the experiences of men in female dominated occupations*. London, Sage publications.

Lupton, B. (2006). Explaining men's entry into female-concentrated occupations: issues of masculinity and social class. *Gender, work and organisation 13* (2), 103-128. DOI: 10.1111/j.1468-0432.2006.00299.x

Razavi, S. & Miller, C. (1995). From WID to GAD: Conceptual Shifts in the Women and Development Discourse. Occasional paper 1. Retrieved from pogar.org/LocalUser/pogarp/other/unrisd/op1.pdf

Reeves, H. & Baden, S. (2000). *Gender and Development: Concepts and Definitions*. Brighton, Report 55.

Zu, K.S.A, Adjei-Nsiah, S. and Bani, R.J. (2012). Effect of processing equipment and duration of storage of palm fruits on palm oil yield and quality in Kwaebibirem District, Ghana. *Agricultural Research and Review 1*(1), 18-25.