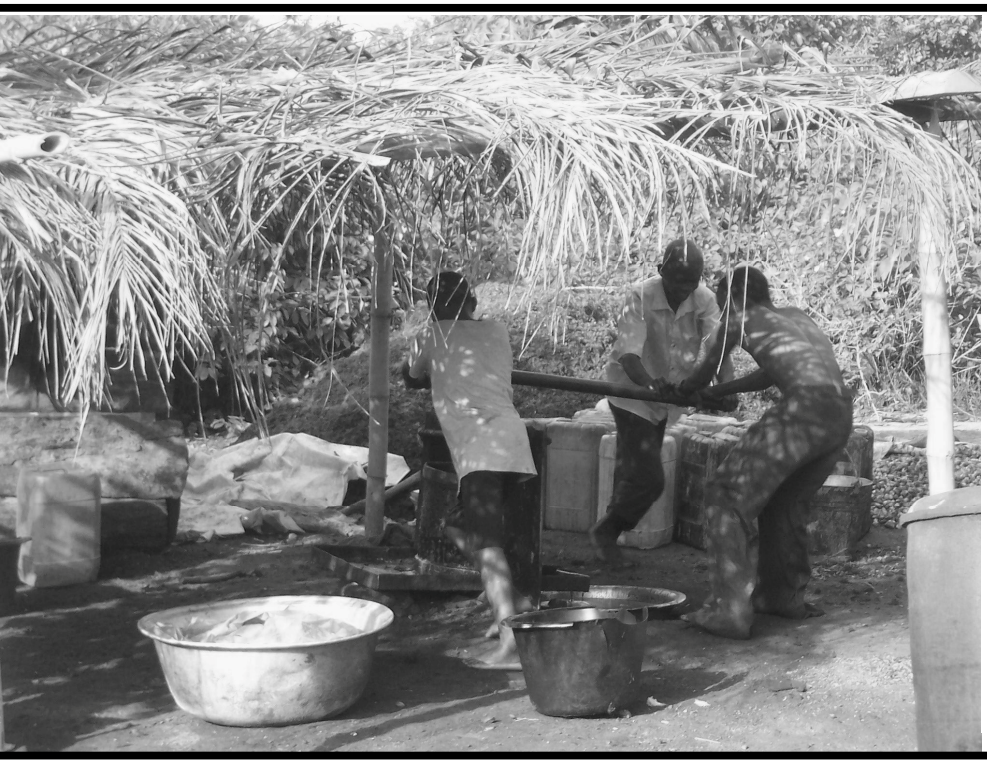

The Fearless Planet Organic Palm Oil Project

a case of organic and fair trade palm oil production
in Kwaebibirem District, Ghana

June 2010

Final Bachelor Thesis
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This report is dedicated to Edward Blay, extension officer and unofficial ‘mayor’ of the Kwaebibirem District. Your contribution to this research is beyond doubt the most important. Without your insight, knowledge and experience of farmers, it would have been close to impossible. Not to forget your queer sense of humour and tested skill on the motorbike. It has all been appreciated, a very big thank you.

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To the Daniema Women’s Association, especially Janet! I do appreciate you hosting me Asuom and tolerating my presence for four weeks.

LIST OF ABBREVIATIONS AND ACRONYMS

ARS	Agricultural Research Station Ghana
GOPDC	Ghana Oil Palm Development Company
FPOPP	Fearless Planet Organic Palm Oil Project
GTZ	German Development Cooperation
ICS	Internal Control System
C0	Organic Conversion Category Zero (0)
C1	Organic Conversion Category 1
C2	Organic Conversion Category 2
IMO	Institute for MarketEcology
KNUST	Kwame Nkrumah University of Science and Technology
MoFA	Ministry of Agriculture
NOP	National Organic Program (USDA)
PSI	President's Special Initiative
Crammer	An oil palm processing facility

1. GENERAL INTRODUCTION

1.1. Abstract

This report is an account of a 4 week field research conducted into organic palm oil production in specific communities of Ghana. The research locations were 4 farming communities in the Kwaebibirem District of the Eastern Region. Through the support of NGOs in Ghana, farmers and a selected palm oil processor in the region are producing organic palm oil destined for the U.S market. An organic and fair trade palm oil chain has been created and is in operation in these communities.

This report contains a full description of the processes in this value chain; farming under organic regulations, processing and also the enabling environment that permits operation of this chain in this rural setting. Further on, the research expresses the hurdles that stakeholders in the chain are facing with operating according to organic and fair trade regulations.

The report in its latter sections looks at the degree to which natural resources are responsibly utilised as compared to what happened in these communities in the past. And additionally, what does it mean for women process palm to participate in such a relatively organised value chain? What are the implications for these women?, not only in terms of income security but also regarding how they have had to adapt to new quality standards and new governance arrangements.

Finally, recommendations gathered from the various chain participants are presented alongside the research's own comments regarding possible expansion, up-scaling and replication of activities in this chain.

1.2. Context

Kwaebibirem District is a typical forest zone located in the central hinterlands of Ghana. It is predominately made up of rural settlements with a few key towns such as Kade. Farming is major source of livelihood in this part of Ghana. Cash and food crops are grown simultaneously by farmers mainly at small scale level. A major research station with substations involved in the agricultural development in Ghana are located in this area since it is a strategic region when it comes to the production of important cash crops as cocoa and oil palm. The organic palm oil project taking place under the auspices of Dr. Bronner's builds on the productive capacity of oil palm in the area. This project since its establishment in 2005 has expanded into the communities of Asuom, Abaam, Abodom and Bomsu; all of which are farming communities within the Kwaebibirem District.

1.3. Problem Definition

This research is centralised on the lack of knowledge regarding how smallholder farmers and processors of palm oil are integrated into international value chains. The issues farmers and processors face when they participate in an international value chain range from dealing with new quality standards, new modes of governance, regulations regarding production and processing to new forms of cooperation and communication. How then do these farmers cultivating oil palm play their new role in the value chain initiative set up by international NGOs and companies? The same counts for the processors participating in this chain.

By participating in this new value chain, the assumption is made that farmers and processors are changing the way they exploit and conserve their local natural resources. Hence, how is this change impacting on their livelihoods and the community as a whole?

1.4. Research Objective

This research seeks to identify the process where smallholders are integrated into an international value chain bounded by organic regulations and fair trade schemes. This pertains to smallholder farmers and small scale palm oil processors in the community of Asuom and its surrounding communities. The primary interest and focus of the research assignment is to identify this chain and give an in depth descriptive account of activities that comprise participation of both farmers and processors in this specific value chain.

1.5. Research questions

1.5.1. Main Research Questions

1. How are farmers and processors producing certified organic and fair trade palm oil in the new value chain created by Dr. Bronner's and Fearless Planet?

2. What are the new forms of governance, quality standards and organic and fair trade regulations and how do farmers and processors fulfil their roles in these new production and processing mechanism?

1.5.2. Specific Research Questions

1.0

1.1. What has changed in the way farmers produce oil palm and which of these changes has to do with the organic restrictions within which they now operate?

1.2. How have women processors producing organic palm oil been organised into associations in order to operate under this particular value chain?

2.0

2.1. What are the modes and layers of governance guarding the operations of the Fearless Planet Organic Palm Oil Project?

2.2. What are the organic and fair trade regulations in the chain?

2.3. How have farmers and processors been trained and facilitated to work with these regulations?

1.6. Methods of Data Collection

1.6.1 Research location

Much of the research was in the form of fieldwork aimed at gathering empirical data. A total of 4 weeks was used to collect data. The location for collecting the data was in the Kwaebibiren District of the Eastern Region of Ghana. Specific locations were Abaam, Abodom, Asuom, and Bomsu; the farming communities currently participating in the Fearless Planet Organic Palm Oil Project (FPOPP).

The following illustration shows the locations of these communities within the in district and in Ghana.

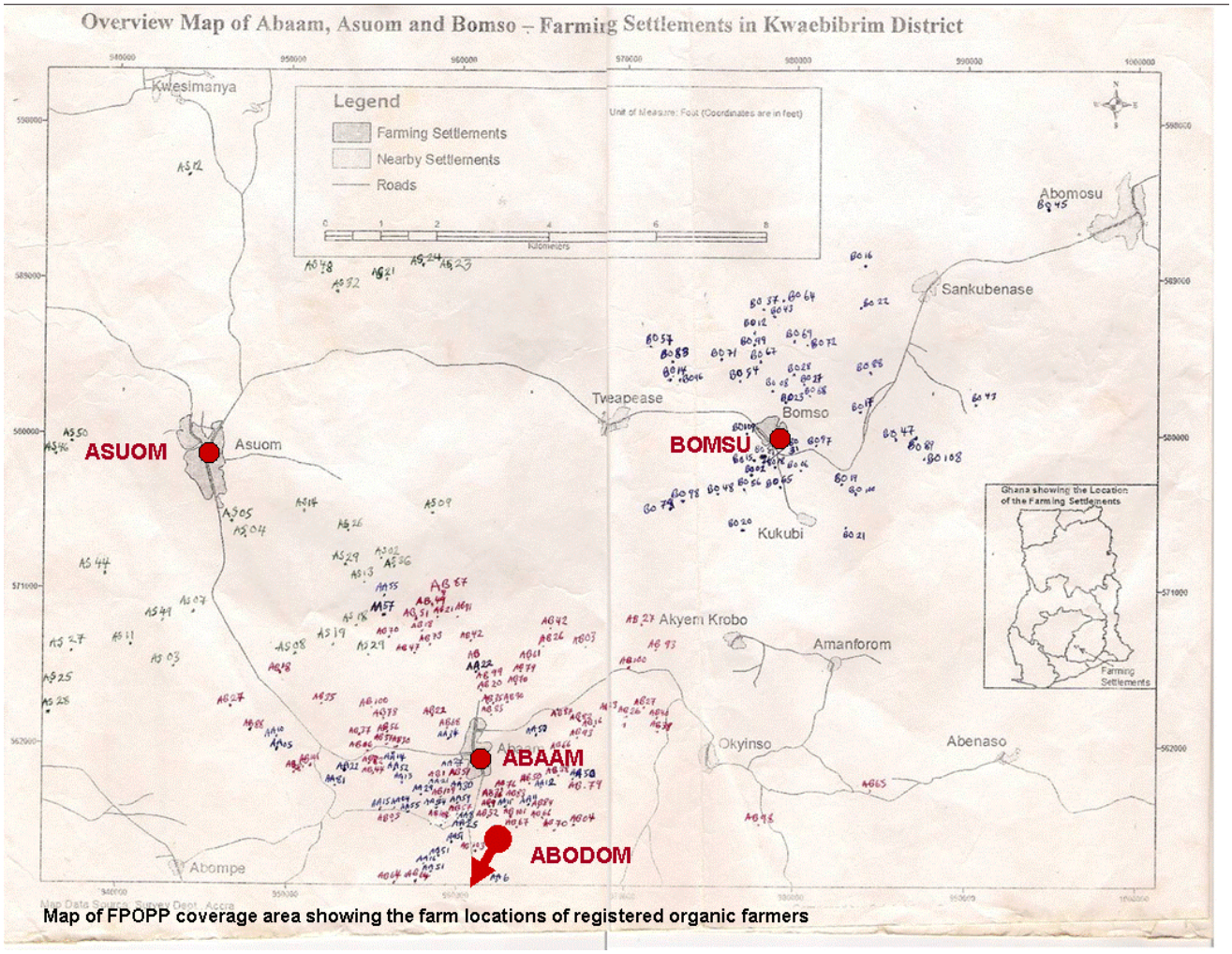

Figure 1: reseearch location with selected communities of the FPOPP

1.6.2. Demographic information of the four communities

Table 1: information on communities involved in the FPOPP

Village	total population	number of households	average H/H size	farmers involved in FPOPP (139)	Others involved in FPOPP
Abaam	4046	885	4.6	79	unknown
Abodom	2332	474	4.9	included in Abaam	unknown
Asuom	13071	2563	5.1	34	70 employed at crammer
Bomsu	1330	306	4.3	26	unknown

1.7. Research design

The research is typically a case study. This is because it is based around a specific unique value chain bounded by specific regulations. It is a place specific phenomenon with a restricted amount of participants. Qualitative data collection methods are used here to be able to give an extension description of this case and to be able to probe aspects of it in depth.

1.9. Data collection

Data relevant to this research comes from primary data gathered during field research. Secondary data available was used in writing the background information of research proposal. Secondary data available on the project is however limited primarily because it is a relatively recent value chain initiative and not much in depth literature exists describing it. The research however used existing secondary on the chain during the proposal writing phase and there were many assumptions made due to lack of data.

Different questionnaires were used for the different stakeholders involved in the chain (see annex). Interviews were conducted on site of stakeholder activities, i.e. for example on the farm of farmers and the crammer of the Daniema Women's Assocaition.

During the proposal writing phase, the research made contact with the ICS coordinator of the FPOPP, Dr. Adjei-Nsiah. Upon arrival at the research location, the researcher had an introductory discussion with the ICS to plan the data collection process. Since the researcher was not familiar with the location it was indeed helpful to be introduced to the area and the stakeholders involved in the chain. This first meeting introduced the researcher to field extension officers, the women processors and farmers involved.

The field research period coincided with IMO's inspection of the chain. IMO, stands for Institute for MarketEcology and they are the issuers of the organic certificate by which the palm oil chain can operate as certified organic. IMO conducts annual inspections of the palm oil chain and a certificate has to be issued every year. The research therefore took the opportunity to observe the inspection procedure. The inspections lasted for one week and this comprised research activities for the first week of field research.

1.10. Sampling and sample sizes

The organic palm oil value chain in Asuom was intentionally selected to highlight and understand how local farmers and processors have been integrated into an international value chain. It therefore represents a single unique case purposefully chosen to fulfil the objectives of this research.

Sample size of farmers was the only one that had to be decided upon. All other stakeholders were interviewed. Due to the small nature of the chain it was possible to interview ICS management, field extension officers, processors and Dr. Bronners in the given research period.

Sample size for interviews and focus groups discussion were left flexible prior to the start of the fieldwork. It stayed flexible during the fieldwork period. The aim of the research was to produce a detailed description of that particular chain and therefore does not strictly depend on a sample size.
The sample size ended up being: **20** out of approximately 140 organic certified oil palm farmers, **1** (the only) organic crammer operated by the Daniema Women's Association. Five farmers each were chosen from the four communities involved. The five were randomly selected from every village. The researcher selected these farmers from a database of all farmers registered in the chain. This sort of sampling represents a stratified random sampling.

Outside of this chain, **10** conventional farmers were randomly selected and interviewed. **3** conventional crammers were also randomly selected and interviewed. The research conducted these interviews to establish the extent to which cultivation of oil palm in the organic palm oil chain is different from cultivation outside of the chain.

Majority of interviews were conducted on the site of operation of the interviewees. This was the most convenient option for the interviewee and also allowed the researcher to get a glimpse of the 'natural environment' of the interviewee.

1.8. Qualitative data collection

The following qualitative data collection methods were applied during the fieldwork period. An explanation is also given on what was planned in the research proposal and what actually took place on the ground during data collection.

Filming: the use of filming as a method of data collection was initially adopted as an illustrative means of showing diversity in agriculture, local biodiversity and distinct ways of natural resource utilisation and conservation. However, upon arrival at the research locations, and having produced sample film footages, the researcher concluded that pictures would also be appropriate in telling the same story. Moreover due to time constraints, it might be not be feasible to shoot and edit a film within the thesis period.

Field notes: field notes were important during the field days. The method was used in combination with other data collection techniques as interviews, discussions and observations. It was also a handy 'tool' for recording observations on the farms and at processing plants.

Focus group discussions: the focus group discussion conducted were all unplanned instead of the four that were initially planned in the research proposal. Two focus group discussion were held during the fieldwork period. This was due to the fact, at two particular times, all stakeholders were available during meetings and this offered precious opportunities to observe dialogue in the change. Additionally these settings allowed the research to pose questions to stakeholders in a more 'natural' set up as compared to a 'constructed' focus group discussion.

Interviews: interviews and individual discussions went on as planned. Both informal and formal interviews were carried out, all of which semi-structured. Semi-structured because this allowed for flexibility and room for interviewees to contribute their own insights, opinions and experiences to the interview.

2. LITERATURE REVIEW

This chapter gives an overview of the various theories and academic literature that are related to the FPOPP. The theories are briefly outlined below and include:

1. **Agro-biodiversity**
2. **Small scale palm oil processing**
3. **Value Chain Development as an analytical tool.**

2.1. Agro-biodiversity

Agro-biodiversity is a shorthand for the diverse ways farmers use biological diversity on available land for the production of crops. Desk study also showed that the term is similar in meaning to agrodiveristy. Agrodiveristy is the many different ways in which farmers use the natural diversity of the environment including their choice of plant and the management schemes on land, water and nutrient to produce agricultural crops (Brookfield and Stocking, 1999).

The FAO (2005) defines agro-biodiversity as the result of active selection and dynamism of farmers, fishermen and herders to sustain their livelihood and maintain food security through their various means. It is an ongoing process and therefore not static. Agro-biodiversity is thus the continuous integration of locally embedded knowledge with available natural resources to secure agricultural production in a diversity of ways.

The above definition therefore translates that, agro-biodiversity and agrodiversity are made up of the following component.

- Local climatic conditions
- Local plant diversity
- Availability of agricultural land
- Management practices pertaining to soil fertility and water.

These components above can be seen as the ‘enabling environment’ upon which agricultural production rests (FAO 2005). The research is selective in choosing the components which are relevant to this assignment and this is **Management Practises and the Application of Locally Embedded Knowledge**.

2.1.1. Management practices and the application of locally embedded knowledge

The theory of agro-biodiversity argues that, an integral part of the concept is local knowledge and how a specific people manage agricultural production to sustain their livelihoods. These practices differ from one geographical region to the other and therefore make the practice of agro-biodiversity conservation place specific. For example in arid regions where high yielding crop varieties and livestock do not thrive, farmers rely on a wider range of crops to survive (FAO 2005). There are major and minor crops and farmers integrate both in their cropping systems in order to secure food and an income even times of pest and disease infestation, low prices, uncertain rainfall, etc.

2.2. Small Scale Palm Oil Processing

Small scale processing of oil palm can be defined by the capacity of being able to process up till 2 tons fresh fruit bunches (FFB) per hour (Poku 2002, Ch 1 pg 4) **.** Processing of palm oil at local levels was and is still done by women in rural communities (Hyman 1990, Poku 2002).

The process of making palm oil at the local level is considerably tedious and inefficient. Throughput is also low for processors to be able to enter into trade of the produce at commercial levels. Various Central and West African governments especially those of Benin, Cameroun, Ghana, Nigeria and Ivory Coast have supported the mechanisation of the process in order to raise productivity (Poku, 2002). Various international development organisations are also involved in this sector mainly in community development initiatives (Lyon 2003). In Ghana, TechnoServe is one of such organisations.

In the case of Ghana, 4 major firms have been facilitated to spearhead the mechanisation of small scale palm oil processing. Either through government support, input by local universities (mainly the KNUST in Kumasi) and a substantial roles have been played by international organisations. One of the firms supplying small scale processors with equipment is *HORMEKU ENGINEERING WORKS* located on the outskirts of Accra. This firm is important to this research assignment because has been contracted to supply the processors in Asuom with equipment.

2.3. Value Chain Development: an analytical tool

From Kaplinsky and Morris (2000), a value chain is defined as the full range of activities required to bring a product or service from the stage of conception through the different phases of transformation and delivery to the final consumer. A value chain can be depicted by the various links by which value is added to a certain product or service. For illustrative reason these links are always shown as vertical and one way but in reality, value chains take the form of different two way and intertwining linkages. In the real world value chains hardly operate as independent isolated entity but rather are lined to other value chains (Kaplinsky and Morris 2000).

Value chain maybe buyer or producer driven, these are the two major distinctions in value chain theory (Gereffi 1999b). Buyer-driven value chains are those where control in the chain is in the hand of the buyer at the top end of the chain. Producer-driven chains on the other hand, are characteristic of value chains where the producer with access to vital technologies, plays the commanding role between the various links in the chain. The differences between these two types of value chains are illustrated in the table below:

Table 2: the diferences between buyer and producer-driver chains

	Buyer-driven	**producer-driven**
Governance	Governing role is played by the buyer at the apex of the chain.	Governance in the hands of the producer commanding vital technology.
Types of industries	Characteristic of labour intensive sectors (and therefore relevant to developing countries).	Capital and technology intensive industries.
Product types	Palm oil, cocoa, footwear.	Automobiles, computers and aircraft.
Producers	Large retailers, branded manufacturers, etc. Example, Nestle, Wal-Mart and GAP.	Transnational manufacturers, e.g. Intel and Philips.

The Fearless Planet Organic Palm Oil Project (FPOPP) taking place is Asuom can be categorised as a buyer-driven value chain. It exhibits the characteristics that Gereffi (1999b) distinguishes. Producers and processors in this chain are ‘set up’ in a horizontal network of linkages that are trade based. As compared to a vertical network linkages based on investments if the chain were to be producers driven (Kaplinsky and Morris 2000). In this case, the palm oil chain is a labour intensive industry.

3. FARMING PRACTICES, OIL PALM PRODUCTION AND PROCESSING

3.1. Overview of farming activities in the district

Oil palm plots in the area are operated as single crop farms once they are 3 years and above. Farm sizes for oil palm range between 0.8 and 19 hectares for the farmers within the FPOPP but this figure can confidently be generalised for the whole district. The average farm size in the area is 1.5 hectares. Generally, plots in the Bomso area tend to be small, while the bigger farms are rather located in Abaam.

Oil fruits are harvested year round but crop yields vary seasonally. During the "major season" (February-June) with the highest yields, palms are harvested every 2 weeks. During the rest of the year, including the lean season from November through January, palms are harvested every 3-4 weeks. The fruits are harvested in bunches, which weigh 10-25 kg, depending on the season.

Well-maintained oil palm plots are pruned twice a year and manual weeding is done 2-3 times a year. Few farmers use herbicides for weeding the land between mature oil palms, some farmers use herbicides in young farms.

Most of the farmers also cultivate between 0.4-2 hectares of home consumption crops (plantain, yam, maize and beans) and other cash crops like cocoa and citrus, a few have livestock in their village. In their maize production, most of the farmers still use some chemical fertilizers (NPK) and herbicides (Atrazine, Kalash) and many of the project farmers do have such plots in addition to their oil palms.

Cash crop farming and likewise the production of domestic crops for consumption in the region are generally tagged "organic by default". This name basically means that even though crop does not carry an official organic label and neither is it guarded by official organic regulations, farmers use little to no external inputs in their farming activities. They can be compared to certified and officially recognised organic farmers.

One major reason farmers in this region are organic by default is because they are unable to pay for external inputs as chemical fertilizers or herbicides. Additionally farmers also expressed that as they did not receive satisfactory income from sales of their palm fruits they had little motivation to invest in higher productivity or to control weeds with expensive herbicides.

Being organic by default has been an advantage to the farmers who joined the FPOPP. Not only for the farmers but one can say for Dr. Bronner's as well. Mainly because being organic by default shortens the conversion period from conventional to organic. Farmers are able to start supplying

as certified organic within a reduced amount of time rather than the official three year conversion period.

3.2. Varieties of oil palm cultivated

Oil palm is a typical mono culture crop. It can however be intercropped upon transplanting till 3 years of maturity. It will then be left as the only crop standing up till an estimated 25 years that is commercial productive. Smallholder farmers in the 4 FPOPP communities cultivate between 2 and 5 different plots of oil palm. Additionally they have established plots of cocoa, citrus and other domestic crops for consumption. Apart from domestic food crops, all cash crops are mono cropped.

Tenera is the commercial variety of oil palm that has been disseminated in the communities. Mainly through the GOPDC. Other varieties; *dura* and *pisifera* are rejected for palm oil processing in the FPOPP. During the proposal writing phase of this research assignment, the assumption was made that Dura and pisifera would be the main varieties for processing in the FPOPP since these are indigenous oil palm varieties in Ghana. Rather the commercial hybrid, t*enera* is the variety of oil palm cultivated in the FPOPP. Other varieties apart from the *tenera* are used for domestic consumption.

3.4. Cropping systems

The dominant crops cultivated in the district comprise a combination of orchard, tree and food crops. Farmers cultivate a combination of crops at the same time as seen in figure 1. Food crops are intercropped while cash crops (orchards and tree crops) since they form a canopy and no crops can be planted under their shade. However in the initial planting stages orchards and tree crops are intercropped with food crops. The most prevalent cash cash crops in decreasing order are oil palm, citrus and cocoa (Amanor with Diderutuah, 2001). Coffee and cola are also found in the district but are not cultivated on a significant scale. The major food crops are plantain, cocoyam and cassava. These main food crops are also seasonally intercropped with maize, yams and vegetables.

Table 3: an overview of major crops cultivated in the Kwaebibirem District

Food crops (for domestic consumption)	**Cash crops**
Plantain	Oil palm
Cocoyam	Cocoa
Cassava	Citrus
Maize	Coffee[1]
Vegetables (eggplant, pepper, okro)	Rubber[2]
Yams	Cola nuts[3]

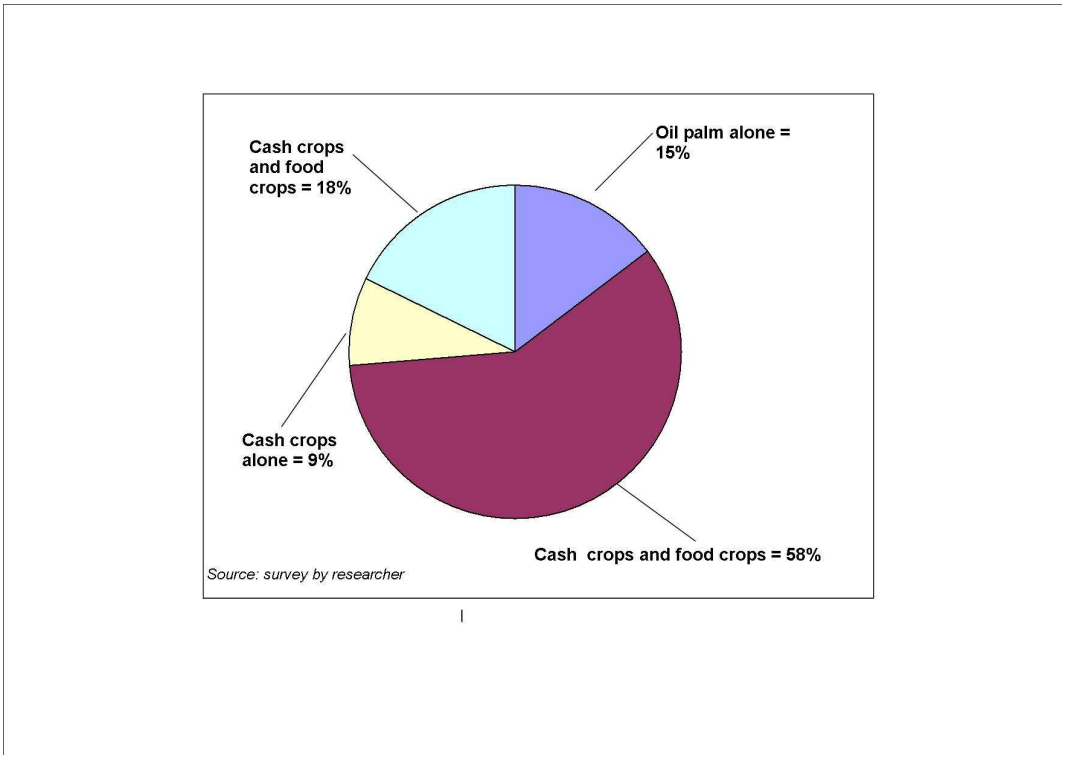

Figure 2: diversity in cropping systems in the 3 selected communities

[1] During the fieldwork, the research did not observe cultivation of these crops in commercial quantities

[2]

[3]

3.5. The intensification of oil palm in Kwaebibirem District

Oil palm products became important products of African-European exchange in the era of legitimate trade (after the slave trade) (Watts and Little, 1994). Colonial interest in the crops rose after the discovery of the palm oil as a substitute raw material for the manufacture of soaps and margarine. Huge efforts to intensify the industry were pumped in supported by equally large investments through international capital notably the Unilever Brothers. But after independence of Ghana in 1957, the state was unable to maintain growth and market for the crop. Experts such as Hopkins (1973) relate this dramatic decline mainly due to low prices and competition from relatively successful alternative ass cocoa and coffee.

The intensification of oil palm oil started in Ghana in the 17th century and continued throughout the 18th century. During those times, West Africa was the largest producer and exporter of oil palm fruits to Europe. The fruits were shipped to Europe to be processed and refined; no value addition occurred on African soil. In the coming decades, Malaysia and Indonesia will overtake West Africa as the two biggest producers of oil palm. The income from oil palm for West African countries like Ghana decreased due to this change. In Ghana cocoa was introduced as an alternative to bridge the income gap. After the drought in 1983 which caused major bush fires and destruction to cocoa farms, farmers replanted their cocoa farm with oil palm.

The GOPDC was established in a joint project between the government of Ghana and the World Bank (Amanor with Diderutuah, 2001). This was part of the an initiative to diversify the government's source of foreign exchange as as of that period cocoa was the only export crop. Since its set up in 1975, the GOPDC has spearheaded oil palm intensification in the Kwaebibirem District (Daddieh, 1994; Amanor 1999).

The state acquired almost 5000 hectares of land in the Eastern Region alone for the cultivation of oil palm. These concessions are now owned by the GOPDC.

The plantation was one of the 16 other plantations set up in the Eastern Region alone by Kwame Nkrumah in the 1960's. Most of these plantations however collapsed due to mismanagement and a lack of an end market for the produce.

When the GOPDC was set up, it facilitated smallholder oil palm farmers to produce oil palm for processing. Meaning they supplied seedlings, inputs and extension training to the participating

farmers. They also constructed feeder roads into the communities of their out grower farmers. This was done to ease delivery of fruits to their processing facility.

The GOPDC runs three types of schemes pertaining to oil palm cultivation:

1. A nucleus oil palm estate and a processing mill

2. Smallholder farmers: these farmers farm on land belonging to the GOPDC and cultivate oil palm according to prescription by the company.

3. An out grower scheme: farmers cultivating oil palm on their own plots have received fertilizers, seedling, and other inputs from the GOPDC. Farmers have to pay of these loans with their harvest until the full loan (including compound interest) is recovered. These loans last for a period of approximately 25 years. During the fieldwork, the researcher learnt from extension officers that the out grower scheme is now largely inexistent since most farmers are discontent with the terms of repayment (mainly because of the compound interest) and after the 26 year contract do not re-enter into schemes with the GOPDC. Farmers discontent with the GOPDC out grower scheme is also expressed in fieldwork report by Amanor (2001, pp 7).

Initially, many farmers joined the GOPDC out grower schemes in the Kwaebibirem district. Amanor (2001, pp 8) puts across the message that this was mainly due to the loans that were offered to farmers; these loans were mainly in the form of external inputs and advance payments. During the harvest periods however, farmers were surprised at the terms of the repayment of loans and more so at the prices they received for their produce. The prices are said have been lower than the market price at that time. Farmers also expressed concern over the nature in which compound interest on their loans were calculated. Hence when it was time to renew the contract in the out grower scheme, many farmers were reluctant to re-sign the contract and a large number have pulled out of the system.
These farmers have gone on to establish their own private plantations with the knowledge and experience gained from the GOPDC. In the district, most of these farmers still supply their fruits to the GOPDC but on so-called ‘casual’ basis.

3.6. Pest and weed management practises

In the project area there are currently few pest issues and farmers do not use pesticides for control since no yield-threatening losses to pests occur.
Within the FPOPP however, the ICS allows the use of an extract from the neem tree if incidents of pests are noticed.
The neem extract comes from leaves or seeds. Seeds are milled and soaked in water overnight and strained. Liquid is sprayed as a pesticide on vegetables. Nothing is used on oil palm currently, but this neem preparation could be used in the case of pest infestation.

Well-maintained oil palm plots are weeded 2-3 times a year. Weeding is exclusively done manually. Farmers with large plots of 3 hectares and above hire labour for weeding. Those with smaller plots do the weeding with the help of family members. Hired labour is available in the form of young men in the community. On several occasions these young men form so called weeding "gangs" and make themselves available to farmers. These "gangs" are also hired during the harvest times especially between February and June when its peak season. In the area, very few farmers use herbicides to control weeds. This is also rare among conventional farmers in recent years. In the past when the GOPDC was very much involved in the out-grower system, they made herbicides available to farmers to control weeds and recovered the cost when farmers harvested and sold their palm fruits. This practice is no longer taking place in Kwaebibirem district.

3.7. Yield and Productivity

Oil palm productivity in the region varies between communities. This has been noticed by the field officers and ICS management of the FPOPP. These experts notice that, in communities as Abaam, Abodom and Asuom farmers record higher tonnage of fruits per harvest as compared to Bomsu. One reason for this might be because of the proximity of the communities to state and multinational plantations operating in the district.

"They [farmers in Abaam, Abodom and Asuom village] *learnt quite a lot from the GOPDC. They also do a lot of farm maintenance and use mulching and cover crops and this shows substantially in their harvest"*

"An average farmer cultivates 4 acres [1.6 hectares] *of oil palm. In the peak season farmers from Bomsu harvest 1.2 tons and those from Abaam harvest 1.8 tons. Harvesting is done 5 times in the peak season and 8 times in the lean season. In the lean season farmers will harvest about 8 times and every harvest is 0.4 tons"*

Edward Blay: Field Officer for FPOPP

This means that farmers from Bomsu miss out on 3 tons of palm fruits per production year due to a harvest deficit. Whilst farmers from Abodom to Asuom will record an estimated 12.2 tons (5x1.8 tons during peak season plus 8x0.4 tons in the lean spell) of harvested palm fruits per year, their colleagues from Bomsu will only record 9.2 tons of palm fruits. In income terms, farmers loose approximately 460 Ghanaian Cedis (GHC) which is equivalent to € 250. The price per ton of oil palm fruits averages at GHC 155 (€ 75). Prices fluctuate between the seasons and farmers are paid GHC 150 in the peak season and 160 in the lean season. The price shown here are valid for farmers within the FPOPP and are 10% higher than those of the prevalent conventional market.

The research's interpretation of what field officers are telling here is the fact that there is a correlation in yield to the community of farmers. The first explanation for this correlation is the proximity of the communities to the GOPDC. Abaam, Abodom and Asuom are closer to the plantation sites and in the past have taken part in the out grower contract schemes of the company. Through this, have adopted relatively recent knowledge and skills regarding the cultivation of oil palm:

- Use of adequate and prescribed planting distances.
- Lining and pegging prior to planting instead of random planting.
- Use of *pueraria* (*Pueraria phaseoloides*) as cover crop on their oil palm plots.
- Annual pruning of trees and weeding thrice a year on oil palm plots, etc.

Additionally the farmers from the above three communities also through the out grower schemes have been exposed to the use of external inputs such as;

- Chemical fertilizers
- Pesticides and herbicides
- Hybrid tenera seedlings provided by the GOPDC

The above factors combined with the pressure from the plantation to produce and pay back loans has rendered farmers more commercially oriented as compared to their counterparts from Bomsu who are only familiar with producing for local small scale processors. This gives rise to the occurrence of differences in productivity between Bomsu and the other three communities.

3.8. Harvesting and post harvest handling

Harvesting of oil palm in its commercial quantity starts five years after transplanting. Harvesting is done manually with the use of a machete. Older and much taller trees have to be harvested using a knife attached to a long pole. This method is used by both small scale and large scale plantations farms and is the same for within the FPOPP.

Harvesting is also a labour intensive activity in the cultivation of oil palm. Especially in the peak seasons when farmers have to harvest fruits after every two weeks, there is the need for extra hands in the farm to undertake the process. Just as labour is hired on bigger farms to carry out the required weeding on the farm, labour is hired during the harvesting period. The same young men hired to weed are also available for harvesting of fruit bunches. Additionally, women labourers are included in the harvesting process.
Fruit bunches harvested are gathered by women and carried to a collection point usually near the roadside. When all fruits have been harvested, the farmer arranges for transportation to carry the fruits either to his or her home or to a processing plant.

3.9. Processing of palm oil in the region

Palm fruits are processed into palm oil in 4 traditional steps (Poku 2002). The fruits are removed from bunches and cleaned. Batches of loose fruits are steamed to soften the pulp. Steamed fruits are put through a digester otherwise called a press. This press separates the palm kernel and fibre from the sludge. The sludge which contains the palm oil is mixed with water and set to boil in a clarifier. In the clarifier, contaminants, fibre, residue and water are separated from the actual oil by gravity. The palm oil rests on top while the remaining solution stays at the bottom. The oil is scooped out into storage drums whilst the residue is drained out of the clarifier.

The processing of pressing and clarification have been mechanised in all processing plant in the region. As Hyman (1990) and Poku (2002) point, small scale processing of palm oil has been mechanised throughout the whole of Africa. Mainly through community development projects of governments and NGOs (Lyon 2003).
During the fieldwork of this research, all crammers interviewed or observed had adopted mechanised forms processing, some more complex than the other. Machinery is used in the stages of **pressing** and **clarification** of the oil otherwise considered as the most labour intensive stages of palm oil processing (Poku 2002).

3.10. Demand for palm oil from Kwaebibirem District

Palm oil produced in the district is destined for a diversity of markets. GOPDC which is by far the largest producer of oil supplies its oil to both regional and internal markets. Business women who process palm oil on smaller scale are supplying mainly to local and regional markets. These women produce both edible oil and palm oil for use in making soaps and other oil based cosmetic products. These are not integrated into specific value chains but rather deliver to traders who visit the crammers to purchase oil. Two crammers interviewed said that traders come from Benin and Togo to purchase oil for making local soaps.

PSI initiatives in palm oil production also focus on integrating local farmers and women processors into value chain. This information was gathered during the informal interviews with ICS management of the FPOPP. However the PSI projects are yet to be implemented so results of that are unknown.

4. THE FEARLESS PLANET ORGANIC PALM OIL PROJECT (FPOPP)

4.1. Introduction

This chapter forms the main body of text of research findings. It centres on the major research unit which is the Dr. Bronner's value chain formally known as the Fearless Planet Organic Palm Oil Project (FPOPP).

The thesis research was conducted under the Fearless Planet Organic Palm Oil Project (FPOPP). The project officially began in June 2005 under the facilitation of Fearless Planet. Fearless Planet is an American nongovernmental organisation based in Ghana. Headed by Danielle Gold, Fearless Planet engages in community development projects with a focus on building capacity of women to engage in income generating activities. Apart from the organic palm oil initiative in Asuom, Fearless Planet has facilitated women and farmer groups to produce textile in Elmina and dried organic pineapple and pepper at Ningo respectively.

With the help of Dr. Orgle, a Ghanaian PhD graduate, Fearless Planet started registering farmers into their ICS by early 2007. Field extension officers, agricultural experts from the Agricultural Research Station in Kade were all involved in demarcating the project site, identifying and selecting communities and carrying out feasibility analysis to start producing organic palm oil for Dr. Bronner's. This was after Fearless Planet had invited Dr. Bronner's and Jungle Products (both based in the USA) to come the Kwaebibirem District of Ghana and analyse its potential to produce organic palm oil.

For the processing of the organic palm oil, 3 women from the village of Asuom were selected to form the core of producers. From there these women could employ others in the village. The women that were selected to start the organic palm oil processing facility were themselves processing palm oil locally on small scale using the prevalent labour intensive methods. With financial support from GTZ and assurance of a market from Dr. Bronner's, the women processors have able to upgrade their processing facilities and increase their production of oil substantially. The women have also been able to group themselves under a cooperative known as the Daniema Women's Association.

The project sites are made up of farms clustered around the villages of Abaam, Abodom, Bomsu and Asuom. Asuom is the central point of the project and this is where the processing crammer is found. Central administration and ICS headquarters is also located at the crammer in Asuom.

4.2. Cultivation of organic oil palm

4.2.1. Registration of farmer into an organic ICS

The 139 farmers currently supplying oil palm to the project are IMO certified organic farmers. They undergo annual general inspections conducted by IMO. Farmers are also inspected internally twice a year by ICS management of Dr. Bronner's.

Farmers joined the organic program at their own will when the registration process began in 2007. At that time, Fearless Planet had secured the interest of Dr. Bronner's as the buyer of the palm oil. Feasibility studies were carried out by field extension officers to demarcate project area and select communities to be involved. Abaam, Abodom, Asuom and Bomsu were selected as the main villages. Extension officers organised gathering to inform farmers about the project and register those willing to join. Farmers then had to go through the conversion process to be certified as organic.

Table 4: conversion and certification process of farmers

Conversion categories	**interpretation**	**period**	**activities**	**trainings**
C0 ↓	conversion category zero (0)	3yrs	• registration into ICS • 1st internal inspection by ICS • identification of plot for organic production	• 1day ICS workshop on organic, FT practises • 3day training workshop by IMO in Kade
C1 ↓	conversion category 1	2yrs	• field officers monitor farmer's commitment • internal inspections by ICS	
C2 ↓	conversion category 2	1yr	• internal inspections by ICS • IMO inspector approves farmer	

Organic status	IMO certified organic farmer	0	• Undergo yearly internal and external inspections • Farmers can supply their fruits to the crammer	• Annual refresher courses carried out by the ICS

Farmers become members of the ICS as soon they register into the chain. If a newly registered farmer passes the internal inspection he/she is accepted into the group. New or registered farmer members who have used prohibited inputs in the last 3 years but qualify otherwise may be included in the ICS as CO, C1 or C2. Farmers who have not used prohibited inputs in more than 3 years will also be classified as C2. As a policy of IMO, C2 farmers will advance to "organic" status under EU organic regulations after the second external inspection. Exceptions can be made for farmers who have shown their commitment to maintaining organic standards. Newly recruited farms assume NOP (National Organic Program) organic status if 3 years of non-use have been completed and one external inspection have been conducted.

The internal inspectors have also provisionally accepted some farmers who should better maintain their farms to remain in the group. In these cases the extension officers will work closely with the farmer to make the necessary improvements on the farm and the farmer will be reviewed the following year with further suggestions made if necessary. In cases where there are no violations of ICS compliance, improvements will be supervised by extension officers. In the case of non-compliance issues, the ICS management will take a decision based on the guidelines laid out in the ICS manual.

4.2.2. Formation of farmer cooperatives

Registered farmers automatically fall under the cooperatives of their respective communities. These cooperatives, four in all (one in every community involved in the FPOPP) were formed with joint action from extension officers involved in the FPOPP and the

ICS. These cooperatives are used to reach farmers for inspections and deliberating the use of the fair trade premiums. Asides from that farmers in the cooperatives have received are receiving trainings on organisations and business management and budgeting all through their cooperatives.

4.2.3. Training of farmers

At the start of the conversion process, farmers selected a group of representatives who attended a three day IMO training workshop held in Kade in March 2007. They were responsible for sharing the information they received. An initial one-day workshop for all farmers in the group was held that covered ICS regulations and practices for organic farming, as well as premiums paid for organic and fair trade produce. These representatives chosen included field extension officers and fellow farmers.

Extension Officers have additional received extensive classroom and field training from Dr Orgle, Dr Adjei-Nsiah, experts on organic agriculture production and palm research, respectively. The Extension Officers have been given motorcycles by the project and visit each farmer at least once a month. Since the last inspection period, two major training programs have been conducted, involving over 200 farmers, including all farmers registered in the ICS group, and additional farmers interested in participating in the group. The one-day program, designed to inform and teach participants about organic and fair trade oil palm farming and regulations for participation in this ICS group, were conducted in three separate villages in order to enable all project farmers to attend without travelling far from home.

Annual refresher training of the field officers on organic regulations, documentation and practices will are held by IMO. Dr. Bronner's also plans to facilitate exchange visits of field officers to their projects sights in Sri Lanka. The costs of trainings, equipments and IMO certifications are all covered by Dr. Bronner's.

4.2.4. Sanctioning of farmers

Farmers can also be removed form the ICS system if they violate regulations in the ICS manual. For example if farmers repeatedly fail to maintain farm hygiene even after repeated internal inspections their names will be taken out of the member list. For such 'soft' non-compliance cases regarding farm hygiene, weeding schedules, etc, field officers work with farmers to get back on track. In more severe cases as the use of prohibited agro-chemicals farmers are immediately removed from the ICS list.

4.3. Production and refining of organic palm oil

4.3.1. The Daniema Women's Association

The processing of palm oil under this chain is done under the cooperative Daniema Women's Association. This women coop was formed as a result of the Fearless Planet initiative at the start of the FPOPP in 2005. The cooperative was created by three women (Lucy, Grace and Janet) who processed palm oil for the local market. Their experience with processing and knowledge of the community (Asuom) and support from Fearless Planet enabled the formation of a women's cooperative that could engage in producing oil for the international market.

In 2005, after Fearless Planet had approached Dr. Bronner's and Jungle Products on the possibilities of sourcing organic palm oil from Asuom went searching for women who could undertake the processing palm fruits from farmers in the area. Danielle Gold, the then director of Fearless Planet, approached Lucy Aboagye. Lucy at that time was already involved in the processing of palm oil. She owned her own crammer that processed palm oil for the local market. Grace was also involved in the processing together with Lucy. Janet on the other hand was living in the capital; Accra and the other two lived in Asuom. Janet was invited over to join in setting up the crammer and these three women became the foundations of the Daniema Women's Association.
Lucy Aboagye is currently the head of the association, Grace takes care of treasury, issuing payments to farmers upon delivery of their fruits and payments of employees. Janet has taken up the role of secretary of the association. In their relations with Dr. Bronner's the association has employed a crammer manager who's tasks among others are to communicate and implement ICS standards at processing level. The manager also keeping back and forth communication with Dr. Bronner's in the U.S. Apart from these tasks, he also has to coordinate continuous production of oil and delivery of fruits to facilitate smooth running of the crammer.

Current membership of the association is at 70 women. These women are all from the community of Asuom. From informal chats with some of the women, they used to work at crammers in Asuom and the surrounding communities. Others are part time farmers. The members of the association however are full time employed to work at the crammer.

In their new arrangements and as processors or organic palm oil, the association has entered into partnership with Dr. Bronner's. The women's association processes oil palm on a commission

basis for Dr. Bronner's. Direct involvement in the trade of the product is absent in their activities since Dr. Bronner's takes charge of this and owns the oil that the women process.
The association in addition has to keep administrative records of all their activities; ranging from the amount of fruits purchased from farmers, records on all employees, processing activities and the volumes or palm oil produced. They are however supported by management of Dr. Bronner's to carry out these activities.

An important observation of the women's association was that, their structure of organisation is still very much similar to that of small scale processors producing palm oil for the local market. It remains a group of women who are collectively involved in the processing of oil palm for their livelihoods.

4.3.2. Processing activities

The entire process of purchasing and processing of palm fruits, the storage and shipping of the oil to the refinery is performed at the crammer. The crammer is solely designated to organic and fair trade certified palm oil.

Palm fruits delivered to the crammer will be processed in batches. Current equipment allows production of about close to 10 tons of palm fruits per day. Such a high quota can only be filled during the peak season of palm harvests. During these times, the crammer runs day and night shifts.
This product is known as crude palm oil. It is not yet refined and this process is inexistent in the Kwaebibirem District. Palm oil produced in the district and destined for international markets are either refined in major cities of Kumasi or Tema or refined abroad.

Within the FPOPP, delivery of palm fruits is arranged in such a way that farmers have to call the crammer prior to harvesting of their fruits. They have to inform the processors on the tonnage of harvest they intend to deliver to the crammer. Field extension officers visit the farm to verify that fruits are indeed coming from registered plots. This is done to ensure that farmers do not deliver conventional fruits as organic and also to remove *dura* varieties of oil palm from batch to be delivered. Only the *tenera* variety is accepted for processing.

4.4. Refining

Two companies are involved in the refining and shipping the crude oil produced for Dr. Bronner'S. These are Golden Web Company Limited and Cargill. The first is a processor of oils and fat in

Kumasi, Ghana whilst the latter is an food and agricultural company in Amsterdam. Golden Web in Kumasi packages the crude oil in 250 litres that can be shipped. The company participates in the value chain due to its possession of appropriate technology. Cargill refines the crude oil into liquid oil base (olien) before it is shipped to the U.S.

4.5. Important facilitators of the chain

The organic palm oil chain is supported by the following bodies:

- **IMO**

The Swiss organic certification body compiles a set of organic regulations that are applicable to this tropical value chain. It communicates the regulations to the ICS management of Dr. Bronner's. IMO evaluates the internal inspections carried out by ICS management. Once a year, an IMO consultant comes into the region to conduct external inspections. The report from the consultant will also be evaluated by IMO and an organic certificate valid for one year will be granted to Dr. Bronner's.

- **ICS management**

The ICS of Dr. Bronner's contains a list of registered farmers and the crammer. Internal Control Systems (ICS) is requirement of IMO for all organic production chains that are operating with small holder groups (IMO 2010). ICS is headed by a coordinator and a manager. Dr. Adjei-Nsiah is an expert in oil palm cultivation is the current coordinator of the ICS program. David Ampomah used to be involved with oil palm production at the GOPDC and is currently managing the ICS procedure and inspections. The ICS manual is enforced by field extension officers.

- **MoFA and field extension officers**

The Ghanaian Ministry of Food and Agriculture is supplying the chain with extension officers to run the ICS program. The officers involved originally have working experience on oil palm, cocoa and citrus in the district. They admit to have been involved in past economic development projects on citrus and cocoa that has been carried out by the American development organisation USAid.

Due to their experience with developmental initiatives, the field officers together with farmers have formed a Fairtrade Council under the FPOPP to deliberate how premiums from sales of palm fruits will be put to use in the community. This council is made up of representatives from four cooperatives representing the four communities involved in the project.

4.6. General overview of the value chain

The palm oil project in Asuom is 5 year old project which has rapidly been transformed from an NGO intervention into commercial value chain. The chain is driven by the regular demand for

organic palm oil with an end market in the United States. Both EU and American organic regulations are prescribing production and processing in this chain.

Chain activities starts with a selected group of smallholder farmers who produce oil palm exclusively for processing into organic palm oil. These selected farmers have been registered and certified as organic farmers. The number of participating farmers has been increasing year by year since the beginning of the project in 2005.

Processing activities take place in the same communities where the oil palm is cultivated. A small group of women in the Asuom community are serving the role of processors. They have formed an association that is solely processing organic palm oil for this chain. The oil produced here in Asuom is still crude palm and is yet to be refined. The crude palm oil is packed into 215 litre drums, labelled as organic and temporarily stored in an on-site warehouse. The crude oil is purchased and picked up by the refiner. All ownership of the oil is transferred to the refiner at the point of purchase. The refined oil will be packed in 250kg metal containers before being shipped to Dr. Bronner's in the United States.

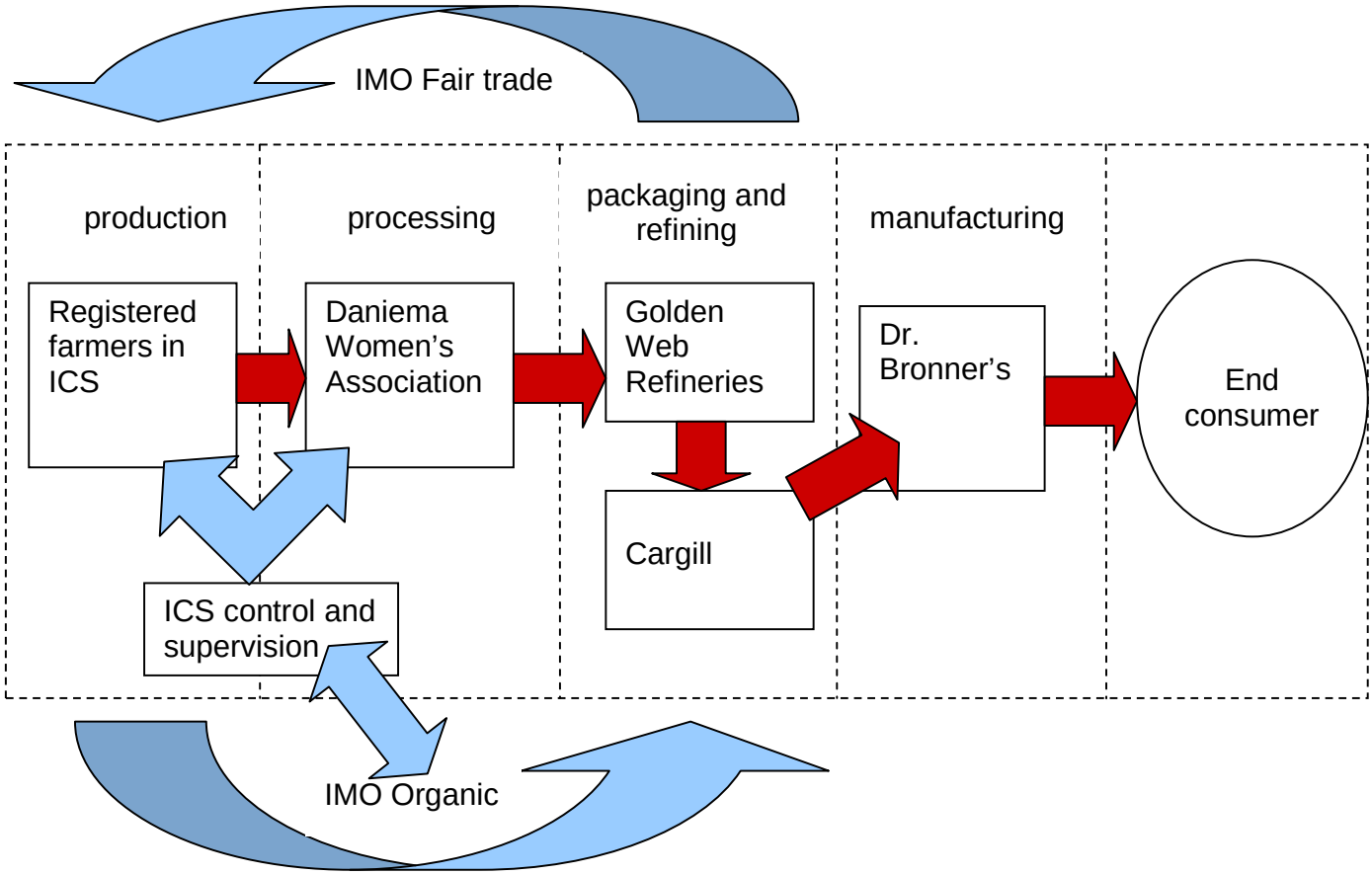

Figure 3: the FPOPP chain showing product flows (red arrows) and supervision (blue arrows)

4.7. Management and control

Dr. Bronner's is a manufacturer of soap and skin care products United States. The company was the primary buyer of the bprocessed palm oil from the Asuom project when Fearless Planet was the main facilitator of the project. Now that Fearless Planet is no longer directly involved in the operations and is expected to fully pull out by the June 2010, Dr. Bronner's has taken over in running the chain.

Dr. Bronner's, is family run soap manufacturing company owned by German/Jewish family that migrated to the United States after the Second World War. It focuses on maintaining a high level of Cooperate Social Responsibility (CSR) by sourcing sustainable raw materials as ingredients for

its soaps and shampoos. Apart from organic palm oil from Asuom, Dr. Bronner's also buys organic and fair trade olive oil from the Palestine and coconut oil from Sri Lanka.

Dr. Bronner's sources organic and ethical raw materials for the production of its soaps and shampoos. Apart form the organic palm oil chain in Ghana, it has set up two other value chains in:

- Organic and fair trade olive from Palestine operated mainly by women.
- Organic and fair trade coconut oil from Sri Lanka.

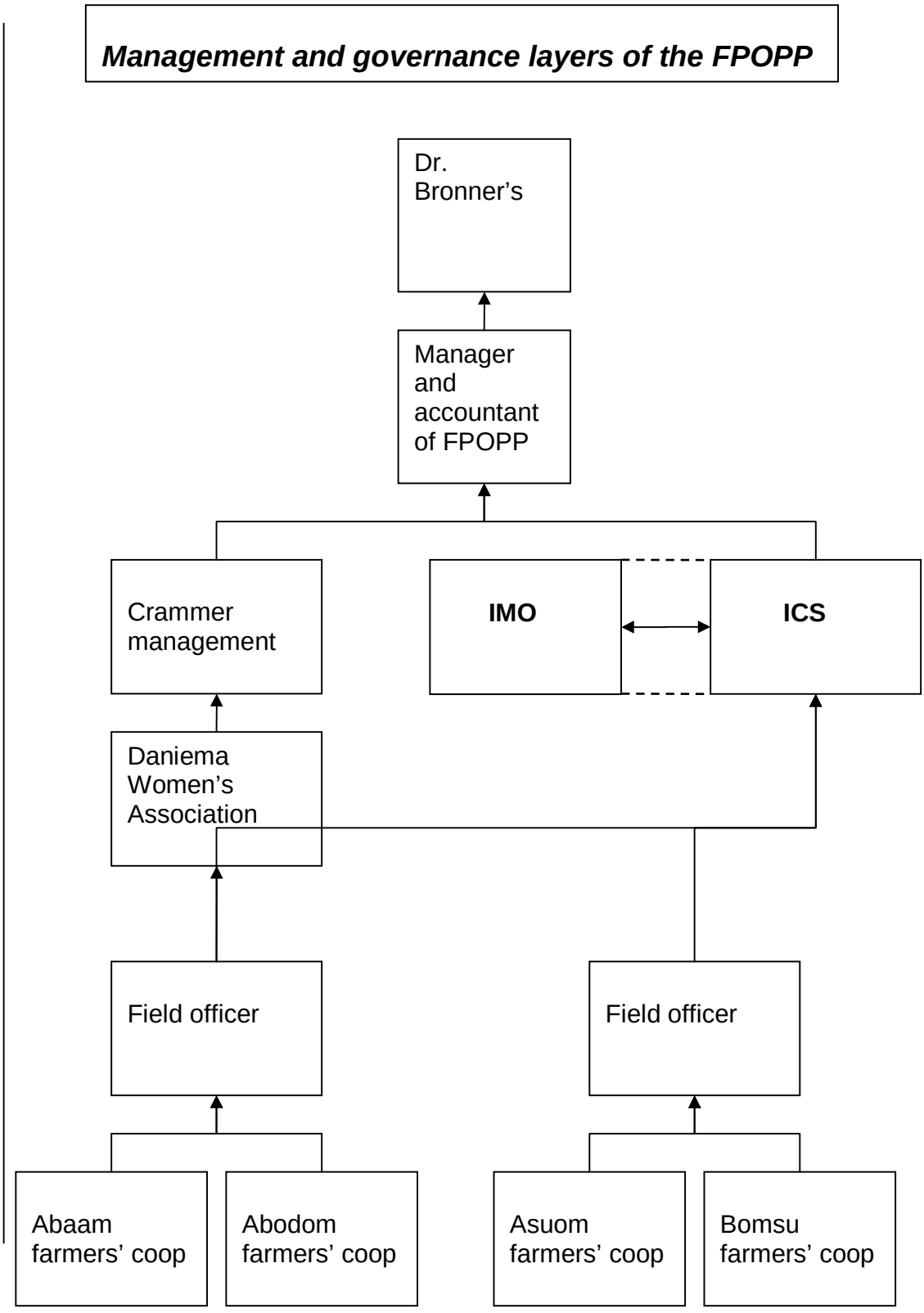

Figure 4: layers of coordination in the FPOPP chain

4.8. Certification and standards

4.8.1 Organic

Two organic regulatory schemes are being adopted by IMO in certifying the FPOPP. These are the European Union Organic Regulations: **(EC) Nº 834/2007**. This regulation was created in June 2007 as the EU became the first market to state legislation on organic production. This specific set of rules covers production, processing and trade of agricultural produce.

The National Organic Program (NOP) of the United States Department for Agriculture (USDA) is the second organic criteria used to accredit the FPOPP. The NOP regulations hold for producers and processors who are willing to export their products to the U.S.A. However the USDA's version of organic regulations does not have regulations regarding certification of smallholders groups from developing countries. The IMO as a certification body has therefore incorporated both EU and American organic regulations to make the cover all production and processing activities taking place.

Table 5: the different specifications in EU and NOP organic standards

	EU	**NOP**
	Operation and production processes are inspected once a year	
	Operator must set up and run an ICS, with trained staff, clear structure and manual	
	Operate is responsible for compliance to regulations. If doubts are expressed regarding compliance, he or she must take appropriate measures.	
		Requirement for products exported to the U.S.A
		IMO is accredited issuer of NOP certificate
Conversion period	2 years conversion period. This period might be reduced with approval from either ICS of inspectors.	3 years conversion period without any use of prohibited materials.
Split operations	Separate organic and non-organic productions and storage locations.	Organic and non-organic operations need to separate by management

		practises or physical barriers.
Buffers	No buffers systems required.	Buffers need to be set up to prevent unintended application of prohibited materials.
Record keeping	No specific length for records to be kept but the but record should be accessible to inspectors.	Production and other records of operation must be kept for 5 years.
Composting	EU regulations does not specify that composting must be carried out.	Composting is required with further specifications in times, temperature, etc.
Soil management	No specifications on tillage practices.	Requires that measures be taken that improve soil quality and nutrients.

The ICS system which is compulsory for all smallholder producer groups being certified by IMO helps stream line the external inspection process. In most cases, the external inspector evaluates the whole group based on the efficiency of the ICS (IMO 2010). The ICS also:

- Helps to bring often dispersed and remote farmers under one umbrella to be easily accessible to the inspector.
- Reduce costs of inspection; farmers are called together for inspections and trainings and saves time and money for the IMO if it has to reach farmers individually.

NOP regulations are a separate set of organic rules that are supplementary to the EU regulations. NOP usually exceed the EU regulations on aspect such as composting. It is the task of the ICS to update and adapt its manual to both EU and organic regulations.

4.8.2. Fair trade

The FPOPP operates it fair trade scheme under the IMO's "Fair for Life" fair trade certification system. IMO describes this certification programme as:

"Fair for life is a brand neutral third party certification programme for social accountability and fair trade in agricultural, manufacturing and trading operations. The programme complements existing fair trade certification systems. Social accountability and fair trade have become important indicators to select business partners in a global market place. Existing systems unfortunately exclude many agricultural, manufacturing and trading operations worldwide that practice social responsibility and fair trade from independent verification and certification of their performance.

The IMO Social & FairTrade Certification Programme offers operators of socially responsible projects a solution for objective inspection and certification by a highly qualified external verifier. It combines strict social and fair trade standards with adaptability to local conditions. Socially responsible and fair trade operators also need to take care to protect the environment at and around their production or processing sites. For this reason, the 'Fair for Life' programme includes detailed environmental criteria. The system is designed for both food and non food commodities (cosmetics, textiles etc.)"

The IMO's version of fair trade as described here is different from that of the widely known FLO. From an interview during the fieldwork with Dr. Bronner's, it came to light of the researcher on the differences between IMO and FLO fair trade standards. A major reason why the FPOPP is not fair trade certified by FLO is due to the fact that FLO has no specific regulations nor experience the certification regarding palm oil production at the time of the research. Secondly FLO, requires that smallholders are organised and functioning in cooperatives before certificates can be issued. In the case where this absent, the cooperatives must be set up and running prior to certification. Something the IMO does not strictly require to certify smallholders as fair trade. IMO recognises and requires smallholders to be producing the same crop and be located in the same geographical area.

4.9. Notes on active agro-biodiversity conservation in the chain

Efforts to conserve agro-biodiversity are an integral part of the chain. This was an observation made by the researcher. Farmers have received trainings from field officers on how to manage soil water and nutrients as well preserving the diverse flora and fauna found underneath oil palm trees. The farmers have not only been shown how this is done but have also been assisted on carrying these activities out on their own separate farms. Evidence that these were indeed carried out was observed during farm visits.

For example, farmers actively gather palm fronds during harvest season, chop them into pieces and spread them at various points around their plots. The intention being to compost the leaves that will fix nutrients back to the soil. Additionally, most farmers have planted cover crops and legumes that fix nitrogen into the soil. The main cover crop seen was *pueraria.* The participating farmers have also been advised not to clear-weed their plots to expose their soil to destructive effects such as erosion. 'Brushing' which means weeding up to level between 10-20cm above the soil surface was recommended to the farmers by the field officers and ICS management. This method of weeding checks against, erosion, evaporation of soil water, serves as mulch and sustains living organisms in the soil.

5. DATA ANALYSIS, DISCUSSION AND CONCLUSION

5.1. Analysis of Empirical data

In this chapter, the empirical data gathered from field work of this research will be analysed with the theories presented in the literature review of Chapter 2. the aim here is to give more perspective and meaning and to the raw data gathered.

1. Agro-biodiversity

The concept of agro-biodiversity is one of the requirements in order for the chain to be certified as organic by IMO. Dr. Bronner's focus on becoming certified is consequently making sure that farmers conform to the prescribed set of regulations of which some aspects of agro-biodiversity; the conservation of local flora and fauna and the preservation of soil water and nutrients are part of the package. It can therefore be concluded that farmers are not the main drivers of agro-biodiversity conservation but it is rather IMO. Primarily because if the regulations of IMO were dropped and the policing vigilance of the field officers and the external inspector were redundant, very few efforts towards sustainable agriculture would actually be taking place.

2. Small scale palm oil processing

These women's association operating the crammer in Asuom have been able to upgrade both in the productivity and management activities to produce a sustained quality of organic palm oil destined for the international market for the past few years. In doing this they have created employment opportunities for women in the communities.

In this process of chain integration, they have managed to preserve the core structure of their livelihoods in a community setting. The groups remains one comprised of women who engaged collectively to sustain a livelihood for themselves. The processing activities are still able to take place in a setting where women of the community are interacting with each other at the same time carrying out processing activities.

3. Value chain development: an analytical tool

The FPOPP is an example of a buyer driven characteristic of labour intensive sectors of production or processing. The control exercised here in this chain is Dr. Bronner's; the buyer of produce from smallholders. The chain sets and implements barriers of entry in the form of organic standards.

There are also new forms of governance and quality compliance that both farmers and processors have to comply with. Something they were unfamiliar with in the past. Stakeholders have been facilitated to participate in this chain through trainings and support form international organisation and certification bodies.

5.2. DISCUSSION

The discussion chapter compares the methods used to collect data against the findings to indentify limitations of these methods and their impact on the overall outcomes of the research.

The research set out mainly to gather empirical data on the farming and processing activities in the Fearless Planet Organic Palm Oil Project. The commissioner required the research to come up with an in depth narrative description of the chain. Little attention was to be given to theoretical analysis of the data. The research also refrained from conducting an impact analysis of the chain since this will influence the neutrality of the researcher in the descriptive report. Recommendations in this report were to be based largely on opinions of stakeholders in the chain.

The methods of data collection used and the fieldwork schedule have allowed the researcher to have sufficient exposure to the cultivation and processing activities in order to be able to describe the chain. From the researcher's own point of view, the methods used to gather this type of qualitative data are also adequate for the level of academic research required by the researcher.

The researcher however admits that, he needs extra experience in conducting academic research. Mainly because such research requires a certain level of flexibility and adaptability in the field; in order to know information has been acquired and what is still needed. Nevertheless this particular research has been a valuable learning experience for researcher.

5.3. CONCLUSION

This section focuses on the researcher's final thoughts, statements on the research assignment and the Fearless Planet Organic Palm Oil Project. This part is also the answers to the main research questions in Chapter 1.

Agro-biodiversity conservation

As mentioned before and now in concluding, the FPOPP has built on the capacity of involved farmers and processors of palm oil in the Kwaebibirem District. The market offered by the FPOPP has further diversified and increased farmers' income on a secure bases. 70 women processors in the community are also secured of an income from palm oil production.

In general terms, this value chain has initiated a more responsible means of exploitation of agricultural natural resources. It is one of the first in the district where oil palm cultivation is done by every single farmer.

Value Chain Development

Farmers in the 4 communities of Abaam, Abodom , Asuom and Bomsu are organised into buyer driven value chain where they can produce oil palm for a organic price that is higher that the prevailing conventional market price. Farmers are assured of secure demand for their produce the whole year round and this is a fact farmers themselves acknowledge and appreciate.

For this new chain, farmers have to conform to regulations that have been laid out by the Institute of MarketEcology. This regulations stretch from their farming methods to farm maintenance and sanitation. Farmers are also supported by field extension officers to conserve soil fertility and nutrients. Additionally farmers have received trainings into farming according to organic regulations but also into keeping records on productivity and harvests.

The farmers in their respective communities have been organised into cooperative groups to undertake issues regarding organic production in that particular community. Issues ranging from non-compliance to the use of fair trade premiums. These cooperatives have received trainings in organisational management they are aided by field officers every year to set annual goals.

All these new facilities and knowledge that farmers now have access to would have been non-existent in the absence of the FPOPP.

Small scale processing; the case oft he Daniema Women's Association

These new forms regulations and governance within which women processors are organised throws up various questions of whether these women are able to operate in these new environment. From the empirical data gathered during field work and from the researchers won observations during this period, the research can say the women have upgraded very impressively into this new value. In terms of keeping up with quality standards

In their integration into this chain however the women's association ahs still preserved their core organisational structure which is constitutes of women task groups organised in the community around a specific income generation activity. The women still maintain a certain degree of independence since they in partnership with Dr. Bronner's and not a subsidiary of the chain.

In the FPOPP value chain, the processors are secured of a market for their produce. They also have a permanent and reliable source of raw material at predictable prices. These are arrangements that were not existent in the past.

5.4. General conclusions

Fearless Planet and Dr. Bronner's have built on the capacity of farmers in various distinct ways. First of all farmers have been trained to cultivate crops according to international standards. They participate in an international value and are facilitated to work in cooperatives with improved organisation and management skills. Additionally they are conversant with farming according to organic and fair trade regulations. All these have put them in better positions to access markets for their palm fruits. If in the end Dr. Bronner's is longer able to operate in their community, farmers can still readily access other market channels for example the PSI.

Apart from the above, farmers are operating in this international value chain but still operate in the same diverse activities as they used to do in the past. Dr. Bronner's has not removed them from the diverse livelihood structures and placed them in an isolation of oil palm production but rather they can still grow domestic crops to secure food and at the same time cultivate oil palm for income generation.

6. RECOMMENDATIONS

The recommendations presented here were gathered from the different stakeholders involved in the FPOPP. It was the plan of the research to find out what individual participants in the chain thought could be done or improved within their existing activities.

6.1. Recommendations from some Stakeholders

6.1.2. Farmers in the FPOPP

Farmers participating in the FPOPP would like to see more of their colleagues involved in the project, thus the expansion of the project. Secondly they would like to be more involved in the setting of prices. Or at least they would like to be informed on the way prices are set.

6.1.3. Processors: Daniema Women's Association

The Daniema Women's Association's main focus at the moment of the field work was to increase capacity of the processing facility. At the time of the research processing capacity was at around 10 tons of fresh palm fruits per week during the peak season. The crammer management expressed that, just as they have now provided lucrative employment to 70 women in the community, they would like to up-scale and provide similar opportunities to an increased number of women Asuom and neighbouring villages. They would like to see production reach a target of 24 tons of fresh fruits per week.

As of May 2010, Dr. Bronner's has agreed to a plan to set up an additional processing facility in the Abaam.

6.1.3. ICS management

In an interview with the ICS management of the FPOPP, the researcher posed the questions as to how the government should be involved in oil palm production in the region.

The government should instead step up its role as a support body to private initiatives that want to bring development to certain sectors of agriculture such as that of oil palm. It should increase its role in financial support, credit and loans, capacity building, the dissemination of extension knowledge and promote private entrepreneurs to go into the production and cultivation and processing of oil palm. But most of all the government should do this using the concept of sustainable agriculture; be it organic or low input agriculture.

Additionally, the government should promote women cooperatives and strengthen their organisations. The processing of oil palm is primarily done by women and to streamline the development of women through such small scale processing initiatives, there needs to be more attention paid to capacity building of the women groups.

6.1.5. Field extension officers

The 4 field extension officers working with the organic palm oil chain all agreed with each other that due to the successes that have been recorded with the project so far, it should not be confined to only four communities but should be replicated to other communities in the district. It should be acknowledged that these extension officers have been involved with agricultural development in the district for at least 12 years each. They have extensive experience in the district when it comes to what is most needed in the communities are in most of. The point being made here is that the opinions of field officers should not be taken for granted in such community development initiatives.

6.2. Practical recommendations of the research

The researcher posses his recommendations on two aspects already ongoing in the FPOPP:

1. ***Increased farmer participation in the FPOPP***

   The first recommendation proposes that something be done about the way organic regulations are imposed on farmers. Awareness on organic production systems has to come from a more grassroots level. The observation of the research was that farmers had limited knowledge regarding organic methods of production except the very minimum they were required to know in order to participate in the FPOPP.
   This lack of knowledge has created miscommunication in the chain between farmers, the ICS and the crammer. The farming community of Tweapease has been sanctioned from the chain for this reason. 12 additional farmers have been sanctioned due to misinterpretations of the ICS manual. To prevent similar scenarios in the future, the research is convinced that more time needs to be spent besides the 3 days trainings on organic production procedures. Regular field days in the form of farmer field schools (FFS) could also be organised for farmers to update themselves on organic regulations, identify problems and together come up with practical solutions to solving problems.

2. Improvement in Logistics prior to Up-scaling and Expansion of the FPOPP

More effort has to be put into streamlining delivery of fruits to the crammer in order to ease farmers' frustrations. Especially during the peak season when there is a relative abundance of palm fruits. Currently farmers have to secure transportation of fruits to the crammer through their own means and this has proven to be a difficult endeavour for most farmers since they lack their own transportation. Organic regulations at play in the chain also prohibit the use of public transportation means that also transport conventional fruits. It is therefore rather complicated for farmers to arrange transportation to the crammer and during interviews some farmers expressed this fact to the researcher. At the moment, the Daniema Women's Association is in possession of a truck which is used to transport palm fruits from farms to the crammer. But the truck is overburdened since it cannot service all farms. The consequences of this is that palm fruits cannot be delivered on time and the longer they wait on the farm, the more they deteriorate and ultimately have to be discarded due to rot. Moreover farmer numbers in the chain are increasing after every round of external inspections.

The availability of transport facilities will have huge consequences for the up-scaling potential of the chain. Especially if new farmers are included that are in farming communities farther away from the crammer. Dr. Bronner's together with farmers and processor have to think up strategies of securing that when the project continues to expand, there will be sustainable means of ensuring effective logistic systems. One way which the chain could secure a means of transport for farmers produce is by diverting fair trade premiums to buy trucks to transport farmers produce.

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8. Field impressions

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1. Asuom settlement and main research location.
2. Oil palm farm with composting of fronds.
3. Farm visit with an FPOPP farmer from Asuom.
4. Women labourers hired during peak season.
5. A female farmer showing her farm to the IMO inspector.

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6. Typical small scale palm oil processing facilities in Kwaebibirem District.
7. Traditional methods of pressing palm oil.
8. The crammer of the FPOPP
9. Management of the Daniema Women's Association and a field officer of the FPOPP
10. Clarification facility of the FPOPP crammer

9. ANNEX