

POTENTIAL RETURNS FROM THE TRADITIONAL DURA VARIETY CURRENTLY GROWN IN KIGOMA

(By Dr Hamimu Hongo; FELISA Co Ltd Box 1349 Kigoma:

Tel: 0767 406688: 0784 406688: Email: hongohamimu@gmail.com)

4th October 2016

SUMMARY:

Oil palm is a tropical crop which is mainly grown for production of oil. For optimal growth and production the crop requires a high and year round rainfall with little or no dry season and stable high temperatures. Soils should be deep and well drained. The crop grows mainly in tropical lowlands.

The crop is sensitive to many pests and diseases.

Oil palm is now the most important supplier of vegetable oil in the world. There are three main oil palm varieties. Dura, Pisifera and Tenera, Tenera is hybrid of Dura and Pisifera. Tenera is used for economic production. Fresh fruits should be treated within 24 hours after harvest to avoid oil quality decrease. In Kigoma region Dura is the main cultivated variety. Table 1 below shows the major characteristics of the three varieties.

Table 1. Characteristics of the three oil palm varieties (Dura, Pisifera and Tenera)

DURA	PISIFERA	TENERA
Thick-shell	Shell-less	Thin-shell
Thin-mesocarp	Mainly monocarp	Thick mesocarp
Viable embryo	Unviable embryo if present seed sterile	Viable embryo
Large kernel	Very small kernel and sometimes no kernel in most fruits	Good size kernel
Contains very small quality of oil	The oil content of the fruit is the highest among the three fruit forms	Contains high quality of oil
Unimproved	Unimproved	Improved

Source: NIFOR Oil Palm Production Manual

Palm oil has for long time been considered as relatively low-value oil because of the difficulty in manipulating its fatty acid profile. But gradually palm oil has now become a high-value niche product in the health food sector.

Tanzania requires 50,000 tons of crude palm oil per month; this means that the country's annual palm oil requirement is 600,000 tons. Currently the country is producing about 40,000 tons where 80% of this comes from Kigoma. Table 2 show some of the major differences in production chain of palm oil in Tanzania and the world major producer Malaysia.

Table 2: Oil palm production value chain in Tanzania and that of Malaysia.

Characteristic	Tanzania	Malaysia
DOMINANT TECHNOLOGY Farm-level	<ul style="list-style-type: none"> ➤ Smallholder production with traditional processing majority ➤ Farm-level Oil palm Inter-cropped with other food crops. ➤ Dominance of low oil yielding semi-wild varieties with little or no modern inputs 	Large-scale plantations with modern mills Intensive monoculture, high degree of specialization, High Yielding Varieties and modern inputs
Processing	Manual; low volume; low extraction rate (20%-50%)	Well integrated; capital intensive, high extraction rate (90%)
Management structure	Decentralized management, processing and marketing	Single management control
ENVIRONMENT Production Structure	National production is from Smallholders	Over 90% of production from large scale plantations
Research	No research centers	Collaboration between public (PORIM) and private research
Institutions	No Institutions	Consolidated land holdings; vertical integration; quality control standards
Supporting infrastructure	Negligible	Nurseries, credits, refinery mills, established trading system
COORDINATION: Inputs	Little use of modern inputs and extension service	Provided internally (e.g. seedlings from own nursery) or from markets
Output Market	Controlled by middlemen, farmers have to look for their own market	Vertical integration; contracts; markets; PORLA provides market information, standards and quality control
PERFORMANCE <ul style="list-style-type: none"> • Productivity • Quality of Oil • Adoption of modern inputs • Access to information 	Low High fatty acids; for local use only Low Slow	High Export Quality High Fast (partial internal flow)
Impact on Environment	Low	High

Source: Lade, 2007

INTRODUCTION:

This analysis examines the potential contribution which the palm oil value chain can make to equitable growth and employment in Kigoma region. The survey identifies the position of the economically active poor within the overall subsector and provides a preliminary assessment of the types of interventions that will help unlock the growth potential in pro-poor channels. It is intended to serve as an input into LIC's intervention strategy in the development of the Kigoma region, as well as to share with any other agencies interested in promoting palm oil production.

Women play an important role in the value chain, primarily in the traditional processing and the marketing of palm oil. Youth are generally not involved in palm oil functions, though their preference is to serve as mill operators where they can earn a decent wage. Oil palm has the potential to generate significant economic and social development in Kigoma region. Palm oil is the main vegetable oil produced and consumed in Kigoma region with prospects of providing income and economic development to a large number of the rural poor of the region.

Oil palm production remains a major vocation in many communities. It involves hundreds of thousands of poor producers and tens of thousands of poor processors. It provides income for many farmers and their dependents. This connotes that an efficient and strong palm oil sector in the region will enable the poor to be part of the solution to poverty challenge through provision of employment and a means of livelihood. There are many ways in which oil palm production could be deployed to boost employment opportunities for the people. Palm oil is very important as an income generator to women. In most cases, women are in charge of processing the oil palm fruits into palm oil and of selling the product in the local and even national market.

Value chain is a tool that facilitates investigation of business activities in terms of new value adding opportunities in relation to existing values with regards to sourcing of factors of inputs, production, processing and delivery of the finished product (Eme 2008).

Oil palm (*Elaeis guineensis*, or African palm oil or Mgazi) is a tropical tree which is mainly grown for its vegetable oil. It is a tropical estate crop. Oil palm is a typical crop of rainy tropical lowlands. The crop requires a deep soil, a relatively stable high temperature and continuous moisture throughout the year. Soil fertility is less important than the physical soil properties. Dry periods of 2 to 3 months does not affect vegetative growth but it seriously affects the production and quality of the fruit bunches. Palm oil is very versatile commodity it is used in the production of cooking oils, margarines, soaps, lotions, greases, and pharmaceuticals.

ORIGIN AND DISTRIBUTION:

The origin of oil palm points to Africa, in particular West Africa. More recent strata have been found in the Niger Delta. Portuguese explorers of the Guinea coast mention the existence of trees appearing to be oil palm as early as 1434. In 1508 already reference has been made to oil palm groves in Liberia Central African coastal belt between Guinea and northern Angola. The

palm spreads from 16 degrees north in Senegal to 15 degrees south of Angola, and eastwards to Zanzibar and Madagascar. The best production levels are attended in the high rainfall areas between 7 degrees North and South from the Equator.

The real palm belt in Africa runs through the Southern latitudes of Guinea, Sierra Leone, Togo, Benin, Liberia, Ivory Coast, Ghana, Nigeria, Cameroon, and Congo. The extension of oil palm in East Africa is irregular. It should be noted that oil palm in Tanzania (Kigoma in particular) came from DRC (Congo DR), it was learnt that people from DRC who decided to settle in Kigoma were the ones who brought and started oil palm cultivation and later spread to eastern regions and finally to Zanzibar.

In the Far East palms were initially only grown as ornamental plants. Seed selection in the Botanic Gardens of Singapore and Bogor (Java and Indonesia) and at Deli Research Center in Sumatra (Indonesia) gave the origin to an important development and extension of the crop since 1930s in Malaysia and Indonesia. These are now the main production areas in the world, both in terms of palm oil and palm kernel production. The yield and quality of palm oil produced in these areas is still superior to the oil produced in other parts of the world.

Top ten (10) countries in terms of percentage (%) of the world palm oil production are;

1. Malaysia 44%
2. Indonesia 36%
3. Nigeria 6%
4. Thailand 3%
5. Colombia 2%
6. Ivory Coast 1%
7. Ecuador 1%
8. Cameroon 1%
9. Congo (DRC) 1%
10. Ghana 1%

BOTANY:

The oil palm tree (*Elaeis guineensis*) is a member of the family Palmae, the full classification is as follows:

Family: Palmae

Subfamily: Cocoideae (this includes coconut)

Genus: Elaeis

Species: Elaeis guineensis (African oil palm) (Grown in Africa and those in Kigoma)

Elaeis melanococca (American oil palm)

Oil palm may live up to 200 years, but their commercial yield rapidly decreases after 30 years of age. Oil palm tree has no branches and can grow 20 to 30m high. It needs maximum of 150mm of water per month.

OIL PALM PRODUCTION SURVEY IN KIGOMA REGION

The Local Investment Climate (LIC) project in Kigoma intends to unlock investment opportunities in oil palm sub-sector. So it carried out a survey to look into potential returns to investment from the traditional dura variety currently grown in Kigoma and provide recommendations on how to improve oil palm production, processing and marketing

METHODOLOGY:

The three districts of Kigoma, Kasulu and Uvinza were visited and in each district the District Agriculture, Irrigation and Cooperative Officers (DAICO) were interviewed and also at least 10 small scale farmers, 5 processors and 5 middlemen were interviewed in each district. Last but not least SIDO complex was also visited and here was mainly to talk to soap makers and kernel oil processors.

RESULTS:

The results show that there is a big potential in investing on oil palm crop in the region as there is big demand of the palm oil both in the region and neighboring countries such as Burundi and Rwanda. The survey showed that there is a big problem in the marketing system and the extraction facilities. If the recommendations given in this survey were to be effected, Kigoma region can grow up both economically and socially. This is due to the fact that the crop would have attracted some industries and this would have created some employment to the youth who are currently underutilized.

The results also show that most of the oil production is carried out by small scale farmers and the production is carried out at farmers own risk, that is no government effort has been done on this crop and also selling the products at their own risk with a few exception on kernel oil where at least SIDO has done something on its processing and in soap making. Only one company was seen having a potential of producing oil palm at plantation level and this is FELISA who as of now they have already cleared 200 ha of land which will be planted with Tenera by this coming December (2016). This is in Uvinza district and no other potential plantation of this crop was seen in the remaining districts.

Generally, it was found that Kigoma rural district was the major palm oil producer followed by Uvinza and Kasulu ranked last of the three districts. The villages leading the palm oil production and selling in Kigoma district were Nkungwe, Kizenga and Nyamhoza, others included Mahembe, Bubango, Mkongoro, Mlati Nyamgongo, etc. It

was noted that Dura was the main variety grown in the region although some Tenera variety was spotted here and there. In all districts, it was found that the local extraction method using a 200 litre drum (known as Burundi Expeller) was the most common facility used for palm oil extraction.

Although Kigoma district was seen as major palm oil producer among the three districts, Uvinza district showed to have a big potential of expanding their production as they have ample land compared to Kigoma rural where improvement of the crop will involve mostly replacement of Dura with high yielding variety (Tenera).rather than expanding the area.

In addition, there was no organized marketing system for either the palm oil or the kernel oil. Farmers depend on the middlemen and in most cases the middlemen were the ones who set marketing conditions e.g. prices and units. Middlemen were not willing to use standard measurements (kilograms or litres) when buying the palm oil instead, an expanded modified 20 litre container (known as Bidoo) which takes 30 litres or more at minimum was used to represent and act as a 20 litre container. This was very irritating to farmers but they had to comply with middlemen as farmers had no alternative way of selling their oil.

From the interview, farmers looked to be very well knowledgeable on oil palm production system although they lacked up to date and best agronomic practices of the crop. This showed that the farmers were not getting extension services to update their existing knowledge on oil palm production practices.

Farmers noted that there are two production cycles in the palm oil production and these were from mid-August to December where the production is high and hence the price usually comes to its lowest level and the January to July where the production is low and the price goes to its highest level. Some farmers showed that to fight the middlemen usually they extract their oil and store for some time to wait for a better price.

The price of the palm oil in the villages was as low as Tzs 1,000 per litre during the high production period (i.e. September to December) and as high as Tzs 1,500 per litre during the low production period (i.e. January to July). Farmers showed that the price of palm oil was increasing from one season to another, for example, they noted that the present price (2016) is almost double of that of 2013.

It was noted that most of the middlemen sells their palm oil in Burundi as one of the farmers was quoted that they were very much affected with political situation in Burundi as middlemen were not able to go to Burundi and hence some stopped buying their oil. This show that there is no revenue collected by TRA from the middlemen as there is no organized marketing system. The survey showed that there was no

production/processing of kernel oil in the villages except at SIDO. Farmers were selling or taking their kernels to SIDO complex for either selling or processing them.

On average most farmers own 70 to 80 trees and they noted that one oil palm tree can give up to 7 or 8 fresh fruit bunches per annum and each bunch depending on the production season can give 2 to 3 litres of palm oil after extraction. This showed that on average small scale farmers gross earning is up to Tzs 900,000/= or more per annum from palm oil. Most farmers noted that they could earn more than this if there were both organized market and good and efficient extraction facilities.

Farmers admitted that most of their trees were 60 to 80 years old and very few were below 40 years and this was due to the fact that most of them inherited the trees from their parents and very few planted new trees.

When asked what were the other byproducts which they used to sell other than the palm oil and kernels oil, most farmers showed that the endocarp (the seed coat which covers the kernel) usually are sold to brick makers who use this as firewood while most of the palm cake are used as firewood in their homes. Tables 3 and 4 below show average prices of various oil palm products in the region.

Table 3. Price of various oil types as seen in the villages and in Kigoma Town (Prices are in Tzs per litre) in Kigoma

s/n	ITEM	AT THE VILLAGE	IN KIGOMA TOWN
1	Palm oil	1,500	2,000
2	Kernel oil	none	2,5000
3	Kernels (unprocessed/unpressed)	500	750
4	Imported cooking oil (Korie)	3,500	3,300
5	Refined Sunflower oil	4,000	3,600
6	Waste/other matters (endocarp)	25	Nil
7	Palm Cake	nil	Nil

N.B. Endocarp is seed coat of the palm kernels used as firewood in villages with brick makers. Palm cake are not sold but used as firewood in households.

Table 4. Retail prices of palm oil, Refined oil (Korie) and Refined Sunflower oil in the past three years (Prices are in Tzs per litre) in Kigoma

s/n	ITEM	2015	2014	2013
1	Palm oil	1,500	1,200	1,000
2	Imported cooking oil (Korie)	3,000	2,500	2,000
3	Refined Sunflower oil	3,500	3,000	2,500
4	Estimated output of fresh mature palm	21,000	16,000	14,000

N.B. A mature oil palm can produce at least 7 fresh fruit bunches per annum each producing up to 2 litres of palm oil.

Other observations in the production and processing of palm oil:

Some costs which farmers have to incur during production and processing includes:

Farm up keeping:

1. **Weeding:** To weed 1 ha costs ranges from Tzs 200,000 to 250,000/= depending of the weed situation and the village involved (in some villages the costs are low while in others costs are high)
2. **Harvesting the fresh fruit bunches (locally known as kole):** This costs Tzs 500 per bunch regardless of the size (whether its big or small farmers have to pay Tzs 500 for each bunch which will be harvested)

Processing:

In processing the farmers incurs several costs and these includes firewood, extraction which in turn there are costs for the owner of the press (Burundi Expeller), the pressing team, etc.

1. **Firewood:** Cost of fire woods which will be enough for one 200 drum is Tzs 1,500/=
2. **Press owner:** The farmer have to pay the press owner (the Burundi Expeller owner) Tzs 1,500/=
3. **Pressing team:** Usually there are two people who does the work of pressing and they usually charge Tzs 1,500 per 200 drum

It was estimated that one drum (200 litre drum) is filled by 10 buckets (a 20 litre bucket).and this gives 30 litres of palm oil plus 5 litres of kernel oil.

From this it was shown that a cost of processing one litre of palm oil from oil palm fruits ranges from Tzs 210 to 300. It should be noted here that this cost excludes other costs such as harvesting, transportation and farm up keeping. If these costs are added the real cost of producing one litre of palm oil ranges between Tzs 800 to 900/=. This shows that most of the earnings from palm oil go to middlemen and processers leaving farmers with very little from this crop.

It was also noted that if there was an organized marketing system and a good and efficient processing facilities, cost of production would have gone down and hence make farmers get a good profit from this crop.

Both the regional and district palm oil production are shown in the table 5, and the production tend to be in an increasing order. It should be noted here that the increase in production of palm oil in the region is due to increase in area but yield per unit area is still very low. This calls for yield improvement by introducing high yielding varieties and efficient extraction facilities.

Table 5. Production of palm oil (in MT) in Kigoma region for 4 cropping seasons

season	Kasulu		Kigoma dc		Kigoma mc		Uvinza		Regional Total	
	ha	Prod.	ha	Prod.	ha	Prod.	ha	Prod.	ha	Prod.
2011/12	1,405	67	6,016	9,024	1,500	2,250	-	-	8,926	11,342
2012/13	1,475	69	6,018	9,388	1,740	2,270	-	-	9,239	11,729
2013/14	1,549	3,098	9,609	14,414	1,740	2,610	5,001	7,500	18,881	29,035
2014/15	50	91	9,610	15,376	1,890	3,780	5,500	9,900	17,850	29,647

Source: Kigoma regional office.

N.B.

1. It should be noted here that the regional total figures includes Kibondo District which its production data is not shown in the table but it is in the regional total figure.
2. During the 2011/2012 and 2012/2013 cropping seasons Uvinza district was not existing its data appears in Kigoma district (this explains the absence of data in Uvinza district in these two seasons).

GROSS MARGIN ANALYSIS

(From tree to cake/cake oil as well as by-products)

HINT:

- a). On average one farmer owns about 80 trees of oil palm
- b). One tree can produce up to 12 litres of palm oil per annum for Dura and up to 28 litres of palm oil for Tenera
- c). Cost of harvesting one fresh fruit bunch is Tzs 500/=
- d). Cost of transportation of bunches is Tzs 2,000/= per 5 fresh fruit bunches
- e). Fruits from 12 to 15 fresh fruit bunches of Dura will fill one 200 litre drum for processing while only 7 fresh fruit bunches of Tenera will be enough to produce fruits to fill one 200 litre drum.
- f). Cost of threshing fresh fruit bunches to fill one 200 litre drum is Tzs 1,000/=

g). One bundle of fire wood each costing Tzs 1,500/= will be needed to cook one 200 litre drum of oil palm fruits to be ready for extraction.

h). Cost of pressing one 200 litre drum is Tzs 1,500/= for the owners of the Burundi Expeller and Tzs 1,500/= for the pressing team

i). One 200 litre drum can produce 20 to 22 litres of palm oil and 5 litres of palm kernel oil.

j). On average a farmer with 80 trees of Dura can produce up to 840 litres of palm oil and 200 litres of palm kernel oil while a farmer with 80 trees of Tenera can produce up to 2240 litres of palm oil and 400 litres of palm kernel oil.

k). From the data it shows that a farmers with 80 trees of Dura can earn up to Tzs 1,340,000/= while a farmer with 80 trees of Tenera can earn up to Tzs 3,240,000/=. Both earnings exclude the earnings from nut shells and kernel cake which their prices are varying with location and time but also sometimes not sold at all..

Cost of producing 21 litres of palm oil from 200 litre drum:

i). Harvesting Tzs 7,000/=

ii). Transportation Tzs 6,000/=

iii). Threshing bunches Tzs 1,000/=

iv). Firewood Tzs 1,500/=

v). Extraction Machine Tzs 1,500/=

vi). Pressing team Tzs 1,500/=

Total Cost for producing 21 litres is Tzs 18,500/=

Cost of producing 1 litre of palm oil is Tzs 881/=

The 21 litres are currently sold at Tzs 21,000/=

This means 1 litre is sold at Tzs 1,000/=

From here it shows the farmer is getting at most Tzs 119/= per litre

DISSCUSSION:

Although oil palm was brought to Kigoma by people from DRC (DR Congo) who decided to settle in Kigoma hundreds of years ago, it has now become one of the most important cash and food crop in the region. Out of the three major oil palm varieties grown in the world i.e. Dura, Pisifera and Tenera; Dura is the main oil palm variety mostly grown in the region.

The main challenges faced by local small scale farmers of oil palm in the region are lack of improved and high yielding seeds, lack of modern processing facilities and lack of organized marketing system. Another challenge is lack of good production knowledge of the crop. Although Dura is a low yielding oil palm variety under good agronomic practices the yield can go higher than what is happening at present. Farmers are sparsely distributed in the district so this is another factor which makes small scale farmers miss some of services such as extension and others. This is due to the fact that it is very difficult to provide services of any kind to sparsely distributed farmers.

Since its introduction in Kigoma oil palm has not been improved say through research or breeding programme to get high yielding varieties in the country. Farmers are still using the Dura variety which does not give much oil per unit area. This is due to the fact that there is no research Centre dealing with this crop. The only way to get improved and high yielding seeds is to import from outside the country which most farmers cannot afford as this requires foreign currency. It should be noted here that as of now, although the country is using more than USD 300 million to import palm oil annually, the crop is still not in the crop calendar of the country. This might be one of the reasons as to why the crop does not have a research Centre to deal with.

As the government is not giving much attention to the crop, farmers are using local facilities to extract oil from oil palm fruits. This ends up into first getting poor quality of oil and second much of the oil is left in the palm cake. This accounts for additional reason for the low yields per unit area.

So far there is no organized market for the palm oil produced by small scale farmers. This makes farmers to depend on middlemen who are the ones who sets price and this ends up into low revenue to farmers. Lack of proper marketing system makes the small scale farmers not to benefit much from the crop instead the middlemen are the ones enjoying the benefit of this crop.

The problem of lack of extension officers in the region is not for the oil palm crop alone, so due to this most of small scale farmers are producing the crop using their own experience and this also accounts for poor performance of the crop. Lack of extension

services is another factor which accounts for low yield of the crop as farmers are not given knowledge of how best they can produce the crop.

RECOMMENDATIONS:

Spending more than USD 300 million annually for a developing country like Tanzania is too much especially for a crop which can be produced in the country as this foreign currency could have been used in community development activities in the country such as improving road networks, health services, schools and others. The following are possible recommendations which can be taken following this survey:

a). Improved high yielding variety: The country or the developing partners who are interested in this crop should introduce a breeding and multiplication Centre in the region so that improved and high yielding varieties of oil palm can be produced and multiplied cheaply. This is due to the fact that the parent materials for breeding are known and readily available in the region and this is Dura and Pisifera. This is the best solution of making small scale farmers get access to improved and high yielding variety of the crop instead of using the present expensive way of continuing importing high yielding seeds from abroad as some might not fit very well with our weather. It is estimated that the cost of establishment plus running costs for at least 5 years may be around USD 400,000 to 500,000. Please note that the said amount if it were to be used to import seed nuts from abroad would have been enough for 2,000 to 3,000 ha or farmers if each was to get enough seed nuts for one hectare, but here the Centre will serve several hundred thousands of farmers for several years to come. It is likely that with time this multiplication center can even be turned to Research institute. As a research institute further variety screening can be carried out and better high yielding variety which fits our environment may be developed. Another thing which can be done parallel to this is to establish tissue culture laboratory where millions of seedlings can be produced at a cheaper cost and faster (takes only six months)

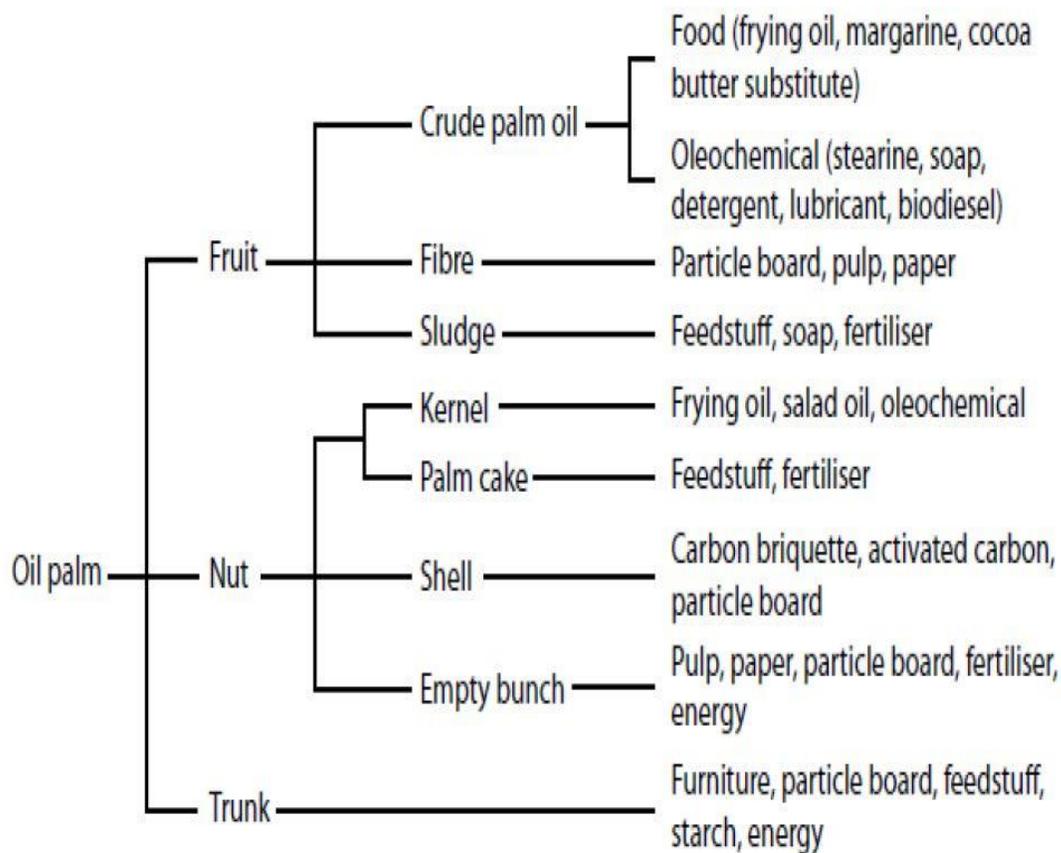
b). Modern and efficient extraction facilities: Introduce medium modern extraction facilities of palm oil which will reduce the inefficient and cumbersome job of palm oil extraction which is done by using local methods. The local methods are both time consuming but also not efficient as it leaves some considerable amounts of extractable oil in the palm cake. If farmers are organized in a cluster of producers or society and given one medium extraction facility can improve the oil extraction process and hence improve oil quality and production.

c). Reliable Market: Organize a proper marketing system so that farmers know exactly where and when to sell their oil. If farmers are organized in a cluster and their production capacity is established it is easier to organize a reliable market so that middlemen will have very little room to play with farmers. So long as farmers are left

alone to look for the market the crop will never be of a beneficial to them. It can be seen from the above recommendation; cluster formation is a vital step to be taken as this will make life easier for service providers as farmers will be easily accessed for any service required.

d). Education: Farmers should not be left to do things using their experience. They should be educated on how best they can cultivate, harvest and process their crop. But it should be noted here that this can easily be done if farmers are put in groups or in clusters. Extension services are vital to farmers as they should be kept informed on the changes which occur in their crop. Changes can occur on chemicals used for control of insects, diseases, marketing system and even in agronomic point of view. Farmers should be informed constantly so that they can go with time.

d). Introduction of oil palm products: Effort should be made to improve the use of the oil palm tree to make sure that products from oil palm tree does not remain the palm oil for cooking and for the soap production as oil palm tree can produce more products as it can be seen from figure 1 below.



Source: Abia State Palm Oil Value Chain Development Project Abia State, Nigeria, 2010

Fig. 1: Oil palm possible products

CONCLUSION:

Economic growth and prosperity are central to long-term poverty alleviation for social and environmental sustainability. The oil palm industry represents one of the most effective avenues for the poverty alleviation, food security and ensuring economic stability in our region.

With proper focus on production of oil palm at large scale values, improvement in the production of oil palm can effectively mitigate the poverty level in the region.

This survey will serve as a tool to share information on the sector, to focus attention on the potential for palm oil production and highlight the potential for boosting the Kigoma region economy by concentrating on the enterprise dynamics

From the vantage point of palm oil industry in Kigoma region, LIC and other stakeholders in the region can facilitate further investments in palm oil production and in enhancing processing productivity as a veritable tool of poverty reduction and economic diversification.

The survey shows that there is need of overhauling the whole production value chain of the crop in the region, this means from producers of the crop (farmers), processors and the marketing system. So establishment of Research Center and Tissue Culture laboratory for production of high yielding variety is vital instead of depending on imported seed nuts because they are expensive and this system is not sustainable. The processing (extraction) facilities should be improved by giving farmers good and efficient facilities. The marketing system should be organized so that farmers have reliable market for their crop. Farmers should be organized in clusters so that at the end of the day these clusters can create their own cooperative societies. This will make life easier for service providers as it will be easy to organize training or passing any useful new information to farmers if need arises.

WAY FORWARD:

After presentation of these results to main stake holders of oil palm production in Kigoma region Challenges and their Interventions were proposed as it can be clearly seen in the table below.

Some of interventions need both time and funds and some need leaders initiatives these includes those which involves the establishment of oil palm policy or formation of

farmer groups and even establishment of collection centres. But when it comes to establishment of research stations and tissue culture laboratory these need funds.

s/n	CHALLENGES	INTERVENTIONS
1	Low yielding varieties	Access to high yielding varieties by: a). Producing improved seeds by using local facilitators b). Use of Tissue Culture c). Importing seeds from outside the country Other interventions were: i. Farmers training on good agronomical practices ii. Farmers training on Agribusiness iii. Land survey and commercialization of farmer's plots iv. Increase number of farmers engaged in palm oil production
2	Poor processing facilities	a). Provision of improved processing machines b). Training of producers on the recommended techniques in processing method.
3	Poor marketing structure	i). Formation of Board that deals with oil palm ii). Establishment of collection and sales centres of palm oil iii). Establish system that will ensure market information reaches producers
4	Limited extension services	a). Formation of farmer groups for easy reaching by extension workers b). Placement of extension workers in each village c). Establish a regional special unit dealing with oil palm d). Capacity building for field extension workers and Business Development Services Providers (BDSP) with special packages on oil palm production
5	Negative attitude on the crop	Community sensitization on the importance and profit of the oil palm.
6	Lack of political will	Political leaders should be trained and sensitized on the importance of the oil palm.
7	Lack of research findings	a). Establish oil palm policy b). Establish research station which will deal with oil palm development

MY OPINION:

Although the challenges and interventions mentioned above are all valid, I have a strong feeling that the Production of improved seeds by using local facilitators should be given priority as this is cheap and possible as the knowledge is there and need little money to service huge number of farmers but in addition it takes less time.

If I were to be given a chance to select a second most important intervention then provision of improved extraction facilities would be my second choice. But this could have done after farmers are put in groups or clusters such that one improved extraction machine can service a good number of producers.