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Socio-Economic Benefits of Oil Palm Value Chain Enterprises In Rural Areas of Kogi State Nigeria

Adesiji G.B, Komolafe S.E, Kayode A.O and Paul A.B.

Department of Agricultural Extension and Rural Development,
University of Ilorin, Ilorin, Nigeria

Corresponding author e-mail: toyinkayode2000@yahoo.com

Correspondence phone number +2348067309397

Abstract

Agriculture experts have expressed concern about oil palm potential in improving the socio-economic welfare of entrepreneurs in its value chain hence, this study focused on the rural areas of Kogi State, Nigeria. Multistage sampling technique was used to obtain primary data from 237 respondents in three local government areas across the State using structured questionnaire. Descriptive and inferential statistics were employed for data analysis. Mean age of respondents was 43 years. 83.5% were married, and the mean household size was 7 people. Producers had the highest benefits in the area of ability to participate in cooperative contribution. Processors had the highest benefits in the area of saving money in banks and payment of health care charges while Marketers had the highest benefits in the area of ability to buy petrol for generator. Lack of improved varieties of seeds, high cost of milling machine and poor market price were the major constraints faced by the producers, processors and marketers respectively. Results of the inferential analysis revealed a significant positive relationship between household size and benefits from oil palm value chain enterprises ($r = 0.277$ at $P \leq 0.05$). It was therefore concluded that there are lots of social and economic benefits in oil palm production, processing and marketing enterprises in the study areas. It is recommended that agricultural extension organizations should organize programmes that will educate and train oil palm farmers on the cultivation of improved seed and government should assist oil palm processors for easy access to milling machines at affordable price.

Key words: Oil palm, Enterprises, Socio-economic Benefits, Constraints, Value chain.

Introduction

Oil palm (*Elaeis guineensis*) locally called *Nkwu* (Igbo), *Ope* (Yoruba) and *Ekpe* (Igala) tribes in Nigeria originated in the tropical rain forest region of West Africa (Poku, 2002). Oil palm is a common cash crop cultivated by farmers in Nigeria, the crop is important because it has been proved it could serves as a means of livelihood for many rural families. Although (Olagunju, 2008) have stated that, production in the country is mainly from smallholder farmers. Even with the level of production in Nigeria, small-scale Oil palm processing is mainly through traditional methods (Gourichon, 2013). Ekine and Onu, (2008) estimated that about two litres of palm oil are consumed weekly for cooking in Nigerian household of five. Ojo *et al.*, (2014) in a study, concluded that palm oil marketing is an efficient and a profitable business in Kogi State. Ahmed (2001) highlighted the importance of Oil palm in providing direct employment to about 4 million people in Nigeria. Apart from palm oil, palm kernel and palm kernel oil which are the main products of the oil palm, the tree and the processing wastes generated when the fruits are processed to obtain

palm oil and palm kernel have several uses. The sludge is used in making traditional soaps and fertilizer and the PK cake is used widely as feed ingredient in aquaculture and livestock industry and for fertilizer (Tiku and Bullem, 2015). In addition the other parts of the palm tree (trunk, leaves, fibre) have broad uses, while the bunch refuse, and by-products from the oil processing (fibre, shell, sludge) can be used as fuel for the mills, making briquettes to substitute for fuel wood (PIND, 2011).

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). The value chain analysis, however, starts from the perspective of the end market, to determine the products they want and how the greatest value can be shared down the chain as the actors work to produce those products. According to Omonona and Agboje (2013) oil palm value chain involve the farming, processing and marketing of oil palm and the oil palm value chain actors are the oil palm growers/producer, processors, marketers and consumers. The general objective of this study is to assess the socio-economic benefits of oil palm value chain enterprises among palm oil producers, processors and marketers in Kogi State. The specific objectives of the study are to: (i) describe the socio-economic characteristics of rural oil palm producers, processors and marketers in Kogi State, (ii) examine the activities of rural oil palm producers, processors and marketers (iii) determine the benefits of oil palm production, processing and marketing on living standard of rural farmers (iv) identify constraints faced by rural oil palm producers, processors and marketers in and (v) examine the relationship between selected socio-economic characteristics of rural oil palm value chain actors and their benefits to living standard.

Methodology

The study was carried out in Kogi State of Nigeria. About 70 per cent of the people with an average of 172,000 farm families in the state lives in rural areas and are engage in agricultural activities. Major crops cultivated across the state are cereals, legumes, roots and tubers and cash crops such as oil palm, cotton, citrus, cashew, cocoa, kola, coffee, banana, and plantations. The population of the study comprises of all rural farmers, processors and marketers who are involved in cultivation, processing and marketing of oil palm in the study area.

Multistage sampling technique was used in the selection of two hundred and seventy six (276) respondents for the study. The first stage was purposive selection of 3 Local Government Areas popularly known for their palm oil value chain enterprises which are Ofu, Dekina and Ajaokuta Local Government. The second stage was a random selection of four rural communities from each of the three Local Government areas selected and these are Ofu (Ofakaga, Ejule, Aloma, and Ugwalawo), Dekina (Egume, Ayingba, Ocharu, and Okura - Ofante) and Ajaokuta (Ajaokuta, Ganaja, Itobe and Geregu). Eight (8) producer, 7 processor and 8

marketers of oil palm actors were selected from each of the communities. Questionnaires were administered to 276 respondents but only 237 were retrieved and analysed. which comprises of 51 producers, 91 processors and 95 marketers.

Table 1: Summary of Sampling Procedure

S/N	Local government Areas (purposive)	Rural communities (Random)	Respondents (Random)	Total Respondents Selected	Total Questionnaires retrieved and analysed
1	Dekina L.G.A	4	23 respondents	92	77
2	Ofu L.G.A	4	23 respondents	92	80
3	Ajaokuta L.G.A	4	23 respondents	92	80
4	TOTAL	12	69	276	237

Source: Field Survey, 2014

Results and Discussion

Socio-economic Characteristics of Oil palm Producer, Processor and Marketers

Results presented in Table 2 shows that about 74.5% of the oil palm producers were male while majority of the marketers (68.8%) and processors (77.9%) were female. This result is an indication that more male were involved in production oil palm as cultivation/production activities. This agrees with the findings of Ibitoye *et al.* (2011) who observed that oil palm cultivation/production activities are more tedious which may be more compatible with men nature than for their women counterpart. Further indication that women were more involved in the marketing and processing of oil palm activities shows that gender are disaggregated on the basis of the value chain processes which implies that gender level of involvement varies in the value chain paradigm. This finding corroborates with Akangbe *et al.* (2011) who reported that women were more prominent in palm oil extraction activities. Also, the mean age of producers and marketers were found to be 43 years respectively while the mean age of the processors was found to be 27 years. The mean age of the producers, marketers and processors in the study area shows that respondents are fairly young and are expected to be very active in their various oil palm value chain enterprises. It was revealed that most of the producers (82.4%), marketers (84.6%) and processors (83.2%) were married.

About 43.1%, 62.6%, and 49.5% of the producers, marketers and processors respectively had formal school education which is a factor that is expected to positively impact information seeking behaviour of respondents in their various oil palm value chain enterprises. This result agrees with the finding of Ibitoye *et al.* (2011) which stated that the level of farmers' education is crucial to the

understanding of value and use of oil palm innovation. Hence, high literacy level will help to improve farm practice related to the production of oil palm. The mean of the households of the producers, marketers and processors were found to be about 7 persons which implies that they had moderate household size. The average years of experience of respondents in oil palm value chain activities were 5 years for producer, 9 years for processors and 8 years for marketers. The finding therefore implies that most of the Oil palm value chain entrepreneurs in the study area have vast years of experience in their respective oil palm value chain activities which could go a long way in improving their level of operation, performance and profitability in the enterprises.

The mean of the monthly revenue from oil palm production and marketers were found to be about ₦8000 and ₦7000 respectively. This finding could be assumed to be small amount especially for those who did not have other means of income generation. They may find it difficulty in meeting all their household basic necessities. The average of ₦18,421.98 was found to be the monthly income of oil palm processors in the study area. This result indicated that oil palm processing is the most lucrative enterprises of the oil palm value chain. This result is similar to the reports of Adeniyi *et al.* (2014) that processing of oil palm is a profitable venture in Nigeria. The overall mean score of respondents was found to be ₦11,140.98. When ₦11,140.98 was divided by 30 days of a month, the average income per day of respondents was ₦ 371.35. Considering the World Bank (2013) international poverty lines of living on less than 1.25 USD/day (Purchasing Power Parity, PPP) or less than 2 USD/day (PPP), the use of \$1.25 daily i.e. ₦159 x \$2 = N 318 daily (this converted to its equivalents naira as at December 2014), the amount found to be the daily income of respondents is slightly above the ₦318 standard poverty line and implies that oil palm value chain entrepreneurs in the study area lives fairly above poverty line. Similar study by PIND (2011) noted that palm oil production generates personal income for the women who process oil palm fruits into red palm oil for sale in local and national markets.

Activities of Oil Palm Producer, Processor and Marketers:

The results of the various oil palm value chain activities indicates that majority of the farmers are tree growers (70.6%), which indicate that they have long being into oil palm farming as they would have knowledge on its production. Also, majority (60.8%) sourced for their local seedling. which explains why majority (60.8%) produce the variety. Since it's a rural area the technology commonly practice is the manual method of farming (76.5%). The time seedlings are usually planted is between April to June among was 47.1% as there would have been stability in rainfall as indicated by 35.3%. The farmers (52.9%) agreed they use fertilizer for planting and maintenance of the crops and 21.6% used organic fertilizer. The palm bunch are preserved by covering among 39.2% and the best time of harvest was

between January and march (60.8%) as the fruits gets mature more during these period.

Table 2: Socio-economic Characteristics of Oil Palm Value Chain Entrepreneurs

Variables	Producer Freq. (%)	Processor Freq. (%)	Marketers Freq. (%)	Total Freq. (%)
Gender				
Male	38(74.5)	15(16.5)	21(22.1)	74(31.2)
Female	13(25.5)	76(83.5)	74(77.9)	163(68.8)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Age (years)				
<30	3(5.9)	8(8.8)	6(6.3)	17(7.2)
31-40	13(25.5)	41(45.1)	38(40.0)	92(38.8)
41-50	24(47.0)	30(32.9)	21(22.1)	75(31.6)
≥50	11(21.6)	12(13.2)	30(31.6)	53(22.4)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Marital Status				
Single	4(7.8)	10(11.0)	8(8.4)	22(9.3)
Married	42(82.4)	77(84.6)	79(83.2)	198(83.5)
Divorced	5(9.8)	4(4.4)	8(8.4)	17(7.2)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Educational level				
No formal education	10(19.6)	11(12.1)	29(30.5)	50(21.1)
Primary/Secondary education	22(43.1)	57(62.6)	47(49.5)	126(53.2)
Tertiary education	19(37.3)	23(25.3)	19(20.0)	61(25.7)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Household size (persons)				
1-3	14(27.5)	28(30.8)	34(35.8)	76(32.1)
4-6	12(23.5)	25(27.5)	36(37.9)	73(30.8)
7-9	25(49.0)	38(41.8)	25(26.3)	88(37.1)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Experience (years)				
1-5	8(15.7)	40(44.0)	28(29.5)	76(32.0)
6-10	26(51.0)	24(26.3)	42(44.2)	92(38.8)
11-15	11(21.6)	11(12.1)	17(17.9)	39(16.5)
≥16	6(11.8)	16(17.6)	8(8.4)	30(12.7)
Total	51(100.0)	91(100.0)	95(100.0)	237(100.0)
Income (Naira)				
≤ 5000	15(29.4)	8(8.8)	17(17.9)	
5001– 10000	11(21.6)	19(20.9)	27(28.4)	
10001 – 15000	7(13.7)	16(17.6)	21(22.1)	
15001 – 20000	17(33.3)	15(16.5)	18(18.9)	
Above 20000	1(2.0)	33(36.3)	12(12.6)	
Total	51(100.0)	91(100.0)	95(100.0)	
Monthly mean income	Mean= ₦8,000	Mean= ₦18,421.98	Mean= ₦7,000	

Source: Field survey, 2014

Processor : As revealed on Table 3 virtually all the activities involved in oil palm product processing are being practiced in the study area and these includes palm oil as the most common oil palm processed (53.8%) and these agree with Eric and Ikheloha, (2007) who reiterated that palm oil is the major product processed from oil palm fruits in Nigeria. About 50 to 100 bunch of palm fruits bunch can be processed daily among 44.0%. Oil palm processing activities is common between January to March (92.3%), these could be as a result of ripening period of palm fruits as harmattan (as indicated by 52.8%) are available to quicken the maturity. Methods used mainly for processing is direct screw pressing (73.6%) which can be as a result of its easy handling. The main source of oil palm fruits was the market (62.6%) as the study area is a market location.

Marketers: From Table 3 results revealed that the product commonly marketed is the palm oil (70.5%) and man days for marketing (71.6%) are between 1 – 2 person which are mainly themselves (75.8) and there family at times. The marketers do not usually store (90.0%) there produce except on a rare occasion as they normally exhaust their product before the next market days. If they must store, the method used is store in gallon (57.9%). Sales of palm oil product are in gallons (54.7%) and location for marketing is in market (69.5%) and source of oil palm product is processing unit (42.1%).

Benefits of Oil Palm Value Chain on Living Standard of Producer, Processor and Marketers.

Results of the overall index of standard of living shown in table 4 reveal that producers had the highest benefits in the area of ability to participate in cooperative contribution (mean=1.12; SD=-0.382), purchase of household basic needs (mean=1.02; SD=0.319) and payment of student school fees (mean =1.04; SD=0.280). Processors had the highest benefits in the area of additional income (mean=1.14; SD=0.436), save money in banks (mean=1.26; SD=0.513). This is an indication that job of processing oil palm is more profitable to producing and marketing oil palm in the study area. Results further showed that processor were more benefited in payment of health care charges (mean=1.26; SD=0.513), access to pipe borne water (mean=1.23; SD=0.496), ability to buy petrol for generator (mean=1.51; SD=0.565) and affordability of means of living (mean=1.31; SD=0.531). The study confirms Adebo *et al.* (2015) the ability of palm oil processing to alleviate poverty among small scale farmers in Ekiti State, Nigeria. It also corroborated the assertions of Adekunle *et al.*, (2014) that processing of agro-products contributes significantly to women's income and standard of living. Marketers had the highest benefits in the area of Ability to satisfy statutory obligation (mean=0.29; SD=0.617), Have access to pipe borne water (mean=1.23; SD=0.494), Ability to buy petrol for generator (mean=1.51; SD=0.617), Increase in

household consumption (mean=1.02; SD=0.252), Purchase of household basic needs (mean=1.02; SD=0.252), Ability to attend social celebration (mean=1.43; SD=0.595). These results corroborate Ibitoye (2014) who affirms the profitability of palm oil marketing in Dekina Local Government area of Kogi state Nigeria. Since majority of these benefits were met, this study support Sirajul (2007) who observed that oil palm value chain could contribute significantly to meeting all the necessary need for survival as they are provided for through different activities of oil palm value chain.

Table 3: Summary of the Activities Of Oil Palm Value Chain Actors in the Study Areas

PRODUCER ACTIVITIES	(%)	PROCESSOR ACTIVITIES	(%)	MARKETERS ACTIVITIES	(%)
The Tree grower	70.6	Palm oil processing	53.8	Common products marketed (palm oil)	70.5
Seed source locally	60.8	Process 51-100 bunches of palm fruits	44.0	1-2 man day for marketing	71.6
Common variety (dura)	60.8	Btw January-March is time for increased processing	92.3	Self is the main source of labour	75.8
Manual	76.5	51 – 100 bunches daily during on-season	46.2	No duration of storage	90.0
Planting time (April- June)	47.1	Harmatan season when most palm fruit are ripened is the reason for processing in on-season	52.8	Store in gallon on floor for storage	57.9
Due to rainfall	35.3	Direct screw pressing is the common method of processing	73.6	Sell in Gallon (liters)	54.7
Fertilizer user among farmers.	52.9	Processes < 50 bunches on off season	92.3	Main market as location for marketing	69.5
Organic fertilizer user among the above.	21.6	Market as the main source of bunch	62.6	Processing unit is the source of oil palm product	42.1
Harvest and cover oil palm before use.	39.2				
Harvesting period (Jan.- March).	60.8				

Source: Field survey, 2014

Table 4: Summary of Statistics of Functioning and Capability of Standard of Living Dimensions Among the Oil palm Value Chain Actors

Economic, Social and physical benefits to value chain actors	Producers Mean (SD)	Processors Mean (SD)	Marketers Mean (SD)
Additional income	1.08 (0.340) ^c	1.14 (0.436) ^a	1.09 (0.359) ^b
Ability to participate in cooperative contribution	1.12 (-0.382) ^a	1.04 (0.330) ^c	1.05 (0.305) ^b
Being able to save money in banks	1.18 (0.434) ^b	1.26 (0.513) ^a	1.12 (0.405) ^c
Ability to satisfy statutory obligation	0.12 (0.325) ^c	0.13 (0.427) ^b	0.29 (0.617) ^a
Payment of health care charges	0.98 (0.140) ^c	1.26 (0.513) ^a	1.24 (0.477) ^b
Have access to pipe borne water	1.08 (0.337) ^c	1.23 (0.496) ^a	1.23 (0.494) ^a
Ability to pay electricity charges	1.06 (0.311) ^c	1.08 (0.401) ^b	1.11 (0.371) ^a
Ability to buy petrol for generator	1.37 (0.538) ^c	1.51 (0.565) ^a	1.51 (0.617) ^a
Affordability of means of living	1.16 (0.422) ^c	1.31 (0.531) ^a	1.28 (0.498) ^b
Purchase of household basic needs	1.02 (0.319) ^a	0.97 (0.314) ^c	1.02 (0.252) ^a
Increase in household consumption	0.98 (0.140) ^c	0.99 (0.235) ^b	1.02 (0.252) ^a
Payment of student school fees	1.04 (0.280) ^a	0.98 (0.210) ^c	1.01 (0.230) ^b
Ability to attend social celebration	1.16 (0.148) ^c	1.26 (0.513) ^b	1.43 (0.595) ^a

Note: Ranking; ^a= first, ^b= second, and ^c= third
Source: Field survey, 2014

Constraints Faced by Oil palm Producer, Processor and Marketers

Figure 1 revealed that lack of improved varieties/cultivars of seeds (96.1%), high cost of hired labour (92.1%), poor extension services (80.4%), low soil fertility (72.6%), poor market networks (64.7%), lack of storage facilities (68.6%), poor access to good road network for transportation (64.7%) Poor market price (68.6%) .Others are lack of fund (68.7%), scarcity of labour (64.7%), were the major constraints facing majority of the oil palm producers in the study area. This finding could suggest low level of production of oil palm fruits since lack of improved varieties/cultivars of seeds and poor extension services which signify low level of innovation among respondents. Similar study by Omoti, (2009); Agwu, (2006) had observed that lack of innovation, use of inefficient methods and low level of adoption of improved production technology among oil palm producers. Also Soyebó *et al.* (2005) further report that land is the major factor limiting oil palm cultivation in Nigeria.

Processing activities of palm oil in the study area were mostly constrained by high cost of milling machine (80.2%), tedious nature of processing (79.1%) and unavailability of milling machine for rent (59.3%). Marketing activities of palm oil in the study area were mostly hindered by poor market price (95.8%), poor market networks (80.0%), poor quality of oil palm produce (68.6%) and high cost of

transportation (64.2%). The result of the finding therefore indicates that poor market price had been found to be the major determinants of income among palm oil marketers which may often influenced the profitability of oil palm marketers. This result corroborates Ojo *et al.* (2014) who also found that problem of leakages ranked first among palm oil marketers in Kogi State. Fig. 1: Distribution of Producers, Processors and Marketers Constraints of Oil Palm Value Chain in Kogi state

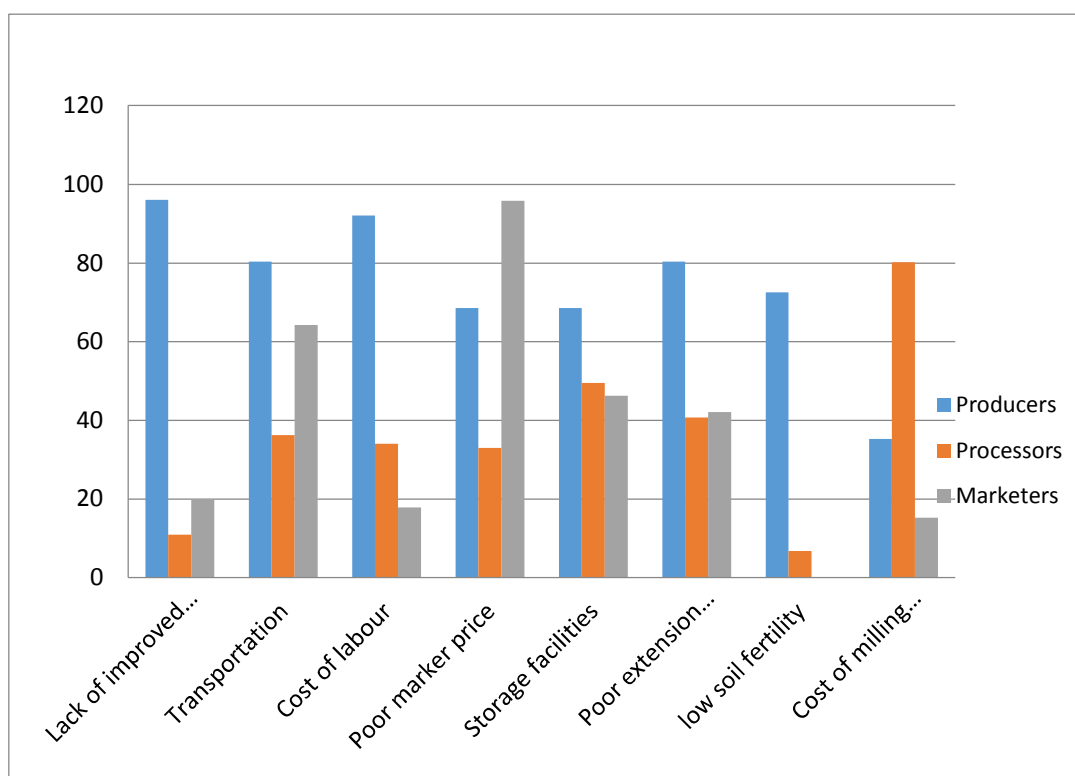


Fig 1: Constraints Faced by Oil palm Producer, Processor and Marketers

Table 5 indicated the result of correlation analysis between the respondent's socio economic characteristics and benefits realized from oil palm value chain enterprises. The result revealed that there was significant positive relationship between household size and benefits from oil palm value chain enterprises in the study area ($r = 0.277^{**}$ at $P < 0.05$). These explain the contribution of household size to improvement in benefits on standard of living. Increase number of family member is

likely to improve productivity as less money will be spend on labour resulting to more benefit in income thereby helping to contribute more to social, physical and economic welfare of the household.

Table 5: Result of Pearson’ Product Moment Correlation (PPMC) Between Socio economic Characteristics of Oil Palm Processor and their Benefits in Kogi state

Socio economic characteristics	r – value	P – value	Decision
Age	0.57	0.594	Not Significant
Household size	0.277**	0.008	Significant
Experience	0.182	0.084	Not Significant

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Field survey, 2014

Conclusion

Based on the results of this study, it is evident that there are lots of social and economic benefits in oil palm production, processing and marketing enterprises in the study area. However men were mostly involved in oil palm cultivation while female were mostly involved processing and marketing in the oil palm value chain enterprises. These actors were fairly young with formal school education. Producers had the highest benefits in the area of ability to participate in cooperative contribution, purchase of household basic needs, and payment of student school fees. Processors had the highest benefits in the area of additional income, save money in banks and payment of health care charges. Marketers had the highest benefits in the area of ability to satisfy statutory obligation, access to pipe borne water and ability to buy petrol for generator. They were mostly constrained by poor market price, poor market networks and poor quality of oil palm produce.

Recommendations

In line with the result of the study, it is recommended that oil palm farmers’ strength in participation in cooperative should be restructured towards the objective of accessing input facilities most especially improved varieties/cultivars of oil palm seeds. Agricultural extension organizations in the study area should as well organise programme to educate and train oil palm farmers on the cultivation improved seed of oil palm in order to improve the quality of farmers’ productivity and level of income. Government should assist oil palm processors for access to milling machines at affordable price. Milling machines can also be situated at strategic location where processors can be able to access it at little cost for rent. Marketers can therefore form economic cooperative association if not existing, where they can share ideas and control price through strong network of palm oil marketers in the study areas.

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