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Short Research Article

Value Chain Assessment Study of Groundnut in Northwestern Ethiopia

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Abstract: This value chain analysis and assessment research study has been carried out to identify the main casts and their key activities in the product flow of Groundnut commodity. In Ethiopia about 40,000ha of arable land is covered by Groundnut per annum and about 70,000 tons of yields have been harvested, but the national average yield was nearly 800kg/ha, still its productivity was very low. Metekel zone is one of the most Groundnut growing areas in Ethiopia. In Metekel zone the main Groundnut value chain players/actors were producers (farmers and investors), traders/grain merchants, unions, truck owners, drivers and input suppliers. Service providers of Groundnut value chains were Research Centers, BoA, Commercial Bank of Ethiopia, NGO's, unions, rural saving and credit institutes and other governmental offices. This field research work has been conducted by arranged one day focus group discussion (FGD) program venue at Pawe town. The FGD program has ~~been comprises~~ comprised fifteen stakeholders ~~bring~~ brought together from three districts in Metekel zone. Before, focus group discussion program we have ~~been~~ interviewed respected respondents from four rural districts; Pawe, Dangure, Mandura and Dibatie by prepared check lists to assess the capacity of local organizations and the roles of Groundnut value chain actors at producers & traders level. In ~~Our~~ our assessment study results revealed that in Metekel zone 2011, 2012 & 2013 main cropping season 243,805, 308,765 & 458,640quintals of Groundnut yield was harvested respectively, among those products more than 76% was produced for market to get cash. The major challenges of Groundnut value chain in our study areas; were productivity declining, high amount of rainfall or weather fluctuation, high weed, diseases and insect pest infestation, unavailability of production and post harvest technologies, price slump down or market inconsistency, lack of infrastructures and so on. During our assessment study the linkage of Groundnut value chain actors were not well organized even the products flow only in one dimension without supporting forces.

Key Words: Groundnut, Metekel zone, Value Chain, Business Model, Production Economics

UNDER PEER REVIEW

INTRODUCTION

In Ethiopia Groundnut or peanut (*Arachis hypogeae* L.) is grown and covered nearly about 40,000 hectares of arable land per annum and the major growing areas were; Eastern Hararghe, Metekel zone and Eastern Wellega but; currently this figure was ~~two and more than two folded~~ doubled (?). Groundnut production is being expanded due to its high market value and resistance to drought [1]. Under optimum condition, improved Groundnut varieties/cultivars in Ethiopian condition gives a potential pod yield as high as 60 qt/ha. The national average yield was nearly about 8.29 qt/ha, still the productivity is very low ~~which~~ compared to America, Asia and Australia, so it needs breeders' maximum effort to improve productivity. The nuts are eaten raw as a spike ~~started from~~ at a farm gate level, boiled or ~~after roasting~~ roasted and also used for confectionery and curries food preparation purposes. The green haulms make excellent fodder and hay for livestock. Benishagul-Gumuz region, Metekel zone is one of the areas of Ethiopia blessed with tremendous potentials for Groundnut production both at small scale ~~&~~ and commercial level [1].

The current research areas of Groundnut in Ethiopia is northwestern Ethiopia Benshangul Gumuz region (Metekel, Kemashi & Asossa zones), Eastern Harergie, Gojjam, SNNP, Oromia (Wellega, Around Awash), Gambella, Afar (Wrerer) and other similar areas of the country. Haramaya University had a mandate of Groundnut national project coordinating with the collaboration of Pawe,Werer & Asossa Research Centers. Pawe & Asossa research centers now doing various research activities in collaboration with Haramaya University *viz*; ~~V~~v ariety development, ~~V~~v ariety adaptation trials, breeder seed maintenance and rejuvenations, technology demonstration, multiplication of breeder, pre-basic and basic seeds of already existing and new varieties, providing technical support and consulting services for small scale farmers and other respected stakeholders in the region. In Metekele zone at previous time almost no value chain assessment research study has carried out ~~on~~ been in the Groundnut commodity, therefore, we understood that this area needs value chain research work to benefit respected stakeholders. The objectives of this study were (1) ~~To~~ to identify the main Groundnut value chain actors and their key roles and (2) ~~To~~ to make a set up for further integrated value chain research in the future.

UNDER PEER REVIEW

MATERIALS & METHODS

Study Area Description: Metekel zone is one of the three administrative zones in Benshangul Gumuz region of Ethiopia which is the former name Metekel province. It is bordered on the south and southwest by Kamashi, on the west by Sudan, and on the north and east by the Amhara region. The Abay River divides the Zone's boundaries with Kamashi, while the Dinder River defines part of its boundary with the Amhara Region and, the administrative center of Metekel Zone is Gilgil Beles. Based on the Central Statistical Agency of Ethiopia (CSA) [4], this zone had a total population of 276,367, of whom 139,119 are men and 137,248 women. 37,615 or 13.61% of population are urban inhabitants. A total of 58,515 households were counted in this zone which results in an average of 4.72 persons to a household, and 56,734 housing units. The five largest ethnic groups reported in the Metekel zone were Gumuz (36.78%), Shinasha (21.6%), Amhara (17.39%), Awi (11.33%), a subgroup of Agew and Oromo (11.09%); all other ethnic groups made 1.81% of the population. Main languages are the Gumuz (36.31%), Oromo (19.89%), Amhara (18.21%), Shinasha (12.81%) and Awigna (10.91%). Majority of the people worshiped Ethiopian Orthodox Tewahido Christianity (54.49%), Muslim (20.31%), traditional religions followers ~~like godly like /goddess~~ (17.65%) and Protestant (6.36%) [2].

The major farming systems being applied in Metekel zone were mixed type; both crop-livestock husbandry and the crop production was rain fed based and also zero-tillage being practiced by Gumuz community. During the previous decades most of farmers practiced shifting cultivation system. But, currently this shifting cultivation agriculture have been changing ~~in~~ to mixed farming systems both crop and livestock cultivation. In this area majority of households were very poor. Now farmers' ~~being~~ struggle to ~~practice for self-food security~~ by pushing and supporting capacity building programs of the government and other aid organizations. Small scale farmers currently producing high amount of Groundnut & other cash crops, however, ~~they~~ were not fairly ~~being~~ benefited because, most of the produced grain yields sold in their local market traders and grain collectors ~~by~~ unfair price due to lack of sufficient infrastructures like; roads & market access [3].

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UNDER PEER REVIEW

Stakeholder's Selection: Groundnut value chain assessment focus group discussion (FGD) workshop has been performed at Pawe town 17 February, 2014 venue at Green hotel. This legume value chain development workshop comprised 15 stake holders; viz; small & large scale producers, traders, cooperatives, unions, district & zonal BoA expertise, microfinance officers, Research Centers & aid NGO's. During the focus group discussion workshop the participant members have been organized as follows; two farmers from Mandura district, three traders & producers from Pawe district, two traders from Pawe district, three government expertise (district BoA, Microfinance &Unions) from Pawe district, two expertise from Metekl zone BoA (Agricultural Extension's & Cooperative officer), one private farm 'New hope' & two NGO's Gilgal ICEP & Mizizgo Mandura district project were gathered and actively participated during the focus group discussion program and the following pictures showed participants during discussion.

Focus Group Discussion (FGD) Workshop participants drawing business model map & crop calendar in March, 2014

UNDER PEER REVIEW

Table-1 Groundnut Value-Chain Main Actors and Functions

Actors	Functions
Producers:	⇨ Manage farm level production process ⇨ Determines quality of oilseeds during seed selection and production process especially threshing ⇨ Pack and stored ⇨ Deliver it either to local collector or local wholesalers ⇨ Commercial farmers deliver their product to central market traders in Addis Ababa or exporters
Collectors or Local traders:	⇨ Collect, measure and pack the oil seeds ⇨ Pay cash on delivery ⇨ Store grain ⇨ Deliver to local wholesalers ⇨ Sell oilseeds to local consumers
Wholesalers ***Local/Regional ~~Whole sellers~~:***	⇨ Provide loan to paid when oilseeds are harvested: The products are sold to the wholesaler at the harvest time price and the rest of the product will be sold to the wholesaler at the prevailing price when the farmer wants to sell. ⇨ Pay cash on delivery to the collectors or farmers who sell oilseeds to them ⇨ Deliver the product to central markets in Addis Ababa or sell it to processors in the regional market.
Brokers:	⇨ Receive oilseeds transferred to ~~it~~ them by the local/regional wholesaler. Such a transfer is arranged by telephone whereby the driver name, the plate number of the truck, type of product and quantity is informed to the commission agent; ⇨ Facilitate the selling of the oilseeds; ⇨ Negotiate the price and effects of the selling ⇨ Deduct unloading cost and own services from sales values; ⇨ Transfer the balance to the local/regional wholesaler through commercial Bank of Ethiopia and other available banks
Central ~~Whole sellers~~ in Addis Ababa: Wholesalers	⇨ Negotiate with the commission agents. ⇨ Pay cash to the commission agents on delivery of the product when received ⇨ Export or sell to processor factories
Exporters:	⇨ Maintain the quality of the product and pack it ⇨ Deal with export clearance ⇨ Pay necessary fees for export ⇨ Export the product and remit the income
Processors:	⇨ Buy the oilseeds from producers or ~~whole sellers~~ wholesalers ⇨ Process the seeds (extract oil/roast, etc.) ⇨ Sell the processed product to retailers/super markets, or directly to consumers

UNDER PEER REVIEW

Consumers:	⇨ At farm gate level consumers mostly farmers start to consume in the form of raw ⇨ Farmers in their house eating groundnut in the form of raw, boiled & roasted ⇨ Ultimate or final users of the product ~~when processed ones~~ both urban and rural people buy and consume processed product,

RESULTS & DISCUSSIONS

Production: In Ethiopia Groundnut is predominantly grown in Hararghe, Metekel, Wolega and Gojam. Although, the country has the potential to produce close to 500,000 tons per year, according to an estimate made by the Central Statistics Agency (CSA)[**4],** 40,000ha of land in the country was covered by Groundnut and nearly about 70,000 tons was produced annually. According to Babile Agricultural and Rural Development Bureau report ~~indicated that~~, from the total farm land of 21,500 hectares, 8,600 hectares (more than 40%) were covered by Groundnut in the fiscal year of 2009/2010. The other districts near to Babile are Gursum and from its total ~~land of agricultural possesses~~ agricultural land 35% (5,750 hectares) ~~of the farm was~~ were also covered by Groundnut. According to these two district Agricultural Bureaus report 10 quintals per hectare were expected production, which implies these two districts alone can produce more than 15,000 tons annually. On the other hand, another two districts found in the northwestern Ethiopia called Guangua (Chagni) and Pawi showed that 3,759 and 5,000 hectares of land were covered by Groundnut in 2009/10 main cropping season respectively and expected to produce about 17, 000 tons and productivity has been expected 19.4 quintal per hectare, ~~it's~~ almost double in northwestern Ethiopia ~~which was~~ compare d the eastern part of the country. In general, the study areas alone produced more than 65,000 tons of Groundnuts per annum ~~independent~~ (?) of the total production of the country [5].

In Metekel zone Groundnut is a cash crop produced by small scale farmers. In this region small scale household farmers, produce Groundnut for income generation & household consumption. BoA reports [6] indicated that Groundnut production ~~becomes~~ increase d year after year which was 243,805 quintals in 2011; 308,765quintals in 2012 and 458,640 quintals in 2013 cropping season (pre harvest data) respectively .In northwestern Ethiopia Benshsngul Gumuz region especially Metekel zone and Awi zone (Jawi & Zigum districts) Groundnut production ~~estimates~~ the in was estimated to give about more

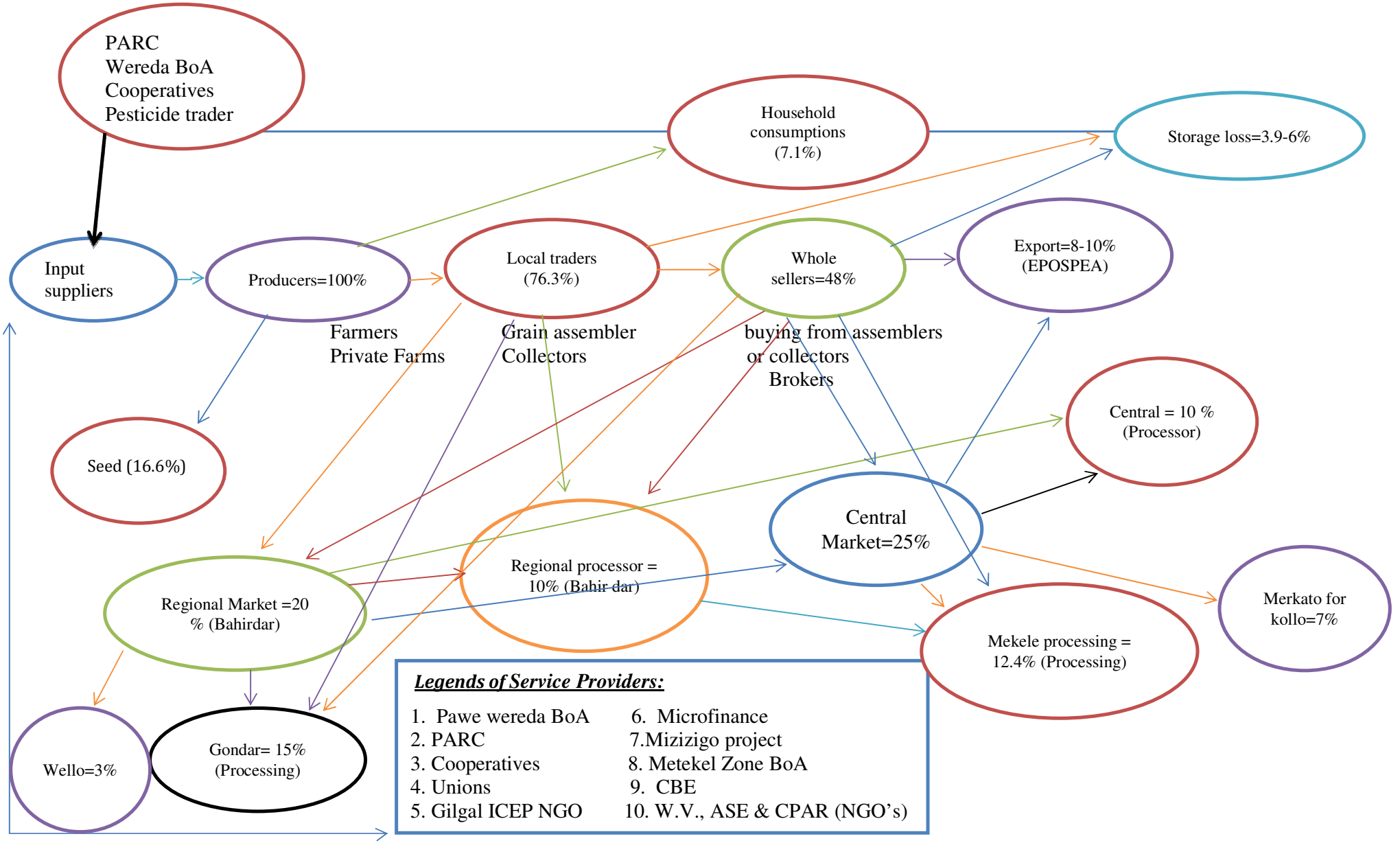
UNDER PEER REVIEW

than 50% of the whole production in Ethiopia; for example in Metekel zone 46,000 tons and in Guangua (Chagni), Zigum & Jawi districts about 24,300 tons, a total of 703,000 tons of Groundnut were produced in 2013 main cropping season. The interviewed farmers said that "Groundnut ~~cultivation~~ was very feasible and productive crop in the northwestern belt of the country, but it has production constraints like; high weed infestation, poor market access, declining of production and productivity due to reduction of soil fertility, lack of awareness for household consumption". The main actors of Groundnut production ~~was~~ were input suppliers like; seed sources from Pawe Agricultural Research Center, district and zonal BoA offices, cooperatives, NGOs, traders etc. In this area Groundnut ~~farmer's they have been~~ farmers used ~~their products were; 7.1% for~~ 7.1% of their output for household consumptions, 16.6% for seed purposes and the rest 76.3% for ~~sell~~ sale in their local market or villager traders; ~~whole sellers~~ wholesalers for example; Pawe district farmers sell their products at Pawe town market mostly on Saturday market.

Consumption: In Metekel zone Groundnut consumption is started ~~from~~ at farm gate level in the fresh form as a spike. Farmers locally consume Groundnut ~~in the form of~~ raw, boiled & roasted. In Metekele zone 7% of Groundnut products consumed in ~~house-hold~~ household level, especially in the Gumuz community the product was highly consumed at fresh level. This showed that Groundnut is ~~can afford~~ affordable a good source of protein rich food and cash or income generation, directly ~~it has high contribution~~ contributing to the food security. Consumers in both local and international markets purchase oilseeds for consumption in both processed and unprocessed forms.

UNDER PEER REVIEW

Groundnut Value-Chain Map



UNDER PEER REVIEW

Marketing Systems: The domestic demand of groundnut was influenced by population size and income, the 2.9% population growth rate is used in projecting the domestic demand of the product. Based on the proportion of the region's population amount taking into account the significant potential of the region, the region's share is estimated to be 5% of the total projected demand for the product. The following table showed the projected demand of Groundnut commodity in Ethiopia from 2005-2025 fiscal years.

Table: 2 projected demand of groundnut commodity

Year	Projected Demand (Tones)			Market Share of envisaged Plant
	Domestic Demand	Export Demand	Total	
2005	3952.50	500.97	4453.47	132.67
2006	4067.13	533.53	4600.66	230.03
2007	4185.07	568.21	4753.28	237.66
2008	4306.44	605.15	4911.59	245.58
2009	4431.33	644.48	5075.81	253.79
2010	4559.83	686.37	5246.21	262.31
2011	4692.07	730.99	5423.06	271.15
2012	4828.14	778.50	5606.64	280.33
2013	4968.16	829.10	5797.26	289.86
2014	5112.23	882.99	5995.23	299.76
2015	5260.49	940.39	6200.88	310.04
2016	5413.04	1001.51	6414.55	320.73
2017	5570.02	1066.61	6636.63	331.83
2018	5731.55	1135.94	6867.49	343.37
2019	5897.77	1209.78	7107.54	355.38
2020	6068.80	1288.41	7357.21	367.86
2021	6244.80	1372.16	7616.96	380.85
2022	6425.89	1461.35	7887.25	394.36
2023	6612.25	1556.34	8168.58	408.43

UNDER PEER REVIEW

2024	6804.00	1657.50	8461.50	423.08
2025	7001.32	1765.24	8766.55	438.33

Source: [7]

Product Distribution and Transaction: According to the marketing interview survey ~~indicated that~~ the average price of groundnut for the region especially in Metekel zone; Pawe district was minimum ETB 7.75 and maximum13.25/kg. In Metekel zone ~~there is~~ a huge amount of Groundnut was produced in each year and the product was being sold in local markets for local grain collectors ~~like; Mr. Goraw, Essa Mohammed, Abidu Kassa, Nigussie Bekele, Girma Getahun, Bilal Geta, Erimias Bora and Mohammed Yimer~~. Those ~~the above listed~~ traders collect Groundnut grains from 20 villages of Pawe district and finally they were send to Bahir Dar,Gondar, Wello,Mekele & Addis Ababa Central Market Mesalemia, Merkato and Ehil berenda. The transporting system of ~~those~~ traders was by used ISUZU FSR, FVR and EURO TRUKERS. In Pawe district cooperatives & unions are available in each village but; still they couldn't give enough services to connect farmers with market ~~access~~; especially Soybean & Groundnut commodities. The major partners of traders were; farmers, different level traders, processors, consumers, exporters, super markets, vehicle owners, drivers, Commercial Bank of Ethiopia (CBE). In Benshangul Gumuz region there were no processors and exporters, due to this reason all Groundnut products should be transported and sold for regional & central market Addis Ababa traders, exporters and processors.

Local Traders: In Metekel zone; Pawe, Mandura and Dibate districts more than 140 Groundnut grain assemblers are found, for instance; in each three districts over 20-30 local traders were available. The collectors often reside in the jurisdictions of the producers; while the local traders resident in the district towns or shires. Both collectors and local traders have limited capital and business skills to collect adequate amount of grain, due to this case, they must depend and rely on the wholesalers who ~~could~~ live in the district town or neighboring big towns like, Chagni (for Guba, Dibate, Zigem and Mandura districts), Gilgelbeles & Pawi (Pawe, Dangur and Jawi). Although the functions of local traders and collectors were almost similar, but, their status is different: all the local traders are licensed while not all the collectors were licensed. Collectors/local trader~~'s they~~ had lack of capitals especially; in terms of finance and storage, they ~~have been~~ highly depend on the wholesalers.

UNDER PEER REVIEW

Based on the price information delivered to the collectors, they were determine the buying prices of grains, so their operation costs and profit margins were covered by advanced traders. The interviewed respondent farmers stated that "the local traders and collectors earned a profit margin of 20-30 ETB/qt". In Metekel zone, Pawe district in each 20 shire communities there were at list one & more than one local traders were found, those local trades collect the produced grain yields of Groundnut and other crops by used Mule wagon & head carry, after gathered they have been call & sell the products in village-7 town advanced grain traders/whole sellers. Village-7 traders collect those Groundnut grains from each community; finally the collected grains amount becomes 90-400 quintals; then the traders call ISUZU FSR, FVR or EURO TRUCKS for transporting to regional & central market through their receiver brokers.

Retailers/Dealers: Those traders in this region plays vital roll act as abridge for commodity exchange, especially cash crops like Groundnut and Sesame. The major activities of retailers were collect grains from each locality traders in Metekel zone from different districts and rural community traders; after finishing of collections/gathering they try to communicate with their regional & central market brokers to know about the current prices given for that commodity, if the price is fair they try to sell; but the current prices not attract; the traders try to hold the product. The main functions of retailers were distributing cash to local traders, give loans for farmers & community traders and take grains during production season, and they attempted to stored within their own warehouses after collection they sell for regional processors like Bahirdar, Gondar, Mekele & Wolo traders and processors or in Addis Ababa through their own agreed brokers & received the cash through Commercial Bank of Ethiopia (CBE). The Major Partners of retailers were small grain traders, farmers, large scale traders, processors, whole sellers, exporters, vehicle owners and drivers.

Wholesalers*:* In northwestern Ethiopia wholesalers are most probably found in Pawe, Jawi, Dangur, Gilgel Beles & Chagni. Those wholesalers buy Groundnut products from local traders and collectors and they could sell it in different regions & Addis Ababa central market. Sometimes the products were also sold to Mekele, Gonder (for edible oil extraction), Addis Ababa and Sudan. Most of the oil seeds traded in

UNDER PEER REVIEW

Chagni come from the Benshangul Gumuz (BG) area including Awi zone like; Jawi & Zigem places. The key informant wholesalers of grain in Chagni market estimated that supply of products average marketed in Chagni at 3,000qt/year, all of which were coming from Metekel zone (Bulen, Mandura, Dibate and Guba districts). Wembera district products were usually transported and sell to west Wellega zone in Oromia region by crossing Abay rivers, some Guba district Groundnut products sold to North Sudan through Alimhal Monday market, and some part of Guba & Pawe district product sold to Bahir dar, Gondar, Wello, Mekele & Addis Ababa. The 2009/2010 market assessment survey indicates that; about 63% of Groundnut product was transported to Gonder for cooking oil extraction. Some 12% was exported to Sudan through the western border Alimehal market while the rest (25%) is sold in Addis Ababa [3].

Cooperatives & unions: Ethiopian government established a lot of cooperatives & unions but; most of they had weak capacity to implement their responsibilities or duties take in to action. In Benshangul Gumuz National Regional State cooperatives are established in each zonal administration & district level. In Metekele zone in each 7 districts cooperatives are established and in each community administration level unions also established to assist local farmers. The two organizations establishment purpose was to supply inputs and create market linkages between farmers and traders, processors or even exporters. In Metekel zone 6 districts (Pawe, Mandura, Dangur,Dibatie,Bullen & Wembera) has their own markets but; in Guba district still there is no market, peoples' of this district sell their products without any fixed market places. In Pawe district there are 5 market days within a week, in each market day's Groundnut marketing was being takes place throughout the year. And other 5 districts had more than one market day a week. In Guba district there is a small market place near to Sudan boarder which is called Alimehal Monday market, in this market the two country citizens Ethiopia & Sudan people exchange goods within a market. Farmers of Metekel zone probably have no sufficient market access. cooperatives & unions of this area have no enough capacity to create marketing network due to poor organizing systems, financial limitations, lack of supporting organizations, lack of well-organized human resources. we strongly recommended that any aid organizations try to help those government offices to reduce the above mentioned problems. Currently Asossa cooperatives has a tremendous progress which was imported oil processor power plant, but; in Kemashi and Metekel zone cooperatives have no

UNDER PEER REVIEW

planted modern processors power plant except some private processors like Pawe town Abewa edible oil processing & Chagni town volunteers group organized private oil processor.

Commission agents/ brokers: Oil seed marketing in Addis Ababa were solely through commission agents or brokers who are sometimes not physically known with local traders. No official agreement between local traders and commission agents, this activity established through the mutual agreement or trust worked. The traders send their collected products to commission agents in regional and central market, the brokers received this product without any guaranteed and sell to central market traders or processors or exporters in Addis Ababa. When the commission agent sold the product they charged 5-10 ETHB per quintal depend on the condition, sometimes they have been charged 5 ETHB and another time charges 10 ETHB per quintal for commission fee and unloading costs. After deduction of those costs the brokers sent money for regional whole sellers through Commercial Bank of Ethiopia Chagni, Gilgelbeles and Pawe branches. The proxy or agents also communicate and inform the price information to the regional whole sellers to determine the purchasing prices in the local market. The information transfer was not systematic & consistent. The whole sellers sell Groundnut products to consumers, oil seed processors, sometimes to exporters.

Processers: Groundnut processors could be located in the region as well as outside the region. Groundnut produced in Benshangul Gumuz Region (BGR) & some parts of Amahara region like; Chagni, Jawi & Zigem areas were increasing. The produced grain little amount was processed in local processors with mixing to noug & sunflower seeds like; Pawe town Abewa local oil processing, but currently this processor does not processing enough edible oil because of poor feasibility due to the importing of palm oils replacement and consumers shifted to imported oil, due to a matter of list cost preferences, and other local processors are live in Chagni town (Guangua district), this processor still processing Groundnut grains mixing with sunflower & noug seeds for milling of cooking edible oil. Northwestern Groundnut products sold to Gonder, Bahirdar (processors like; Ismael Adem, Yibeltal & Amidiyihun),Wello & Mekele for local processing into cooking oil. Some Groundnut was also sent to Addis Ababa for processing into different food items and sold in super markets. Oilseed processing like Groundnut

UNDER PEER REVIEW

creates additional values in terms of employment creation, maintaining price of oilseeds by creating competitive market environment, import substitution which also saves foreign currency expenditure. Currently, cooking oil used in the country in general and in BGR(?), in particular was imported from Asian countries, especially Malaysia.

According to the major traders in Assosa, cooking oil sold in the super market (supermarket) is imported from Malaysia and arrives formally via Addis Ababa and also informally ~~via~~ through Sudan border. Asossa town farmers' cooperatives and unions ~~were~~ imported (an) oil extraction machine which can use different oilseeds as raw materials. It has the capacity of milling 100qt/day of oilseeds to process and create employment opportunity for about 19 persons and also it was important to capacitate the work in progress (what do you mean by this?????) to process oilseeds and link with potential markets. The oil supply modalities, standards, and quality assurance, labeling and packing size should be determined and adequately promoted. But; in Metekel zone no processors are available to process Groundnut & other oil seeds.

The Central Groundnut Processor in Addis Abeba, ~~is~~ Hilina Belete Enriched Food Processing Plc., is one of those the main player(s) in the value addition of Groundnut. It produces plumy (plumpy) nut and Groundnut splits. It introduced the Sheba Groundnut splits with three flavors salted, paprika and pepper, in April 2013, eight years after it started producing the plumpy nut. Hilina Enriched Foods Processing Centre Plc. ~~is~~ (was) established in 2003 by six shareholders, with 1.6 million ETHB capitals, the company was one of the organizations selected by World Food Program (WFP) and UNICEF to supply 16.5 million dollars' worth of supplementary plump nuts, during the 2011/12 fiscal year. It also exports the Sheba Groundnut splits to the Middle East and Yemen. The Company processes 1,800 tons of Groundnuts per year. It imports close to 11% of its annual demand, which is 200 tons, from India and China, when the local supply decreases in summer. The growing ~~of~~ price of Groundnut in the international market (due to) is the quality of Groundnut supply both domestically and internationally. The company gets its local supply directly from Groundnut farmers in Harar, Gambela, Pawe and Gojam, over 40,000 Groundnut producer farmers.

Another Groundnut processing company found in Addis Ababa city is Moon Packed Foods plc. The company processes 6 tons of Groundnuts per year, which is only 20.8% of its capacity. Moon Packed used to buy its Groundnut product from Harar, ~~started before~~ four years ago. The

UNDER PEER REVIEW

involvement of brokers in the supply chain makes it difficult for small scale companies, like Moon Packed, to buy Groundnuts at an affordable price, however, the general manager of Moon Packed plc, said that 'brokers buying Groundnut yield from the local traders, who collect it from the farmers and sell it to exporters or for the wholesalers in Merkato,'. This system makes ~~things too worse~~ find Groundnut yield in fair prices, most of the Groundnut is exported, reducing the volume of Groundnut available to local processors, said that the company. The export data obtained from the Ethiopian Revenues & Customs Authority (ERCA) supports local processors claim. During the 2011/12 fiscal year [8], Ethiopia exported 42,250 tons of Groundnuts, which is 57.8 % of the total production, earning 7.2 million ETHBr. However, the country imports 25,000 tons of Groundnuts during the same period. Brokers, who are involved in the market chain process, prefer to supply the product to exporters, rather than local processors, because they can fetch a highest price in the international market.

Exports: Groundnuts produced in Benshangul Gumuz Region (BGR) is ultimately sold to local traders, consumers or exported official and ~~none official~~ bodies in different parts of the country. The trend of the oil seeds export is increasing. The international price of Groundnut is increased from 7 ETHB in 2005 to 12.2 ETHB in 2010 and 20-39 ETHB in 2012/2013, but in 2013/2014 the price ~~becomes~~ 12-15 ETHB in central market Addis Ababa. Groundnut export declining between 2005 and 2008 and then increased 2009 [7]. In 2009; 1,349 qt of Groundnut was exported and generated 1.5 million ETHB. Since 2005 Djibouti has imported about 63% of Groundnut from Ethiopia followed by Yemen which imported about 29 % of Ethiopian export. The balance 8% was imported by the Sudan, Netherlands, Saudi Arabia, United Arab Emirates & Italy. Ethiopia Pulse, Oil & Spice Processor Exporter Association (EPOSPEA) is one of the official Groundnut & other cash crop exporter. This association exports Groundnut ~~in the form of shell~~ and shelled. Currently Groundnut exportation system is almost stopped due to the occurrence of aflatoxin and contamination on ~~economic~~ grain yields. The problems of aflstoxin is occurred due to ~~Poor~~ agricultural practice and post-harvest treatments ~~it can be lead~~ to an infection by mould fungus *Aspergillus flavus and A. parasiticus* releasing the toxic substance

UNDER PEER REVIEW

aflatoxins (AFs)**.** In Ethiopia Groundnut producer farmers ~~spilt~~ spoiled their products by soaking in to water to avoid hardness of shells for ~~easily~~ easy splitting, ~~in~~ . In addition to this farmers assumed soaked nuts increase weight when ~~they~~ sold ~~to~~ in the market ~~or other~~ , and another reason of soaking Groundnut in to water ~~because of they~~ is that farmers have no ~~any~~ post-harvest splitter/Sheller sheller machines.

Cost benefit analysis: Groundnut production in Metekel zone is common but in this area the ~~agro-ecology is~~ climate leads to humid tropic~~, due to this reason~~ high levels of weed infestation ~~is high enough~~, so it increases production cost. The difference between the retailer and farmer's price represents the value added by the different market actor. The farmer's share in the marketing margin is represented by the ratio of the farmer's price and the retailer's price. The farmer's margin is the farmer's price less the production and marketing cost. ~~Whereas the~~ The marketing margin of the other market actors is computed by deducting their costs from their sales prices. The contribution of the market actors is computed in a relative term. On the other hand, pulse ~~Pulse~~ & oil crops improve soil fertility & productivity but~~;~~ cereal crops ~~are~~ exploit nutrients from the soil. Pulse crops ~~have~~ fix nitrogen from the atmosphere in the soil by developing nodules and add nitrogen ~~in~~ to the soil. The cost benefit analysis or production ~~economics~~ of Groundnut is good ~~which~~ compare ~~to~~ cereal crops like Finger millet but~~;~~ it was ~~less~~ worse than ~~compare to~~ Sesame. The producer's margin of Groundnut production in Metekel zone was 320 ETB. ~~And~~ trader's margin was 107 ETB, but~~;~~ the Finger millet production margin was less than Groundnut which is 209 ETB. ~~And~~ Finger millet trader's margin was 99 ETB. Sesame production margin was 2,258.4 ETB. ~~And~~ trader's margin of Sesame was 77 ETB. The following table-~~5 result~~ revealed that Groundnut production ~~economics~~ is feasible in terms of ~~soil fertility &~~ productivity ~~which is~~ rank first compare ~~to~~ Sesame & Finger millet, in terms of production & traders' margin Groundnut was ~~next to~~ worse than Sesame and ~~first to~~ better than Finger millet.

These two sentences seem rather irrelevant here! delete them!

This sentence is not precise enough: the table below shows that groundnut is best than sesame and finger millet in terms of traders' margin, but is between the two other crops regarding producer's margin and farmer's net profit, and value added. Please be more precise in your evaluation!

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Table: 3 Groundnut Value Additions, Margins & Production Economics

Product Cost	Unit	Groundnut	Sesame	Finger millet
Producer's Margin				
Yield	Qt/ha	15	6	28
Production Cost	ETHB/ha	10,950	7,450	12,350
Unit cost	ETHB/qt	730	1,241.60	441
Selling Price	ETHB/qt	1050	3,500	600
Farmer's Margin	ETHB/qt	320	2,258.4	209
Gross Profit	ETHB/ha	**15,750**	**21,000**	**16,800**
Farmer's Net Profit	ETHB/ha	4,800	13,550.4	4,450
Trader's Margin				
Purchase cost	ETHB/qt	1,050	3,500	600
Labor Cost	ETHB/qt	15	15	15
Taxes	ETHB/qt	40	110	6
Transport	ETHB/qt	100	100	100
Commission Cost	ETHB/qt	10	20	2
Loading Costs	ETHB/qt	8	8	8
Other costs	ETHB/qt	20	20	20
Total Cost of Trader	ETHB/qt	1,243	3,773	751
~~Whole seller~~ prices in Central Market A.A	ETHB/qt	1,350	3,850	850
Trader's Margin	ETHB/qt	**107**	**77**	**99**
Value Added	ETHB/qt	**300**	**350**	**250**

Wholesaler

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Please check spelling of this table, and be careful in using small case and capital letters! Use small case inside the titles, if not for names.

Table: 4 Groundnut trading business model canvas

<table>
<tr>
<td rowspan="2">6. Partners:
a. Farmers
b. Pawe wereda & Metekel zone BoA
c. Pawe wereda revenue & customs offices
d. pawe wereda Microfinance
e. CBE Pawe Branch
f. Other traders
g. Accountants
h. Brokers</td>
<td>7. Key Activities:
a. Prepaid & Distribute funds for local traders/pity traders
b.Collect grains from local farmers & pity traders
c. Cost pro forma
d. loading & unloading
e. Accumulate & arrange groundnut grains within own warehouse
f. Cleaning, winnowing & Sorting
g. After the gathering of 90-400 quintals & check current prices from his regional & central market brokers through cellphone.
h. Finally send to central market Mesalemia/ ehilebreda</td>
<td rowspan="2">2.Value propositions:
a. Produce quality seeds/yields
b. Packing & labeling
c. deliver high market competitive & attractive Yields.</td>
<td>3.Customer Relationships:
a. Give seed loans for local farmers
b. Give cash loans for customers
c. Give sacks & other material loans
d. Deliver quality products for whole sellers, exporters & processors.</td>
<td rowspan="2">1.Customers Segments:
a. Intermediate trader
b. Whole sellers
c. Central Traders</td>
</tr>
<tr>
<td>8. Key Resources:
a. Cash on hands
b. 50 or 100 kg Balances / grain weight measures
c. Linings
d. Warehouses/shops or stores
e. Insecticides/pesticides (weevil killer drugs)</td>
<td>4.Channels:
a. Cell phone /tell phone
b. Mule wagon/cart
c. Lorry
d. ISUZU NPR,FSR,FVR
e. 10 Wheel VOLVO /SHOLTO
f. 20 Wheel EURO TRUCKS etc…</td>
</tr>
<tr>
<td colspan="2">9.Cost Structure:
a. Commission fee(5-10 birr per quintal)
b. Temporary & Permanent hired labor costs/salary(1000-1500 birr/month)
c. Warehouse/Storehouse & grain balance rent(1300-1500 birr/month)
d. Transporting cost(75-100 birr per quintal)
e. loading & unloading cost(4 birr per quintal)
f. Tax fee
g. Cellphone/phone cost (300-500 birr/month) expenditure etc…</td>
<td colspan="3">5.Revenue Stream:
a. Income generation from groundnut sold (7.25-13.25 ETH. birr per kg)
b. Commission /brokers fee (5-10 ETH. birr per quintal).
c. Gain foreign currency when we export to other foreign countries
d. Processing Local industry (oil milling) use to reduce foreign exchanges.</td>
</tr>
</table>

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Please check spelling, and be more precise when starting words with Capital letters or small case letters!

Table: 5 Key Challenges & Opportunities of Groundnut Production, Utilization & Marketing

Supply Chain	Challenges	Opportunities
Production:	⇨ Poor Production System ⇨ Only use traditional agricultural inputs ⇨ High weed infestation ⇨ Lack of improved technologies ⇨ Productivity declining due to soil fertility decline ⇨ Poor working habits ⇨ Lack of awareness about modern agronomic practices ⇨ High diseases & insect pest (termite) infestations ⇨ Unavailability of input access ⇨ Lack of post -harvest technologies	⇨ Pawe & Asosa Agricultural Research Centers established in BGR & attempt to support or delivered improved groundnut varieties like; Manipeter, Bulki, Loti, Roba & etc… which is suitable for Metekel Zone agroecology ⇨ Government policy is supportive to increase production & productivity ⇨ The area is the most potential for crop production especially oil crops ⇨ Farmers interest to engage in production of groundnut & other high value crops is encourage; ⇨ Most of farmers willing to expand & produce high market value crops especially sesame, groundnut & Soybean
Marketing:	⇨ Low Market prices & demand ⇨ Poor market information system ⇨ Lack of legal procedures between commission agents & traders ⇨ Poor product quality/grain deteriorations ⇨ Declining of Market prices ⇨ High Market fluctuation & instability ⇨ Poor storage shelf life & high weight loss ⇨ Poor financial capacity of local unions & Cooperatives	⇨ Local consumers & market demands increased from time to time. ⇨ Increasing trends in export shows an increasing demand; ⇨ Demand for processed products with good quality has good demand in the local market
Processing:	⇨ Lack of quality groundnut grains supply from local farmers & traders, it contains high inert matter ⇨ Value addition along the supply chain is limited and most value addition is related to space utility ⇨ Locally supplied grains are infected by fungus like aflatoxin	⇨ Increasing of locally supplied grains ⇨ Since large quantity of cooking oil in Ethiopia is imported, the local demand is high;Interest to access loan to overcome financial shortage is high. ⇨ In BGR Asossa farmer's cooperatives & unions were created oil seed processor but; in metekele zone still no processors.

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CONCLUSION

Groundnut is one of the oil crops grown in Ethiopia majorly (mainly) in low land areas of the country. Different governmental & non-governmental organizations try to support farmers in Metekel zone in different sectors particularly deployed on cash crops and food security crop production. Pawe Agricultural Research center & other organizations try to improve agricultural production & productivity through technology generation, demonstration & popularization, scaling up, scaling-out, and capacity building training, consulting, and market link on Groundnut and other commodities & deliver other services in the region. According to Metekel zone BoA three years report indicated that productivity of Groundnut was being increased, which was 13qt/ha in 2011, 14qt/ha in 2012 & 17.9qt/ha in 2013 in main cropping seasons respectively. Groundnut production & market business were feasible in our study areas but; it needs a lot of (better) technologies to improve its economical value. In Metekel zone the production & marketing margin of Groundnut implies that it encourages to produce & using at house hold (is a feasible crop to produce and use for household) consumption, income generation, and also it improves soil fertility & productivity (the research did nothing about this aspect!!!). So we conclude that in this area further Groundnut value chain research will be needed to address the gaps and challenges of the value chain and to enhance the economic merit of this commodity for national economy improvement as well as to eradicate malnutrition problems of local residents.

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(FORMATS are not standardized!)

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