Analysis of the Overall Production Environment and Diagnosis of the Constraints and Opportunities for Legume Intensification

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Report on Simple Value Chain Analysis of Legume Choice Project Sites, Ethiopia

1. INTRODUCTION

Legume Choice project is a BMZ-funded project that is fully aligned to the Humidtropics CRP-'Integrated Systems for the Humid Tropics'. The project is implemented in three countries, Ethiopia, Kenya and DRC Congo, representing eastern and central African countries. The project is aimed at improving food and nutrition security, reducing poverty, and enhancing the production environment of smallholder farmers and rural populations, in particular women, through facilitation of the smart integration and use of multi-purpose legumes, providing food, protein, feed, fuel, and/or organic matter in crop-livestock systems. The purpose of the project is to provide knowledge and tools to farmers and development partners facilitating farmers to make rational decisions for enhancing short and long-term contributions of multi-purpose legumes to farmer livelihoods including aspects of legume production, input supply systems, and markets. The project intends to reach at least 1,500 smallholder farmers in each target Humidtropics Action Site through legume intensification and system diversification with legumes, based on specific needs and niches identified in cooperation with R4D platform partners.

Farming system diagnosis and related entry points for multi-purpose legumes in farming systems and synthesis of lessons learnt across all action sites is one among the *four outputs* to be delivered by this project. In Ethiopia, two Humidtropics Field Sites, namely *Diga* and *Jeldu*, were selected.

2. BACKGROUND OF THE FIELD SITES

Diga and Jeldu field sites are the two Legume Choice field sites located in East Wollega and West Shoa Zones of Oromia National Regional State, respectively. Diga is located about 340 kms to the west of the capital Addis Ababa, whereas Jeldu is located at 120 kms to the north-west of Addis Ababa. The livelihoods of the population in both field sites is mainly depend on crop-livestock farming. The traditional oxen-plough is the major tillage practice used for crop production. Potato, barley, wheat, teff, faba bean and field pea are among the commonly cultivated major food crops in the livelihoods of the Jeldu field site, whereas, maize, ground nut, common bean, sesame, sorghum, millet, wheat, teff and faba bean are major food crops cultivated in the Diga field site. Other crops including linseed, chick pea, grass pea, fenugreek, noug *(Guizota Abssynica)*, lentil, oat, inset, garlic, onion, shallot, carrot, beet root, tomato, cabbage, climbing bean, pigeon pea, soya bean and sweet potato are sometimes cultivated in either of the two field sites. Moreover, dasho *(Pennisetum pedicellatum)* grass (around homestead and on soil conservation structures), and tree lucerne and sesbania (as hedgerows around homestead) are frequently grown for livestock feed and soil conservation purposes as well as for income generation. Livestock, particularly cattle, sheep, horses and donkeys are an integral part of the farming system and play an important role in the economy of both field sites.

Chillanko and Kolu-Galan, which are among the 63 *kebeles* of Jeldu field site, and Lalisa-Dimtu and Fromsa, which are among the 22 kebeles of Diga field site, are Legume Choice implementation sites representing good and medium market access *kebeles*, respectively. A description of key agro-ecological parameters for the selected implementation sites is given in Table 1.

Table 1. Description of Ethiopia Legume Choice project implementation sites

Implementation sites	Field site	Total no. of households	Latitude	Longitude	Average altitude	Agro-ecology	Market access
Lalisa-Dimtu	Diga	700	09°02′62″N	36°24′80″E	1306	Lowland	Good
Fromsa	Diga	550	09°03′19″N	36°45′53″E	2140	Mid-altitude	Medium
Chillanko	Jeldu	500	09°20′87″N	38°11′33″E	2943	Extreme highland	Good
Kolu-Galan	Jeldu	1150	09°22′29″N	38°09′95″E	2685	Highland	Medium

Source: *Legume CHOICE baseline survey report, Ethiopia*

3. METHODOLOGY

3.1 Data Source and Method of Collection

Value chain analysis checklist questionnaires were used to gather information needed to understand the steps of legume farming system from production till consumption using focus group discussions (FGD) at Jeldu and Diga action sites. Participants of the FGD at both sites were:

1. Agricultural/Extension officer of each action site
2. Representative from Research Institution (Bako Agricultural Research Center)
3. Input dealers-Input supplying department representative of the district office of agriculture (Both sites)
4. Farmer groups/cooperatives- representatives from the district cooperative offices
5. Micro finance institutions (
6. ILRI legume CHOICE project representative

3.1.1. Survey questionnaire and data collection

Primary data were collected through value chain analysis checklist questionnaire administered to the FGD participants. Secondary data on the legume farming systems, major constraints in legume farming activities, and legume functions were obtained from farm characterization and baseline survey reports done by the project at both action sites.

4. RESULTS AND DISCUSSION

4.1. Legume inputs and services supply chain

According to the participants from both action sites, agricultural input supply chain has its own procedure. At start, agricultural input demand assessment is done at farmer level by development agents (DAs) and primary cooperatives in the peasant associations. The quantity of fertilizers, different crop seeds, chemicals and other inputs is documented by the demand assessors for each peasant associations (*Kebeles*). Agricultural input plan of the cropping year is drawn from the assessed demand and filled in forms prepared for this purpose. The plan document prepared at *kebele* level then signed by the DAs and primary cooperative representatives. These plans from different *kebeles* in the action site districts are collected and organized at district level by agricultural/extension/input supply department experts so that the whole agricultural input demand of each action site (District) is known. These demands are organized in structured forms at the district level to prepare a district agricultural input need plan of a cropping season. At each action site/district there is Input C Unit (ICU) established to reassess the demand plan of their respective district. Soon after the approval of the plan, ICU delivers the plan to district heads offices of agriculture, cooperatives and main administrator for signature. The signed agricultural input demand plan is then sent to respective Zonal administration offices. The zone administrators through their ICU dispatches the input plan of all their districts to Farmers' Unions to assess where the inputs are available and then supply to each district based on their previous plan. The districts then dispatches the inputs to each *kebele* according to the plan they prepared at the start of the demand assessment stage.

The ICU is structurally organized in each *kebele* at farmer*,* district, zonal, regional, and national levels to assess the agricultural input demand plan so that the plan is organized at national level to know country plan.

Asked whether this organized agricultural input and service supply chain is really working for legumes too, it was understood that demand coming from the farm level assessment confirms no or very little is reported in the plan of the *kebeles*. For instance, it was only before three years and two years that very small quantity need plan for faba bean had come from Jeldu and Diga, respectively from the farmers. The requested quantities (0.5 tone of faba bean at Diga) were packed at 50kg capacity and when supplied to the farmers, they need smaller packs for their small plots and most seed was unsold and remained in the store.

The reasons why legume seeds demand is not included in the plan at farmers level demand assessment are:

- No awareness was created among farmers on the importance of legume components in the farming systems by extension officers; much attention is given to cereals,
- Farmers do not even know the existence/availability of improved seeds for legumes
- Primary cooperatives and district level cooperatives also do not know the availability of legume seeds

At Jeldu action site, district agricultural office supply forage legume seeds and planting materials to farmers in their different *kebeles*. The office buys seeds and planting materials of the legume forages from individual farmers as there are who produce the planting materials in the district.

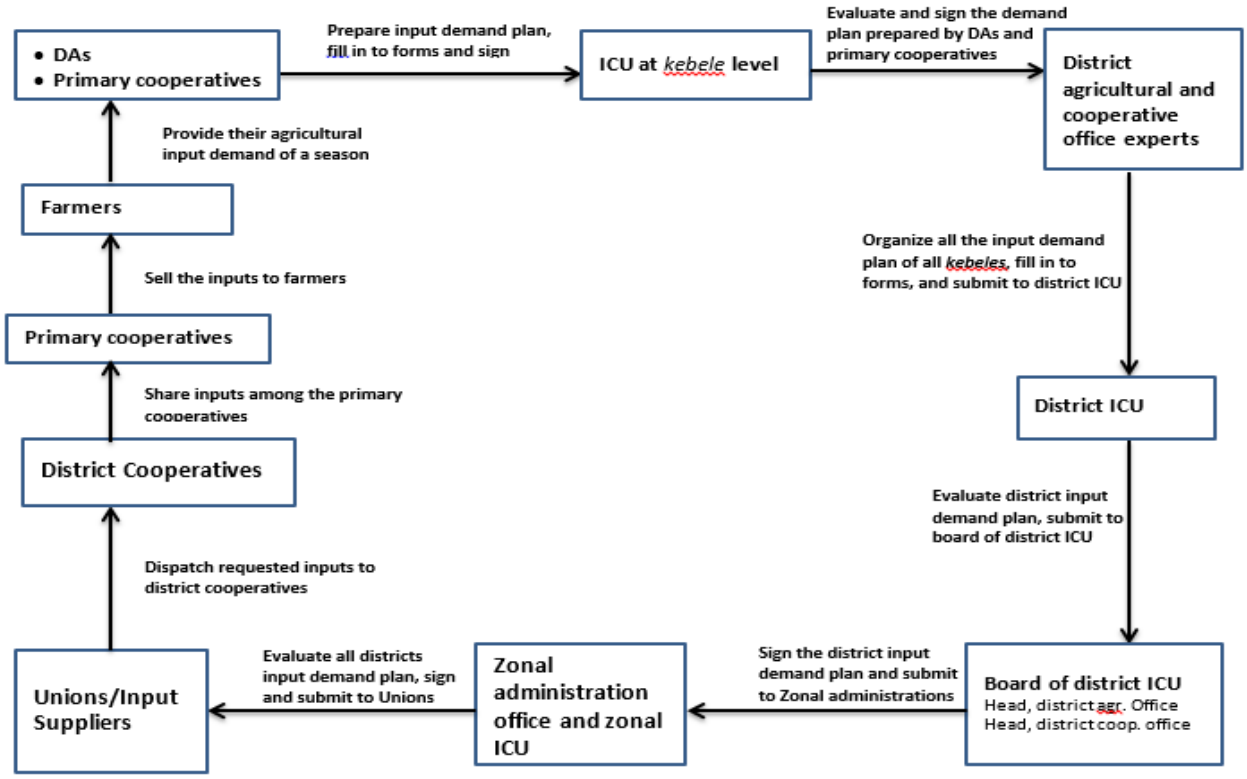

Figure 1: Diagrammatic representation of agricultural input market actors and its organizational structure

4.2. Legume Production Systems

4.2.1. Legume Types

According to the secondary data obtained from Legume CHOICE baseline survey report of both field sites, legumes are an important and integral part of crop production activities in both Diga and Jeldu field sites. Different legume species are grown in the implementation sites. According to the report, while perennial climbing bean is very popular around homesteads, ground nut and bush type haricot bean are widely cultivated annual grain legumes in Lalisa-Dimtu of Diga. In Fromsa (Diga), faba bean is the most important grain legume cultivated followed by bush haricot bean, annual climbing bean and field pea. Chick pea and pigeon pea occur infrequently in Fromsa and Lalisa-Dimtu of Diga, respectively (Figure 2a). Report from Jeldu field site reveals that faba bean and field pea are the most important annual grain legumes commonly cultivated in both Kolu-Galan and Chillanko implementation sites, whereas chick pea, lentil, and grass pea are sometimes cultivated using residual moisture as a double croping in the late season either after harvest of early-sown potato or barley (Figure 2b). On the other hand, sesbania in Lalisa-Dimtu and Fromsa of Diga, and tree lucerne in Kolu-Galan and Chillanko of Jeldu, were the most

widely grown perennial tree legumes in the form of hedgerows around homestead either for livestock feed or for fencing purposes.

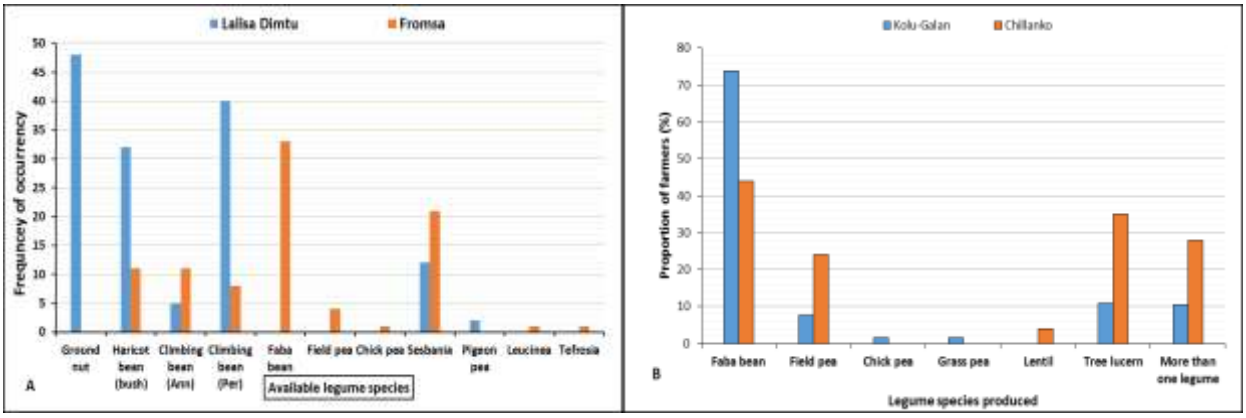

Figure 2. Different legume species grown in Lalisa-Dimtu and Fromsa (A), and Kolu-Galan and Chillank (B) implementation sites. ***Source:*** *Legume CHOICE baseline survey report, Ethiopia*

4.2.2. Legume Farming/Cropping Systems

The report also indicated that different legume cropping systems are practiced in the implementation sites. Legume sole cropping and intercropping with maize are common in Diga. Sole cropping, and double cropping in the late season after potato or barley using residual moisture are common in Jeldu. The largest proportion of interviewed farmer households, 46% and 43% in Lalisa-Dimtu and Fromsa of Diga, respectively, and 47% each in Kolu-Galan and Chillanko of Jeldu, were producing legumes as sole cropping system. Legume-maize intercropping was found to be the second most important legume cropping system in the Diga field site, whereas double cropping was the second most important in the Jeldu sites. About 18% and 12% of farmers interviewed were producing legumes as intercrops with maize in Lalisa-Dimtu and Fromsa, respectively (Figure 3a). Bush-type haricot bean and annual climbing bean are the major legumes produced through intercropping with maize. The proportion of farmers with no legumes on their farm was 9% in Lalisa Dimtu and 29% in Fromsa. In highland agro-ecology sites, Kolu-Galan and Chillanko, faba bean and field pea are the predominantly grown annual grain legumes cultivated as sole crops. Only an insignificant portion of the interviewed farmers (1% in Kolu-Galan and 2% in Chillanko) were practicing double cropping of chick pea, grass pea and lentil either after potato or barley. Moreover, about 8% of farmers in Kolu-Galan cultivate legumes as both sole crops and using double cropping. However, 44% and 51% of the interviewed farmers from Kolu-Galan and Chillanko, respectively, had not produced grain legumes at all in the last 12 months (Figure 3b).

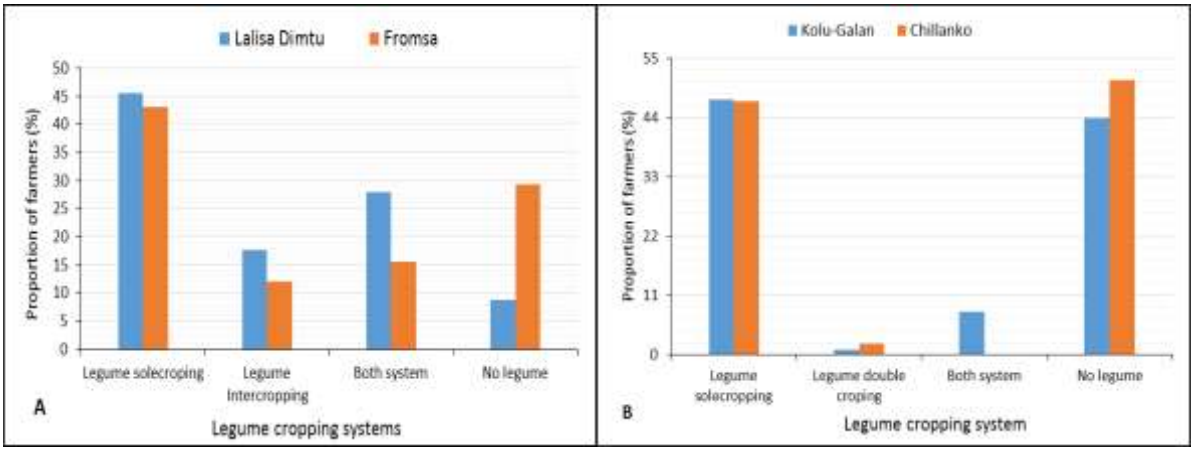

Figure 3. Different annual grain legumes cropping systems practiced in Lalisa-Dimtu and Fromsa (A), and Kolu-Galan and Chillanko (B) implementation sites. ***Source:*** *Legume CHOICE baseline survey report, Ethiopia*

4.2.3. Land Tenure System

The report of farm characterization surveys at all implementation sites affirms land ownership as an important aspect of the rural households with the households owning and operating the land for different purposes. It was identified the most important asset to be used to classify farmers into different typologies.

Average landholding per farmer household was 3.5 hectare (Table 1). Disaggregation of this into the implementation sites reveals farmers in Kolu-Galan had the largest (4.2 hectares) of operated farm size followed by Chillanko (3.7 hectares), whereas the minimum land size, 2.8 ha per household, was reported in Fromsa. The average number of plots (land fragments) owned per farmer was 7.1 with average size of 0.47ha each. Farmers in Kolu-Galan of Jeldu were reported to own larger number of land fragments with average size of 0.47ha followed by farmers in Chillanko owning 7.04 plots per household with relatively bigger size of 0.53 hectares as compared to the farmers in Diga sites (Table 1).

Table 1. Farm history, average land holding, and average distance of farm fragments from homestead

Variables	Implementation sites				Total (n=90)
	Lalisa-Dimtu (n=22)	Fromsa (n=20)	Kolu-Galan (n=24)	Chillanko (n=24)	
Average land holding per household (ha)	3.13(2.96)	2.80(1.74)	4.20(3.96)	3.67(1.82)	3.49(2.81)
Average no. of land fragments (farm plots)	6.18(1.53)	6.95(2.40)	8.00(3.24)	7.04(1.99)	7.07(2.44)
Average size per fragment (ha)	0.49(0.41)	0.40(0.20)	0.47(0.25)	0.53(0.28)	0.47(0.29)
Average distance of farm from homestead (walking minutes)	15.66(10.81)	5.92(4.32)	10.15(8.72)	17.30(9.55)	12.47(9.73)

Average number of crop species cultivated	5 (1.61)	7 (1.91)	6 (2.12)	5 (1.53)	6 (1.94)
Average legume species cultivated	1.73(0.70)	1.6(0.75)	0.71(0.75)	0.75(0.61)	1.17(0.84)
Proportion of farmers cultivated legumes (%)	100	95.0	54.2	66.7	77.8

Values in the parenthesis are standard deviation.* ***Source:* *Legume CHOICE farm characterization survey report, Ethiopia*

4.2.4. Trends of Legume Production

The primary information obtained from the value chain analysis FGD revealed that food legume production is decreasing sharply in both sites. But, back 50 years (based on older people experiences), the participants of the FGD from both sites told every farmer at both sites at least produces a food/grain legume either for home consumption or market to generate income. According to the respondents opinion, with the coming to power of socialist government before 40 years (1975 GC), legumes were forgotten by the system as cereals got more attention. Latter after the fall down of this government in 1991 GC and socialism gone away, farmers returned to own production systems and still currently the legume production is decreasing sharply due to different reasons. Among the reasons, soil degradation from repeated cereal production, impact of climate changes and variability dis-favoring legumes (storms and sudden heavy rain fall effects on the grain legumes), and lack of knowledge how to sustainably produce the crops were the majors.

In contrast, production of forage legumes like *Sesbania* and *tree lucerne* is increasing in both sites from none in the past 30 years even though the rate is slower, according to the FGD participants of each district/field site. On the other hand important naturally growing legume trees that contribute much to soil fertility and conservation; *Acacia species* are deteriorating over times due to lack of their importance knowledge by the farmers.

4.2.5. Legume Production Constraints

According to the secondary information obtained from Legume CHOICE baseline survey report of Ethiopia, ground nut, haricot bean and faba bean in Diga sites, and faba bean and field pea in Jeldu sites were identified as major grain legumes produced based on the frequency of farmers growing them. The result from the analysis indicates that all crops were unable to deliver the expected yield. They were delivering from 40.4 to 84.8% less than the national average yield for faba bean and haricot bean, in that order, whereas the gap was as high as 77.7 to 94.2% less for ground nut and haricot bean as compared to the crops genetic potential. Haricot bean was the least productive legume crop followed by ground nut, field pea and faba bean, in that order (Table 2).

Table 2. Current yield of major grain legumes in the implementation sites as compared to the national average and the crop potential.

Major legumes	Average yield across sites (kg/ha)	National average (kg/ha)	% less than national average	Crop potential (kg/ha)	% less than crop potential
Faba bean	980	1644	40.4	5000	80.4
Field pea	704	1280	45.0	4000	82.4
Haricot bean	192	1262	84.8	3300	94.2
Ground nut	670	1380	51.4	3000	77.7

The crop national average was taken from ***Agricultural Sample Survey bulletin, 2013***

Source: *legume CHOICE baseline survey report, Ethiopia*

A number of factors including lack of improved seed of the respective legume species among the farmers, high disease pressure, soil fertility degradation, lack of knowledge of different crop management options, especially on spatial and temporal arrangement of the component crops where haricot bean is intercropped with maize would have been contributed to this evident wider gap between the current yield of the crops and the national average and/or the crop potential yield.

4.3. Legume Products and By-Product Utilization

During the FGD held at both field sites, it was understood that legumes are primary produced for home consumption in different forms. Most food/grain legumes are consumed in the form of stew, raw at physiological maturity stage (Faba bean and Field pea), cooked to make local *"Ashuqi",* and mixed with other cereals to make breads, and fried seeds. Soup and porridge are also rarely produced from mixtures of legumes with cereals. Other functions of legumes in the sites include generation of income for the household, soil fertility improvement (especially tree legumes) through nitrogen fixation and retained residues, livestock feed, source of energy as firewood, and fencing. Husks and residues are the main by-products of legumes used mainly for livestock feed and sometimes for mulching. In lalisa Dimtu of Diga, husks of ground nut after shelling is also used as energy source/firewood by some households.

The tree/forage legumes are used for livestock feed through cut and carry system, and/or uncontrolled grazing during off-seasons. These legumes are also used for coffee shading by some farmers producing coffee in Diga. Yet the legumes are never used as inputs/raw materials in food/feed processing industries in both field sites. According the observation by the FGD participants of the sites, the very small quantity of the legumes produced did not attracted processers. Lack of knowledge on how to store and improved storage structures, insecticides, and no shelling machines for ground nut (Diga) make post-harvest activities difficult. The FGD data shows proportion of legumes in food basket of a household reaches 30-50% and 10-30% compared to other crop types at Jeldu and Diga, respectively. Having all the functions mentioned, still production of legumes are decreasing over times; in contrary the farm gate market price of legumes is sharply increasing indicating there are high potential for legume markets in both the sites.

4.4. Markets

There are different market structures and actors in the field sites. The primary market pathway is that farmers directly sell their legume products to local consumers in local markets in both field sites. The other market channel is local collectors buy the produced from farmers and sell either to retailers or legume traders in the districts/field sites. And the traders transport to other available markets in the country mainly to shop owners who in turn sell to urban consumers for home consumption. Sometimes farmers directly sell to retailers ignoring the local collectors assuming they abuse market prices. Experience from Jeldu where faba bean and field pea are relatively produced in comparable quantities, primary cooperatives (farmers are member) collect legume produces in their *kebeles* and sell them to farmers' cooperative unions at the district level.

In the field sites there are a lot of legume market constraints identified. Small quantity and low quality of the legumes produced, risks of legume production (snow, diseases), lack of market information from any source, low legume prices at harvest, and price abuse by middle men are among the many legume market constraints reported. But, the discussion result shows there are high potentials for legume markets in the field sites.

4.5. Enablers

Under the current situation in Ethiopia, farmers are supposed to buy their agricultural inputs on cash. But during the FGD participants indicated most farmers are unable to buy the inputs on cash. Therefore, there are designed solutions available at both field sites according to the respondents/participants of the discussion. Accordingly, micro-finances at districts level and cooperative unions (input suppliers) had agreements of credit services to unable farmers. The micro-finance pay input prices to the suppliers on behalf of the farmers. But there are some procedures before the credit provision by the micro-finance institutions. The first step is identifying the unable/poor farmers done by district agricultural offices together with the primary cooperatives at farm level. Actually farmers in the country are categorized in to three typologies. Rich, medium and poor are the typologies under which the households of the districts are grouped based on assets (Land, livestock and others) they have. Then the agricultural office organizes these poor/unable farmers in to groups as the micro-finances only provide group based credits and liabilities. The input types the farmers need per price and interest is calculated and filled in to prepared forms for this purpose by the agricultural offices. The names of the farmers under the different groups with calculated amount of money requested for input purchase is filled in this form and submitted to cooperative unions (the suppliers). The cooperative unions at the district level refer this request to the micro-finances with whom they made credit service agreement indicating that the supplier is willing to give the requested inputs to the farmers if the micro-finance pays. The micro-finance institutions then train the group of farmers on how they work. Credit and saving subjects are the main topics of the training. There are also pre-requisites that the micro-finance institutions need the group of credit seeking farmers fulfill. The farmers must be willing to save some money monthly, share

and pay the credit share of any group member in case withdrawn (ex. Dead) from the group, and must pay group member fee. It is only with these pre-requisites agreed on and signed by the farmers that the credit service is provided. After all the procedures completed, a letter will be sent to the suppliers to provide farmers the inputs requested and prices to be paid by the micro-finance institution on behalf of them.

Currently, there is also a newly emerging credit services to the farmers. The cooperative unions at district levels and the primary cooperatives at *kebele* levels started establishment of saving and credit cooperatives at farmers' villages. Member farmers save any amount of money they can monthly. The savings are recorded on their legal saving books. A member of the saving and credit cooperative farmer can borrow three times the money he/she saved to buy his/her agricultural input demand. Compared to the credit given by the micro-finances, the interest rate of the farmers saving and credit cooperative is very low.

Important summary points

Agricultural input demand and supply: There are Input Cooperative Unions structurally organized in each *kebele,* district, zonal, regional, and national levels to assess and organize the agricultural input demand plan at country level. Agricultural input demand assessment at *'kebele'* level is done by development agents and primary cooperatives in the peasant associations. Then the identified demand are collected and organized at district level by agricultural extension input supply department experts so that the whole agricultural input demand of the cropping season for each district are known and passed to zonal level. The zone administrators through their ICU dispatches the input plan of all their districts to Farmers' Unions to assess where the inputs are available and then supply to each district based on the planned demand. The districts then dispatches the inputs to each *kebele* according to the plan they prepared at the start of the demand assessment stage.

Asking whether this organized agricultural input and service supply chain is really working for legumes too, it was understood that demand legume crops coming from the farm level assessment is reported very little or nil compared to demand for other crops particularly cereals. Focus group discussion participants confirmed that even though farmers demand for improved seeds of legumes and inoculum are very less, which is associated with a number of reasons, still the supply is always less than the demand, and the few small amount available when supplied to the farmers are packed at 100kg or 50kg which the cost is unaffordable to smallholder farmers, and due to this problem most was unsold and remained in the store.

The primary information obtained from the value chain analysis FGD revealed that food legume production is decreasing sharply in both sites compared to the years before 1970's. This significant decrease in legume production was as a result of the change in agricultural policy during Derg regime and natural resource degradation, change of weather, and resource limitation in the current regime.

According to the focus group discussion participants of each field site, production of forage/tree legumes such as *Sesbania* and *tree Lucerne*, which were not known before three decades back are increasing in both sites. At Jeldu action site, there are individual farmers who are producing forage/tree legumes seeds and seedlings, and district agricultural office are used to by seeds and planting materials of forage/tree legumes and distribute to other farmers in their different *kebeles* but this trend was not known at Diga action site. On the other hand important naturally growing legume trees that contribute much to soil fertility and conservation such as *Acacia species* are deteriorating over times due to farmers lack of knowledge about their importance.

Utilization: During the FGD held at both field sites, it was understood that legumes are primary produced for home consumption in different forms. The information from this focus group discussion shows proportion of legumes in food basket of a household reaches 30-50% and 10-30% compared to other crop types at Jeldu and Diga, respectively. Other functions of legumes in the sites include generation of income for the household, soil fertility improvement through nitrogen fixation and retained residues, husks and residues for livestock feed and mulching, source of energy as firewood, and for fencing. In Lalisa Dimtu of Diga, husks of ground nut after shelling is identified as used for energy source/firewood by some households. The tree/forage legumes are used for livestock feed through cut and carry system, and/or uncontrolled grazing during off-seasons. These legumes are also used for coffee shading by some farmers producing coffee in Diga. Yet the legumes are never used as inputs/raw materials in food/feed processing industries in both field sites due to the very small quantity of legumes produced did not attracted processers.

Challenges: Problem of storage insects, lack of improved storage facilities, lack of insecticides, and lack of shelling machines for ground nut (Diga) make post-harvest activities difficult. A number of factors including, priority for cereal crops, lack of improved seed of the respective legume species among the farmers, high disease pressure, soil fertility degradation, lack of knowledge of different crop management options, especially on spatial and temporal arrangement of the component crops where haricot bean is intercropped with maize would have been contributed to the significant decrease in legume area production and productivity.

Markets: The result from the focus group discussion shows that there are high potentials for legume markets in the field sites. There are different market structures and actors in the field sites. The primary market pathway is that farmers directly sell their legume products to local consumers in local markets in both field sites. The other market channel is local collectors buy the produce from farmers and sell either to retailers or legume traders in the districts and the traders transport to other available markets in the country mainly to shop owners who in turn sell to urban consumers for home consumption. Sometimes farmers directly sell to retailers ignoring the local collectors assuming they abuse market prices. Focus group discussion participants from Jeldu indicated that, for improved seed produces, primary cooperatives in which farmers are member collect the produces in their *kebeles* and sell them to farmers'

cooperative unions at the district level, and then the cooperative union packs the improved seeds and re-distribute for other farmers.

Legume market constraints: In the field sites there are a lot of legume market constraints identified. Small quantity and low quality of the legumes produced, risks of legume production (snow, diseases), lack of market information from any source, low legume prices at harvest, and price abuse by middle men are among the many legume market constraints reported by the participants.

Access to credit finance: Under the current situation in Ethiopia, farmers are supposed to buy their agricultural inputs on cash. But during the focus group discussion, participants indicated most farmers are unable to buy the inputs on cash, therefore, there are designed solutions available at both field sites such that micro-finances at districts level and cooperative unions (input suppliers) had agreements of credit services to unable/poor farmers, i.e., the micro-finance pay input prices to the suppliers on behalf of the farmers. The agricultural office organizes these poor/unable farmers in to groups as the micro-finances only provide group based credits and liabilities. The micro-finance institutions then train the group of farmers on how they work. Credit and saving subjects are the main topics of the training. Willing to saving certain amount of money and pay the credit on monthly basis are some the pre-requisites that the micro-finance institutions need the group of credit seeking farmers fulfill.

Currently, there is also a newly emerging credit services to the farmers. The cooperative unions at district levels and the primary cooperatives at *kebele* levels started establishment of saving and credit cooperatives at farmers' villages. Member farmers monthly saves any amount of money they can and these savings are recorded on their legal saving books, and this enable a member farmers of the saving and credit cooperative to borrow three times the money they saved to use to fulfill their demand of agricultural input.