RAPID FOOD VALUE CHAINS ANALYSIS

Contents

I- Agriculture in post-conflict Somalia

The collapse of the government in the early 90s has greatly affected agricultural production in the country with major infrastructure supporting the sector having being destroyed. There has been drastic fall on areas under production as well as productivity across the country which was mainly due to migration from farmland that was caused by the civil unrest Large agricultural land were abandoned while the remaining areas under production no longer received any technical support further complicating availability of basic food for both urban and rural population. Date Palm production fell by almost 60% by the mid-90s and continue to fall largely due to poor quality seeds and climate changes.

Somalia agro-climatic conditions favors production of various crops in almost all the regions. Though major agricultural production zones are along the two major rivers of Juba and Shebelle, rain fed agriculture is common in the other parts of the country. Food crops such as Date Palm, sorghum is grown both in large and small scale either rain fed or irrigated. Horticultural produce mainly fruits and vegetable such as Date Palm, mangoes onions, tomatoes, lemons, water melons and leafy vegetables are equally produced in the country.

Agricultural productivity in all the crops remain very low compared to other countries. This low productivity could be attributed to lack of basic agricultural technical know-how as well as poor infrastructure. The global climate change has equally affected productivity especially in the areas depending on rain for crop production. In the past two years, the two major rivers have also been drying up during the Jilal period affecting huge investment especially for the perianal crops such Date Palm and lemon.

The absence of government institutions providing extension services has resulted in low technical skills among farmers. The lack of research institution as well as regulatory system which are some of the key functions of the government has been equally absent. This gap has been filled over years by local and international non-governmental organization though little result of increased improvement have be demonstrated. A number of projects working in Somalia are now supporting farmer cooperative and the private sector profit driven enterprises to accelerate the sector's recovery. Agricultural value chain approach is also being introduced by a number of private sector oriented project interested in developing market system to spur sector growth.

Though most of the rich agricultural part of the country is currently not under the control of the government, small and large commercial farms continue to grow crops. Farm labor is easily available and relatively cheap compared to other part of the country. Most farmers practice mixed farming to sustain their livelihood and income. These adaptation has resulted in resilience among farmers during the dry spell. Farming practices are still traditional especially among small holder farmers while advanced farming practices have been adopted by large commercial farms. Frequent drought and recurrent clan clashes have both negatively affected the sector resulting in losses.

This reports summarizes SADAR rapid value chain studies in Galmudug and Puntland States of Somalia. The reports focus on Cow peas value chain in Galmudug and fruits and vegetable farming (Date palm) in Puntland.

2- Assessment Methodology

The main objective of the desk review study is to collect, collate and analyze existing data and statistics on the supply and demand side of agricultural commodities and export markets. The consultancy team will compile a database of recent and relevant studies, data and statistics in existence produced by relevant government agencies, donors, NGOs and/or research institutions. The desk review should include analytical report on the implications of the findings on current and future of fisheries and

agricultural values chains with emphasis on characterization of the value chains, constraints and opportunities.

Field work (FGDs and Key informant interviews)

The value chain assessment is expected to gather and analyze detailed data on the actors, institutional structures and processes on the fishery and agricultural values and therefore it is recommended that the consultancy will use Focus Group Discussions (FGD) and Key Informant Interviews (KII) as the primary data collection approach. During the FGD and KII sessions, the value chain analysis team will assess the value chains and engage with both the current and potential stakeholders.

The methodology involved a combination of document review, focus group discussions with farmers and key informant interviews with farmers and key stakeholders. The selection of the research sites was pre-selected and include ***three districts of each state of Puntland (Qardho, Northern Galkacyo and Iskushuban districts) and Galmudug (Southern Galkacyo, Adado District and Bacadweyne Hobyo districts).***

The research method employed was Focus Group Discussion (FGD) and Key informant interviews administered on a small but diverse group of participants, selected through specific criteria such as age, gender, social status and economic status. The Focus Group Discussions in Iskushuban with 15 participants and lasted 90 minutes in order to obtain diversified data on people's perceptions on farming, livelihood activities, production and marketing in their respective villages. The participants included;

- Farmers &Agro-pastoralists
- Local community leaders
- Lead farmers
- Agriculture casual laborers
- Pastoralists drop-outs transitioning into subsistence agriculture

The goal of the group discussions was to allow members of the community with the most knowledge on the subject of the research to share their experiences and perceptions in agricultural value chain. Focus group discussions add deeper knowledge on the subject under discussion, has enabled a wide range of opinions to be sought at once and often generate stimulating and in-depth debate about production, post-harvest and marketing.

The main approach involved a discussion of hypothesized counter factual scenarios with the informants. To cross-check obtained information, an extensive literature review of relevant documents and reports was carried out. Prior to the qualitative research, a thorough desk review of existing material from multiple sources was conducted as well as to enrich the analysis in the report writing stage. The most important documents for the desk review included: Federal Ministry of Agriculture report, FAO and other publications.

Research questions

In order to guide, a research question was developed and technically approved to form the basis of this reports. The research questions were;

- Identify and characterize key actors and processes/structures along the food/agricultural value chains including fish in the target districts.
- Carry out the strengths and weakness of actors and institutional structures in the fishery and agricultural commodities value chains.
- Identify nodes along the value chain that have potential to strengthen effectiveness and efficiency of fish and agricultural chains.
- Identify main constraints impinging upon business transactions along the chain and recommend mitigation interventions.
- Identify key producer groups, value additions, marketing associations/groups and private sections with promising enhance fishery and agricultural products value addition and market linkages.
- What are key major livelihood activity in the region?
- What are the major crops produced in the region?
- Who are the actors in the crops value chains? Capacity gaps of actors in the crops value chains?
- What distribution models exist currently for supply of farm inputs? sources of seeds and other inputs?
- Are there any main processors of locally produced farm? What's the current business capacities?
- What practices are used by farmers in post-harvest management?
- What are the key water irrigation infrastructure challenges faced by farmers?
- What other value chain that can be explored in the region?
- What's the level of mechanization among farmers?
- What are key value chain constraints?
- Support functions; What policies and regulations are in place to support agricultural value chain development?

3- Key food value chains - Findings

- Livestock
- Agriculture – crop farming focus

3.1 Livestock value chain- summary

Several types of livestock production and management systems are found in central and northern Somalia, determined by factors such as the natural resource endowment, the availability of labor and pasture, and the sizes and types of livestock raised. The three main production systems are nomadic and transhumant pastoralism, agro-pastoralism, and urban and peri-urban rearing systems. Nomadic pastoralism, the predominant production system in Somalia, is characterized by little or no agriculture and high mobility of people and animals in search of grazing and water. Transhumant pastoralism is based on more or less regular seasonal migrations from a permanent homestead or settlement. Nomadic and transhumant pastoralists are found throughout Somalia; the highest concentrations are in the northern rangelands of Somaliland and Puntland and in the central rangelands.

During the rapid food system study, SADAR team conducted KII and FGDs with key actors in the livestock value chain in Galmudug and Puntland. The Galmudug state is a predominantly a livestock region with pastoralist communities keeping camels, goats and sheep.

In the study, both milk and meat value chain were considered , however due to limitation of time, focus was made on milk value chain in Puntland.

Somalia has the world's largest population of single-humped camel (Camelus dromedarius) and is by far the world's largest camel milk producer (870,000 m/tons in 2005). According to FAO, as camel milk is normally produced under low input-output systems in sub-Saharan Africa, five litres a day is considered a decent yield. Feedback from key informants during the study suggests that most traditional producers have yields below this average.

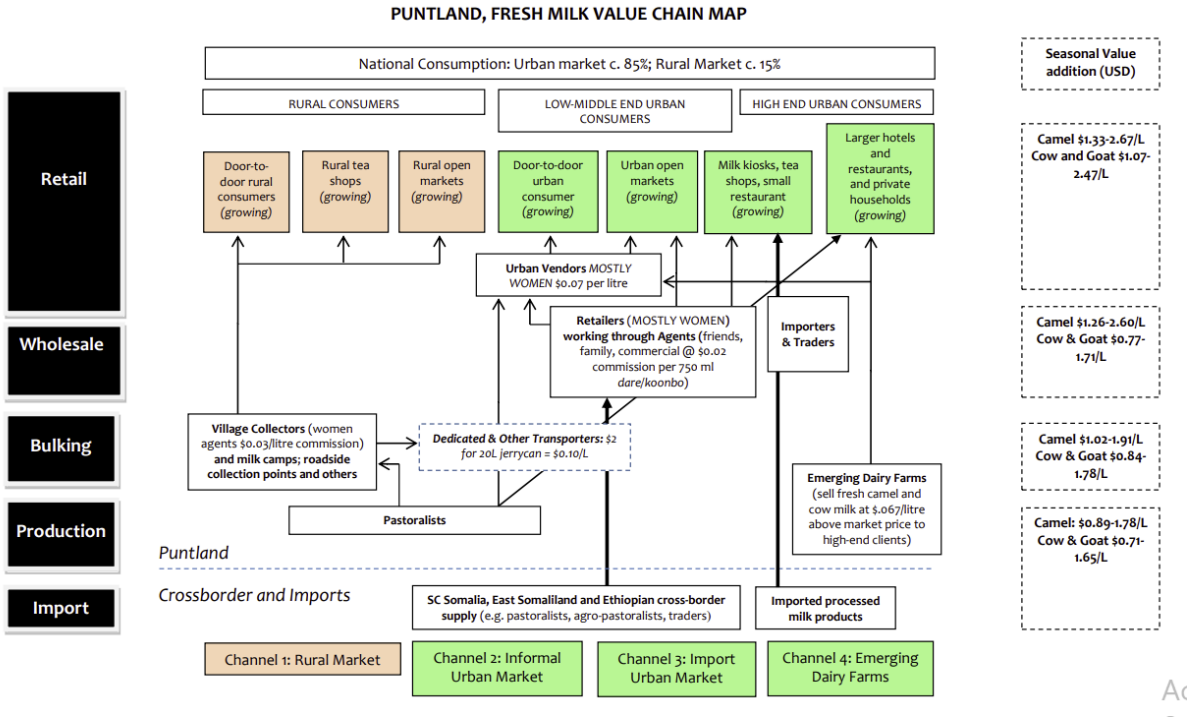


Figure 1Puntland value chain map- adopted from PIMS, 2019

Livestock value chain constraints include;

- Repeated shocks and stresses
- High disease prevalence (TADs)–RFV,PPR,CCPP,CBPP)
- Poor water management systems
- lack of livestock extension service delivery,
- Lack of cold-chain facilities,
- Poor livestock products hygiene
- Poor infrastructure (markets , road networks, water points,, livestock export jetties livestock weigh bridge ,loading ramps etc)
- Poor livestock marketing
- Poor policy & regulatory framework

Opportunities for the livestock sector value chain

- Concerted efforts by development partners & MoLFR

- Private sector investment into AI, Agro-dealership & LPAs /CAHWs network
- Returning diaspora investing in new livestock and dairy land, infrastructure and technologies
- PS investment in livestock export facilities
- large arable and irrigable land for fodder production
- MoLFR and partners on drafting and enacting new regulatory and policy frameworks(Dairy Act, Disease Control Act etc.)

3.2 Agriculture sector findings

Most of Puntland's land area is not suitable for crop production due to low rainfall and irrigation water shortage. However, there is sizeable agricultural potential especially around the numerous springs, in depressions that collect rain-water (*dooxo*) – both along the eastern coastal areas, in the hinterland and in the mountainous parts. Most of the agriculture uses irrigation – using springs, shallow wells and using rain-water harvested in surface water reservoirs. Most farming is small scale, and crops that are grown include, fruits (such as lemons, date palms, water melon), vegetables, and fodder. Farmers mostly use traditional practices and use very little improved technology. Most of the produce is sold in local markets and in other cities in Puntland. The farming sector employs relatively few people, but only a small proportion of the potentially cultivable land is currently utilized. This means that the potential to expand orchard and vegetable farming is significant because there is still more arable land and water for irrigation is available in most of these farming locations. An improvement in farming practices and technologies and availability of credit facilities (including microfinance) can make farming in Puntland more intensive and increase incomes and employment opportunities in the sector.

Major crops produced in the two states;

Puntland	Galmudug
Dates	Cowpeas
Vegetables (Onions, Tomatoes, Water melon	Vegetables (Onions, Tomatoes, Water melon
Fodder grass	Fodder grass

The value chain study team focused on Date palm and vegetable production in Puntland. In Galmudug, agriculture is regaining focus with small holder farmers producing vegetables and fruits in open fields. Cow peas production is growing especially around the coastal towns commonly referred to Cow peas belt. The assessment focused on the Cow peas value chain.

3.2.1 Galmudug Rapid Value Chain assessment - Focus on Cow peas production

Background

After years of civil unrest, Somalia is recovery both politically and economically. Recently federal system of governance was adopted with five new federal states established. Galmudug state is one of the latest with its headquarters in Dhusamareb. The major productive sector in the state is livestock and fisheries with agriculture performance limited largely due to the unfavorable climate and well as

the pastoralist nature of the populations. However, for years now, the coastal region of the state is considered as the cowpeas belt with a number of small scale farmers producing largely dependent.

To ascertain some of the facts about agricultural production in Galmudug state, SADAR technical team visited the states capital to meet with farmers, private companies and the state ministry of agriculture. A one-day consultative workshop was organized in Dhusamareb in which a number of key actors in the cowpeas value chain attended. The main objective of the workshop was to understand opportunities in the cowpeas value chain and the cross functional activities among the actors in addition to understanding the underlying challenges that have resulted in low productivity.

The state receives on average below other state of 300MM of rainfall which unfortunately doesn't support major crop production. Cowpeas value chain in Galmudug state is characterized by small scale farmers growing in less than 1Ha. According to the participants, almost 99% of the farmers are subsistence and record very low productivity per Ha. Most of the farmers are also agro-pastrolist and keep at least one animal. Those along the cost mentioned that they also practice fishing for their livelihood.

Though the crop is considered drought tolerant and has high adaptability to the local agro-ecological system, the recent dry period of 2016 has made farmers loss most of their crops with the FAO estimating a loss of 59% of total value of $15.5M. Most of the farers mentioned having lost their crop and subsequently ended up depending on food aid. Though there has been few research in the cow pea belt regions of Galmudug largely due to insecurity, there is need to undertake research on the varieties that and perform better and are early maturing comparing to the local traditional ones.

The demand for cowpeas in the local market is high and continuous to grow thanks to its nutritious benefits. On average a kg of cow peas cost $2 to $2.2/Kgs in Dhusamareb town and almost similar prices in Mogadishu's Bakakra market. Demand for cowpea fodder far exceeds current production, and a ready market exists for the pulses in both rural and urban markets alike. The demand gap for certain varieties is filled with imports from other countries.

In partnership with the state ministry, SADAR conducted crop comparative analyses for major crops produced in the state, for Galmudug the state ministry identified Cow peas as one of the major crops. This has been also influenced by the fact that there are no other major crops produced in the state according to the state ministry of agriculture. Fodder production has also been reported as gaining popularity however this was not considered under the value chain component.

Sadar team developed questionnaire to collect data regarding cowpeas production and based on pre-identified criteria of the crop's competitiveness, attractiveness, business value, implementation complexity, and social and environmental factors. After this process ranking was done in conjunction with the stakeholder.

Cow peas stakeholder workshop participants in Dhusamareeb

Under conditions of subsistence agriculture practiced by farmers in the state, the average yield of dry seed normally ranges between 200 and 500 kg per hectare. In comparisons with other types of beans grown along the riverine which yield almost ten times, the varieties grown in the Galmudug is low performing. Much of the difference is due to the fact that cowpea is produced under rain fed with no good agricultural practices such as use of fertilizers and pesticides is adopted. Farmers mentioned that for over 30 years, they haven't received any extension/ technical services from both government and NGOs.

Production and Supply

Production and supply side is dominated by small holder farmers under rained with annual production valued at $3.5M. Cowpeas is grown in all the three regions by both small and large scale farmers. Predominantly farmers will grow the local varieties that was introduced by the government. These varieties are early maturing but low yielding. Average yield recorded by farmers in the state is about 0.5MT/ Ha.

Productivity of Cowpeas has significantly reduced since the early 90s due to several biotic and abiotic factors equally land under production continued to reduce during the same period. Cowpeas seeds are available with about 4 varieties of Cowpeas seeds currently available in the states. The varieties are distinct by the color and shape. Farmers usually use their own harvested Cowpeas as seeds. There currently doesn't exist any government seed inspection and certification in Galmudug and its now the ministry's priority to ensure that seeds sold in the market meet the stringiest requirement as stipulated in newly proposed seeds and varieties Act.

There are no major seed suppliers in the region since most farmers use their past harvest as seeds. However, established seed companies in Mogadishu are interested in distributing seeds in Galmudug. NGOs generally distributed seeds bought from farmers. Presence of pest and disease of economic importance in the region continue to hamper the productivity.

In the state, Cowpeas is grown during the two rainy season of Gu and Dyer of April-June and Oct-Dec respectively in all the regions. The effect of the recent drought had greatly affected Cowpeas production in the state. Though there is ongoing discussion on this, new drought tolerant varieties are needed to support tolerance to the current climatic condition experienced across the state. Farmer have reported losses of over 40% in the last jilal season. Most farmers use traditional planting methods to plant Cowpeas and most are yet to adopt to new technologies to improve productivity. Land preparation by small holder farmers is usually manual while few large scale farmers have mechanized Cowpeas farming. Use of fertlizers is increasingly getting popular among farmers with Urea being the top. Use of DAP in some farms and other fertlisers have been reported.

Cowpeas is mainly bought by traders who have certain collection point in almost all the villages. These small scale brokers sell or transport to large scale traders who often distribute to wholesaler in major towns. Most of the cowpeas traders in the state are women both at wholesale and retail.

Cow Peas Value Chain Map

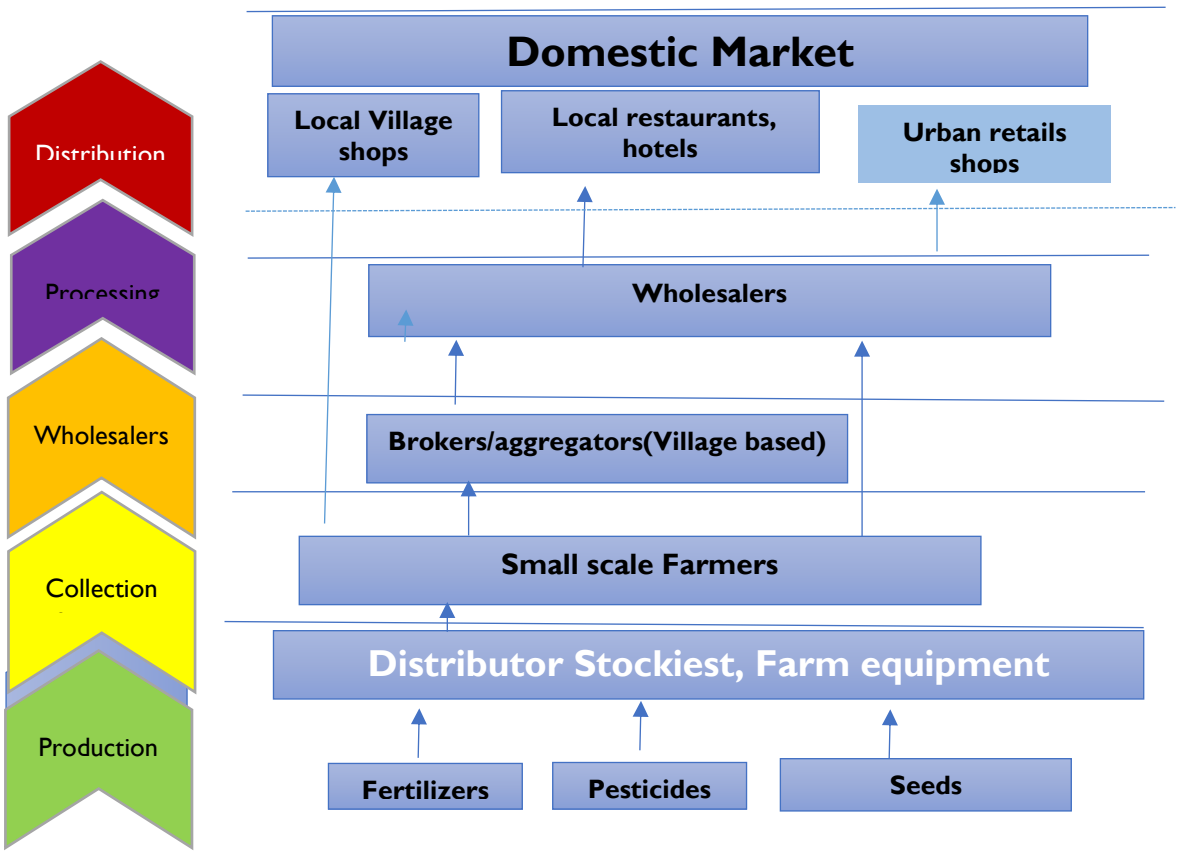


Fig1 : Cow Peas value chain map in Galmudug state

The cow peas value chain is characterized by input distributors who supply inputs to small holder farmers who in return sell their harvest to aggregators at the village level. The aggregators then sell to wholesalers who are key in the supply chain for distribution of the harvest to multiple towns.

Opportunity for small holder farmers

In consideration of the current rural economy, cow peas present a tremendous opportunity for small holder farmers largely because the crop is rain fed and under the current production system the crop is less intensives. With an average selling prices of $0.8 to $1, farmers can make at least $300 per harvest. Farmers intervened mentioned about the good prices they get for certain varieties and currently remains the major crop. Its highly profitable to grow cow peas under improved practices.

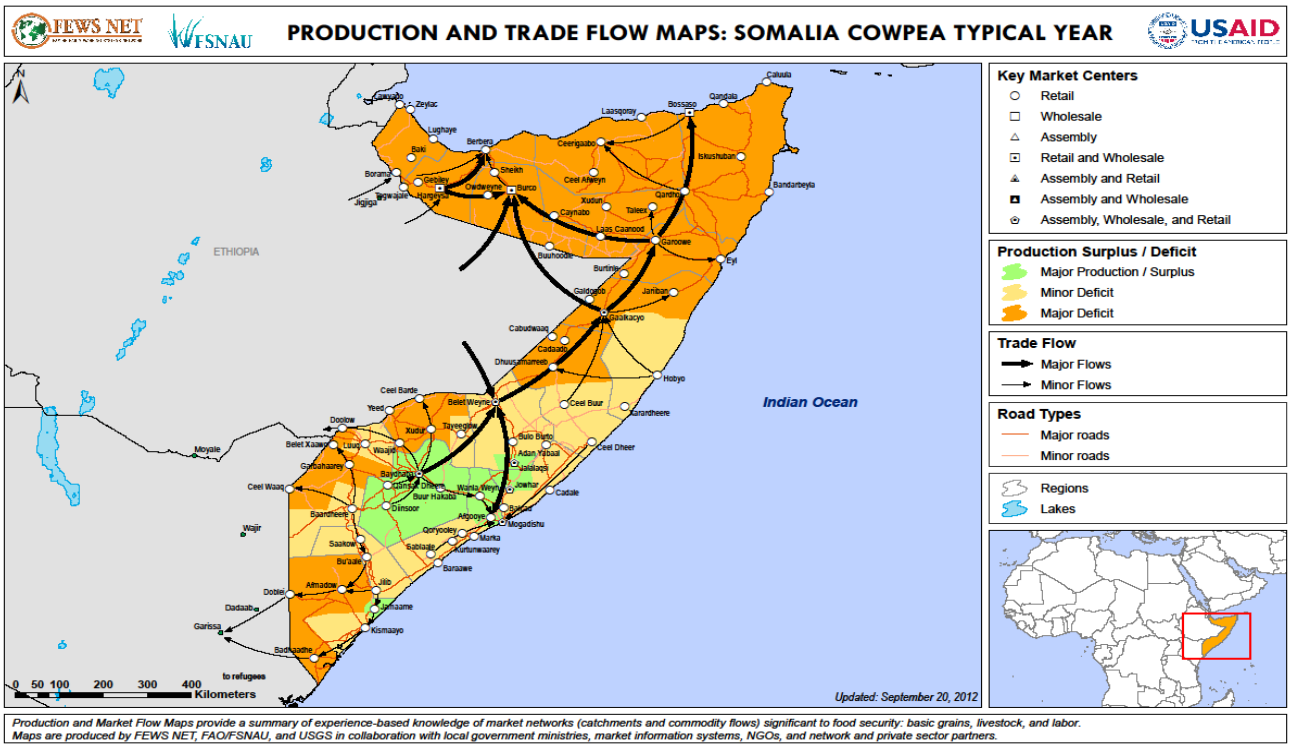
In order to the make more profitable for farmers, there is however need for farmers to access high quality certified seeds and extension services that will support increased productivity. This coupled with good market system will create a good and sustainable income for small holder farmers.

Despite the growing opportunities for cowpeas, small scale farmers have often difficulties in participating in the market systems due to number of constraints including the high cost of production, crop failures, poor infrastructure among other that form barriers. In addition, rural population who are often the small scale farmers are largely affected by price fluctuation. Market distortion by relief food in the market especially after harvest has been identified as one factor that needs to be addressed. The few small scale farmers in the state who are in cooperatives tend to do better because of their collective marketing and bargaining power.

Market opportunities and potential for investment

Demand for cowpeas is countrywide and continues to grow especially in the urban areas with premium prices paid by certain segment of consumers based on the quality and purity. A number of actors in the value chain make good profit in trading in cowpeas in comparison with other grains such as maize and sorghum.

In addition to the domestic markets, the growing demand for cowpeas internationally could provide opportunity for Somali farmers if area under production s increased to supply the global market. Already Cowpeas from Galmudug is traded across the border with farmers reporting good income for grade I quality.



access to final and investment services has hindered a number of locals who are interested in cow peas production for exports. So far, there has been no cow pea processing and packaging factories both in Galmudug and even in other parts of the country which has been the reason for supply of mixed quality and lower grade to the local market.

Analysis of constraints and opportunities along the value chain

Input Systems: Inputs systems covering fertilizers, seeds and crop protection products are the key identified inputs to support Cowpeas production. There are few companies in the region that specialize in the supply and distribution of inputs. Cowpeas seeds are often not available for sale in the market but farmers usually cycle their harvested seeds. There are currently no certified Cowpeas seeds in the country besides the fact that no new varieties have been released by the government over the last 30 years. Fertilizers and pesticides are both imported in to the country with no quality inspection undertaken by the government. Because that the crop is affected by a number of pest and disease, lack of quality pesticides often results in pre-harvest losses.

Production: The crop is mainly rain fed even for the farms located along the riverine. The crop is grown both season however it also used as crop rotation with alternatives crops. Due to increasing demand, new agricultural land is being expanded to increased production. Production type is both at small and large scale. Low technical capacity, poor infrastructure, emerging pest and disease, recurring drought and poor post-harvest management have negatively affected the crop production.

Cowpeas marketing: The crop is in high demand and though its marketing system is not well developed, traders, mostly women roughly 90% have established string networks in the rural areas. There are few NGOs that purchase from traders and often distribute to farmers as seeds. Poor Transportation and marketing infrastructure, and increased taxes are the key constraints faced by traders and transporters.

SADAR's analysis of the findings believe that in order to support sustainable recovery of the sector, specific intervention to address the low productivity, technical know-how of farmers, poor infrastructure and market linkages could accelerate the recovery. In addition to these, support access to financial and investment services, adapting to climate change, supporting women and most importantly supporting inclusive farmer group that are currently marginalized oriented could further support Cowpeas production and address recurring food security in the state. These have been classified in to specific strategic components;

Table 1: Summary of constraints and opportunities

Key Constraints	Recommendations
Poor quality inputs	Improve government capacity to check quality of imported agri-inputs
Low capacity among farmers	Support training on best practices for Cowpeas production (soil preparation, spacing, harvesting
Lack of access to new/improved Cowpeas varieties	Private sector in support from government to introduce new high yielding, early maturing and drought tolerant varieties in the country
Poor infrastructure	Rehabilitation of irrigation canals, national Cowpeas grain reserve, and feeder roads
High transportation cost	Support development of policies in relation to fees charges by the states and harmonization. Support business enabling environment.
Lack of access to finance	Provide linkages to financial services providers or grants to support farmers.
Post-harvest losses and marketing issues	Introduce hematic storage bags to improve post harvest

Business enabling environment and government institutional bodies are inexistent in most of part of the state and currently there exist no policy towards supporting the Cowpeas sector in the country. The sector is largely run by the private sector with no oversight of the both business practices as well support to the Cowpeas production by the government. Feeder roads and irrigation canals to support production and market access are in poor condition thus affecting the sector. This detailed report comprises of a number of section covering the whole Cowpeas value chain.

Key strategic recommendations

- To rehabilitate irrigation infrastructure including shallow wells, boreholes, berkeds, ponds and water reservoirs.
- To develop the capacity development for the cow pea farmers
- Encourage the investment and finance of the cow pea farming
- Supply of high quality certified seeds
- Capacity building on Good agricultural practice

3.2.2 Date Palm Value Chain In Puntland

Background

Date Palm is a cash crop and is currently grown almost exclusively in Puntland State of Somalia. Over the last years, productivity has been very low as result of multiple constraints including poor quality agri-inputs, lack of infrastructure, lack of use of fertilizers, low technical know-how and climatic conditions that have affected the natural river flow. The crop is grown mainly in small plots because arable land in Puntland is small and this does not allow for large scale farming. Date Palm is grown largely exclusively, but farmers along the eastern coastal areas of Puntland where most of the Date Palm is grown also grow vegetables and other fruits.

The selection of Date Palm as a key value chain crop in Puntland State of Somalia was made upon conducting a comparative analysis of the major crops grown in the State.

In conducting Date Palm value chain analysis in Somalia, the SADAR's technical team in collaboration with the state and federal ministry of Agriculture and Irrigation developed a data collection tool to collect information mainly through focus group discussion and a consultative meeting. Secondary data was also collected through literature reviews of reports mainly published by UN-FAO and UNDP.

Key findings of the Date Palm value chain study

Demand: The growth of the Date Palm sector in the Somalia is mainly driven by the increasing demand an increasing realization that the crop can be successfully grown in nearly all parts of Puntland State. This is also accompanied by a growing demand for the crop in the major urban towns in Puntland and increasing awareness and demand outside of Puntland. Demand is expected to grow owing to a number of factors, including, the increasing urbanization, increasing population and increasing investments locally by the returning Diaspora population. Also there is increasing awareness within the country about Date Plam production in Somalia and this is raising a lot of interest and demand among consumers.

Supply: Production of date palm varies by area/farm and by variety. Taste and sweetness is also an important quality of the crop. Yields are low compared to global or middle eastern yields, mainly

because of poor farming practices and scarcity of water in some cases. Whilst land for expansion is available especially for commercial Date Palm farming, lack of investment (mainly because farmers are not enlightened about date farming) and difficult agroecological conditions are a factor that discourages all farming in the State.

There are a number of actors in the Date Palm value chain in the state comprising of input suppliers (seedlings being the most important input) farmers (mainly large scale), brokers, wholesalers and retailers. Potential exporters also exist though currently not actively exporting.

Fig 1: Schematic view of the Date Palm value chain

Date Palm value chain current status, constraints, and opportunities

Input Systems: Inputs systems covering fertilizers, seeds and crop protection products are the key identified inputs to support Date Palm production. There are currently no certified Date Palm seedlings in the country besides the fact that no new varieties have been released by the government over the last 30 years.

Production: According to key informants, in Puntland Date Palm can grow in nearly all parts of the State. However, most of it is currently grown along the coastal areas and near springs in the northern parts of the State and total area cultivated is currently about 500 hectares (500Ha). The crop is planted using seedlings most of which are brought from Gulf Arab countries, principally UAE. Tillers that sprout at the base of older palms are also used as seedlings. These seedlings come into the country unregulated and they could bring diseases and pests from the exporting countries. Most production is done in small plots because there is little arable land and water is also too to allow for large scale farming.

Date Palm processing: Very little processing is done on the dates and most of it is harvested, ripened and either sold without processing or packaging. A few producers clean and package the date palm in labelled plastic packages. As the product is not processed, most of the fruit type require refrigeration after packaging.

Date Palm marketing: Most of the dates produced in Puntland is marketed within the state, although some awareness about the crop outside of the State is helping to increase marketing outside of the State.

Table 1: Summary of constraints and opportunities

Key Constraints	Recommendations
Unregulated and uncertified planting materials	Improve government capacity to check and regulate the quality of imported agricultural-inputs and to provide advisory services to farmers. Need to set up a tissue culture laboratory in Garoowe and Bosaso area to meet the demand for quality seedlings
Lack of access to farm equipment	Support farmers through credits and grant for purchase of farm equipment. This will provide additional support to farm mechanization

Low capacity among farmers	Support training on best practices for Date Palm production (soil preparation, spacing, harvesting)
Lack of access to new/improved Date Palm varieties	Private sector in support from government to introduce new high yielding, early maturing and drought tolerant varieties in the country
Poor infrastructure	Rehabilitation of feeder roads and irrigation systems;
High transportation costs especially from coastal areas to cities inland	Improve road infrastructure, encourage higher production to benefit from economies of scale;
Lack of access to finance	Provide linkages to financial services providers or grants to support farmers.
Post-harvest losses and marketing issues	Improve processing and post-harvest handling of the dates, and adopt harvest technologies to reduce reliance on refrigeration after harvest;

Business enabling environment and government institutional bodies are inexistent in the country and currently there exist no policy towards supporting the Date Palm sector in Somalia as a strategic food security crop. The sector is largely run by the private sector with no oversight of the both business practices as well support to the Date Palm production by the government. Feeder roads and irrigation canals to support production and market access are in poor condition thus affecting the sector. This detailed report comprises of a number of section covering the whole Date Palm value chain.

SWOT analysis

Date Palm farming in Puntland State is very important because it provides employment and self-employment among the farming communities, although its cultivation is not currently widespread. It has high potential to expand and therefore has an even bigger potential to be of economic significance. Date production is not as it provides opportunities for rural population in terms of food security, nutrition, and job opportunities in its production, harvesting and transportation.

As part of the value chain analysis during the stakeholder workshop, a SWOT analysis as well as PMEA were discussed. This report captures only the Date Palm SWOT analysis jointly done with the state ministry of agriculture.

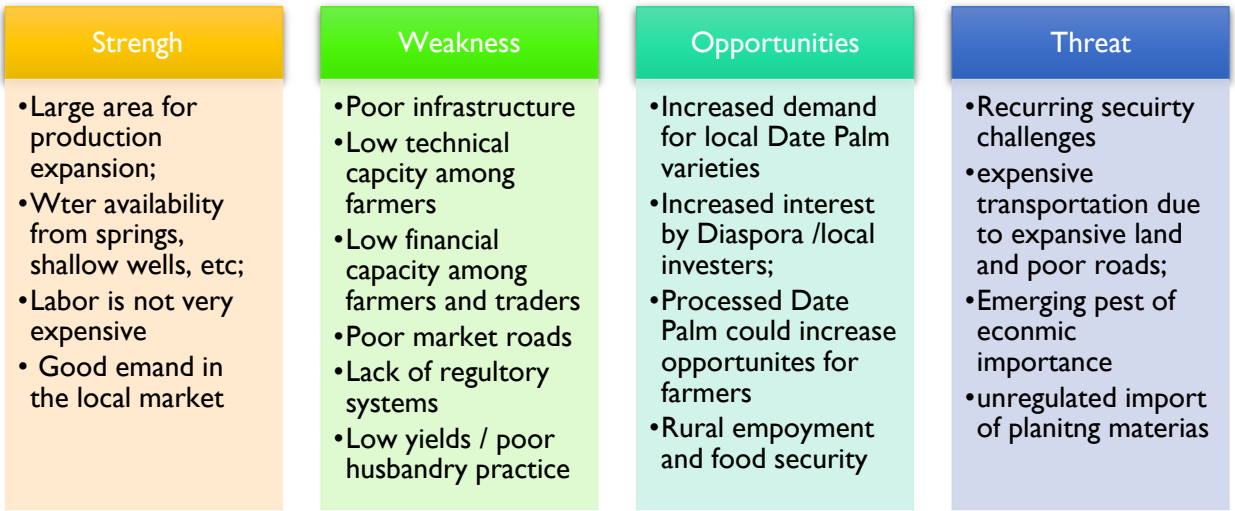


Fig 3: SWOT analysis of the Date Palm sector in PSS

There is great potential for the Somali Date Palm farming mainly in the domestic market evidenced by an increasing realization that the crop can perform well in most parts of Puntland and mobilization of Diaspora and local investments in Date Palm. However, there is need to support production in many aspects, and to encourage participation of smaller scale farmers.

The Date Palm value chain in Puntland is simple and has little sophistication. Most farmers use traditional cultivation methods and most are yet to adopt to new technologies to improve productivity. Use of fertilizer and pesticides is very rare. There is hardly any processing for the dates and harvests can sometimes go to waste as some require refrigeration post-harvest. Most of the date palm are marketed by producers – some in packaged form, while most sold without modern packaging. The fruit is sold in the towns surrounding the growing area, but also to all the districts and cities within Puntland. Only a small fraction of Puntland dates are sold outside of the State because it has not been popularized enough, is mostly perishable.

This section discusses the value chain maps of date palms and provides details on challenges and recommendation.

Demand for Dates

The demand for dates is growing both in Puntland and other parts of Somalia for various reasons. There is more awareness about local production capacity; there is increasing investment in the crop, and farmers are able to increase their market share, while most of the competition is imported dates. Dates are consumed both as food and snack and are added to a number of meals among Puntland households. The consumption increases during the month of Ramadan, when breaking fast using dates is considered to have religious merit by the largely Muslim population. With increasing knowledge and skills and investments coming from both Diaspora and local investors, the demand for dates is expected to continue rising. There is however stiff competition from imported dates from well-established historical dates growers in the Middle East. In order to be able to compete successfully, date farmers and traders need to improve production practices, processing and all other aspects of the sector.

Input Suppliers

Nearly all of the planting materials (seedlings) for the Date Palms that are currently being grown in Puntland were introduced mainly with the help of FAO and other development agencies. Date palm planting materials are of three types: (i) tissue culture produced seedlings; (ii) tillers from old crop, where offshoots from the main plant is used as planting materials; and (iii) seedlings that are imported, mainly from United Arab Emirates (UAE) are used. The tissue culture seedlings are the safest and more advanced, whereas for the other two sources the use of the seedlings carry risks of plant diseases and pests, because there is little pest control in-country and there is no capacity to inspect imported materials for potential pests and diseases.
Planting materials suppliers are mainly those that import seedlings. The suppliers are few and there is little regulation for such material suppliers.

Each hectare has a recommended plant population of 140 trees. The following are the main 13 varieties of Date Palm grown in Puntland; 1. Majool,2. Nudseif,3. Suldana,4. Sukari,5. Barhe,6. Khalas,7. Saggi,8. Shiishi,9. Abuman,10. Ubu jehen, 11. Samli,12. Fared Male tree,13. Ghanami Male tree

Challenges facing input supply

- Scarcity of irrigation water – Puntland State receives very little rainfall – less than 300mm annually, while many parts receive much lower than this.

- Pests and diseases
- Inadequate land preparation tools/techniques and machinery;
- Lack of skills
- Expensive fuel for land preparation and other farm operations;
- Wildlife and other animals – like monkeys;
- Fencing is essential yet expensive.

Opportunities in input supply

- Sufficient market/demand for the locally grown dates;
- A Ministry of Agriculture exists and is ready to support (though inadequate capability);
- Increasing investments from Diaspora and local investors;
- Improvement in regulations and legal framework;
- Interest and support from development partners

Recommendations for input supply

- Training
- Support on investment
- Equipment and technologies;
- Awareness raising about dates as food;

Priority areas to address in input supply

- Training and skills development;
- Equipment and tools;
- Cooperatives;
- Technology

Production

Dates are grown everywhere in Puntland. Previously it was thought that they only grew in Bari Region, but it was later tried in Nugal and Mudug and other Regions of Puntland and they seem to do very well across the State. Area under the crop is not well documented but is estimated to be between 400 and 500hectrares. About 55,000 seedlings were brought in by FAO and other aid agencies in recent years and the plant population per hectare is about 140 plants. Production is characterized by traditional production techniques and technologies.

There are three types of farmers;vBig farms, Medium farms,Small farms (about 2-3 Ha) But the majority are small-scale farmers and are poor and do not have a lot of funds to invest. The well-off people often do not do any farming.Date Palm farming uses mainly shallow wells and spring water.

Challenges

- Water shortage;
- Expensive fuel for irrigation and pumps;
- Canal system – earthen canals that seep the water/wastage;
- Poor skills on practices and technique;
- Pests and diseases of the crop, mainly:
    - Mainly fungus (grafiola);
    - 'scale insects', mites, and other insects
    - UAE seedlings come with serious red-weevil which is dangerous – require SPS controls.

    - A point of caution is that there are serious diseases of dates, which have not yet come to Somalia but have ravaged other parts of the date-growing world. Need to prepare for the disease and put in place prevention and management methods.
- Poor pesticides and inadequate delivery systems (knapsack sprayers are not sufficient);
- Post -harvest storage problems and loss;
- Pesticides inadequate and poor knowledge;
- Research facilities needed;
- Tissue culture service is not sufficient – farmers get the tissue culture from UAE, each plant comes at USD.30.
    - Require to have tissue culture nurseries in 2-3 places in Puntland in order to get the seedlings at affordable

Opportunities:

- A lot of interest among farmers in date production;
- Increasing production – in terms of number of farmers and land under dates;
- Interest from NGOs and other ;
- Opportunity to create jobs;
- A lot of land available;
- Opportunities/creation for cooperatives;

Recommendations:

- Improved irrigation especially drip irrigation;
- Solar powered irrigation;
- Require improved inputs and tools and equipment;
- Quality pesticides;
- Training and skills improvement;

Priorities:

- Irrigation/waraabka – e.g. improve canals and introduce drip irrigation and shallow wells improvement;
- Prevention and management of pests and diseases;
- Improving farming and crop husbandry skills and practices;

Processors / Processing Challenges

- There is currently little by way of date processing in Puntland.
- Processing Requires spacious, dry airy and hygienic areas after harvest, to promote drying and as a preservation technique;
- There are no processing machines, equipment or improved techniques;
- Poor financial position of farmers and low investment levels;
- A lot of wastage of dates because of spoilage (poor drying and preservation);
- There are new processing systems that are simple -e.g crying, grinding and using it as beverage;
- Land is available for production and people are able to invest, but there is issue of land ownership – this is for the government to intervene to avoid land disputes;

Opportunities;

- Good market opportunities;
- About 55,000 seedlings were distributed (over a number of years) – most have survived and growing today;

- Trading network is readily available;
- Dates can preserve for many years – if well processed and dried, dates can last for long without spoilage;
- Preference for Puntland dates over imported date types;

Recommendation:

- Need for storage facilities, such as communal (and properly managed) storage systems;
- Need for appropriate technology for date processing, etc;
- Need to have cooperatives;
- Require investments in the different areas of the VC;
- Infrastructure - Require improvement in date growing, marketing etc infrastructure.

Priorities;

- Increasing skills;
- Infrastructure;
- Setting up industries;
- Quality control from government is essential (e.g. hygiene, etc);

Traders / Marketing

- Farmgate price – $1.50/Kg; but price in the towns is $2-3, which is higher than imported prices; Most of the dates are sold in small packets, for those who can afford but others sold in the 'hand'.
- Distribution and marketing is mainly in the main towns of Puntland, but also goes to Mogadishu and Hargeisa lately;
- One problem is getting continued supply as the crop goes out of season;
- Good demand and require more from Garowe and other locations;
- Trade is done by growers and not linked to others by middlemen/agents;$2-3Kg per Kg.

Main Challenges:

- Roads and transportation difficulties – poor quality of roads. E.g. some places don't even have roads to access them, e.g. Seyn – connected only by boat.
- Post-harvest storage problems and preservation techniques – will ferment or get spoilt after harvest;
- Monkeys and other animals that feed on the dates;
- Maintenance of quality and post harvest fungus attacks;
- Lack of preparation for the market – 'timirayn' – hygiene, preparation, etc;
    - Processes – all these processes are poorly done or difficult;
        - Harvesting
        - Storage that is airy places – with fans and clean large shaded areas;
        - Cleaning – using a compressor-like cleaners;
        - Packaging in bags
- Not enough to satisfy the demand – low production/productivity;
- No wholesellers or collectors
- Inadequate skills and knowledge;
- Labor problems (for all stages of marketing) – labor availability is inadequate, poor capacity to employ, and low skills among workers;
- Poor regulation on date varieties imported – need to be as uniform as possible in order to help with marketing

Opportunities:

- A lot of demand across Somalia;
- Preferred dates in the country, though it is more expensive than the imported dates;
    - Usually USD. 2.0 per Kg for imported dates; Local is up to $3.0;
- Interest of government and development organizations;

Recommendations

- Require improved storage practices, techniques and facilities;
- Support formation of cooperatives to help with marketing, advocacy, etc;
- Improving the quality of the crop – hygiene, processing, preservations;
- Improve infrastructure
- Planting materials – tissue culture, etc;

3.2.3 Agricultural value chain study in Iskushuban District of Puntland

The Puntland state climate is arid and semi-arid and does not have a permanent river. Almost all the rivers are ephemeral and flashy with water flowing only after the rains for few days even though it can also last up to months depending on the rains in the upper region of the country especially in Toghdeer where the dry rivers start. The field visit, focus group discussions and key informant interviews revealed that crop farming and livestock keeping was the major sources of livelihood. All most all the farmers interviews were involved in crop and animal production for their own consumption and income generation. The land covers sparse vegetation especially areas south of the Golis mountain around Iskushuban. Iskushuban has a 2 permanent springs with high water flow supporting agricultural production for over 460 farmers. Small scale irrigation is practiced by most small holder farmers in addition to use of water for livestock rearing. The spring also serves as water for human consumptions despite the high salinity of over 1,000 microsiemens. Flooding during rainy seasons has affected most of the farmers along the bank of the river in both Dharor and Iskushuban.

In Dharor, most of the water sources from shallow well located along the bank of the dry river are used for small scale irrigation by at least 500 farmers. The shallow boreholes are reliable since they have water throughout the year despite the low rain falls in the region however the valley whose water originate from as far as 500km tends to fill the wells with sand and has completely destroyed a number of farms in Dharor when over flooding.

The Dharor valley has high potential for crop farming as well as livestock production. However, lack of irrigation infrastructure and high cost of water pumping remains a major constraint. Other challenges include low input levels, moisture stress, poor farming techniques, pests and diseases, and poor seed quality coupled with an almost non-existing extension and research service.

Native grass and shrubs grow along the dry river valleys in Dharow where livestock including cattle are reared by most nomads and agro-pastoral communities. As of the time of the visit, there were no fodder harvesting and storage practices in the villages. Local customary laws do not allow individual to harvest and commercialize fodder. As part of strengthening resilience to drought shocks, there is need to build capacity in farmer organization in to cooperatives that can manage harvesting of grass and store as fodder that can be used during the dry period.

Irrigation infrastructure in the regions assessed is practically inexistent with no ongoing large or small scale infrastructure. There are no boreholes drilled in both Iskushuban despite recent underground survey showing water at a depth of 300M. In both Dharor and Iskushuban, small canals and shallow well-drilled by the farmers have been swept away by the floods caused by the dry river during rainy

seasons. Hence the need to undertake a hydrological survey in Iskushuban quickly prior to drilling of borehole. There is equally need to undertake laboratory analysis to see underground water suitability for irrigation. There is need to support the construction of at least 3 to 4 meters of subsurface dams with dam liners in Iskushuban for use of irrigation for one of the large cooperative farm located about 6KM from the main spring water.

Iskushuban was once the center for aggregation of frankicence with a large warehouse still intact but in poor condition. As one farmer mentioned, the processing center was the nerve center for all frankancise harvested in the Bari region. With other centers sprouting in other towns after the collapse of the central government, the iskushuban center is no longer used and now left to collapse. Future support to the frankincense value chain in combination with environmental and climate interventions could provide enormous opportunity for agro-pastoral community in the Bari region.

The nomadic communities in the region rely on the Dharor valley for water especially during the dry season. During the visit, it was noted a number of camels as well as goats and sheep were using the shallow wells in Dharor an indication that water interventions/project can support thousands of agro-pastoral communities across the region.

Agricultural Shocks

During the assessment in the villages surrounding Iskushuban, most of participants in the Focus Group Discussions as well as key informant during the in-depth interviews have mentioned that they were exposed to a number of shocks. The production and marketing of major agricultural produce in the region mainly vegetables and fruits are affected both by biotic and abiotic stress. The agricultural shocks and stresses mentioned by farmers are categorized[1] as social, environmental and economic;

- Social Shocks:
    - Ineffective extension services: The state ministry has very limited financial resources and human capital to provide extension services as well as other agricultural support to the local farmers.

- Environmental Shocks
    - Erratic rainfall; Though most of crop farming in the region is under irrigation and not rainfed, the erratic rainfall has mainly affected the agro-pastoralist who reported losses of livestock due to prolonged droughts.
    - Pest and Disease: Most farmers both in the FGDs and the in-depth interviews with key informants mentioned the increasing exposure to crop pest and disease most recently the locust that has resulted in crop losses and grazing lands. Luckily the recent air sprays done along the Dharor valley has limited the negative impact of the desert locust.
    - ***Floods***: The dry river flood during the rainy season is the worst shock for farmers along the Dharor valley. Every rainy season, almost all farmers have reported loss of their crops due to the over flooding of the dry rivers. A number of farm in the villages were affected like; *"We had floods that destroyed 3,000 watermelons that I was about to be harvest." said one of the farmers in Dharor.* Additionally, almost all the shallow wells along the bank of the river are sand filled thereby resulting in losses.
    - ***Soil nutrition and fertility:*** Soil fertility mapping hasn't been done but during the assessment, soil samples were collected for fertility analysis in Mogadishu. The result was not yet out at the time of submitting this report. During the field visit,

[1] UNDP, FAO 2012

though most vegetables appeared health, an indication of lack of micronutrients were evident.

- Economic shocks
    - Price shocks: the volatility of prices has been identified as a big shock by farmers. Low prices are often caused by over supply when harvest is done across the state while demand remains constant. Generally the prices are favorable.

Crop Production

The field visit, focus group discussions and key informant interviews revealed that crop farming and livestock keeping was the major sources of livelihood. In Dharor valley farming areas, agriculture products include both vegetables and fruit such as tomatoes, watermelon dates, guava, oranges and sold in local markets and transported to the neighboring major town- Bosaso. Most farmer are commercial despite the subsistence as none was growing staple crops such as maize, beans etc. Informal employment is also a common source of income. Many residents in both urban and rural locations are engaged in various forms of casual employment in sectors such as farming and livestock keeping. While crop farming formed the primary livelihood strategies in both Dharor and Iskushuban, a high number of people are also engaged in livestock production. As part of employment, men do seasonal jobs like land preparation, cultivate the farm, weeding, clear the land and generally work as service providers.

Subsistence farming is practiced by most of the communities living in the rural areas favored by all year long availability of water for irrigation.

No.	Vegetables	Fruits
1	Tomatoes	Watermelon
2	Onions	Oranges

Most farmers practice inter-cropping not only to improve their harvest and income but also improve soil fertility.

Agricultural infrastructure; there are practically no agricultural infrastructure in place to support either production, post-harvest and marketing. Most of the farmers indicated that one of the biggest hindrance to commercialization is irrigation infrastructure. Marketing infrastructure such as aggregation centers as well as common agricultural markets are inexistent in the villages and most will either hire a common truck to transport their goods to Bosaso or be left at the mercy of broker who dictate their prices.

Agricultural Inputs; Seed and Seedling, fertilizers and pesticides availability and sources: farmers source their vegetable seeds from Agri-input dealers in Bosaso. Most seeds are imported from Yemen and Ethiopia and have not been locally tested or certified. Farmers complained about low germination rate generally because the seeds sols are usually expired ones. High cost of agricultural inputs, especially seeds, pesticides and fertilizers with a steady increase in prices and a decrease in the quality of these inputs. All of the participants have common response on how quality of seeds impacts farm productivity hence the need for seed quality testing and controls by the ministry of agriculture is important. Despite the

prevalence of pest of economic importance; locust, flies, none of the horticulture producers we spoke to spray their farms continuously against these pests. This is partly because of the lack of finance to purchase pesticides and unavailability at the local agro-vets. As described above, interventions that target increased farm level productivity through improved agri-inputs will be critical.

Agricultural Labour: a large number of farmers generally hire some agricultural labour, depending on the needs and seasonality of the activities to be conducted on the farms. Thought mostly individual owners work on their farms, others employ immigrants from Ethiopia on seasonal basis.

Farmer association : The importance of farmers in joining a cooperative or an association is generally common in most part of the world especially on issues related to collective marketing as well as collective access to credit and subsidies however in the areas assessed, most farmers interviewed mentioned that they do not belong to any form of farmer association except 2 cooperatives (iskashato). Most farmers are usually on their own even though they all agree that if well managed, formation of cooperative can help in their collective access to inputs and donor support as well as markets.

Mechanization: in the villages where we assessed, most land preparation, sowing, weeding and harvesting are manual and very labor intensive. None of the farmers interviewed had a farm tractor but for those who can afford (at least once a year) will hire a tractor service from the lead farmers to plough part of the land.

Youth in Agriculture: Young people, especially those in locations areas covered during the assessment, are more affected by unemployment since they lack capital and the knowledge and experience for alternative forms of employment such as self-employment or starting small scale businesses. In iskushuban a number of youth are active in farming either working on their own farms or family farms.

Marketing: the closest market is Bosaso located approximately 200km from Iskushuban. All farmers indicated that their produce are sold to traders in the region and especially in towns located along the Garoowe-Bosaso road. Farmers interviewed also mentioned about high competition from other farmers in the region as well as from others in from southern riverine areas as well imports from Ethiopia. For some farmers that are very commercially oriented, some reported to sell almost 90% of their harvest to cater for other family needs.

When asked what can be done to support agricultural system, farmers and key informants indicated that increased farm level productivity, improved irrigation infrastructure and reducing post-harvest should be the focus of the government as well as partners working in the agricultural sector.

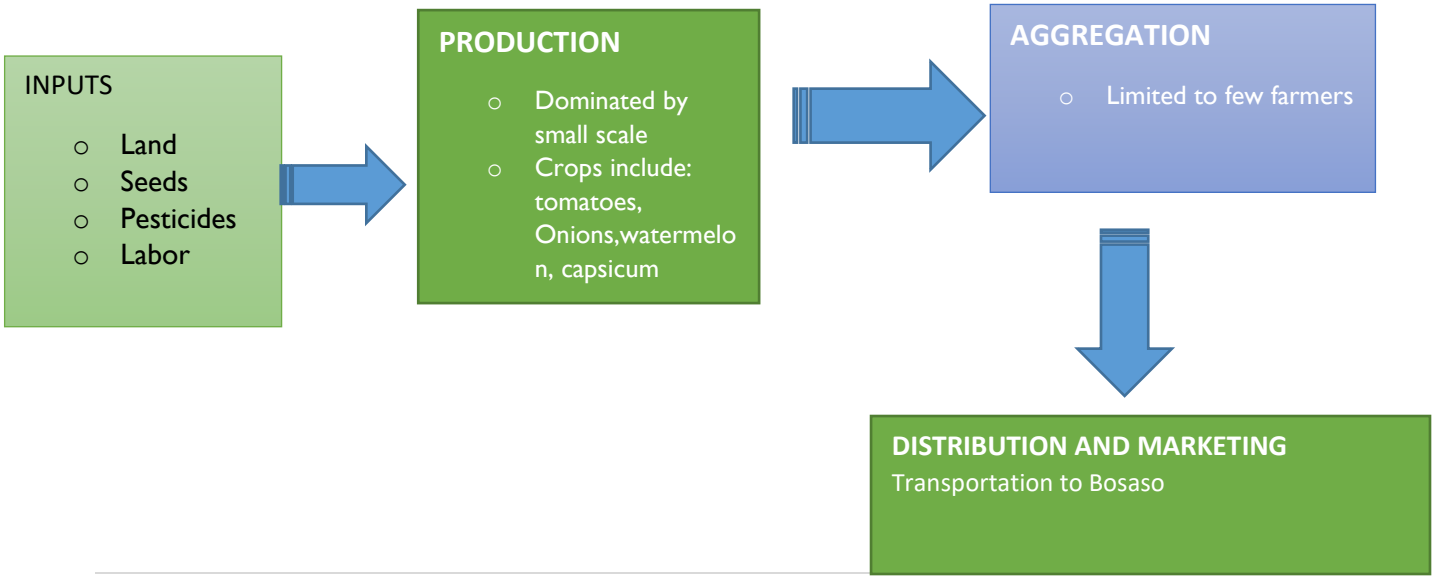


Table 1Simplified schematic view of agricultural value chain in Iskushuban

Opportunities in the agricultural Value Chain in Dharor Valley

There exist a number of opportunities that could enable the agricultural sector in both Dharor and Iskushuban to grow in productivity and result in increased income and rural economic growth. These include:

- **Increasing demand;** There is growing demand in the local market for quality fruits and vegetables pushing farmers to increased their productivity, reduce post-harvest losses and improve product quality.
- **Access to improved inputs:** high potential for inputs suppliers to commercially provide quality and certified inputs in to the market.
- **Access to new varieties;** need to introduce high yielding varieties adaptable to local agro-ecological conditions.
- **Contract farming;** Small holder farmers have the opportunities to be integrated as out-growers by large fruits and vegetable distributors. Farmer could access credits on input as well as guaranteed market.
- **Leveraging donor support:** donor funded projects these present opportunities for technical support in production, irrigation and market access.
- **Better irrigation methods:** The common flooding irrigation system adopted by farmers has often resulted in uneven water distribution system, thereby necessitating pump irrigation which comes at a high cost. Local farmers could adopt water conserving methods and more efficient and effective solar powered sprinkler or drip irrigation system of irrigation.

Challenges in crop production

During the assessment, farmers and key informants mentioned constraints that include:

1. **Poor quality seeds;** farmers source poor quality, untreated and uncertified seeds that has led to low productivity. Farmers reported cases of complete germination failure of seeds.
2. **Low technical know-how in crop production;** Most farmers have limited knowledge of crop production and use traditional methods of crop husbandry. In general farmer skills and knowledge on best farming practices/techniques is lacking
3. **Insufficient use of fertilizers;** Most of the farmers in the state do not use fertilizer for crop production mainly due to the fact no soil micro and macro nutrient analyses has been done.
4. **High cost of inputs;** due to lack of price regulation in agricultural inputs, high cost of inputs such as seeds, fertilizers and pesticides have often limited small scale farmers accessing these key ingredients that support increased productivity.
5. **Climatic condition;** climate conditions including recurring long dry period as well as frequent flood have mainly affected crop production in the state.
6. **Lack of mechanization/farm equipment**; being a subsistence farming crop, most of the farms do not have farm machineries to mechanize production which has often limited expansion of areas under production.
7. **Poor infrastructure**: poor state of roads and other infrastructure poses significant challenges to farmers in accessing markets.
8. **Post-harvest**; in the rural areas, high post-harvest losses have been reported especially during the rainy season when the roads are impassible.
9. **Lack of access to finance and business development services:** The high cost of production coupled with farmers' weak financial ability has often limited the expansion of area under production. Almost all the farmers have mentioned that they do not access any financial

services from private banks primarily because of unavailability of such services in their locations and not knowing that such services exist.

10. **Poor farmer organization:** Few small scale farmers are organized in to cooperative thereby limiting their ability to access collective inputs and markets.

4. Structural Element of the agricultural value chain in Puntland and Galmudug

Business Enabling Environment

Among the business enablers for the agricultural value chain in Puntland and Galmudug, the report looks in to general support organization, institution implementing regulations, policies, infrastructure and service providers. Development agencies have supported the date palm sector – mainly by providing seedlings and exposing farmers to new technologies. Such support was obtained from FAO and other agencies in the past.

Implementing Institutions

- **Federal Ministry of Agriculture and Irrigation:** The Somali federal ministry of Agriculture is the leading agricultural institution in Somalia. Being a government institution, it develops policy and plays mainly a coordination role of donor funded project. The ministry's role is limited due to inability to access Date Palm farms and lack of resources. The devolution of the ministry has transferred extension roles to the state ministries. The ministry of agriculture and Irrigation has recently signed technical agreement with its Turkish counterpart to support the Date Palm sector. Through donor project, the ministry has also been able to offer technical training to farmers both in Somalia and abroad. There are currently no regulatory and research department in the ministry.

- **Puntland and Galmudug State Ministry of Agriculture:** The state ministry is very active providing services to farmers despite the limited resources. supporting the agricultural sector in the state. The ministry has a number of technical staff with the capacity to provide extension services and trainings. Despite the limited resource, the ministry has organized multiple workshops in support of the agricultural sector. The Puntland Ministry of Agriculture was established soon after the Puntland State of Somalia was formed in early 2000s while for Galmudug, the ministry was set up in 2018. The ministry's major mandate is to support the agricultural sector in the State by providing extension services and support to the farmers. The ministry's headquarters are located in Garowe, the capital of Puntland State and Dusamareb in Galmudug respectively. The ministry has inadequate/only skeleton staff in the different districts. The structure of the ministry includes the ministers, State Minister, Director General, and Directors heading the different departments, and a number of technical staff. The State Ministry has inadequate capacity to undertake most of the roles of the Ministry of Agriculture. For example, the ministry currently does not provide extension or advisory services to the farmers. Lack of human and financial resources, technical capacity have hindered the ministry operations.

  Across the two states, there are no government owned laboratories, training and research centers to provide services to farmers or any other institutions to support agricultural development. In post-conflict Puntland, the Ministry has received support from UN-Agencies, international NGOs and other development partners; these have provided training and helped

in the understanding of good agricultural practices. But the support has largely been project-based and unable to provide State-wide projects to revamp agricultural production.

- **Food and Agricultural Organization:** part of the UN, the FAO has continued to provide extensive work in Somalia even during the absence of the government roles. The organization continues to support farmers through capacity building, rehabilitation of infrastructure, resilience programs and input supply to farmers among others. The SWALIM projects provides early warning.
- **Local and International NGOs:** There are a number of local NGOS operating in Puntland some of whom are supporting the agricultural sector.
- **Service Providers;** Due to the low return on investments and the lack of collateral, many of the few existing private sector financial services are hesitant to providing credits to small holder farmers. In the recent past, there has been growing interest by banks to support the agricultural sector if some of the risks are addressed. Banks like Dahabshiil, AMAL, KIMS, IBS, SALAAM and others have special financial packages to support input supply and other financial needs in the sector, but only those that can provide sufficient collateral and guarantors can secure these. Most small holder farmers despite the need for support are however very cautious of the credit systems including high interest rates though many farmers are willing to take loans to support production and marketing. Access to finance has been of the biggest constraints to smalls scale farmers since credit advance from banks are very new and many fear the consequence of defaulting. In addition, some banks do not have access to agricultural zones in the country.
- **Private Sector Associations;** there are a number of private sector association including cooperative and farmer associations supporting the sector.
- **Transport Infrastructure;** Somalia's infrastructure has been in ruins for decades with little or no rehabilitation. Road infrastructure even among the major towns are impassible during the raining season. Feeder roads especially in the agricultural production / growing zones are in poor conditions.
- **Regulatory and Policy;** In the country, there currently doesn't exist any research or Date Palm breeding centers in the state which could have provided direct support to farmers in quality seeds as well advisory service. The agricultural regulatory system is equally underdeveloped. There exists no regulatory institution under the ministry of agriculture and irrigation. The minister has recently developed the National irrigation policy, the seeds and varieties Act, the plant protection act which will all support the Date Palm sector.

- **Rural and Urban Market Facilities;** Date Palm is mainly transported to the urban market where the prices are generally good. Rural villages usually do not have well established markets though villages with large population have open markets and 'market days' where Date Palm is traded.

- **Irrigation;** Major source of water for irrigation are springs and shallow wells. These are generally sufficient, but expanded farming will require an expansion of these very rudimentary infrastructure. Summary of structural elements of the Date Palm value chain including; Vertical Linkages, Horizontal Linkages, Support Market System, Inter-Firm relationship.

Annex I: Galmudug Cowpea Stakeholder Inputs

		Situation	Opportunities	Constraints	Recommendation
Agri-Inputs	Seeds	- No clean seeds - Seeds are locally selected and stored in a well closed storage tank or bag - Mainly seed treatment is not used	Good quality seeds can be enhanced	- Poor storage - Lack of treated seeds - Most of the dry seeds are lost before harvest - Local and poor quality seeds are used and there is no good quality seeds imported from abroad	- Seeds to be treated and well stored - Use new technique for seed storage - Awareness and capacity building for farmers to prepare good quality seeds - Establish centre for storage and developing the seeds - Access to improved seeds
	Farm equipment	- There is no good equipment for the preparation of the cow pea except axes, and yanbo and fargeto	- There are local industries started to make some of the farm equipment mainly manual equipment	- Lack of finance - Lack of investment - Lack of local industries that make the heavy machineries for farm equipment	- Government to improve the agricultural infrastructure - Government to encourage the development of investment and finance - Cooperatives to bring the new modern equipment for farming
	Pesticides/ fertilizers	- There are no pesticides and fertilizers for cow pea farms - Some of the cow pea farmers use tenure for fertilizers	- Cow pea does require fertilizers. - Appropriate pesticide for cow pea pests can be applied for pest control	- There is pests eat the cow pea seeds before and after the harvest on the plant and in the store - Lack of the suitable pesticides for cop pea pests - There is pest that destroy the cow pea roots	- Government to identify the pesticide to control the cow pea pest - Test the soil and use organic fertilizers if needed

Farmers and Cooperatives	Production	- There are around 28 agriculture cooperative in Galmudug states - Cooperatives encourage the farmers to increase the production	- Cooperative to contribute to buy the heavy machines and other farm equipment for the preparation of the farms - There is opportunity to establish cooperative for cop pea farmers	- Cooperative does not receive support from the government, particularly heavy machines such as tractors and etc - The agricultural cooperatives are not well organized - There are no awareness and trainings - There are offices and centres to conduct the meetings and other activities	- To strengthen the capacity of the cooperative - To support cooperative to get the equipment farms - Establish the cooperative special to the cow pea
	Capacity (technical, financial etc)	- There are no finance and investment from the public and private sectors	- Cow pea is good for stable food and cash crop and therefore there is opportunity to invest and finance	- Luck of finance and investment - Luck of awareness regarding the value of the cow pea as profitable and cash crop - Poor the infrastructures of the irrigation - Lack of grantor by farmers to be invested by the private sector	- Strengthen cooperative in order for them to receive financial support and investment in the cow pea sector - Encourage private sector to invest in the cow pea sector
Traders		- Cow pea trader is mainly in the local market particularly to the northern regions - Traders receive cow pea products from the farmers directly	- There is good market and demand of cow pea products from the northern	- Poor infrastructure for the transportation of the products and illegal taxes - Luck of security in the main areas of the cow pea belt	- Rehabilitation of feed roads and main roads - Traders to apply the modern techniques of the storages - MOA to encourage the farmers to increase the production and

			regions of the country	- The price of the products are high in Galmudug compared to the products in the neighboring regions. This is due to the poor irrigation infrastructure and low production and sustainability	strengthen the agricultural infrasture
Processors		In the meantime, there is processing for the cow pea in Galmudug state			
Exporters		There is no exports pertaining the cow pea products in Galmudug state			