

## Onion Value Chain Analysis



**Updated VC Analysis**

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**AgroBIG Team**

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## Acronyms and abbreviations

|         |   |
|---------|---|
| AGP     | Agricultural Growth Programme                                     |
| ARARI   | Amhara Region Agricultural Research Institute                     |
| ARDPLAC | Agricultural Rural Development Partners Linkage Advisory Councils |
| ATVET   | Agricultural Technical and Vocational Education and Training      |
| BEE     | Business Enabling Environment                                     |
| BoA     | Bureau of Agriculture   |
| BoFEC   | Bureau of Finance and Economic Cooperation                        |
| BoIUD   | Bureau of Industry and Urban Development                          |
| BoTIMD  | Bureau of Trade Industry and Market Development                   |
| CSA     | Central Statistics Authority                                      |
| ECX     | Ethiopian Commodity Exchange                                      |
| ESE     | Ethiopian Seed Enterprise   |
| FTC     | Farmer Training Centre  |
| GAP     | Good Agricultural Practices                                       |
| GM      | Gross Margin  |
| GoE     | Government of Ethiopia  |
| GTP     | Growth and Transformation Plan                                    |
| IDRF    | Innovation, Demonstration and Research Fund                       |
| m.a.s.l | metres above sea level  |
| MFA     | Ministry for Foreign Affairs of Finland                           |
| MGF     | Matching Grant Fund   |
| MoFEC   | Ministry of Finance and Economic Cooperation                      |
| NGO     | Non-Governmental Organisations                                    |
| PIF     | Policy and Investment Framework (2010/11-2014/15)                 |
| p.p.p.y | per person per year   |
| PSU     | Programme Support Unit (AgroBIG)                                  |
| SNNP    | Southern Nations, Nationalities, and Peoples                      |
| SNNPR   | Southern Nations, Nationalities, and Peoples Region               |
| SSI     | Small Scale Irrigation  |
| TIN     | Tax Identification Number   |
| UARRP   | Universal Access to Rural Road Programme                          |
| VC      | Value Chain   |
| VCA     | Value Chain Analysis  |
| VCD     | Value Chain Development   |
| VCF     | Value Chain Fund  |
| WoA     | Woreda Office of Agriculture                                      |
| WoFEC   | Woreda Office of Finance and Economic Cooperation                 |
| WoTIMD  | Woreda Office of Trade Industry and Market Development            |
| WSC     | Woreda Steering Committee   |
| WTC     | Woreda Technical Committee  |
| Belg    | short rainy season, January to June                               |
| Kebele  | neighbourhood (location of about 5,000 people)                    |
| Meher   | long rainy season, June to December                               |
| Woreda  | district  |

## EXECUTIVE SUMMARY

Onion (*Allium cepa*) is among the most popular vegetables in the world. Onion is a crop that is classified as a cool season crop. However, it can be grown in a wide range of climatic conditions. It is grown mainly for its bulb, which is used in every home, almost daily, across Ethiopia.

The Amhara region is one of the major onion producing areas in Ethiopia and has seen an increase in onion production in recent years. Although there are indications that there is a good potential for the promotion of the onion value chain approach, in practice this is not yet realized to the optimum capacity. There is still a huge disparity between the different producers that illustrates the potential for improvement. This is one of the reasons of the selection of this particular value chain by the AgroBIG programme.

Farmers mention the difficulty of getting quality seed as one of the main bottlenecks. Although seed may be available, it is not always affordable and the quality often does not meet the minimum requirements. AgroBIG in the pilot phase initiated an improved seed system that is benefiting the seed growers and the overall onion production in the region.

Another issue for the farmers are the labour constraints in peak periods, e.g. when weeding has to be done. This may result in production losses as onion is a crop that does not compete well with weeds. Furthermore, there are reports and observations on substantial post-harvest losses. This is due to the fact that there are, amongst others, limited storage facilities, no proper packaging for the onions during transport and no processing facilities. In the market side during the peak season, the farm gate price of onion will go down significantly. Over the last three years the price of onion has shown an upward trend in general terms similar to other crop prices in the country.

There is still promising opportunities in the years to come that include a steady year-round demand for onions in combination with population increases and increased buying power. The project areas in Fogera and Mecha are located along major roads and close to population centres with good transport access. Existence of irrigation schemes and the onion seed system built by AgroBIG and certification facilities will increase better formal improved onion seed access.

On the other hand, most of the farmers are still subsistence farmers and are not geared towards commercial production. In addition to that there are constraints which make it difficult to respond well for existing opportunities. Lack of good farm management and good agronomic practices that include basic soils management, absence of post-harvest technologies (drying facilities), non-existing or inadequate storage facilities, limited processing options, input supplies (seeds, fertilizer, chemicals) that do not meet the demand and requirements of producers, existence of brokers with strong power when it comes to transactions, limited capacity among cooperatives for marketing, insufficient working capital and difficulty to access credit, poor coordination among market actors, lack of trust etc. are main constraints.

For the supporting services the same constraints apply. Subsistence farmers are not yet familiar with all the requirements for commercial farming and market requirements. To address these constraints, AgroBIG has focused on strengthening the value chain concept, providing support to a formal seed supply system and seed certification facilities, improving overall agricultural practices and reducing post-harvest losses, building storage facilities for inputs and produce, strengthening the cooperative movement, building capacity along the onion value chain, improving market information and access to credit, creating market linkage and increase the awareness on cross-cutting issues etc.

# 1 Introduction

## 1.1. Characteristics

Onion (*Allium cepa*) is considered to be among the most popular vegetables in the world. Onion is a crop that is classified as a cool season crop. However, it can be grown in a wide range of climatic conditions. It is grown mainly for its bulb, which is used in every home, almost daily, across Ethiopia. It is rarely used as a sole dish or in large quantities. Its main use lies in flavouring and seasoning of a wide variety of dishes. Its popularity is due to its aromatic, volatile oil, the allyl-propyl sulphide which brings a cherished flavour to food. As a constituent of a meal, both the green leaves and bulbs can be eaten raw, cooked or fried, or in soups and salads. Onion also has an important role as a medicinal herb in many communities, and is claimed to minimize high blood pressure and other heart diseases due to its favourable action on the elasticity of blood vessels.

## 1.2. Importance to Ethiopia

The global trend in onion production has been in an increasing trend. From 2000 to 2011, the world onion production nearly doubled, from 48 million to 85 million tons. Of this total a small percentage is produced in Africa. Regarding Africa's production, Ethiopia is the third biggest, after Egypt and South Africa. The estimated share of Ethiopia's production of the total world production is 2.7% (FAOSTATT).

In Ethiopia, onion was only recently introduced to farmers and consumers but it is gaining popularity. It is among the most important vegetables produced on a large scale. From an economic point of view, onion is an important crop for the country when compared to other vegetables. Currently, the crop is grown in different parts of the country, mainly by small farmers, private growers and state enterprises. The Awash Valley and the Lake Tan Region are currently areas where the bulk of dry bulbs and onion seed are produced. National level onion production reached 230,700 tons in the 2014-15 production season (CSA, 2015).

## 1.3. Importance to Amhara

Onion is an important crop in Amhara Region. The region contributed 55% of the annual production about 2,026 tons in the 2015-16 main season (CSA, 2015). Rapid expansion of onion production in Mecha and Fogera woredas suggests that onion continues to have a competitive advantage in these woredas. In the 2011-2012 production season around 560 farmers, 192 of them women headed households, were producing onion in Mecha. During the 2015-2016 season this number reached 1,579 farmers, 541 of which were female headed households. The total area covered by onions increased from 70 ha to 180 ha during the period 2011-12 to 2015-16.

In Fogera woreda, the land used for onion production has increased from 6,133 hectare in 2011-12 to 10,757 ha in 2015-16.

Although prospects for the crop seem to be good, the increased production must be accompanied by marketing support in order to bring about positive changes for the value chain (VC) actors and the farmers. Onion prices seem to be consistently high during the months of heaviest rainfall but vary significantly during the rest of the year. Therefore, opportunities exist to increase production and profitability. Unless the productivity and quality level can increase, the imported onion from Sudan will remain a strong competitor both quality, shelf life and price terms.

## 2 Production

Despite an increase in the area of land cultivated with onion, productivity has not shown the same change. Although productivity can be more than 30 tons per hectare, the national average is at 10.14 tons per hectare (CSA; 2015). The average yield per hectare under irrigation is of course higher than under the rain-fed cultivation. In irrigated areas, the average yield can reach up to 40 tons per hectare provided that recommended agricultural practices are followed. In Mecha woreda, where farmers started onion production in the Koga area five years ago, the average yield is about 18 tons per hectare. In Fogera woreda the average yield was about 18.5 tons per hectare in the 2015-16 production season.

Amongst the producers there are substantial variations in the yields. In spite of the potential, the existing crop productivity has remained low and variable under local conditions. This is due to lack of improved crop varieties, shortage of adapted varieties to different agro-ecological zones, lack of appropriate agronomic packages and the occurrence of diseases. The adoption or rejection of good agricultural practices, such as row planting (which is often not adopted, because farmers consider it too labour intensive), also influences the yields negatively, although an increase in the adaption rate can be seen. The acidity of the soils in the Koga area is a serious constraint to production and can be dealt with by the application of large amounts of lime.

Another factor is the shortage of labour at certain peak periods. In order to overcome this labour shortage, onion growers are using hired labour, using mutual cooperation or a combination of these two. Often farmers cultivate both an improved variety (for commercial purposes) and the local one (shallot-key shinkurt). There are indications that farmers are inclined to substitute other crops for onion, in particular in the Koga area.

The following table depicts land allocation, production in hectares and productivity of onion during the years 2011-12 to 2015-16.

**Table 1: Onion production in tons and land usage in hectares in Fogera and Mecha woreda**

| Production year | Fogera                     |                     |   | Mecha (only Koga irrigation Command area) |     |       |                            |                     |  |
|-----------------|----------------------------|---------------------|---|---|-----|-------|----------------------------|---------------------|--|
|                 | Area of land covered in ha | Productivity ton/ha | Total onion production in Fogera in ton | No of Farmers                             |     |       | Area of land covered in ha | Productivity ton/ha | Total onion production in Mecha (KIP) in ton |
|                 |                            |                     |   | M   | F   | Total |                            |                     |  |
| 2015/16         | 10757                      | 18.5                | 199005                                  | 1038                                      | 541 | 1579  | 197                        | 18                  | 3546   |
| 2014/15         | 9854                       | 18.5                | 182299                                  | 910                                       | 475 | 1385  | 173                        | 17                  | 2941   |
| 2013/14         | 8023                       | 16                  | 128364                                  | 489                                       | 255 | 744   | 93                         | 16.5                | 1535   |
| 2012/13         | 6671                       | 16                  | 106736                                  | 436                                       | 227 | 663   | 83                         | 16.5                | 1370   |
| 2011/12         | 6133                       | 15.5                | 95062                                   | 368                                       | 192 | 560   | 70                         | 16.5                | 1155   |

### 2.1. Seed

Quality seed, proper seeding rate and appropriate time of planting are the most important practices for improved onion production.

Of the six released varieties of onion, only Bombay Red and Adama Red varieties have been widely adopted in different parts of Ethiopia. Some of the varieties have short maturity periods with high



productivity. For instance, Bombay Red has a maturity of 90-110 days while productivity can reach 30-40 tons per ha. The following table shows varieties of onions and productivity including other production features of a selection of improved varieties.

**Table 2: Features of improved varieties**

| <i>Onion cultivar</i>          | <i>Maturity (days)</i> | <i>Bulb colour</i> | <i>Bulb shape</i> | <i>Bulb size (g)</i> | <i>Bulb yield (qt / HA)</i> | <i>Seed yield (qt/ HA)</i> |
|--------------------------------|------------------------|--------------------|-------------------|----------------------|-----------------------------|----------------------------|
| <b>Adama Red</b>               | 120-135                | Dark red           | Flat glob         | 65 - 80              | 350                         | 10 - 13                    |
| <b>Red Creole</b>              | 130-140                | Light red          | Thick flatten     | 60 - 70<br>70 - 90*  | 300                         | 2 - 6                      |
| <b>Bombay Red</b>              | 90-110                 | Light red          | Flat glob         | 70 - 80<br>85 - 90*  | 300-400                     | 13 - 20                    |
| <b>Melkam</b>                  | 130-142                | Red                | High glob         | 85 - 100<br>70 - 90* | 400                         | 11 - 15                    |
| <b>Dereselegne / Nasix Red</b> | 100-115                | Red                | Glob              | 85 - 100             | 380                         | -                          |

Source: Fikre Mulugeta and Olani Niku, 2010 in Tadesse Adgo Mihiretu \* Desalegne L, Shimeles Aklilu

There are two methods of onion seed production; seed to seed and bulb to seed methods. Both methods can be used in seed production. The bulb to seed is the most commonly used method in Ethiopia. This method has a number of merits; the option of selecting bulbs of good and uniform size, attractive colour, free from diseases and physical damages. It produces several stalks per bulb hence gives higher seed yield. The method is also good for maintaining the variety identity. However, with this method it takes 10-11½ months to produce seeds, with 4-4½ months required for bulb production and 6-7 months for seed set and maturity. The seed to seed method lacks the above mentioned merits. It also produces less flower stalk per bulb but takes only 7-8 months to produce seed.

One of the challenges for producers is the lack of seed, in quantity and/ or quality. The Ethiopian Seed Enterprise (ESE), which is the main seed supply organization in the country, is generally not involved in onion seed and bulb production and supply. Most of the demand for onion seed is met by the private sector, cooperatives and other sources for imported seeds. The informal sector plays an important role in the seed supply from Eastern Amhara to farmers in Fogera woreda. Traders supply onion bulbs for seedling purposes, with a selling price up to birr 1,100 per quintal. The quality of this seed does not meet the desired parameters such as germination capacity and genuineness of variety. One of the consequences of this lack of quality is that farmers use more seed than the recommended quantity. According to some farmers, seed obtained from traders is relatively better in quality than seed obtained from local farmers. Getting the seeds supplied by traders on time is often difficult, which may cause delays in planting.

The Agricultural Inputs, Quality Control and Quarantine Authority, is responsible for the certification of seeds including onion. There are also four quality control and quarantine branches (Gonder, Bahir Dar, Dessie and Debre Markos) which can carry out seed certification. The Authority, under the BoA, is responsible for the certification process of the AgroBIG target woredas. According to the BoA, onion seed certification is not yet possible because the source/origin of the seed is unknown. Currently there is no real quality control for onion seeds in place in Ethiopia. A seed proclamation has been publicized recently, giving broad guidelines for the sector. Specific guidelines, providing details are under preparation.

At present farmers and small commercial growers are producing onion seed in both target woredas. They use bulb seed that they obtain from cooperatives or traders to produce seeds. The origin of the

bulbs for seed production is mainly Shashemene and Shoa Robit areas. As yet there are no bulb seed producers in the programme woredas. It remains a problem that the requirements of the quarantine are not being met and that the source of seeds used can not be traced.

To address the onion seed challenges in Fogera and Mecha woredas, AgroBIG has supported onion seed growers so that they can have their products certified by the Quarantine Authority. Labelling, branding and packaging of onion seeds have been carried out after determining its germination rate, purity and moisture content. This was an initiative and early achievement of AgroBIG.

**Table 3: Onion seed product in Mecha and Fogera within the last three years (2014-2016)**

| Production year | Seed growers      |         | Seed growers aggregated by sex |    |     | Area allocated for onion seed | Amount of onion seed produced | Average price of onion seed | Total price |
|-----------------|-------------------|---------|--------------------------------|----|-----|-------------------------------|-------------------------------|-----------------------------|-------------|
|                 | Under cooperative | Private | M                              | F  | T   | Ha                            | Kg                            | kg                          | Birr        |
| 2013/14         | 2                 | -       | 6                              | -  | 6   | 1.75                          | 1000                          | 500                         | 480000      |
| 2014/2015       | 2                 | 2       | 79                             | 4  | 83  | 22.2                          | 13130                         | 550                         | 6896500     |
| 2015/2016       | 34                | 1       | 81                             | 6  | 87  | 10.62                         | 12630                         | 400                         | 5052000     |
| Total           | 88                | 2       | 166                            | 10 | 176 | 45.67                         | 26760                         |                             | 12428500    |

Farmers in Fogera have been found to use seeding rates ranging from 1 to 10 kg per ha, which is well above the recommended rate of 3.5-4.0 kg per ha. As the seed supplied by the informal sector does not meet quality seed parameters such as germination rate and trueness of varieties, producers tend to use more seed than is recommended in order to guarantee good seedling emergence. On the average this is 6-8 kg of seed per hectare. Excessive or under-utilization of seed amounts will result in poor plant population and lead to low or reduced yields.

A seed producer using irrigation on average spends approximately birr 12,000 ETB cultivate one plot of 50 by 50 metres (1/4 ha) for onion seed production (for one cycle). They have three main categories of expenses, for labour, input supply and the water pump itself. The cost for applying water includes depreciation of the pump, diesel and repair and maintenance cost. Of the average amounts spend on these three main categories of cost, each takes roughly one third of the total expense. Labour takes slightly less and the water pump slightly more.

## 2.2. Agronomic practices

### INPUT USE

While onion seed practice are described above, the other inputs required for onion cultivation are briefly explained below.

- **Soil fertility and management:** Most cultivated lands in the Ethiopian highlands are prone to soil acidity due to removal of ample amount of nutrients by leaching, crop mining and runoff. Continuous application of acid forming chemical fertilizers on highly weathered tropical soils increases the soil acidity problem. On the other hand, highly weathered tropical soils have strong P absorption capacities that intensify limitation of land suitability. These cultivated lands require integrated soil fertility management when they are put under cultivation of economic important crops. Currently, it is estimated that about 40% of the arable lands of Ethiopia are affected by soil acidity (Taye, 2007). About 24% of the Amhara National Regional State is affected by acidity, with large parts of the Region also having been severely eroded. Mecha Woreda is affected by

problems of soil acidity with a range of 5-6% acidity level. Soil acidity limits or reduces crop production primarily by impairing root growth by reducing nutrient and water uptake. Moreover, low pH or soil acidity converts available soil nutrients into unavailable forms and acidic soils are poor in their basic cations such as Ca, K, Mg and some micronutrients which are essential to crop growth and development (Wang et. al., 2006). The extent of damage posed by soil acidity varies from place to place depending on several factors including the crop grown. There are occasions where total loss of crops can occur due to soil acidity. Lime application to acidic soils is the obvious solutions to address soil acidity problems in Amhara. A massive campaign launched by the Federal Ministry of Agriculture to treat acidic soils with lime resulted in appreciable improvements in the yield of crops like barley and wheat. With the big amounts of lime required for application to combat the problem, farmers are hesitant to apply the practice.

- **Fertilizer:** The main fertilizers used for production of onion are Urea and DAP. Usually suppliers of DAP (diammonium phosphate) and Urea are primary cooperatives and farmers have indicated that they can obtain the quantities they require without problems. ATA has recently introduced NPS. Although fertilizers play an important role in increasing productivity of onion, most of farmers do not use fertilizers or use lower quantities than recommended. One reason is the price. Another reason may be that farmers, particularly in Fogera, believe that their land is relatively fertile and therefore there is no need to use fertilizers. When farmers do use fertilizers, the quantities applied vary but often seem to be below the recommended rates in most cases. There is a national soil mapping exercise ongoing in Ethiopia.
- **Chemicals:** Due to common pest and disease infestation, no one produces onions without using chemicals, so the use of pesticides is wide spread. Most used chemicals are Celecrone and Ridomin. In Ethiopia there is not yet a reliable, professional distribution network for agro-chemicals. Also, there is no real control on the genuineness and quality of the products sold. Even if the products are genuine, due to improper storage, handling, transport they may lose their quality. Pesticides are mostly supplied by private vendors. Some of these vendors as well as extension workers provide advice on the application of these chemicals. The importance of an adequate disposal of the empty containers seems to be understood but no real proof of this has been shown. Formal guidelines for this disposal are non-existing. There have been serious incidents with mishandling of chemicals. Traders do not always know what they are selling, farmers do not apply correct dosages etc. AgroBIG has introduced sprayer groups to provide professional formal spraying services to farmers that at the same time creates employment opportunity for youth.
- **Production tools:** Traditional hand tools like shovels, spades, hoes etc. are commonly used by smallholder farmers in the two woredas. Oxen pulling traditional ploughs and hand ploughs are used to plough and prepare the land. Harvesting is mainly done manually. Application of protective measures for harvested produce from the sun is almost non-existent (resulting in reduction of quality).
- **Water pumps:** Water pumps are vital farm inputs for the onion growers in the two woredas. Most of water pumps are owned by individuals. Generally two to three farmers form a group and purchase a water pump with a loan. The group members' watering schedule priority is done with agreement. If none of the members of the group is using the water pump, they may rent it to others. At present the average rent of a water pump is birr 10/hour. Due to poor quality of the pumps and lack of maintenance and repair, the economic life of pumps is very limited and has been found to be as low as 4 years. AgroBIG has provided 76 water pumps to cooperatives in Fogera, who rent them to farmers for 10 birr/hour plus fuel, in addition to having organized motor maintenance groups to prolong the life span of the pumps.

## AGRONOMIC PRACTICES

Most farmers are smallholders who cultivate onions both under rain-feed conditions as well as under irrigation. They cultivate small and fragmented plots of land on which they produce different crops including onion. As onions cannot be replanted sequentially on the same plot, rotation of crops is practiced.

- **Soil preparation:** Farmers prepare the land for planting using oxen plowing.
- **Planting time/calendar:** Onions are planted mainly where there is reliable irrigation access in areas where there is no purple blotch problem. Onion can be planted in the rainy season with strong pest and disease management.
- **Weed and disease management:** Onions are susceptible to weeds and the fields should be free of influence of weeds during the first 60 days (especially during days 21-60). Disease is a significant problem in onion production. The most common diseases of onion are Purple Blotch and Downy Mildew that are particularly severe during the rainy season and under moist conditions. To prevent occurrence of such diseases, cropping in the appropriate season and following traditional methods that prevent the disease are some of the first step measures. Crop rotation with non-related crops will help reduce the building of pests.
- **Post harvest handling:** An Agronomic and Post Harvesting Manual has been prepared by AgroBIG to improve the practice in the areas.

### 2.3. Water requirements/irrigation

The amount and frequency of irrigation depends on the soil type, climatic condition and stage of the seedlings in the field. Seedlings should be watered slightly immediately after transplanting. After this, the seedlings should be watered every 4-5 days for the first one month. After that, it should be irrigated every 5-7 days until maturity. The crop should not be over irrigated or deprived of water as both affect productivity. In Fogera woreda farmers use motorized water pumps to irrigate their crops including onion. Some kebeles, like Bebeke, benefit from river diversions that have been established. In Mecha, farmers in the Koga Dam area rely on the irrigation system put in place. Outside the command area, farmers do use pumps, wells and river diversions. There are operational and maintenance problems to make wise use of the water. Shallow wells are another source of irrigation water in Fogera district. Drilling a well in Fogera costs 20-25,000 Birr. AgroBIG has promoted manual well drilling techniques and water pump maintenance.

### 2.4. Harvesting

Harvest usually takes place when 80% of the onion plants have soft necks, which occurs at a time when about 80% of the shoot weight is in the bulb and the foliage is starting to collapse. Dry onions need a period of curing or drying in order to seal the neck, prevent invasion of diseases and rots and to create a bright crack-free skin. For that watering need to be avoided two weeks before harvesting, but farmers for ease of harvesting keeps watering which is affecting the quality of onions negatively. Awareness have been created by AgroBIG resulting in farmers having stopped watering just before harvesting to increase the weight of the crops which also increases shelf life. As uprooting is difficult if the soil is hard, this needs some balancing.

## 3. Post-Harvest

### 3.1. Handling

Almost none of the farmers apply post-harvest techniques to improve the marketability of their crop. Most producers sell their harvest to traders at the farm gate immediately after harvest. As the farmers sell different sizes (and sometimes even different varieties) mixed together, they will get a low price. Sorting, grading, storing, transportation, loading and unloading is usually done by middle men and traders. Farmers do not seem to be keen on grading as their experience is that they will then be unable to sell the smaller size onions. Traders and brokers may be reluctant to buy graded onions as they lack the trust that the farmers will not try to cheat. The sorting and grading, if done, is mainly based on external aspects of the product like colour, size, ripeness and firmness.

Onion passes hands many times from the time it leaves the farm until it arrives with the consumers. Due to improper handling and packaging, onions often suffer mechanical damage during transport which shortens the shelf-life considerably. It is estimated that up to 30% of post-harvest losses may be due to improper storage, handling and transportation. Some farmers actually dry their onions, simply by hanging them in the air in their houses. As they dry, the shelf life increases. Sorting and grading is not really being done, above all not by traders. By sorting, farmers fear they cannot sell the smaller pieces. AgroBIG has put in collection centres to enable cooperatives to collect and assemble bigger volumes and also handle products with care. Also crates, made of plastic and provided by AgroBIG, reduce damages during handling and transport.

### 3.2. Storage requirements

Because of lack of proper storage facilities, all produce is marketed immediately after harvesting, which results in a reduction of the price due to the high supply. Apart from the lack of storage, there may be other reasons for selling the produce immediately, like an urgent need of cash. Lack of stores is a big problem that forces farmers to sell soon after harvest, when prices are low. Cooperatives as well as farmers lack storage facilities.

### 3.3. Shelf life

Different varieties have different shelf life. However, this can be influenced with proper handling. Farmers generally do not cure or treat onions to increase the shelf life. Freshly harvested onion bulbs have open wounds at the neck where the green foliage was cut from the bulb, wounds that cause the onions to decay quickly once they have been bagged for transport. Some onions will then sprout green foliage after few days. Others might become infected by various decay-causing organisms, which quickly cause the inside of the onion to rot and make it unfit for sale. Due to this and the general lack of proper storage facilities, farmers have a short period of time to get their crop to the market. They are, therefore, much susceptible to price fluctuations on the market as they cannot wait until the price has reached a satisfactory level.

### 3.4. Packaging

Onions are usually collected in polyethylene sacks of various sizes that the brokers or traders provide. Bags made of jute are also used although this is not a common practise. Good packing material for onions must meet the following criteria: (a) Strong enough to retain the weight of onions under the conditions of transport and storage. (b) Allow sufficient ventilation for the air around the bulbs to circulate to maintain relative humidity. (c) To display legally required and commercially necessary information. These practices are usually not followed in the region and at the country level. Unless proper weighing and packaging take place, farmers might loose on the payment due to an underestimated weight. AgroBIG has put in weighing scales to improve the practice and enable farmers to get a fair price based on the correct weight of their produce.

### 3.5. Transport

Transport is a problem for many farmers, but some have donkeys or even mule drawn carts to reach markets. A very common way to transport fresh produce is with Isuzu trucks. Many big buyers will simply throw the onions onto the lorries, i.e. without sacks or crates. Loading and unloading come at a cost. Brokers organize the transfer of the purchased produce to warehouses of bigger traders. The brokers get a commission of birr 10/quintal of onion for this services.

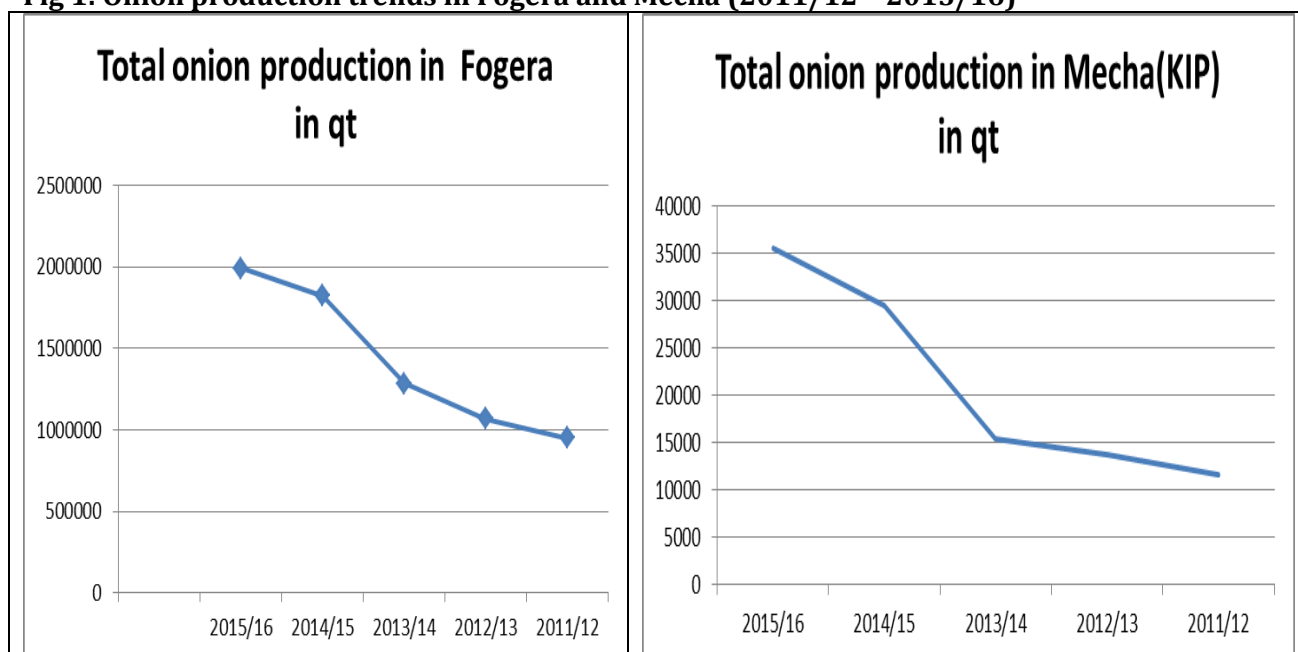
## 4 Marketing

### 4.1. Demand and supply situations

#### SUPPLY

As indicated in the graph below, onion production increased significantly in the last five years in both programme woredas with sharp increase in the last two production seasons. This may be a direct result of the various interventions initiated and put in place by AgroBIG.

**Fig 1: Onion production trends in Fogera and Mecha (2011/12 - 2015/16)**



Looking at the total production of onions in the 2014-15 season of about 23,500 tons (235,000 quintal) for both woredas, this would be far from the estimated total demand in Amhara Region, based on 20,000,000 inhabitants times 6.2 kg per person per year, which comes to 124,000 tons. However, there is high production of onions in Eastern Amhara as well as export out of the Region and import from the Sudan, as well as from the South of the country. In addition, there are losses during handling and transport, so this picture is not absolutely clear or straight forward. In the rainy season there is often a shortage of onion on the market in Bhar Dar.

Despite high demand for vegetables in major towns, the majority of small farmers are unable to reach those markets and sell their products at the farm-gate to brokers. Only a few producers transport their products directly to potential buyers at the market in district towns. Key constraints faced by farmers regarding marketing are:

- Limited number of potential big buyers
- Lack of access to transport to move their produce to more distant markets;
- Dependency on brokers, caused by the two above factors
- Farmers are not organized and operate individually, which makes it difficult to meet the requirements buyers requiring big volumes.
- Farmers operating individually lack the power to negotiate successfully for good prices and conditions, something that calls or farmers to come together
- Adequate and reliable market information is lacking. Market information, especially price information, reaches middlemen first, which puts farmers in an unfavourable position. Mobile phones are increasingly used to disseminate market information, between traders, brokers and wholesalers. Farmers are increasing using mobile phone, although rural women in general have less access to mobile phones. AgroBIG has put in place a sophisticated Market Information System with BoTIMD that provides price information in Amhara Region, free of charge, by dialing 8096 or SMS on 8092. ATA is also operating a parallel system.

## DEMAND

Some of the characteristics of the market for onions in Ethiopia, at national as well as at Amhara Regional levels, include:

- The national as well as the regional market is growing
- Two market is categorized by income levels of consumers, high and low
- Standardized grades do not govern the market. Consumers define quality in terms of colour, bulb size, and ripeness. Deep red colour with medium bulb size (suitable for processing at home) and cured onions command better prices
- Organized market centres are existing in Addis Ababa;
- Fresh onions dominate the open markets
- The consumption patterns of onion in Ethiopia shows that onion is a much preferred crop, that can not be substituted by other crops.

### 4.2. Quality requirements

Consumers seem to prefer the local variety for food preparation because of its strong pungency. However, farmers like to produce the improved varieties because of their higher yields. Bulb colour and bulb size are important attributes on the market. Long shelf life is another preferred attribute that reduces losses during storage when sales prices are still low. Other criteria are pest resistance, draught resistance, ease of cooking, ease for threshing, good food quality etc.

Although there are officially approved national standards for fruits and vegetables in the country, they are hardly used or implemented. At present there is limited capacity to reinforce the existing standards throughout the country. The other issue is that neither producers nor consumers do seem to insist on standards. As long as farmers produce for national markets standardization may not be a critical issue. However, in order to meet the standards of international markets, the application of specific standards would be a strict requirement.

### 4.3. Marketing outlets/main segments/areas

The Ethiopian onion market is characterized by high to middle income markets, low to middle income markets and institutional buyers.

#### Domestic market segments:

- **Low to middle income markets:** It is estimated that the vast majority or over 85% of the Ethiopian market falls within this category. This segment consists mainly of individual consumers with limited purchasing power. Individuals buy onion for home consumption. Most of the time, they buy small amounts of onion from local retailers. Purchases are usually made in open air

markets. These market outlets are anticipated to continue to grow quickly with the population increase and higher buying power.

- **High to middle income markets:** This end market is the smaller of the two, estimated that it comprises about 15% of the population. The segment of high to middle income markets, more and more located to supermarkets where onions sometimes are pre-packed in small bags, is concerned with quality as much as prices. Consumers with middle to high incomes are concerned with a good quality and are prepared to pay a higher price for that.
- **Institutional buyers:** The market for high to middle incomes consumers consists of big hotels, restaurants and cafes. Institutional buyers like universities, hospitals and prisons set specific quality specifications and requirements like timely and year-round delivery. For individual farmers it is hardly possible to guarantee such regular, year-round supply. Only in case they can manage to organize themselves and jointly supply the institution this may be possible. However, even then, the matter remains complicated because of the seasonality of the produce. Large public institutions like the universities apply the national bidding system. One of the requirements for potential bidders is that they have a TIN number, something that no farmer has and most of the cooperatives do not have either.
- **Market linkages created:** To combat the above and enable sellers and buyers to meet, AgroBIG has facilitated contract marketing between onion and potato producer cooperatives in both woredas with ETFruit, which resulted in 1474 quintals of onion delivered to ETFruit in 2015. This agreement has brought significant impact to make the marketing system more efficient as irrigation cooperatives can sell their produce directly to buyers at market prices. This has prevented illegal brokers from disturbing the market as they had done in the past. In consequence, market prices became relatively more stable at attractive levels for 3-4 months, enabling the producers to earn a better income from the selling of onion.

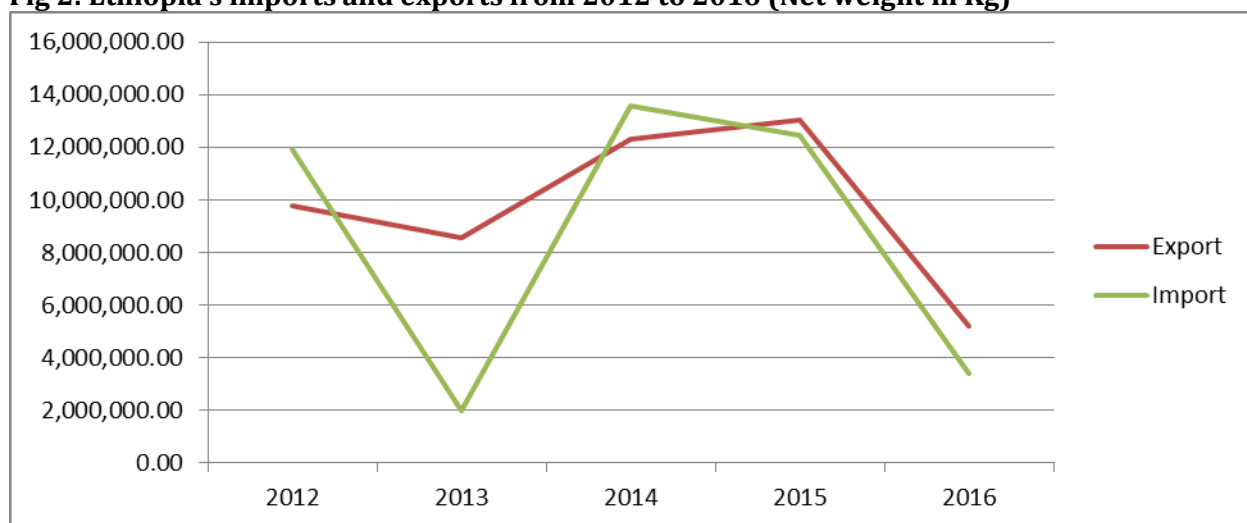
### **Export market**

Unexpected happenings, like a drought, can have a substantial effect on production and then also on the market prices for onions. Ethiopia has been an exporter of onions in the past 10 years. An average of around 600 tonnes a year has been exported during the past 10 years, which is only a small percentage of the total production. The export has mainly been to Djibouti with small amounts going to Somalia. In the past five years on average exporting and importing volumes were 10,912 and 9,987 tons respectively with about 1,000 tons net export. The import has been coming from the Sudan, through Metema and retailed at Bahir Dar and Addis Ababa. The price of the Sudan onion has been quite competitive with the local produce, also offering big sizes with longer shelf life. Ethiopia is still not able to export onions to the larger international market as the quality requirements can not be met. The neighbouring countries, however, do not have such stringent quality requirements.

The figure below shows Ethiopia's imports and exports from 2012 to 2016.



**Fig 2: Ethiopia's imports and exports from 2012 to 2016 (Net weight in Kg)**



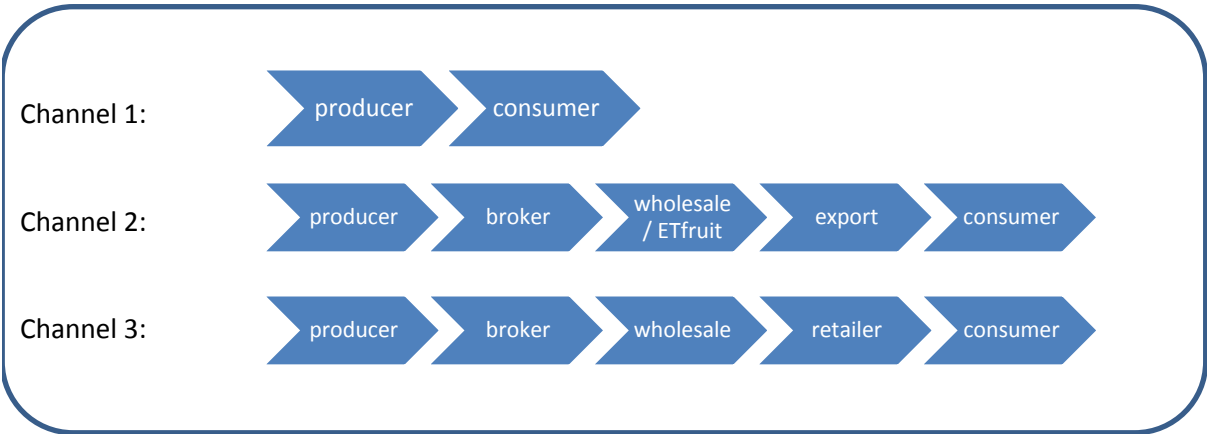
Source: Ethiopian Revenue and Customs Authority

### **Market channels**

Onions produced in ANRS pass through various channels until they reach the final consumers. Three channels have been identified. The first and shortest one, and at the same time the most insignificant one when it comes to volume, is where the producers sell directly to the consumers (channel 1). This type of transactions takes place typically in the woreda capitals of Merawi and Woreta. Some Koga farmers go to Bahir Dar to sell their produce directly on the market. The volume in this channel is relatively limited. The second channel, which is the most common, is where farmers sell to brokers at the farm-gate. These brokers are buying on behalf of wholesalers. The wholesalers in turn sell to big supermarkets and to retailers who subsequently sell it to final consumers. The third channel is where producers sell it to brokers who deliver it to ETFruit and in some cases wholesalers involved in export. Figure 3 below illustrates the three channels.

As can be noted, in the main channel as well as in the export channel, there is a strong involvement of brokers. At the same time, the cooperatives do not play a significant role as such in the marketing of the produce of their members. With the exception of ETFruit, most of the agreements e.g. between brokers and wholesalers are verbal ones. It is not always possible to draw a clear line between wholesale and retail activities as it happens that both functions are undertaken by the same entity like, for example, ETfruit that acts as a wholesaler but also as a retailer selling directly to the public.

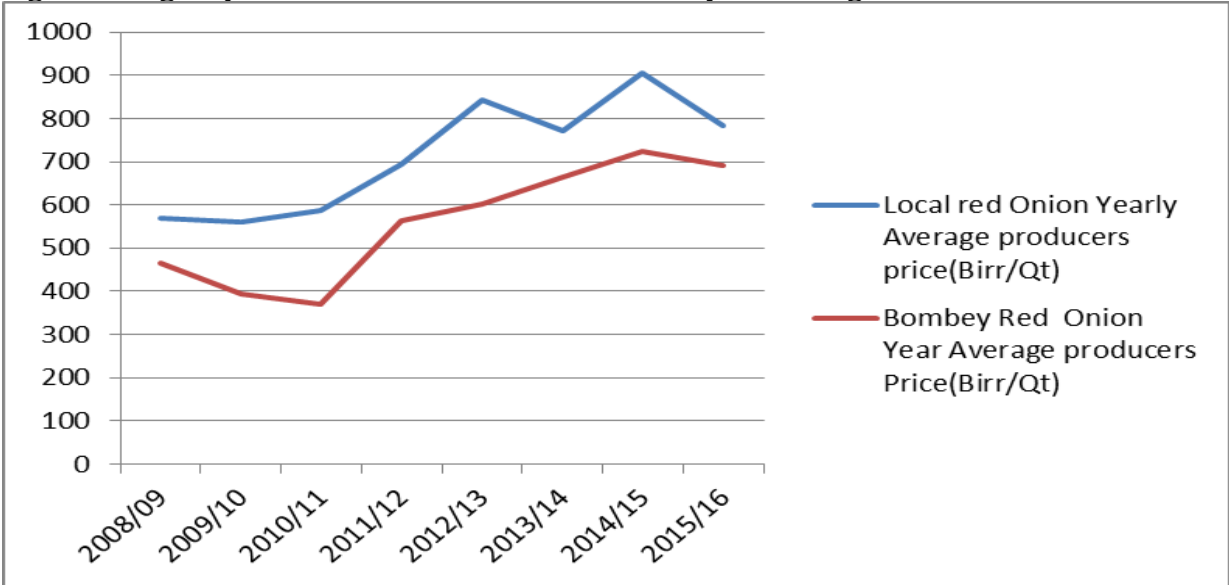
**Figur 3: Onion marketing channels**



**4.4 Price fluctuations**

During the peak market, the farm gate price of onion will go down significantly. Over the last three years the price of onion has shown an upward trend, see below.

**Fig 4: Farm gate price for local red onion and Bombay red at Fogera**



Source: WoTIMD

It is difficult to say whether this increase in price is because of the inflation rate or not. Price differences across seasons are explained mainly by demand and supply. However, price differences within the same season can also be observed.

#### 4.5 Main Value Chain Actors

##### Producers

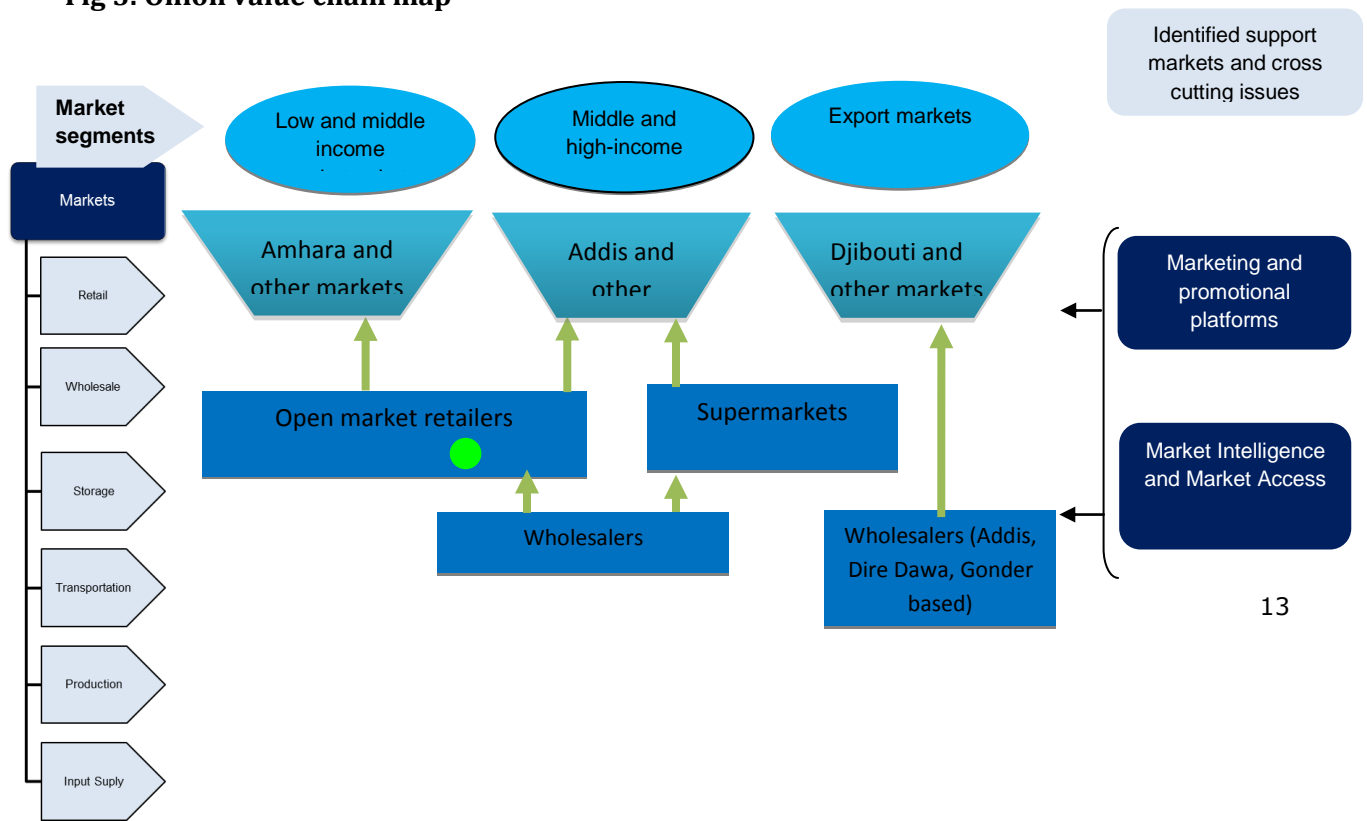
Farmers as onion producers are the key primary actor in the VC. Onion farmers produce mainly for the market. Their focus is on the production, so no value addition takes place at their level. Details of their production and post-harvest handling have been described above.

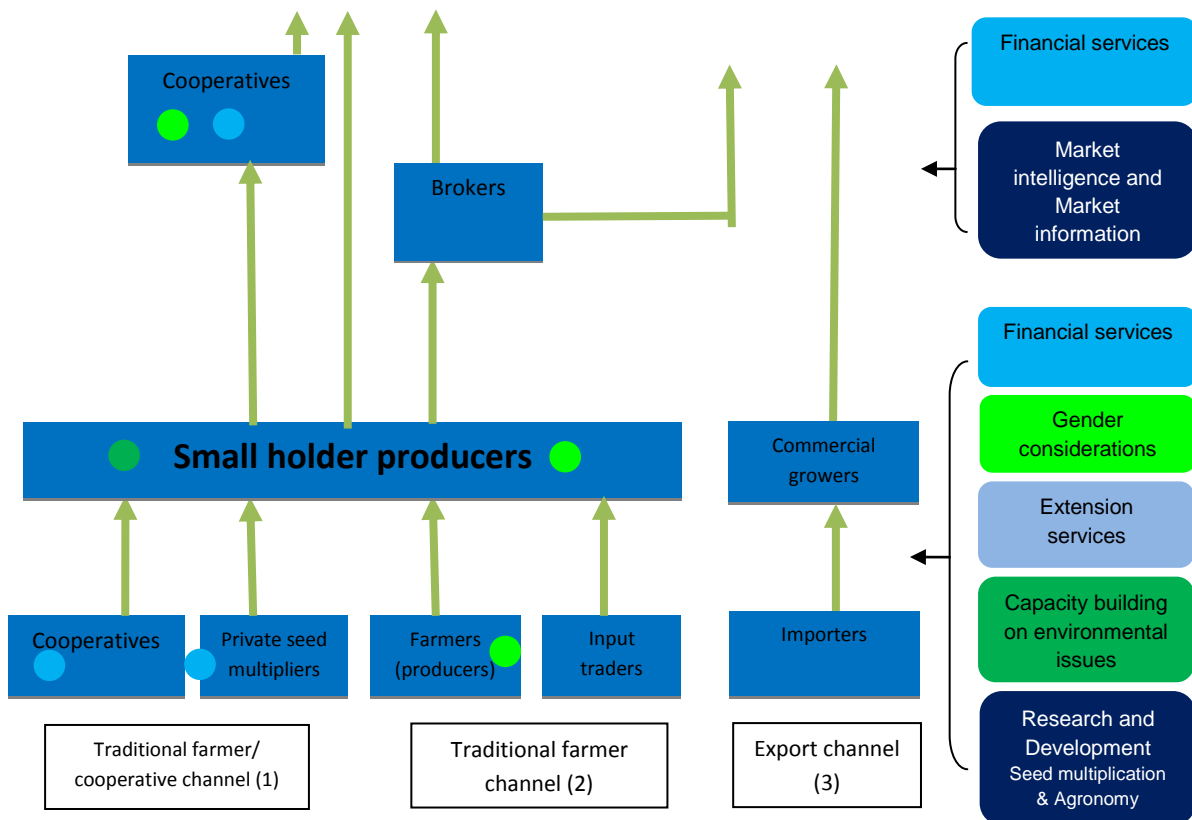
Prevailing value chain actors' relationship and product flow has been indicated in Figure 5.

##### Bulking and trading

- Cooperatives and associations:** Farmers can organise themselves under cooperatives that are formally established, registered legal entities. There are cooperatives organized for different uses that include seed production, irrigation schemes and multipurpose activities. Thirteen primary cooperatives in Fogera and Mecha have been supported with plastic crates, animal carts and mules, to enable the cooperative members to more easily transport their products to collection centres or directly to the local markets. For cooperatives to actively engage themselves in buying and selling, they need to have enough working capital while their marketing and business skills and product handling needs to be enhanced. Cooperatives lack experience in managing bulk trading.
- Brokers /middlemen:** Brokers buy onion on commission basis for wholesalers who are based at Dessie, Gondar, Mekelle etc. They buy onion in bulk at the farm-gate and pay the producers in cash. Subsequently they transport the onion to the wholesaler. Not all of the brokers are formal agents in the sense that they have a license for their activities. Another observation is that some of the brokers are wholesaler at the same time, i.e. they buy for wholesalers but also store some of the produce (not having a buyer yet) for sale at a later stage. Brokers are currently an important link between the farmers and urban markets. There seems to be some type of informal network among the brokers. Occasionally, particularly during harvest when there is an excess supply, the farmers themselves may seek the services of brokers to sell their onion. A group of farmers may

Fig 5: Onion value chain map





even rent a lorry and arrange the transport of their onion bulb to the nearest town market to avoid the middlemen. Since the farmers have limited space to store the onion bulbs they are inclined to sell their products immediately after harvest, even for a minimum price to middlemen or brokers. With support from AgroBIG the influence of illegal brokers has been reduced. With farmers having direct market linkages through legalized brokers the onion trade can operate with less influence from illegal brokers.

- **Wholesalers:** The wholesalers in the value chain buy onion from brokers with cash transfers sent to them. They then sell the onion received from the brokers to different customers at their point of sale.
- **Retailers:** This group of traders buys onion directly from farmers and wholesalers and delivers to hotels and other consumers. These traders buy an average of 5-20 quintals on market days. They have fixed places in markets that they pay for and from where they sell to consumers.
- **Processors:** In Ethiopia hardly any processing facilities exist for onion. However, there are ongoing experiments and tests for drying onion by using solar energy at ARARI. Dehydration (drying, powdering, onion rings) is a well-known practice in other countries but not practiced in Ethiopia. A crucial issue regarding any processing is marketability of the processed product. Even if a methodology like drying is going to give good result, the successful implementation will depend on consumer acceptance of the new product.

- **Exporters:** Wholesalers, mainly based in Addis Ababa and Dire Dawa as well as the state enterprise ETfruit<sup>1</sup>, collect, bulk and transport the produce to urban areas where there are good markets and to the neighbouring country destinations (Djibouti and Somalia).

## 4.6 Service Providers

### Extension services

- **Woreda offices of Agriculture:** The Woreda offices of Agriculture (WoA) provide various advisory and practical services to farmers producing onion. The office encourages farmers to sow onion in rows, use improved seeds, use furrow irrigation and apply recommended level of fertilizer. The office is working towards expanding irrigation access and coverage in the woreda through different strategies such as development of small scale irrigation, use of generators, pumps and so on. Advice on agronomic practices, seed supply, post-harvest handling etc. is being provided to farmers. As capacity limitations include human resources, as working premises, equipment, communications, furniture and other facilities. AgroBIG has been providing training and various materials.
- **BoTIMD & Woreda TIMD Office:** These two offices are supporting and facilitating market linkages and market information provision. The following services are rendered by the offices; (i) strengthening of market linkages; (ii) disseminating market information, (market price information collection on a weekly basis (Wednesday and Saturday) and reported to the respective zonal office every Monday where the average price information is posted on information boards; (iii) creating conducive market condition for traders (e.g. map prepared to cluster perishable product traders under market shade in Merawi and Woreta towns).
- **FTC and ATVETs:** The Agricultural Technical and Vocational Education and Training Centres (ATVET) have been established in order to upgrade the skills of the Development Agents (DA) and (agricultural) Subject Matter Specialists. The Farmer Training Centres (FTC) are, as the name already indicates, training centres for farmers, although not all of them are at the required standard, lacking facilities, demonstration areas, extension materials etc. AgroBIG has supported the construction of model FTCs that include a 2.5 ha demonstration area directly linked to the FTC.
- **Development agents (DAs):** The selected woredas have 3 DAs per kebele, one specialized in agronomy/horticulture, one in livestock and one in Natural Resources Management (NRM). Most of the DAs are generalists and did not receive specific training in particular crops like onion. The DAs provide extension services in the field (mostly one on one).

### Cooperative Promotion Agency

The Cooperative Promotion Agency (CPA) provides the following major services to cooperatives: provision of legal certificates to cooperatives, financial services, provision of audit services to cooperatives, create awareness among members of cooperatives and the larger community regarding the benefits of cooperatives to solve socio-economic challenges, facilitation of the distribution of dividend (if any) among cooperative members, provision of training on bookkeeping, management and leadership, good governance etc. They lack, however, capacity in managing business organizations.

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<sup>1</sup> ETfruit is a state marketing enterprise. The enterprise buys a significant part of the produce of state farms, but also buys from non-state producers. These products are mainly sourced to ETfruit via private traders.

## **Financial services**

Inadequate access to financial services is one of the major bottlenecks in rural areas. Microfinance institutions (MFIs) and rural savings and credit cooperatives (RUSACCOs) are the only formal financial institutions providing financial services to poor rural households. Currently, only about 15% of rural households have access to savings and credit services. Women account for nearly 50% of the client base of MFIs and RUSACCOs.

Cooperatives have inherent constraints to develop their own capital and to provide collateral for commercial loans. The lack of working capital prevents cooperatives to participate in crop marketing. Private traders dominate the market and set the purchase prices, because they pay cash on delivery to the farmers.

### **Amhara Credit and Savings Institute (ACSI)**

ACSI is one of the 32 microfinance institutions (MFIs) in Ethiopia and among the largest and best performing MFIs in the country. It is the main financial service provider in the rural areas of Amhara region. ACSI has a wide outreach with a network of 401 branches covering all woredas and 3,449 kebeles of the region with 9,000 staff. ACSI has one million active borrowers and 4 million active savings clients.

Granting of agricultural production loans to farmers is based on business plans submitted by the loan seeker, which are appraised by ACSI for borrower's eligibility and loan feasibility. The amount of loan taken by farmers ranges between birr 4,000-5,000 for onion production at an annual interest rate of 18%. Loans to individuals are usually provided against group collateral. All loans have to be repaid within one year.

ACSI has four branches in Fogera with 48 staff and five branches in Mecha with 64 staff. Most of the staff works in the field dealing directly with farmers' agricultural production loans. Good systems have been developed for the follow-up of loan utilization and loan client relations. Most loans to farmer families are signed in the name of the wife. Women are recognized to be more diligent in dealing with financial issues. Repayment in Mecha and Fogera woredas is practically 100%.

AgroBIG has supported ACSI with a Loan Fund of 5.7 million birr. The Fund is to be used for working capital lending to agricultural cooperatives at 13% interest for the selected value chains and for wholesale lending at 11% interest to RUSACCOs in the Mecha and Fogera woredas. Generally, farmers and cooperatives prefer to borrow from the cooperative financial institutions at lower loan interest and to receive an annual dividend from the cooperative financial institutions.

### **Cooperative financial institutions**

A large number of rural cooperative financial organizations have been established in the country to cater for the financial needs of agricultural and other cooperatives and their members. The rural cooperative savings and credit institutions in Ethiopia comprise of a total of 113 savings and credit unions and more than 15,000 rural savings and credit cooperatives (RUSACCOs). These are members' own institutions and capital for lending is collected from members' share contributions and savings.

The Cooperative Promotion Agency (CPA) is mandated to supervise and audit the operations of cooperative financial institutions according to the Cooperative Law and a large number of CPA field staff is engaged in training and supervision of these organizations and the implementation of the RUFIP programme.

There are 26 cooperative savings and credit unions each serving their designated woredas in Amhara region. They provide loans to farmers' agricultural cooperatives and other types of cooperatives that are members of the unions. This is the main lending channel to RUSACCOs for additional lending

capital for loans to individual farmer members. Loan amounts are relative to the share and savings contributions of the member organizations. Loan interest is 10-12% for loan duration of one year. Repayment is nearly 100%.

At the kebele level, farmers receive loans from a total of 2,825 rural savings and credit cooperatives in the Amhara region. Lending interest is stipulated by the bylaws of the RUSACCO as agreed by the members and is currently 12%. Normally the loan duration is one year and group collateral is used for repayment security. Capital for lending by RUSACCOs is limited, which restricts farmers' opportunities to invest in agricultural production. Repayment culture in rural lending is excellent and normally 100% of the loans are repaid.

### **Other banking institutions lending to rural farmers and agricultural cooperatives**

The National Bank of Ethiopia governs and regulates financial institutions in the country. Foreign investment in the financial sector is not allowed in Ethiopia. A large number of banks operate mainly in large towns and are increasingly widening their branch network also to the woreda capitals. Farmers' cooperatives can receive loans from these banks at commercial terms and by providing collateral for repayment security. Although there is a mobile banking system, M-birr, in place, its services are not yet widely used.

### **AgroBIG grants**

AgroBIG provides co-funding to value chain actors for investments in the selected value chains, including onions, through three grant funds:

- 1) Innovation, Demonstration and Research Fund (IDRF); 85% contribution for development and demonstration of innovative approaches and support to research programmes.
- 2) Value Chain Fund (VCF); 85% contribution for small farm investments in mechanization and farmer services.
- 3) Matching Grant Fund (MGF), 50% contribution for large scale investments in post-harvest handling and processing for markets.

To benefit from these grants, applications are to be made that are screened and awarded by a committee based on their usefulness in improving the efficiency of the value chain.

### **Business enabling environment**

The business enabling environment at the national and local level encompasses policies, administrative procedures, enacted regulations, market standards and the state of public infrastructure. In addition to these more formal factors, social norms, business culture and local expectations can be powerful aspects of the business enabling environment. Understanding these unwritten rules of society is essential to understand why value chain actors behave the way they do. These more informal factors often impact on women or people from minority groups who enter or are trying to enter the value chain as actors.

The second Growth and Transformation Plan (GTP II) is a main policy document 2015-2019 that has been adopted by the Ethiopian government. It emphasizes the significance of the agriculture sector as a major source of economic growth. The strategy strongly supports the intensified production of marketable farm products for domestic and export markets, by small holders and private agricultural investors. It also encourages a shift to production of high value crops focusing on high productivity areas and intensified commercialization.

Managing natural resources and building the capacity of farmers and government structures is also emphasized. During the GTP II period, application of improved technologies will be intensified to ensure the supply of the required quantity and quality of fertilizer, improved seeds, and small farm machineries.

There are capacity limitations at all levels that include human resources, working premises, equipment, communications, machinery, furniture and other facilities. ATVETs and FTCs require capacity building and improved facilities in order to strengthen their competencies to upgrade the skills of DAs and subject matter specialists. There is also weak research-extension-farmer linkages and lack of communication and collaboration with the private sector.

## **5 Cross Cutting Issues**

### **5.1. Gender Inequality**

In Ethiopia and in the AgroBIG woredas, women are generally disadvantaged. In meetings, few women attend, and their voices are often not heard. Onion production is a laborious farming activity which needs high labour input from planting to harvesting and marketing. Both women and men are taking part in the process of production with a varying degree of involvement. Despite the considerable contribution of women, men have the main responsibility for selling the harvested onions, reducing women's access to and control over the produce. One of the factors that have turned out to influence the adoption of new technologies is whether the farmer is female or male. Due to many socio-cultural values and norms men have freedom of mobility and participation in different meetings and consequently have greater access to information. Therefore, male heads of household seem to be more likely to adopt new varieties, technologies, cultivation practices, etc.

AgroBIG conducted a gender study at an early stage, which identified possible intervention. In particular AgroBIG has implemented targeted interventions, and avoided standard awareness raising trainings. Specific interventions targeting women have included the training of 66 women in Fogera on agronomic practices and food preparation to help these women grow and prepare vegetables for sale at the local market. AgroBIG is also in the process of establishing a very special loan fund exclusively for women entrepreneurs. The support to family financial literacy that AgroBIG has channelled through ACSI, is another example where women have been in the focus.

### **5.2. Reducing Social Inequalities**

Taking the local situation AgroBIG has given a strong focus on supporting efficient and profitable value chains that are inclusive. At operational level the inclusion of vulnerable groups like people infected with HIV/AIDS or having disabilities is not an easy one, considering that much hard work is needed in the field. For AgroBIG some targeted interventions could be possible.

### **5.3. Climate Change Adaptation**

Issues directly related to climate change adaptation and mitigation has not been high on the AgroBIG agenda. Soil conservation activities are for instance beyond the scope of the Programme. The activities undertaken by REILA can be seen as a support activity in that farmers, once they are secure on their land, are prepared to invest in land improvement including the planting of trees, which means being better prepared for hard times. Measures that have been taken by AgroBIG have included creating awareness of more efficient use of water in irrigation systems as well as considerations that have been identified during the Environmental Impacts Assessments that have been conducted. On the wider approach to environmental concerns, AgroBIG has taken serious measures to prevent and stop the wide and irresponsible use of chemicals that in the past have taken place in Fogera to combat the occurrence of weeds. A 3-days awareness and mitigation campaign was undertaken for 83 participants, drawn from irrigation cooperatives, farmers and DAs, chemical service providers etc. The result has been a developed action plan on the roles and responsibilities to be taken by each stakeholder, in combination with the established sprayer groups in the area created



a responsible use of the chemicals. Manual well drilling is a mitigation measure for water shortages in the dry season that need to be promoted.

## 6 Constraints to be addressed

In order to outline constraints and opportunities related to the cultivation and marketing of onions in the Programme Area, a simple SWOT analysis has been conducted, as follows:

### Strengths

- The Value Chain Concept now well understood
- Steady year-round demand for onions
- Population increases with increased buying power
- Mecha and Fogera woredas located along major roads and close to population centres
- Transport capacity out of the region available
- Government's commitment to support expanded irrigation schemes
- Onion seed system built by AgroBIG is getting stronger
- Onion seed certification facilities and capacities now available

### Weaknesses

- Farmers to a great extent still operate at the subsistence level not focusing on the market
- Lack of good farm management and good agronomic practices for onion cultivation
- Lack of basic soils management
- Seed supply systems still quite informal
- Post-harvest technologies (drying facilities) not really practiced
- Storage facilities non-existing or inadequate
- Processing facilities and processing options for onions quite limited
- Input supply (seeds, fertilizer, chemicals) does not meet the demand and requirements of producers
- Lack of knowledge of market and consumer needs and preferences
- Absence of reliable market information systems
- The involvement of brokers in the value chain not well regulated
- Government Procurement Guidelines hamper farmers groups and unions from selling directly to institutional buyers
- Cooperatives have limited capacity for marketing and little knowledge of marketing concepts
- Insufficient working capital and difficulty to access credit
- Poor coordination among market actors and lack of trust
- Transport from farm to collection points is a constraint for farmers
- Rural roads often impassable during rainy season

### Opportunities

- Strong and steady demand for onions throughout the region
- Growth of Gondar and Bahir Dar towns provides a steady and year-long demand
- Existence of irrigation schemes, sufficient water and land resources
- Existence of Farmer Training Centres
- Ongoing infrastructure development, rural electrification and improved rural road

### Threats

- Climatic conditions, particularly related to precipitation which is unpredictable, in addition to frost at higher altitudes
- Timely availability of input supplies, such as seeds, fertilizer, pesticides etc

- Occurrence of pests and diseases
- Timely availability of operational funds
- Availability of skilled daily labourers at peak periods
- Market fluctuations
- Market interferences on the market by illegal brokers, particularly in Fogera
- Import of cheap onions from the Sudan

Based on the above, it is clear that many farmers still are operating at the subsistence level and a transformation to more commercial farming systems are desirable. Attention is still very much focused on production increase and much less on demand and requirements of consumers.

AgroBIG should therefore continue providing support to the following intervention areas:

- Strengthen the value chain concept
- Provide support to a formal seed supply system, supported by seed certification facilities
- Improve agricultural practices
- Address post-harvest losses
- Build storage facilities, for inputs and produce
- Strengthen the cooperative movement
- Build capacity along the onion value chain
- Increase awareness on cross-cutting issues
- Making market information easily available
- Making credit available to value chain actors
- Linking producers with buyers and consumers

## 6.1. AgroBIG Interventions

Below is an overview of major intervention areas that AgroBIG has addressed and where a number of activities have been conducted along the onion value chain.

### **Improving production and post-harvest management**

- Introduction of a formal community based seed system
- Identification of promising seed sources
- Farmers linked to seed suppliers, through field days, exchange visits, demonstrations
- Promotion of seed supply as a business
- Supported provided to the seed certification process
- Introduction of seed packages and digital weighing of the contents
- Training on Good Agricultural Practices, through demonstrations, training, preparation of standard manuals
- Support to research on blended fertilizer application
- Growing bulb for seed during the raining season
- Area identified for onion growing during the rainy season
- Areas under irrigation expanded, through water lifting
- Water pumps introduced and their maintenance supported
- Spraying technologies introduced to farmers
- Promotion of reliable Agro Dealers, as commercially based service providers
- Establishment of seed producing and marketing cooperatives, building their capacities
- Introducing proper handling and transporting technologies
- Rural transport supported with mule drawn carts
- Sorting and grading introduced with Et-fruit
- Storage and Collection Centres introduced to link farmers to cooperatives
- Various Studies conducted to provide knowledge development

### **Strengthening Market and Business Development**

- Multi stakeholder platform established for networking and planning
- Market linkages supported, through forums, contacts and contracts facilitated
- Market facilities improved
- Collection Centres introduced for cooperatives
- Construction of Regional Terminal Market, for horticulture, supported
- Roadside kiosks established
- Weighing scales introduced for farmers to get correct price/weight
- Youth groups supported to provide professional spraying services
- Training provided to traders on book keeping
- Support provided to private seed producers, seed as a business
- Trade fairs and bazaars supported, through the Chamber of Commerce

### **Increased Value Addition**

- Quality improvement on production
- Training provided on onion agronomy
- Sorting and grading of onions
- Crates introduced for better handling
- Watering to be avoided before harvesting, to increase shelf life

### **Development of Systems**

- Seed system introduced
- Market Information System introduced
- Mini Media Centres established at kebele level
- Regular radio broadcasts supported

### **Strengthening the capacity of private and public service providers**

- A number of training sessions, workshops, demonstration, study tours and exchange visits performed, targeting farmers, cooperatives, youth groups, agro dealers, traders etc
- ToT trainings conducted for DAs and woreda staff on onion agronomy
- Training of facilitators conducted to support value chain interventions
- Various equipment and materials provided including office equipment such as computers and furniture, field equipment, cars, motor-cycles etc.
- Model FTCs established with demonstration areas
- Establishment of Regional Horticulture Training Centre at Bikolo Abbay supported
- The Agricultural Inputs, Quality Control and Quaranteen Authority in Amhara supported
- Regional Horticulture Development Strategy developed and promoted

### **Cross cutting issues**

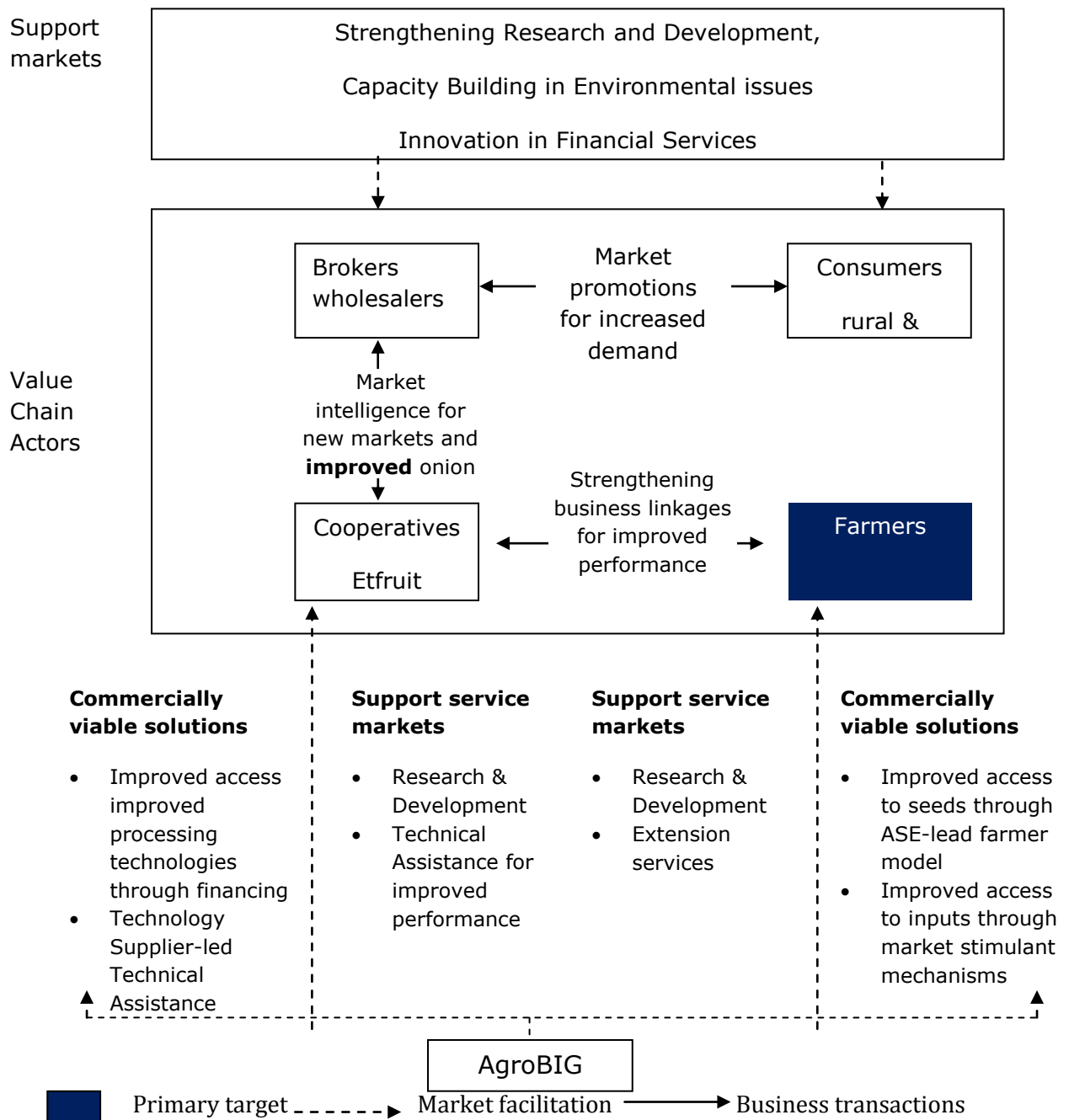
- Awareness created on environmental issues, particularly wise use of pesticides and disposal of containers
- Awareness created on wise water use in irrigation system
- Targeted activities aimed at youth groups and women to created employment

### **Value Chain Financing**

- With three Grant Funds established by AgroBIG, the following specific interventions have been financed by the Programme: The Innovation, Demonstration and Research Fund (IDRF) has enabled the demonstration of innovative approaches for example in the development of outgrower systems, innovative means of rural transport, irrigation, seed supply and for providing support to research programmes. The Value Chain Fund (VCF) has provided

support to small farm investments in mechanization and improved farmer services including the provision of water pumps, animal carts, weighing scales, crop collection centres, animal feed mills, crop sprayers etc. The Matching Grant Fund (MGF) has supported large scale investments in processing for markets such as large scale fruit and vegetable distribution centres, fertilizer stores and sales centre. In this way, a total of 166 grants have been awarded with an AgroBIG contribution of 26 million for a total investment value of 46 million.

**Figure 6: Intervention framework to improve the productivity and competitiveness of onion**



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