Agriculture and Natural Resource Sector Growth and Transformation Plan II (2015-2020)

Preface

The First Growth and Transformation Plan (GTPI) was successfully completed by attaining sustainable performance in the agricultural sector. During the implementation period of the plan, remarkable achievements have been registered by mobilizing and creating sense of ownership among citizens.

The implementation of integrated and harmonized development initiatives through coordinating and mobilizing the community across the board has significantly contributed towards creating conducive pathways to accelerate economic transformation and renaissance.

During the GTP I period, production and productivity of major food and industrial crops have increased significantly. Market oriented crops have got due attention and export of agricultural products were boosted. The coordinated and integrated watershed management works have resulted in the rehabilitation and protection of millions of hectares of degraded communal and farm lands and tremendous increase in forest cover is evidently seen in most of the Regions.

In general, the country's vision, existing policies and strategies, country's ambition to achieve CRGE goals, achievements of GTP-I and lessons drawn from its implementation were the basis for formulation of the Second Growth and Transformation Plan (GTP-II) of the sector. In addition, post 2015 Sustainable Development Goals and other regional and international agreements, conventions and economic circumstances are also considered in the process of the preparation of the plan. The sector's strategy is designed with clear objectives, goals, and strategic interventions which are important to achieve the intended GTP II objectives and goals.

The goal of the Agriculture and Natural Resources Growth and Transformation Plan is to contribute towards the national target of achieving Middle-Income

economy by bringing about a broad-based, rapid and sustainable sectoral development that ensures befits to all citizens with due emphases to women and youth.

Preparation process of the second Agricultural and Natural Resources Growth and Transformation Plan (ANR GTP II) was transparent and participatory as all regions, federal agencies, affiliated organizations and other stakeholders have participated on several organized discussion fora to enrich the draft plan. The discussion fora were instrumental in creating common understanding and ownership and making the stakeholders ready for the implementation of the plan. Finally, after being reviewed at different levels and enriched by the feedbacks, the plan is officially approved for implementation.

The second Agricultural and Natural Resources Growth and Transformation Plan (ANR GTP II) is a decisive chapter in making meaningful contribution towards the renaissance and achievement of the national goal of meeting the low middle income economy target by 2017.

To this end, due focus will be given to ensuring the already recorded broad-based sectoral development and successes, improving quality and competitiveness of the agricultural sector in this plan period. In addition, identified challenges regarding good governance will get due attention and will be resolved.

It is my firm belief that we will achieve the goals of the second Agricultural and Natural Resources sector GTP II by continuing the success and correcting weakness of the GTPI, and above all by exerting our utmost effort, increased commitment at all levels and enhancing developmental mentality and coordination. I have no doubt that, together in unison and with heightened commitment and sense of ownership, we will make this ANR GTP II a reality.

Tefera Derbew

Minister, Ministry of Agriculture and Natural Resources(MoANR)

Contents

Acronyms

MOANR	Ministry of Agriculture and Natural Resources
CRGRE	Climate Residence Green Economy
GTP	Growth & transformation Plan
Ha	hector
K.w	Kilo Watt
ATVETC	Agricultural Technical Vocational & Education Training College
FTC	Farmers Training Center
PTC	Pastoralist Training Center
ADPLAC	Agricultural Development Partnership Advisory Council
QPM	Quality Protein Maize
BBM	Broad Bed Maker
NPS	Nitrogen Phosphorus Sulfate
SNNP	Southern Nation Nationalities and People
FAO	Food and Agricultural Organization
TCP	Technical Cooperation program
PSNP	Production Safety net Program
ATA	Agricultural Transformation Agency
HR	Human Resources
CSA	Central Statistics Authority
ICT	Information Communication Technology
TOT	Training of Trainers
FTC-MC	Farmer Training Center Management Committee
NRM	National Resource Management
DA	Development Agent
MOU	Memorandum of Understanding
FCA	Federal Cooperative Agency

USD	United States Dollar
FDI	Foreign Direct Investment

I. INTRODUCTION

Due emphasis was given to the development of the Agriculture Sector as it has significant contribution to the national economic growth and on the life of the society. Hence, it was reflected in the policies and strategies formulated and the past four subsequent years development programs to implement the policy. The experience from GTP-I shows that the intended results has been achieved to the level of its implementation and draw lessons which serve as a ground to further ensure transformation. Based on the experience and lessons drawn from GTP-I implementation, the second generation GTP was designed to ensure the continuation of developmental democracy direction. The country's vision, the existing policies and strategies, achievements of GTP-I and lessons drawn from its implementation were the basisfor formulation of second generation Growth and Transformation Plan (GTP-II). The sector strategy is designed with clear objectives, goals, and strategic interventions which are important to achieve the intended objectives and goals.

II. BASIS OF THE PLAN

In order to have a clear content of the Growth and Transformation Plan, it was important to clearly indicate the basis for planning. The basis was presented below which helps to indicate clear content of the strategic plan, to set achievable targets and to follow up whether the implementation is towards the intended results or not.

2.1 The country's long and medium term vision as a basis

The first GTP was designed with the intention as it will be significant door opening planning steps and create fertile ground to the road of our renaissance. In order to achieve the country's long term vision of building prospered society, it was indispensable to design second generation GTP.

The success of country's long term vision will be determined based on the country's medium term vision of "to become a country where democratic rule, good-governance and social justice reign, upon the involvement and free will of its peoples, and once extricating itself from poverty to reach the level of a

middle-income economy as of 2020-2023." The Government o Ethiopia believed that designing a five years development program similar to GTP-I will continue until the country able to achieve its medium term vision of becoming middle income status country.

2.2 Agriculture and rural development policy and strategy as a basis

Agriculture and rural development policy implementation enabled the country to achieve fast and sustainable economic growth. The policy implementation was not to its full potential of realizing the desired result. This indicates that by enhancing the implementation capacity, it would be possible to achieve beyond what we have achieved in the GTP-I implementation.
The evaluation of GTP-I showed that the implementation of strategic directions in the Agriculture and rural development policy and strategy were not fully implemented and needs to work hard to exploit the potential of the policy and strategy to achieve the Government ambition and desire during the second generation growth and transformation plan implementation.

2.3 Lessons from GTP-1 implementation as a basis

Most of the basis applied in GTP-I preparation also works for GTP-II planning process. The basis had indicated the growth potential but not fully utilized and the identified systemic bottlenecks which has not been addressed all the issues identified. Growth and transformation plan one achievement, strength and lessons are also taken as a basis for GTP-II planning in order to set overarching goals, enhance the strengths from GTP-I implementation.

2.4 Climate Resilient Green Economy (CRGE) strategy as a basis

Ethiopia is confronted by the threat climate change poses which is progressively worsening. Not only is the country has to respond to the direst impacts of increasing average temperature and lopsided rainfall distribution but it has to also harness to use the opportunity to dirct its development efforts in a sustainable manner. Therefore, the Government of the Federal Democratic Republic of Ethiopia is set to realize a climate resilient green economy which intends to enable the country to reach middle income while building resilience and green economy by 2025.

Agriculture is particularly sensitive to climate change. Greater total or more intense rainfall across Ethiopia may increase soil erosion and the incidences of crop damage. There will also be changes in production system viability; cropland area and cropping patterns; pest and disease frequency and

distribution brought about by changes in seasonality; timing and distribution of rainfall; higher evapotranspiration; drought and flood damage.

On the other hand, in agriculture, GHG emissions are attributable to livestock and crops in that order. Building a green economy will require an increase in the productivity of farmland and livestock rather than increasing the land area cultivated or cattle headcount. In order to offer a viable alternative to the conventional development path without foregoing growth in the short term and significant advantages thereafter, a set of initiatives has been identified that can provide the required increase in agricultural productivity and resource efficiency.

The traditional economic development path could deliver the required growth, but at the cost of significant agricultural land expansion (inducing pursuing and accelerating deforestation), soil erosion, and higher emissions as well as at the risk of reaching the limits to further development, e.g., by exceeding the carrying capacity for cattle. Tot his end, our interventions on crop and livestock productivity activities wil be efficient to limit or reduce GHG emissions. This will be backed by integrated natural resources management giving due consideration to sustainable land management in which significant carbon sequestration will increase the sector's contribution to mitigate climate change.

Therefore, the ample opportunities that the climate resilient strategy avails is taken as a basis to achieve the targets of the GTP II.

III. OBJECTIVE OF THE PLAN

The sector objective is to realize fast and sustainable growth of the Agriculture sector and ensure the citizens benefited from the growth. The specific objectives include:-

1. Ensure fast, sustainable and climate resilient green growth and bring transformation within the sector and to the economy as a whole
2. To enhance the participation of women, youth and other actors and ensurethey benefited to the level of their contribution.
3. Build production capacity and contribute to macro-economic stabilization

IV. STRATEGIC DIRECTIONS

To increase agriculture production and productivity & ensure its sustainability the following will be the strategic direction which will guide the implementation of GTP-II.

- Agriculture will continue to be the main sources of growth, accelerated growth of agriculture and ensure food security, adequate product supply to the industry, contribute to reduce inflation and increase foreign currency reserve.
- Smallholder's agrarian and pastoral agriculture will continue to be the main source of agriculture growth. Production will be maximized by employing limited land, abundantlabor and modern agricultural technologies. A shift towards high value crops to satisfy industry demand and expand export capacity.
- Enhance the role of private sector in the agriculture development, Promote large scale commercial farms where large scale plots are available and horticulture development in highland and mid highland areas. Empower educated youth to be corner stone of modern agriculture in the country.
- Scaling up of best practices and make available the technologies utilized and tested by model farmers to all farmers that would increase the productivity of majority farmers into the level of model farmers. Adapt, test and disseminate new technologies with sense of urgency.
- Promote irrigation through natural resources development intervention, natural resources conservation will be implemented basically by strengthening the capacity of farmers and government supporting structures. Maintaining the momentum of farmers' participation observed in the past four years continue as an implementation strategy to natural conservation activities, increasing production and productivity in GTP-II through the promotion of irrigation.
- Increase farmer household income by Promoting progressive transition from producing average value crops into high value crops. This should be integrated with area specialization and rural small industry development and favorable market and infrastructure development.
- Development zone based agriculture development, Implementation of rural development strategy by taking the different agro ecology conditions into consideration with special emphasis to pastoral areas.
- Ensure the youth and womens are benefited from the opportunity created by fast growth. Promote resource poor women and youth to be engaged on

mountain and garden agriculture, non-farmactivities. Build capacity for educated rural youth to be engaged in agricultural activities on their parent land and other non-farm activities which will able to ensure their self-reliance from the income generated.

- System establishment, design solution to input output marketing and other systemic bottlknecks to successfully implement strategic direction and achieve objectives into the level where there will no more be a barrier to agricultural growth.
- Enhance the resilience capacity of arid and semi-arid parts of the country by introducing medium and long term livelihood improvement program. In areas where there has been persistent drought and other disasters, strengthening emergency relief program in the short term with much focus in implementation of long and medium term policy and development program to sustainably change the livelihood of pastoral and semi pastoral areas.
- The CRGE strategy will be mainstreamed into the development programs to ensue sustainable and reliable Agricultural development.

V. MAJOR GOALS OF THE PLAN

Goals were designed towards achieving the desired sector objective

1. Maintain at least 8% total agricultural production growth
2. Benefited the rural community in general and promote low income farmers, youths, women and agrarian, semi agrarian farmers into middle income group.
3. Eradicate dependence on food aid in the coming two years through enhanced Agriculture development and build disaster resilient green rural economy. At the end of GTP-II the sector will be in a position to contribute significantly to national capital accumulation and sufficiently support the industry development.
4. Established market system which would make the farmers and other non-farm enterprise actors actively participate and benefited from the system. Closed any Loophole on rent seeking attitude and behavior.
5. Build implementation capacity with special focus to make the executor understood the basic policy and strategy documents and capacitate human resources in attitude, skill and technical competencies to implement GTP-II.

VI. DETAILED PLANS AND TARGETS

1 Strategic Objective 1: Increasing crop production and productivity

1.1 Stalk and non-stalk cereals, Pulse and oil crops Development

In the second phase of GTP, crop development will continue holding the lion share for food security, export earnings and fulfilling the demand to the growing Agro - industries. To this end the crop development activities will focus on enhancing smallholder farmers' productivity and strengthen the role of private investors through addressing the systemic bottleknecks in the development of the sector.

To increase crop productivity and production that simultaneously contribute to green economy, it is necessary to carry outlower-emission agricultural techniques, ranging from the use of carbon- and nitrogen-efficient crop cultivars to the promotion of organic fertilizers,intensification, through usage of improved inputs and better residue management resulting in a decreased requirement for additional agricultural land and creation of new agricultural land in degraded areas through small-scale irrigation. By implementing these measures, the CRGE plan is to reduce 77.9 Mt by 2030 GHG that would have been emitted if business as usual scenario is to continue. By applying similar measures proportionally, it is planned to reduce 25.97 GHG during GTP II.

Hence, the crop development cataegorized into three as major food crops, Industrial crops, and export crops with clear baseline, appraisal targets and endline targets.

Goal 1: Increase the average productivity of stalk cereals by 47.03% from 29 Quintals/ha in 2015 to reach 42.64 Quinals/ha which will increase the total volume of produce from 115 million quintals in 2015 to 171.78 million quintal by the year 2020.

Goal 2: Increased the average productivity of non stalk cereals by 47.1% from 21.1Quintals/ha in 2015 to reach 31 Quintals/ha which will increasethe total volume of produce from 120.3million quintals in 2015 to 184.22 Million Quintal by the year 2020.

Goal 3: Increased the average productivity of pulse crops by 53.48% from17.2 Quintals/ha in 2015 to reach 26.4 Quintals/ha which will increase the total volume of produce from 26.4 million quintals in 2015 to 38.75 million quintals by the year 2020.

Goal 4: Increased the average productivity of oil crop by 41 .56% from 9 Quintals/ha in 2015 to reach 12.7 Quintal/ha which will increasethe total volume of produce from 7.5 million quintals in 2015 to 11.5million quintal by the year 2020.

Detailed goals and targets by specific crops are given as follows;

1.1.1 Major Food Crops

Tef

Increased the average productivity of Tef from 17.75 Quintals/ha in 2015 to 23.14 Quintals/ha in 2020 and increased the total volume of produce from 47.56 million quintals in 2015 to 76 million quintal by the year 2020.

Maize

Increased the average productivity of Maize from 34.3Quintals/ha in 2015 to 50 Quintals/ha in 2020 and increased the total volume of produce from 72.3 million quintals in 2015 to 109 million quintal by the year 2020.

Sorghum

Increased the average productivity of sorghum from 23.7 Quintals/ha in 2015 to 35 Quintals/ha in 2020 and increased the total volume of produce from 43.3 million quintals in 2015 to 62.4 million quintal by the year 2020.

Food Barley

Increased the average productivity of food barley from 20.5 Quintals/ha in 2015 to 30.1 Quintals/ha in 2020 and increasing the total volume of produce from 13.47 million quintals in 2015 to 19.04 million quintal by the year 2020.

Rice

Increased the average productivity of rice from 27.8 Quintals/ha in 2015 to 41 Quintals/ha in 2020 and increased the total volume of produce from 1.3 million quintals in 2015 to 2.03 million quintal by the year 2020.

Pearl millet

Increased the average productivity of Perl millet from 20.2 Quintals/ha in 2015 to 29 Quintals/ha in 2020 and increased the total volume of produce from 9.1 million quintals in 2015 to 13.9 million quintal by the year 2020.

Faba Bean
Increased the average productivity of Faba Bean from 18.9 Quintals/ha in 2015 to 28 Quintals/ha in 2020 and increased the total volume of produce from 8.39 million quintals in 2015 to 13.05 million quintal by the year 2020.

Field Pea
Increased the average productivity of Filed pea which was 14.9 Quintals/ha in 2015 to 22 Quintals/ha in 2020 and increased the total volume of produce from 3.4 million quintals in 2015 to 5.5 million quintal by the year 2020.

Lentils
Increased the average productivity of lentil from 13.9 Quintals/ha in 2015 to 20 Quintals/ha in 2020 and increased the total volume of produce from 1.3 million quintals in 2015 to 1.9 million quintal by the year 2020.

1.1.2 Industrial Crops

Malt Barely
Increased the average productivity of Malt Barely from 18 Quintals/ha in 2015 to 26.4 Quintals/ha in 2020 and increased the total volume of produce from 6.05 million quintals in 2015 to 9.56 million quintal by the year 2020.

Bread wheat
Increased the average productivity of Bread Wheat from 26.4 Quintals/ha in 2015 to 39 Quintals/ha in 2020 and increased the total volume of produce from 26.40 million quintals in 2015 to 37.82 million quintal by the year 2020

Durum wheat
Increased the average productivity of Durum Wheat from 24 Quintals/ha in 2015 to 35Quintals/ha in 2020 and increased the total volume of produce from 15.9 million quintals in 2015 to 24.26 million quintal by the year 2020.

Soya Bean
Increased the average productivity of Soy Bean from 20.2 Quintals/ha in 2015 to 30 Quintals/ha in 2020 and increased the total volume of produce from 0.72 million quintals in 2015 to 1.2 million quintal by the year 2020

Nuge
Increased the average productivity of Nuge from 8.9 Quintals/ha in 2015 to 11 Quintals/ha in 2020 and accordingly increased the total volume of produce from 2.2 million quintals in 2015 to 2.9 million quintal by the year 2020.

Sun Flower

Increased the average productivity of Sun Flowerfrom 10.4 Quintals/ha in 2015 to 15 Quintals/ha in 2020 and accordingly increased the total volume of produce from 0.06 million quintals in 2015 to 0.1 million quintal by the year 2020.

Cotton

Increased the average productivity of cottonfrom8Quintals/ha in 2015 to 20 Quintals/ha in 2020 and accordingly increased the total volume of produce from 0.77million quintals in 2015 to 1.13 million quintal by the year 2020

Ground nut

Increased the average productivity of ground nut from 16 Quintals/ha in 2015 to 23.5 Quintals/ha in 2020 and increased the total volume of produce from 1million quintals in 2015 to 1.65 million quintal by the year 2020

1.1.3 Export Crops Goals

Sesame

Increased the average productivity of sesame from 6.9 Quintals/ha in 2015 to 10Quintals/ha in 2020 and increased the total volume of produce from 2.9 million quintals in 2015 to 4.4 million quintal by the year 2020.

White pea bean

Increased the average productivity of white pea bean from 16 Quintals/ha in 2015 to 24 Quintals/ha in 2020 and increased the total volume of produce from 2.02 million quintals in 2015 to 3.19 million quintal by the year 2020**.**

Red bean

Increased the average productivity of red bean from 15.8 Quintals/ha in 2015 to 23 Quintals/ha in 2020 and increased the total volume of produce from 3.1 million quintals in 2015 to 4.8 million quintal by the year 2020.

Chick pea

Increased the average productivity of Chick Pea from 19.1 Quintals/ha in 2015 to 28 Quintals/ha in 2020 and increased the total volume of produce from 4.5 million quintals in 2015 to 6.9 million quintal by the year 2020.

Mung Bean

Increased the average productivity of Mung Bean from 8.8 Quintals/ha in 2015 to 13 Quintals/ha in 2020 and increased the total volume of produce from 0.14 million quintals in 2015 to 0.23 million quintal by the year 2020.

1.2 Coffee Tea and Spice Development

Coffee

With the vision of makig Ethiopia the second coffee exporter in the world at the end of the next five years, we targeted to increase coffee production by 20% annually and reach in 2019/20 1045.05 thousand tones from the 2014/15 production of 419.98 thousand tones .Similarly coffee productivity will also be increased from 7.48Qt/hain the production year of 2014/15 to 11Qt/haby the end of 2019/20 with an average growth rate of 8%.

Tea

With the opportunities and conducive agro- climatic conditions we have for tea production and encouraging start of tea plantations by small scale farmers as out growers, it is planned to increase the production area of tea with out grower scheme from 110 ha in 2014/15 to 210 ha by the end of 2019/20. Fresh greentea leaf the base year of 0.25 thousand tones increased to 0.50 thousand tone production with annual average growth rate of 15%. The productivity of greentea leaf is expected to grow from 22.7Qt/ha in 2014/15 to 31.8Qt/ha bythe end of 2019/20.

Spices

The strategy gave Special attention for the major exportable spices listed below to increase production and supply in the export market.

Red Pepper (Berbere)

Increased the production of red pepper from 170.77 thousand tones in the year 2014/15 to 250.9 thousand tones by 2019/20.The productivity is set to grow from 18.48 Q/ha to 22.5 Q/ha.Harvested area is expected to increase during the same period from 92.39 thousand hectares to 111.51 thousand hectares.

Ginger

Production of ginger will beincreased from the base year of 125.12 to 145.14thousand tones.The average productivity of 40 Q/ha in the base year will be increased to 44.2 Q/ha. Cultivatedland increased to 32.84thousand hectares**.**

Fenugreek

Increased production from the base year of 25.97 to 33.15 thousand tones.The productivity increased from to 12.7 Q/ha to 15.5Q/ha and increased cultivated land 21.3thousand hectares.

Kororima

Increase production from 9.56 to 13.41 thousand tones. The productivity increased from 5.1 Q/ha to 6.8 Q/ha. Area cultivated will be increased to 19.72 thousand hectares.

Turmeric

Increase production from the base year of 22.75 to 31.91 thousand tones. The productivity increased from35 to 46.8 Qt/ha. Area cultivated will be increased to 6.82 thousand hectares.

Cumin

Increased production from the base year of 6.8 thousand tones to 8.95 thousand tonesand the base productivity of 11 Q/ha increased to 14.9Q/ha. Area cultivated will be increased to 6.09 thousand hectares.

1.3 Smallholders Horticultural Development

Goal 1: Increase the average productivity of vegetables by from 105.67 Quintals/ha in 2015to 141.84 Quintals/ha by the end of 2020.The total volume of produce will increase from 959.94 thousand ton at the base year to 2340.24 thousand ton at the end year.

Goal 2: Increased the average productivity of fruits from 80.71 Quintals/ha in 2015to 155.16 Quintals/ha by the end of 2020.The total volume of produce will increase from 503.38 thousand ton at the base year to 1186 thousands tones at the end year.

Goal 3: Increase the average productivity of roots and tubersfrom 147.6 Quintals/ha in 2015to 225.05 Quintals/ha by the end of 2020.The total volume of produce will increase from 2,446.3thousandston at the base year to 5695.28 thousands tones at the end year.

Goal 4: Increased the average productivity of enset plantfrom 139,775,676 in number and and production of corm out of that 6,039,879.94q/l, kocho 8,852,739.05 q/l and Bulla (Squeezed corm and sheath) 1,311,750 q/l in 2015to 205,376,325.36 in number and the Corm in q/l 884565.17,

Kocho 13007578.04 q/l and Bulla to 1,927,391.1 q/l by a productivity of 0.37, 0.41 and 0.01 respectively.

Detailed goals and targets by specific crops are given as follows;

Onion: - Increase productivity from 105 quintal/hectare to 169 quintals/hectare with an average annual growth rate of 10%. Increase total production from 259.23 thousand tons in the base year to 417.49 thousand tons in the end line.

Tomato Increased productivity from 87 quintal/hectare to 133.86 quintals/hectare with an average annual growth rate of 9%. Total production will increase from 58.91 thousand tons in the base year to 90.64 thousand tons in the end line.

Pepper is planned to increase by 8% in each year from its 85 quintal/hectare productivity to124.89 quintals/hectare and take the whole production amount of 62.72 thousand tons during the base year 92.16 thousand tons at the end of the second GTP.

Head cabbage Increased productivity from 82 quintal/hectare to 120.48 quintals/hectare with an average annual growth rate of 8%.Increased total production from 28.6 thousand tons in the base year to 42.02 thousand tons in the end line.

Local cabbage: Increase productivity from 106 quintal/hectare to 155.75 quintals/hectare with an average annual growth rate of 8%. Increase total production from 346.87 thousand tons in the base year to 509.67 thousand tons in the end line.

Carrot Increased productivity from 127 quintal/hectare to 186.23 quintals/hectare with an average annual growth rate of 8%.Increased total production from 20.9 thousand tons in the base year to 30.72 thousand tons in the end line.

Garlic Increased productivity from 131 quintal/hectare to 192.48 quintals/hectare with an average annual growth rate of 8%. Total production will increase from 201.87 thousand tons in the base year to 296.61 thousand tons in the end line.

Mango Increased productivity from 65 quintal/hectare to 95.51 quintals/hectare with an average annual growth rate of 8%.Increased total production from 56.43 thousand tons in the base year to 79.15 thousand tons in the end line.

Banana Increased productivity from 83 quintal/hectare to 121.95 quintals/hectare with an average annual growth rate of 8%.Increased total production from 301.13 thousand tons in the base year to 422.35 thousand tons in the end line.

Avocado Increased productivity from 52 quintal/hectare to 76.41 quintals/hectare with an average annual growth rate of 8%.Increased total production from 46.49 thousand tons in the base year to 65.20 thousand tons in the end line.

Citrus Increased productivity from 173 quintal/hectare to 242.64 quintals/hectare with an average annual growth rate of 7%.Increased total production from 58.23 thousand tons in the base year to 81.67 thousand tons in the end line.

Irish potato Increased productivity from 100.8 quintal/hectare to 162.26 quintals/hectare with an average annual growth rate of 10%.Increased total production from 642.78 thousand tons in the base year to 1035.20 thousand tons in the end line.

Sweet potato: Increase productivity from 179.6 quintal/hectare to 263.83 quintals/hectare with an average annual growth rate of 8%. Total production will increase from 1023.57 thousand tons in the base year to 1503.96 thousand tons in the end line.

Taro Increased productivity from 178.7 quintal/hectare to 287.85 quintals/hectare with an average annual growth rate of 10%.Increased total production from 741.57 thousand tons in the base year to 1194.31 thousand tons in the end line.

1.4 Agricultural Mechanization

The basis for agricultural mechanization technologies strategy were tractors owned by private investors and government enterprises, small engine operated threshers and shellers owned by small holder farmers, implementation

performance of 2007 physical year, land to be cultivated, production targeted to be increased for major crops, fruits, vegetables, coffee in GTP II.

Agicultural mechanization is one of the major levers selected in CRGE to enhance crop productivity and achieve the targets of CRGE. By 2030, the strategy sets a plan to benefit 13.2 million households from small scale agricultural mechanization which is intended to substitute draught animals and this enables to reduce 112.2 Mt GHG. Similarly, 3.73 MT GHG will be reduced relative to the period of GTP II.

Objective

The objective of agricultural mechanization is to improve the productivity of land, labor, and livestock, improve efficient use of fertilizer & seed and improving product quality through value additionby delivering agricultural mechanization technologies.

Goal 1: To increase number of farmers using agricultural mechanization technologies from the base of 2.97% to 54.33% and enable 7.5 million farmers(30% female headed households) get agricultural mechanization services at the end of the five GTP II period.

Major Activities

- Raise Ethiopian agricultural mechanization utilization ratefrom 0.1 kW/ha to 1 kW/ha, with at least 50% derived from mechanical /electrical power
- enable 60% of harvesting and threshing operations by combines and small engine operated threshers and maize shellers
- Increased agricultural mechanizations technologies female beneficiaries to 30%.
- Promote environment friendly agricultural mechanizations.
- Address special mechanization technology needs of pastoralists and agro-pastoralists.
- Address at least 50% of the needs of pastoralists and agro-pastoralists for mechanization inputs
- Promote women friendly technologies which reduce work load and make easy the agricultural practices

Goal 2: Reduced post-harvest loss of major crops from 5-25% to 5% by the end of the GTP.

Major Activities

- Enhanced harvesting, threshing and shelling operations by mechanical technologies
- Improved transportionand storage of agricultural produce by modern and mechanical technologies
- Promoted small and medium level technologies that can add value to agricultural produce

Goal 3: FTC based mechanization technologies capacity building activities

- Trained middle level mechanization professionals in collaboration with stakeholders and relevant partners
- Provided skill training for farmers and agro pastoralists on the operation and management of agricultural mechanization technology
- Provided skill training for agricultural mechanization technology operators and medium level maintenance service providers

1.5 Training and Advisory Service

Goal 1: Increase the number of beneficiaries by strengthening the agricultural extension service

- Increased extension service beneficiaries farmers from14,014 to 16,776 thousand; pastoralists from 718,000 to 892,000; agro pastoralists from 468,000to 569,000. In general it is planned to increase the number of farmers, agro-pastoralist and pastoralist benefited from extension services from 15,200 thousand to to 18,237 thousand. Out of the total extension beneficiaries 50% of them will be married women (i.e. women in male headed households).
- It is also planned to provide extension to all (100%) women headed farmers at the end of GTP IIperiod. Moreover, 10% of the extension beneficiaries will be rural youth.
- The plan of GTP II is intended to enhance knowledge, skill, and attitude to accept and implement technology instead of access to extension services. In GTP II it is planned to increase the percent of extension beneficiaries who implemented full package from 35% to 80%.
- Developmentagents'replacement training will be provided annually to 24,325 at the end of GTP II.
- Trained 9,000 development agents in agricultural mechanization, level 4 and get into their work.
- Trained 9010 agricultural experts on specialization.

- Trained 0.8 million rural youth on different agricultural fields (Crop development, Livestock development, Natural resource management, Irrigation, Tractor operation and maintenance, .etc.) annually to reach 4 million at the end of GTP II.
- Increased the number of ATVETCs teachers second degree graduates from 250 in GTP I to 300.
- The capacity building ensures 30% of women participation
- Competency skill test will be given for experts who are at work and newly recruited, the number of experts who will take the test will be increased from 9,005 in GTP I to 58,517 in GTP II.
- Similarly the competency test will be given for farmerswho completed the training in different subject matters based on their preference in selected areas.g. Competency test increased from 6,414,263 in GTP I to 10,330,232 in GTP II.

Goal 3: Establish and strengthen Farmers/ Pastoralist Training Center (FTC/PTC)

- Increasethe number of FTC/PTC from 11,000 to 18,000.
- Increase the number of furnished FTC/PTC from 4,924 to 18,000.

Goal 4: Strengthening the Agricultural Development Partners Linkage Advisory Councils (ADPLACs)

- Number of ADPLACs increased from 55 to 68 at zonal level and from 343 to 713 at woreda level; identify challenges of agricultural development, indicate solutions and monitor their implementation.
- Strengthened 12 already established Federal, Regional and City councils ADPLACs and identify challenges of agricultural development, indicate solutions and monitor their implementation.

1.6 Enhanced Demand Driven Agricultural Research

Ethiopian Institute of Agricultural Research organized in main four work processes including crop; livestock; soil and water; and Agricultural mechanization.The Agricultural economics, extension and gender directorate is a directorate which generate research information on policy related issues.The research strategies are to adapt technologies from abroad into Ethiopian agriculture context and generate new technologies through research locally. Irrigation is one of the approaches to shorten the release of research

technologies. The research is undertaken in different agro ecologies and farming systems to address specific needs of the farmers in different agro ecology and farming systems.

Full technologies adopted or generated through research to increase productivity

In the second GTP period it is planned to avail 2382 agricultural technologies and information (1075 technologies and 1307 information) in crop, water and soil, mechanization and other related technical areas. Specifically, 374 crop, 155 soil and water, 34 mechanization, 237 biotechnology, 78 agricultural economics, 110 quality and nutrition and 14 geospatial and climate technologies will be generated by 2020.

Improved indegnous technologies through research

Recommendation released on 1075indegenous technologies

Provide knowledge and information from research

Provide 1307 knowledge and information on crop, Agricultural mechanization, bio-technology, Agriculture quality and nutrition, Agricultural economics and extension, biometrics, GIS and agro metrology.

Disseminate technologies and information from research

Disseminate 466 research results and information on livestock, soil and water, apiculture and hare.

1.7 Major Implementation Strategies or Extension

1.7.1 Stalk and non-stalk cereals, Pulses and oil crops

A. Major food Crops

Tef

- Varieties which have specific adoptability for each agro-ecology, which have a tolerance to lodging, pre and post-harvest machineries and tools which are suitable for the crop, will be introduced, developed and demonstrated to the farmers.
- Seeds of demanded varieties to each agro-ecology, fertilizer, and other inputs will be supplied in the required quantity and quality at the proper time.

- In areas of Tef specialization, technologies with full package will be implemented to this end, Continuous capacity building and follow up will be conducted to help farmers use the Proper recommendations from the production packages particularly recommendations like agro-ecology based choice of variety, adequate usage of fertilizers, proper use of agro-chemicals and crop protection mechanisms, integrated pest management strategies and recommended post-harvest handling technologies.
- Value chain based marketing (both for domestic and international) scheme will be implemented which can help help farmers from quality based pricing and increase their income. A system will be established to encourage the private investors to be engaged on Tef production and value addition.

Maize

- Varieties which have short and intermediate maturity periods will be introduced and demonstrated to farmers. Productivity enhancement inputs like improved seeds of varieties will be multiplied in adequate quantity and quality and will be delivered to farmers. Similarly Post and pre harvest mechanization tools and machineries will be multiplied, Provide adequate supply of agro-chemicals to the farmers at the proper time in a required quantity. Introduce QPMsuitable to different agro ecologies and promot and disseminate highland maize in highland areas
- Continuous capacity building and follow up will be conducted to help farmers use the Proper recommendations from the production packages particularly recommendations like agro-ecology based choice of variety, adequate usage of fertilizers, proper use of agro-chemicals and crop protection mechanisms and recommended post-harvest handling technologies.
- Enhance maize production through cluster farming with required quality to strengthen Value chain, and satisfay agro-processing industries demand for domestic and export market. In addition market linkage with potential buyers will be created to reduce price fluctuation and create a sustainable and predicted market.

Sorghum

- Varieties highly demanded by farmers, and with a potential to satisfay the industry and export market standars will be introduced, developed and demonstrated to the farmers based on the agro-ecologies. Improved production technologies like improved seeds, Agro-chemicals, machineries and tools, fertilizers and other production enhancing inputs

will be supplied on time and with a required quantity and quality to the farmers.

- Continuous capacity building and follow up will be provided to help farmers use the Proper recommendations from the production packages particularly recommendations like agro-ecology based choice of variety, adequate usage of fertilizers, proper use of agro-chemicals and crop protection mechanisms, moisture conservation techniques, integrated pest management strategies and recommended post-harvest handling technologies
- In areas where sorghum is a major crop, out growing system and contractual farming will be implemented to produce a sorghum demanded by malting industries and the export market demand.

Food Barley

- Varieties which are suitable for all barley growing agro-ecologies will be developed in particular varieties which can tolerate frost in extreme highland. Productivity increasing inputs and tools like high quality Seeds, fertilizer, Lime, other chemicals, I-Bar BBM and others will be supplied to the farmers.
- Continuous capacity building and follow up will be conducted to help farmers use the Proper recommendations from the production packages particularly recommendations like agro-ecology based choice of variety, adequate usage of fertilizers, proper use of agro-chemicals and crop protection mechanisms, integrated pest management strategies and recommended post-harvest handling technologies will be implemented.

Enhance value chain based and food barley production with the required quality through cluster farming and create linkage to domestic and export market oriented agro-processing industries.

Rice

- Introduction and development of high yielding rice varieties especially on irrigated agriculture will be ensured. Quality Improved Seed will be multiplied by Federal, regional and private seed enterprises and will be delivered to the farmers in adequate quantity and right time. Pesticides, fertilizers pre and post-harvest machineries services like threshing and polishing machine will be supplied.

- Continuous capacity building and follow up will be provided to help farmers use the Proper recommendations from the production packages particularly recommendations like agro-ecology based choice of variety, adequate usage of fertilizers, proper use of agro-chemicals and crop protection mechanisms, irrigation water use techniques, integrated pest management strategies and recommended post-harvest handling technologies.
- Enhance Value chain approach based rice production, cluster farming, and motivate private investors to start commercialized irrigated rice farming.

Pearl millet

- Introduction, adaptation and demonstrate and disseminate varieties across the agro-ecologies.
- The available varieties seeds will be multiplied by Seed Enterprises and farmers field.
- Continuous capacity building and follow up will be done to help farmers follow the proper agronomic recommendation which are indicated in the extension packages.
- Product intensification technologies like Pre- and post-harvest machineries and agricultural inputs will be supplied to the farmers.

Faba Bean

- Varieties which are adoptable to each agro-ecology and suitable for irrigated agriculture, which can tolerate disease and insect pests, adopt/generate varaiety resistance for Orobanche in line with agronomic practices. In the Major Faba Bean growing areas, farmers will be organized in cooperatives, receive seed production training to produce quality seed for different agroecology need. In high land areas which possess acidic soils, soil the ongoing soil treatment activities will be strengthened. Capacitating and supporting Bio-fertilizer producing laboratories will be the other major focus in the next five years; Farmers will also be assisted to use bio-fertilizers. Continuous capacity building and follow up will be provided to assist farmers to implement fully the recommendations on the production package. Integrated Pest Management will be implemented to have a better control over pests.

Field Pea

- Varieties which has resistance for logging, better disease and insect pest resistance, market demand, will be available through research.. Machineries which ease labor during row planting will be supplied to the farmers. To bridge the gap between seed demand and supply, in addition to the Seed enterprises by federal, regional and private institutes, farmers based seed multiplication scheme will be devised. Soil improvement through soil treatment with Lime and the use of Bio-fertilizers coupled with chemical fertilizers will be used based on the technical recommendation on the package. Integrated pest management will be implemented to control major field and storage pests like Aphids, powdery mildew, pea weevil and others.
- Value chain based production approach and cluster farming and quality based marketing will be implemented.

Lentils

- Varieties which satisfy the quality that the market demands, which have a good resistance to diseases like rust and other biotic and abiotic stress will be developed. To bridge the gap between seed demand and supply, in addition to the Seed enterprises by federal, regional and private institutes, farmers based seed multiplication scheme will be devised. Soil improvement through soil treatment with Lime and the use of Bio-fertilizers coupled with chemical fertilizers will be used based on the technical recommendation on the package. Integrated pest management will be implemented to control major field and storage pests like Aphids, powdery mildew, pea weevil and others.
- Value chain based productionapproach; cluster farming and quality based marketing will be implemented.

B. Industrial Crops

Malt Barely

- Varieties which satisfythe quality that the malt industries demand such as higher malt extract rate, have high productivity, develop and demonstrate frost tolerate variety, . Multiplication of seed will be conducted at farmers' cooperative in addition to the formal seed system. In the high land areas where there are acidic soil problems, the supply of lime and I-Bar BBM in areas where there is a heavy clay soil will be enhanced.

- Continious capacity building and follow up will be provided to enable them implement the recommendations according to the package such as proper use of fertilizers for malt barley, agro-ecology based varietal selection, acidic and vertisol management, and integrated pest management.
- To stimulate and take off the farmers from the inherent reduction in yield of malt barley compared to food barley, engage farmers into contractual farming which will benefit them getting better price for their product.

Bread wheat

- Introduction of Disease resistant and highly productive bread wheat varieties which fit the standard of the industry through conventional research, adoption and promotion to users. Adequate and on time supply of improved seed by federal, regions, government and private seed multipliers. Agro ecological based supply of agricultural machineries and chemicals to fulfill the demand of farmers on time and need. Creating a value chain from production to market with cluster based farming.
- Application of full bread wheat package which able them to mproduce in the standard of the industry with integrated crop production and protection; mechanized pre and post-harvest practices and agro ecological based crop rotation.
- Implementation of value chain, standard system and demand driven bread wheat market system.
- Improving national wheat production by implementing Irrigated wheat production in different areas' (afar, Somali …) to substitutewheat imported.

Durum wheat

- Introduction of Disease resistant and highly productive durum wheat varieties which fit the standard of the industry through conventional research, adoption and promotion to users. Adequate and on time supply of improved seed by federal, regions, government and private seed multipliers. Agro ecological based supply of agricultural machineries and chemicals (rust and other diseases) to fulfill the demand of farmers on time and need. Creating a chain from production to market with cluster based farming.
- Application of full durum wheat package which achieve the standard of the industry with integrated crop production and protection; mechanized pre and post-harvest practices and agro ecological based crop rotation.

- Implementation of value chain, standard system and demand driven durum wheat market system to balance the price difference among different durum wheat cultivars.
- Implementation of Irrigated wheat production in different areas' (afar, Somali ...) and durum wheat market chain system based on the industry demand and standard.

Soya Bean

- Introduction of disease resistant with high oil and protein content soya bean varieties to meet the industry demand through conventional research and adoption. Supply of quality soya bean seeds to farmers based on agro ecology and demand. Government and private organization produce seed by implementing crop rotation. Supply of pre and post-harvest mechanization technologies. Implementation of packages which improves yield and productivity of soya bean with special emphasis on bio-fertilizers use.
- Production of soya bean based on the demand of the market by creating a linkage with the industry and export market.

Nuge

- Introduction of improved varieties particularly with high oil content, better yield and lodging resistant through conventional breeding and bio-technology will be a focus area. Seed production on small holder farmers and seed multiplying cooperatives will be encouraged. Continuous capacity building and follow up will be provided to implement the package recommendations. Awareness creation in changing the attitude of farmers towards Nuge from field management to marketing will be enhanced. Cluster farming for a better market linkage and extension delivery will be implemented. Post-harvest handling and particularly production of pure grain will be implemented.

Sun Flower

- The extraction of edible oil from sunflower and its market in Ethiopia is very limited. However Sun Flower has a huge potential in bridging the gap between the supply of oil and the oil demand. Therefore, linking all the stakeholders along the value chain will be the central focus. In addition expanding the area under production and engaging more farmers as much as possible will be done. Cluster farming will be

implemented to ease for Mechanization and reduce the possible threat caused by birds.

- Continious capacity building and follow up will be provided to implement the recommendations according to the package such as proper use of fertilizers for sunflower, agro-ecology based varietal selection, and integrated pest management.
- Market linkage of oil producers with farmers will be strengthened so that farmers can exploit the benefit from it.

Ground nut

- Varieties which have high oil content, have large size and attractive color which the export market demands, tolerate insect attack and resist disease infection will be developed. Seed multiplied by cooperatives and commercial seed enterprises will be delivered to the farmers on the required quantity at the proper time with the required quality standard. Access to Harvester, decorticators and pre- harvest machineries and tools will be facilitated.
- Continious capacity building and follow up will be provided to implement the recommendations according to the package such as proper use of fertilizers for ground nut, agro-ecology based varietal selection, acidic and vertisol management, and integrated pest management.
- Quality based pricing particularly for phyto-toxin will be implemented across the value chain.

Cotton

- Detailed cotton production targets and activities will be addressed by Textile development industry. However to the support the production by small holders, development of cotton varieties which are adoptable for each agro-ecology as per the quality standards of textile industries will be strengthen. Seed will be multiplied by cooperative unions, cotton investors and to a limited extent by the farmers. A specialized integrated Mailbag management strategy will be implemented. Specialized training on cotton and other crops in the agro- ecology will be given for development agents. Small holder farmers around commercial farms will be linked with the commercial farms for technical support and market linkage. The use of mechanized farming will be implemented during the entire cotton value chain.

C. Export crops goals

Sesame

- Shattering resistence varieties, which have a quality that the export market demands and having higher oil content will be developed. Multiplication and supply of C1 seed will be strength based on the agro-ecology. Greater emphasis will be for irrigation based production in the irrigable lowlands by private investors. Crop rotation with other crops particularly sorghum and cotton will be implemented to protect disease and insect to create a better nutrient recycling. Improved production techniques, proper fertilizer utilization, agro-ecology based variety selection, and other agronomic practices will be implemented according to the recommendation on the package. Post and pre-harvest equipment's and machineries will be used to reduce yield loss during production and help labor shortage particularly during harvest. Farmers will be ensured to obtain Credit service to purchase inputs and for their running costs. Quality assurance during production and storage, value chain approach based marketing will be implemented.

Haricot Bean /White pea bean and Red Bean/

- Varieties which have drought tolerance ability, disease resistance and pest tolerance will be developed and demonstrated on the farmer's fields which enable the farmers to produce for export standard. Soil test based fertilizer application will be introduced and enhance the capacity of bio-fertilizer producing and chemical fertilizer blending plants. In addition to the formal seed production, the informal seed system on cooperatives level will be strengthened. To control pests damage, integrated pest management and the use of pesticides with no or minimal residual effect will be implemented.
- Value chain based production approach; cluster farming and quality based marketing will be implemented.

Chick pea

- Large seed variety which, has drought tolerance ability, disease resistance and pest tolerance will be developed and demonstrated on the farmer's field which enable the farmers to produce for export standard.. Community based seed production scheme will be strengthen particularly in major chick pea producing areas of the country through farmer's cooperatives. To improve the use of bio-fertilizers the capacity of the laboratories will be enhanced. Due emphasis will be given to control

the damage from pests by integrated pest management and the use of pesticides with no or minimal residual effect. Continuous capacity building and follow up will be conducted to assist farmers implement fully the recommendations on the production package. Promote double croppingto maximaize the production from the cultivated land and suitability of the crop, irrigated agriculture and crop rotation will be given an emphasis.

- Value chain based production approach; cluster farming and quality based marketing will be implemented.

Mung Bean

- Since the crop is recently introduced to Ethiopia and is gaining a high economic interest, strengthening the research works on the crop is one of the focus area. Generate varieties which have high demand by the market, low shattering ability, and tolerance to bean maggot/ common bean fly will be introduced, developed and demonstrated on the farmer's field. To strengthen the seed system of the crop, farmers based seed production scheme will be a focus of action by equipping seed producing cooperatives with basic skills and inputs. Isolation of rhizobia strains, production of bio-fertilizers and distribution will be a key activity to this end, the capacity of the laboratories will be enhanced. Due emphasis will be given to control pests damage through integrated pest management and the use of pesticides with no or minimal residual effect. Continuous capacity building and follow up will be provided to assist farmers implement fully the recommendations on the production package. Work on expanding the area to be cultivated. Areas which are potentially suitable for Mung bean production will be exploited through double cropping; irrigated agriculture and crop rotation.
- Value chain based production approach and cluster farming and quality based marketing will be implemented.

1.7.2. Coffee Tea and Spices

Major Implementation Strategies

Coffee

In order to increase production and productivity and to improve the quality of coffee, it is desirable to assign well skilled professionals as per organizational structure in place. Furthermore, the coffee research centers organized both at

federal and regional levels should be strengthen by skilled man power and well equipped instruments in order to generate and adopt new technologies. Various actors and stake holders should jointly work together for the accomplishment of the GTP. Moreover, strengthening commitments to achieve the desired goal is indispensable. It is needed to facilitate access to credit facilities, input supply & demand for new technology in quantity and quality basis at the right time should be delivered for coffee sector development. Generally to accomplish the desired plan the implementer should be strengthened by allocating the budget and logistics required to achieve the targets.

Hence, to address the challenges encountered in the coffee sector, all stake holders should jointly work together to realize the second GTP intervention on coffee development. Based on existing conditions in coffee growing regions to increase production, productivity and quality improvement, the following major activities should be considered:

- To enhance modern coffee production &quality management practices in all coffee growing regions,full coffee development and quality extension package program will be implemented to narrow the gap of productivity & quality management practices among research farm, model farmers and majority of coffee farmers.
- The existing coffee extension monitoring and evaluation system will be strengthened.
- There should be an input supply and use of modern technologies to improve coffee production and quality. The coffee farmers and the country as a whole should give more attention for coffee development sustainably in order to be competent in the world coffee market. By incorporating the bio-diversity conservation in the existing coffee extension system, the extent of the damage faced due to biotic & abiotic will be minimized .About 300 thousand hectares of mother trees will be rejuvenated to increase production &productivity. About 200 thousand hectares of land covered by poorly managed & low productive mother trees will be uprooted & replanted by same coffee varieties.Where there is access to water; coffee production will be supported by small scale irrigation. To increase coffee production, utilization of organic and chemical fertilizers based on soil characteristics and soil test will be implemented. Soil & water conservation practices will be done where there is a steep slope on coffee farms and production of forage crops aligning with natural resource and water shade management practices.

- Promoting the naturally existing forest coffee production that can attain organic coffee certification and other certification systems.
- Promote the natural coffee plantation and cultivated coffee land with standard coffee certification with better market opportunities and
- Coffee specialties known by providing them the recommended practices and inputs through cooperative.
- Coffee characterization and quality mapping of unique flavor coffee for better promotion and access to traceable markets.

Securing sustainable market and implementing traceability system should be practiced to have the niche markets. Link small scale coffee farmers with large scale private coffee plantation to get technology transferred and provide continuous technical support to encourage quality coffee production and benefit from quality based prices at coffee primary market centers.

Provision of Improved Coffee Seeds and Seedlings

One of the problems faced in the coffee industry is lack of availability of improved seeds. The current status of provision of improved coffee seeds seedlings from the agricultural research centers & few large scale farms could cover only about 25% of the demand in the country. To resolve such a problem it is needed to produce improved coffee varieties adopted at desired coffee producingagro-ecologies.

To supply improved coffee seeds the desired options are listed below:-

- Where there are agricultural research centers found in different parts of the country, it is better to produce improved basic seeds that could be multiplied by the coffee farmers.
- Motivate those individuals or groups that could be engaged on improved coffee seeds /seedlings production by providing training, monitoring and evaluation systems.
- Support to the Establishment of coffee seed system by providing support to relevant stakeholders
- Strengthen research centers through provision of laboratory equipment's to generate hybrid coffee seeds and basic seedlings from tissue culture and cutting propagation for further multiplication to seedling producers.
- Multiplication of hybrid coffee varieties

Strengthen of Improved Coffee Management Practices

Majority of the coffee in the country is produced by traditional practices, thus due to the old age & improper management practices the production potential become week. As a result it has an influence on the production, productivity & quality of the coffee produced in the country. Hence; it is needed to change such practices to modern & proper management systems.

- Implementation of Modern cultural practices like:- stumping, pruning, sucker control, uprooting and planting new seedlings ,in filling the blank spaces with seedlings, shade management ,intercropping, use of natural & man made fertilizers ,mulching, pest management and irrigation support practices are needed to be practiced.
- Soil &water conservation practices should be implemented in the coffee farms: physical terracing & biological-methods of conservation, planting the shade types that can improve soil fertility and improper grazing system will be strengthened.

Improve Coffee Processing and Quality Management Practices

Implement improved coffee production and processing practices by promoting &demonstrating the new technologies which could help to improve coffee quality in a sustainable way. Thus;

- Strengthening the coffee extension system on improved coffee processing technologies through continuous capacity building and developing awareness creation on coffee quality & its implications.
- Coffee quality based price payment systems on red and dry cherry markets at the primary coffee market centers and continuous awareness will be created using the community forum.
- To improve coffee quality control systems in a sustainable manner, it is needed to strengthen the coffee organizational structure at the regional level.
- Supporting the stakeholders on promotion and branding activities and bio-diversities conservation of Arabica specialty coffee characteristics within and out of the country.

Strengethen the OutgrowersSchem on Coffee Production

- Enhance and transforming technology transfer activities
- Facilitate supply of agricultural inputs and marketing activities

- Continuous capacity building will be provided for out growers, experts, and community leaders
- Provision of improved coffee varieties by large scale coffee producing organizations.
- Capacity building for those engaged on coffee research, input supply and seedling multiplication
- Assessment on coffee potential areas and facilitate to link the out growers and coffee producing organizations for better production.

Improve the Use of Farm Tools and Inputs

- Promote farm tools and machineries used to improve quality production and strengthen suppliers.
- Supporte and motivate the farmers to use natural and chemical fertilizers and pesticides based on the recommendations.

Tea

Improve the Provision of Tea Seedlings

In the process of promoting tea production, luck of provision of appropriate varieties and seedlings are the major constraints in the industry. The out growers which are found in the nearby tea farms have not been successful due to limited tea seedlings provided by tea farms. So, there has to be a sort of strategies to alleviate such constraints.

The strategies are described as follows:-

- Provision of training, extension services, capacity building, and technical support to farmers engaged on the production of improved tea seedlings individually or in groups.
- Strengthening the linkage among research institutes, tea producing organizations and out grower's farmers where there is a potential of tea production.
- Tea seedling multiplications and distribution system will be developed together with stakeholders to facilitate linkage between seedlings producers and beneficiaries.

Strengthen Improved Tea Management Practices

Traditional and improper cultural practices are the major gaps faced in tea production. Hence, to attain the desired development on tea industry, implementing modern practices is indispensable.

- Application of improved management practices such as stumping, pruning, application of organic and inorganic fertilizers, pest assessment and control and supplementary irrigation should be practiced

- Soil and water conservation activities will be applied on tea farms

Strengthen the Outgrowers Scheme on Tea Production

- The large scale tea plantations should be linked with the tea farmers engaged as out growers to overcome the land scarcity they face for expansion of plantations. These organizations should access awareness creations on technology transfer in the tea industry.
- Supporting the tea production marketing systems to be legal and quality based price payment systems.
- Provision of improved tea varieties seedlings by large scale tea producing organizations.
- Provision of capacity building for those engaged on tea research, input supply and seedling multiplication.
- Assessment should be held on tea potential areas and facilitating the link between the out growers and tea producing organization for better production.

Spices

Traditional practices and disease problems are the major problems faced on the spices production. Hence, to attain the desired goals on production and export market potential, applying modern practices is crucial.

Red Peppers

Red pepper is one of the major exportable spices in the country. To increase its production and improve its quality ,it is better to control the diseases and pests by using improved cultural practices such as shifting cultivation, use of pure seeds and chemicals, use of improved agronomic practices based on agro-ecologies as per recommendations set by research. Provision and promotion of post-harvest technologies and use of improved management practices is necessary. Supporting and capacitating the research institutions to release improved varieties having high yielding potential, resistant to adverse conditions and high market values. Capacity building, provision of technical support will be strengthened to increase red peppers production through utilization of package recommendations. Provide technical support for individual farmers and group of farmers engaged on the production of improved red peppers varieties.

Ginger

Currently one of the major problems faced in the ginger production is Bacterial Wilt of ginger.Hence, the research institutions will focus on searching and releasing disease resistant varieties that could serve as seed sources for beneficiaries. Furthermore; the farmers are supposed to practice the recommended agronomic practices to apply the improved packages released from research and extension. The role of coops in the market linkage and value addition will be strengthened in order to solve the problems of marketing, provision and use of postharvest technologies.

Fenugreek

One of the major gaps in fenugreek production is poor post-harvest handling. To improve the quality of this spice, provision of practical training, improved post-harvest technologies and setting the quality standards to grade the produce to fit the export standards.

Kororima

Kororima is mainly grown under the shade in the naturally existing forests. It is possible to adopt this crop to be grown in the garden and in the existing coffee farms. Furthermore, to minimize the gaps on post-harvest handling practices there will be provision of practical training, supply of improved post-harvest technologies, together with concerned stakeholders standardize the quality by using the technologies should be set

Turmeric

The major constrains of turmeric production is processing and accesses to market. So, with the objective of increasing its production, improve quality and use of modern post-harvest management practices, it is important to create market linkages with farmers cooperatives and investors. Provision of quality awareness creation & practical training on improved turmeric production and post-harvest handling to efficiently utilize package recommendation will be followed. Strengthening the outgrowers scheme to benefit from fair market price.

Cumin

The gaps & problems encountered in post-harvest handling practices of cumin will be resolved by provision of practical training. Provision of improved modern post-harvest technologies .Quality standards will be prepared in coordination with stakeholders to modernize the marketability of the crop. Encouraging

farmer's cooperatives to be engaged in the cumin market to enhance the production status of such economically important crop.

1.7.3 Small Scale Horticulture Development

Major Implementation Strategies

The following are implementation mechanisms in achieving the target sets in the plan:

Strengthen Horticulture Development Extension

Despite the fact that the country has an immense potential in terms of agro-ecology, edaphic and huge water source, the production and productivity of horticultural crops in relation to other producing countries is still very less. According to the results of some survey studies to identify potential reasons for this, it is found that among many, the major one is the lack of a structure accountable to attend on every side of the sector's progress and bring about a reasonable change out of it. Accordingly, among the much prioritized actions to be taken, establishing a structure which will have a leading role on horticulture development, introduce improved cultural and post-harvest practice technologies are the major once. To attain these targets the following will be given a due emphasis:

- Enforce horticulture extension structure from Federal to grass root level and strengthen them,
- Ensure the availability of skilled human resource and necessary logistics.
- Ensure the strength of the linkage between relevant stakeholders around the horticulture sector.

Expansion of market oriented (Semi commercialized) horticulture development

The horticulture sector performance, because of different factors obviously has not been developed as expected. The major bottlenecks are the use of poor quality varieties, low level of awareness to produce commodities with high market demand, less amount of produce because of high post-harvest loss and poor cultural practices like not to use input as per recommendations. On top of this the market linkage made so far is not as such at the advantage of the farmer. So, to address the problems, market oriented production and creating efficient linkages between the farmers and potential markets among neighboring countries and Middle East to market them a standard produce,

sufficient amount. There are some modes of practices to be done in order to obtain these like:

- Developing new market demanded varieties by breeding (research activity) and adopting already developed varieties which are suitable to our condition.
- Expansion of market demanded new coming horticultural produces particularly for export market and also for local markets to some level. These targeted crops include green bean, snow peas, baby carrot, cucumber, melon, squash, sweet corn, eggplant, cauliflower and broccoli and some high land fruits.

Install integrated pest management system

It is well known that horticultural crops are highly vulnerable to different pest and diseases because of their high water and flavour content. Nowadays different in coming pests like white scale on Mango and Tutaabsoluta on Tomato are making new and serious damage on the crops. The use of chemicals was majorly the only way our farmers were applying to tackle these problems and this trend is becoming unfriendly to the environment and also causing quality problems on the export produces.

This application has to be modified in such a way that the use of other options is introduced which do not harm the environment and also have no or very insignificant side effects on product quality. This approach has been started on few crops and found to be environmentally safe than the conventional one. On the other hand using integrated pest management practice has been started but not well disseminated as expected. This management practice will continue in GTP-II with emphasis to:-

- Identification of economically important pests on some market oriented horticultural crops.
- Deploy research based integrated pest management.
- Manual preparation on the system of integrated pest management.
- Undertaking capacity building activity and follow up its impact.

Reduction of post-harvest losses

We see an enormous post-harvest loss in horticulture development. In our condition the loss reaches up to 50%. Based on this evidence, an intervention towards decreasing the post-harvest loss by 3% each year with a cumulative achievement of 15% and reduce the rate of loss to 35% .by accomplishing the following tasks.

- Introduction of new small scale and other technologies which reduce loss to a significant amount and also better technologies which are useful to harvest, store and transport.
- Install cluster or corridor based cold chain.
- Skill development on post-harvest professionals and also encouraging universities and TVET colleges to design a curriculum and capacitating to graduate students in this field of study.

Strengthen seed and seedling and other inputs supply

One of the major considerations to maximize production and productivity and to keep product quality is the capacity to supply healthy, resistant and productive seed and seedling. Based on this producing the required quality needs an intensive breeding research to come up with improved varieties. As suitable seed and seedling will be availed from the research then organize multiplication centers in ideal sites and will managed by model farmers .On this issue some trials have been and will be strengthened towards ensuring adequate supply of quality seed and seedling, collaborative effort will be made with quarantine Directorate in order to control the movement of pest, infected seed and seedling.

There are some implementation tactics to be considered to make this happen like:

- Strengthen governmental, private and cooperative (particularly the female and youth) participated seed and seedling multiplication based on accepted protocol.
- Expansion of Tissue Culture laboratories and capacitate the already existing once.
- Employ certification system on seed and seedling production.
- Adequate supply of horticultural inputs including machineries.
- Supporting importers of seed, seedling and other propagating materials on capacity building issues and encourage them to acquire competency letter so that they will be an additional capacity towards the sector's development progress.

Value chain improvement

In order to improve the value chain from the production phase to consumption, there is a need to identify the principal constraints to be addressed in the value chain. This will help to improve the quality of the produces and supply marketable surplus to the buyer. In this regard, best practices from inland and

also abroad will be collected and summarized in accordance with the real situations of the adopting areas. Infrastructure and post-harvest technology will be enhanced in the coming GTP plan by organizing corridor development intervention and employing a better value chain linkage from the point of production to potential markets. The other way of benefiting the farmer is the linkage that will be created between individual farmer and commercial farmers, cooperatives and agro processing industries. The tactics to achieve the the desired results:-

- Promote the awareness of each actor in the value chain and improvement of the system.
- Establish rural and urban out grower production linkage system among the selected potential growth corridors.
- Strengthen the capacity of cooperatives/unions, private partners, etc.on services they provide like cold chain, quality control, packaging and transport.
- Result based market linkagecreation.
- Strengthen farmers' cooperatives/unions.
- Establishment of market information supply system.
- Organize product promotion forums like (Symposium, exhibition, horticulture day etc.)

- **Capacity building**

The capacity gap of professionals from federal to regional levels and also the farmers on best cultural practices, maintaining quality of products and good post-harvest care will be minimized by a strategically led intensive trainingin horticultural training centers. Curriculum development for a formal way of capacity building in colleges and universities will have a greater focus. On top of the above mentioned activities the sector will also be supported by an affordable and implementable mechanization facility. The major interventions are described below:

- Capacitate the research stations which work on horticulture at federal and regional level.
- Capacity building of the professionals at all levels.
- Improving the cultural practice applications of the farmers by the use of trainings, demonstration fields, guidance and supervision and also incentives for best performers etc…
- Encourage mechanization service delivering institutions and private firms.
- Introduce and practicing Globally Accepted Agricultural practices.

- **Irrigation infrastructure installation and improvement of water use.**

The low production and productivity of horticultural crops in the country is the reflection of inefficient utilization of irrigation water.

The water potential to be used for horticulture development in the country is still by far below expected. The already started interventions to enhance horticulture irrigation were not performing well and there was also poor water use efficiency which in turn triggers salinity problems. So improving water utilization generated from surface and sub-surface and also from deep ground water will have a better focus in the upcoming GTP. The following tactics will be employed to guide proper implementation.

  - Installation of small and medium scale irrigation infrastructure.
  - Getting already installed irrigation infrastructures in to action at their full capacity.
  - Establish and strengthen water user associations.
  - Expansion of efficient water harvesting technologies.
  - Introduction of best technologies on good irrigation water utilization.

- **Availing different infrastructures in the selected horticulture corridors.**

Infrastructure like road is very important to supply the fresh produces to the end user. Accordingly to keep produces fresh and maintain quality until they reach the relevant market by, provision of store services with required standards will be constructed. Here electric power supply issue will be dealt through consecutive follow up with the power supplying authority. More over to make market information accessible to the farming community, telecom services has to be facilitated. Implementation approaches includes:-

  - Improve infrastructure for the supply of necessary inputs on time (like road), and also building cold collection centers at selected sites.
  - Strengthen and building market centers.
  - FacilitatE electric power and telecom supply.

- **Expansion of urban horticulture.**

In relation to the fast growth and emergence of new cities, the demand for horticultural crops has increased. But, the horticultural crops (especially vegetable) production around the cities have limited supply to satisfay the demand, more over it has different problems related to variety use, sanitation and cultivation practices. In order to tackle these constraints and benefit the producer and serve the consumer, the following steps will be taken:

- Capacity building to producer stakeholders.
- Expansion of protected horticulture cultivation like using simple green houses and also encouraging mushroom production.
- Strengthen the capacity of urban horticulture quality control.
- Increasing the efficiency of credit and input system.

1.7.4 Agricultural Mechanization

Major implementation strategies

Due to the fact that agricultural mechanization technologies are capital intensive and economically not feasible for individual farmers, promotion of group ownership & mechanization service provision will be done. In addition to improving supply of foreign currency and credit services to domestically manufactured agricultural mechanization technologies by importing raw materials or fully imported from abroad, the following major implementation strategies will be followed

Ensure sufficient supply and access to agricultural mechanization technologies

- encourage domestic manufacturing of agricultural mechanization technologies
- Promote domestic manufacturing efforts with the formation of joint venture partnerships with foreign manufacturers
- develop standards & establish a national testing and certification system for both imported and locally manufactured agricultural mechanization technologies
- enable establishment of importers and foreign companies to open branches at strategic location of the regions, enable service delivery to end users
- to encourage farmers cooperative unions and primary cooperatives to supply farm machineries and implements on long term loan at affordable price in addition to existing fertilizers & improved seeds provision

Establish spare parts and maintenance service provision

- Create enabling environment for establishment of spare parts and maintenance service centers by
    - Private investors
    - from importers and dealers
    - established rural youth groups (men and female)

Formulate agricultural mechanization services delivery system through rental & hire rate

- Support formation of youth groups (male and female) to give agricultural mechanization rental &hire services
- Encourage privates companies to give agricultural mechanization rental &hire services
- Encourage farmers cooperative unions and primary cooperatives to give agricultural mechanization rental & hire services for their members
- Support private mechanization services providers to be organized legally and expand type & coverage of the services
- Support supply of foreign currency to agricultural mechanization technology importers, manufacturers and users
- Encourage farmers who can afford to buy technologies individually
- Facilitate credit services for farmers who cannot afford to buy agricultural mechanization technologies
- Support supply of foreign currency and loan for agricultural mechanization technology importers, and manufacturers
- Develop guidelines, policies, directives on tax exemptions, credit services for importers and manufacturers

1.7.5 Agriculture Training and Advisory

Strategies that will be followed to increase the number of beneficiaries by strengthening the agricultural extension service

Farmers need to be skilled in the following years; in order to achieve that the following activities will be done.

- Strengthening and enabling the already established Agricultural Technical and Vocational Collages (ATVETs) to make use of their maximum effort to offer their training. So that, the capacity of ATVETs at federal and regional level will be strengthen in GTP II.

- The capacity of all illiterate farmers, agro-pastoralists and pastoralists will be strengthen through adult education in GTP II for better performance and agricultural transformation.
- Farmers, agro- pastoralists and pastoralists who can read and write or pass through adult education will be trained with different competency levels that are selected by ATVETs to enable them to be a strong foundation for agricultural modernization.
- Model farmers, agro pastoralist and pastoralist will be selected in each kebele and trained in ATVETs with level 1 and 2 to enable farmers to support agricultural development in their area besides modernizing agriculture.

Fulfill the necessary human resource at each level

- To deliver the extension service to the farmers, agro-pastoralists and pastoralists effectively, there is a need to have knowledgeable, skillful, well equipped experts at each level; so that, to implement the next GTP II the required experts will be recruited from federal to kebele level. Hence, all vacant positions will be identified at each level, estimate the required budget and facilitation will be made to recruit experts. In this regard, emphasis will be given to replace the existing gap due to the turnover of development agents by literate and model farmers at kebele level; besides, facilitation will be made to select and train those literate and model farmers, agro pastoralists and pastoralists to serve as development agents.
- Conducive environment will be created for agricultural experts who are assigned at each level in order to encourage them to settle in one place and to deliver the service; In this regard, house, transport service, salary increment and incentive will be offered for development agents based on their performance. In addition, system will be developed and awareness will be created at each level to operate the above services for those kebele experts with impartiality, transparency and good governance.

Creating strong linkage between agricultural extension counterpart institutions at each level and work divisions

- The existing loose linkage of extension counterpart institutions in planning, reporting, information exchange, monitoring, feedback and support will be strengthen with shared responsibility and accountability. In addition, strong linkage will be created between different agricultural

work divisions and Training and Advisory Directorate in order to accomplish tasks with integration and support. Besides, to make agricultural extension service more accessible and to make the service effective the existing agricultural extension organizational structure will be examined based on the existing circumstance of the country and drawing experience from other countries.

Organize and Strengthen the existing farmers', agro-pastoralists' and pastoralists' development groups and sub- development groups

- Effective extension service delivery will only be possible if the beneficiaries organized in the way that suit the facilitatation of the service. Hence, in GTP II emphasis will be given to organize and strengthen the existing farmers, agro-pastoralists development andgroup and sub development group and pastoralists development group and sub- and sub development group. These groups will be organized based on the interests of farmers, agro-pastoralists and pastoralists, proximity, work nature, sex and age. Working in groups will help to scale up best practice done by others, experience sharing and to bring others to the level of model farmers, agro-pastoralists and pastoralists. Mechanism will be devised to offer incentive and recognition for those development groups and sub development groups that scale up different best practices.
- Development needs of farmers, agro-pastoralists and pastoralists that could not been addressed by development groups will be addressedinto integrated approach. Promote and enhance the groups into primary cooperatives and unions with the collaboration of others stakeholders.

Make use of different extension methods with the integration of ICT

- Agricultural extension has been using training, demonstration, TV, radio and printing media to disseminate messages. In GTP II, for the successful implementation of the plan besides the aforementioned methods modern ICT will be used for those farmers, agro-pastoralists, pastoralists and other beneficiaries who have access to the IT infrastructure in the area. This modern ICT will be tested in some development groups and Farmers/Pastoralist Training Centers and will be scaled up to anotherareas. Besides monitoring and evaluation of technologies like IVR 8028, short videos piloted by Digital Green and others, other modern ICT will be tested and rolled out.

- The existing extension system has been benefitted farmers, agro-pastoralists and pastoralists by formulating effective technological packages based on different agro ecologies. Farmers have been taken package training and implement on their farm which resulted significant achievement in increasing production and productivity. However, in GTP II extra effort will be needed to reach all farmers, agro- pastoralists and pastoralists by integrating different extension methods with the objective to increase technology adoption of all farmers, agro- pastoralists and pastoralists instead of focusing on model farmers.

Motivate agricultural extension beneficiaries by introducing improved and new technologies on pre-scaling up and scaling up of best practices in different agro-ecologies.

- Pre-scaling up of technology demonstrations will be done in Farmers Training Center and Agricultural Technical and vocational colleges on new technologies and practices to initiate and develop the interests of farmers. This will be done in collaboration with research institute and other stakeholders. Experience will be shared to the farmers, agro-pastoralists and pastoralists through effective technology demonstrations in pre scaling up by organizing farmers field days.

Extension service will be provided based on value chain and value chain clusters

- Extension services will focus on comparative advantage production system and on value chain and clustering approach. Agricultural activities which have better comparative advantages will be identified in order to engage and suppport communities in full package production. Besides, out grower's scheme will be undertaken for farmers, agro pastoralists and pastoralists who have farm adjacent to private investors engaged in similar agricultural activities in the area. For better performance out grower scheme guideline will be prepared/revised with concerned stakeholders.

Gender responsive agricultural extension service will be strengthened

Women farmers/agro pastoralists/pastoralists(married and women headed) are the main contributor of labor in agricultural development and they participated in crop production, livestock production and natural resource management.

With clear policy direction on gender based agricultural development that ensures the benefit of women in the agricultural development, emphasis was not given in the implementation. In this regard Studies indicate that the benefit of women farmers/agro-pastoralists/pastoralists in agricultural extension and their level of production and productivity remained low comparing to men.

Therefore, in GTP II agricultural extension will be implemented to address the need of women farmers/ agro-pastoralists/pastoralists through gender sensitive approaches. For its implementation awareness will be created at each step, participation of women and rural youth in agricultural extension will be encouraged, training will be delivered to enable development agents gender sensitive to support women and rural youths in the agricultural activities. with defined responsibility and accountability.

Strengthen the monitoring, backstopping and feedback system of agricultural extension system

Monitoring, backstopping and feedback system of the agricultural extension system will be strengthened in GTP II. To do that, the existing monitoring and feedback system will be evaluated and revised as per the recommendation with concerned stakeholders; this guideline will show clear role, responsibility and accountability of extension service providers at each level. Besides, experts will be trained and assigned at each level to enable and capacitate to efficiently conduct monitoring and provide implementation support.

System will be devised to connect agricultural institutions from kebele to federal level with modern ICT to create efficient information exchange and reporting system.

In order to be effective in monitoring and feedback system, performance measurement tools (with emphasis for women) will be prepared and assessment of farmers satisfaction will be done with stakeholders to measure satisfaction of beneficiaries; based on theassessment findings correction measure will be taken. Experience and lesson will be drawn from countries that have better performance in monitoring, backstopping and feedback system in agricultural extension.

Strategies for Capacity building

In GTP II, agricultural extension Training will be conducted by assessing the training need through rapid assessment. The training and human resource development by the HLIs and ATVETs will be based on emerging development

needs in each sector and in relation to dynamic changes taking place within the agriculture development. This has been done through well-articulated curriculum development and capacity building plan in consultation with all concerned actor with the leadership of the national extension system. Putting in place outcome based training system in HLIs and ATVETs and regular assessment on the professional competency right after the graduation by private consultant.

In addition, we will give short and long term on-job-training for extension staff by assessing the training need and experience sharing will be conducted on best experience

Conduct continuous assessment and support them to use communication method to reach the community TOTs and satisfy local communities.

Strategies' for Transformation of FTCs into farmer owned/farmer driven entities and enterprises

To make FTCs center of knowledge, and information and develop a best –fit extension system that is driven and led by famers themselves and manage the FTC on a long basis. FTC based trinaings will be conducted in consideration of women needs and interests.

Develop sense of ownership of farmers on FTCs and their sustainable function

Framer training centers (FTCs) cannot function properly unless farmers take ownership and effective management system is put in place. To effect this, first and foremost awareness level of farmers on the basic scenario of FTCs, and their short and long term benefits should be raised to bring behavioral changes and create demands. In addition, clear guideline that describes roles and duties to be played by farmers and other stakeholders is needed. Based on the guideline, farmers led FTC-Management system should be established in each FTC with due consideration to women and youth representation. Following this, the capacity of FTC-MCs needs to be built through different means (organizing specific training on FTC management, experience sharing visit within and with other regions, etc) on regular bases. While building the capacity of farmers should be given to practical skill training that increases the participation, ownership of the MCs in particular and the farming community in general.

Allocate sufficient resource to FTCs

It is strongly believed that apart from government, other supports from diversified sources are critically needed to bridge the gap and improving its management. In this case, government is expected to leverage seed money for fixed period of time, which will be shown in the FTCs guideline. Only resources from government can't be adequate to achieve the overall ambition of FTCs. Hence, it requires contribution of the community in terms of labor and availing local materials. Similarly, Donor, NGO's and private actors are also encouraged to support FTCs through their programs and projects with regards to supply of basic resources.

On the other hand, poor management of the available resources is also another drawback that potentially constrained for the sustained function of FTCs. Therefore, clear guideline on resource management and utilization should be prepared keeping the government financial rules and regulations into consideration. FTCs are also encouraged to generate their own revenues while undertaking demonstrations, but this should not be taken as a major objective for profit making. Hence, care should be given that revenues in FTCs are just to sustain the function of FTC and not for profit making.

Furnish and equip FTCs with basic infrastructures

FTCs need basic infrastructures and facilities for proper functioning. This includes DA housing and offices, classrooms with appropriate training materials and furniture, farm implements for crop, livestock production and NRM, workshop/ permanent exhibition center, demonstrations plots, meteorology center, ICT-materials and others indicated in the FTC guideline. Without these facilities, it's unlikely to improve their performance and attract farmers to learn in FTC. On the other hand, most of the facilities and equipments procured and distributed to FTCs were poorly managed and wasted without rendering the required services. These facilities should be also provided to each FTC in accordance with FTCs classification by pre basic, Basic, Intermediate and Advanced.

Improved support to FTCs by the management

Performance of the FTC and overall field-level extension execution is only successful when the responsible extension management provide all necessary support with regard to human and physical resourcing, capacity building and coaching. In addition, Woredas level extension management must allow for and

stimulate decentralized decision-making and improved feedback system at the FTC level. Since FTCs are an institution where changes are to begin and flourish, more emphases should be also given by the extension management at zonal levels. Otherwise, poor support and achievements in lower management contributed to low level achievements of the regional and national goals. Among others, improved support by allocating adequate budget for the construction of the FTCs where they are not established, ensuring the quality of the established FTC, and monitoring their day to day performance, technical support and on time response to DAs and FTC management committees requires strong attention. The management team is also expected to establish close link with FTC-MC and develop mechanisms and micro conditions how to improve the performance of the FTCs and encourage those that are performing well including DAs and FTC management committees.

Strategies that we follow to strengthen Agricultural development partner's linkage advisory councils

Beside scaling up effective technologies and best practices to boost our agricultural development in a sustainable manner our research system has a gap in solving agricultural development bottlenecks in generating technologies and in conducting adaptation trail and popularizing the existing technologies in hand. To overcome this:-

Agricultural development partners linkage advisory councils that have been established from federal up to woreda level will be strengthen based on the existing working guideline. Stakeholders involved in agricultural development will be scheduled to meet regularly to discuss, plan and to take their parts in solving agricultural bottlenecks. To realize these, discussion platforms will be strengthened and an integrated working system will be laid down to give effective and efficient service for beneficiaries at all level.

To increase agricultural production and productivity cluster and technology need based sub platforms will be established as needed by bringing the relevant stakeholders together.

Agricultural development partners linkage advisory councils will be established in zones and woredas which have not yet established and in those which have already established a strengthening work will be done at all level. To realize this strong monitoring and support work will be carried out.

1.8 Agricultural Inputs Supply Plan

Lesson learnt from Agricultural Inputs Supply performance in GTP-I implementation period indicates, to strengthen the good practices and the need to improve some of the weakness faced. It is also important to review and design other best practice options to exercise timely supply of required agricultural inputs that contribute for continuous economic growth, and ultimately benefiting the people engaged in the sector.

1.8.1 Targets

In the 2nd GTP period 4 major targets which transform the agricultural input supply system are identified and presented as follows.

- The improved seed supply which was 1,873,778 Qt In 2015 increased to 3,559,924 Qt by the end of GTP II with annual average growth rate of 8%.
- The chemical fertilizer supply which was 1,223,309 Mt in 2015 increased to 2,062,106 Mt by the end of GTP II with annual average growth rate of 15%.
- The Voucher input credit system which was found to be satisfactory in 81 piloted Weredas will be fully scaled up and implemented across all regions.
- Data management system on agricultural inputs supply will be established, so that input supply will be insured across all regions.

1.8.2 Implementation Strategies

Strategies that are implemented in the established agricultural input supply system:

- Facilitate input credit for credit needy farmers; the new and piloted voucher credit system will be fully scaled up and implemented by rural saving and credit institutionsin cooperation with regional bureau of agriculture and financial institutions.

- One of the main limiting factors, in improved seed supply, is shortage of initial seed from research. This problem will be addressed systematically; through signing memorandum of understanding (MoU) between seed enterprises and agricultural research institutions. Therefore, efficient use of limited resource will be achieved by producing the demanded type of varieties and its amount. In this regard there will be a close follow up for its implementation by the ministry. Also regional agricultural research institutes are responsible for initial seed multiplication and supply for

regionally releasedvarieties. They cooperate and get support from the respective region bureau of agriculture.

- The supplies of improved seeds of pulses and oil crops have great shortage. This is mainly caused by the nature of their low productivity and susceptibility to diseases. To solve this problem all parties shall work comprehensively. Research centers are required to release resistant and better yielding varieties of these crops, and public & private seed enterprises have to plan significant hectares of their plots for pulses and oil crops in crop rotation. In addition to this, forage crops, fruit and vegetable seed multiplication shall be their focus area through organizing and capacitating group of seed producing women and youth.
- Since it was difficult to satisfy the growing improved seed demand of farmers only through regular/formal seed system, each regional state shall organize willing farmers to cluster their plots for seed multiplication in order to satisfy their area seed demands. For this purpose Initial seed shall be supplied through regional bureau of agriculture based on agreement made through MoU with the respective initial seed suppliers. Technical and material capacity gaps will be identified and be fulfilled through training and projects respectively.
- Technical and material capacity gap of public, private, organized and clustered seed producing farmers will be surveyed and identified to be filled by the respective partners.
- Federal and regional states will capacitate public seed enterprises in terms of availing land and initial capital so as to enable them to produce sufficient initial seed that satisfy the demand of all actors in the seed system.
- One of the reasons for the shortcomings in seed supply is failure to collect the contractually produced seed on individual farmer's field. To solve this problem a system that helps to collect most of the produced seeds on farmer’s plots and benefits both parties will be designed. In addition cluster based contractual seed multiplication approach will be followed.
- To minimize seed distribution related problems direct seed marketing (DSM) approach, which is currently piloted and found satisfactory, will be promoted and expanded through time. The approach will be expected to be fully scaled up to all Weredas in GTP II period.
- Annual Chemical fertilizer demand will be fulfilled through import and local production. For this annual demand estimation, foreign exchange allocation for imported fertilizer, procurement and distribution will be done

on time. The supply value chain will be monitored and supported by MOANR at all levels.

Implementation strategies that will be used in relation to identifying new agricultural inputs sources:

- To reduce seed lose due to quality related problems each seed enterprise will establish internal quality control unit. At federal and regional level regulatory bodies will be established and strengthened to give support and control the seed production system by all actors.
- Through agricultural research centers like Melkasa, Holeta, D/Zeit, Jimma and others, the farmers research groups (FRG) will engage in small scale seed production in the respective centers and mean while consulting them to be organized as a seed producer so that they evolve to seed producing cooperative that scale up newly released varieties around the respective research centers, specially on fruits, vegetables and pulse crop seeds.

- Seed multiplication based on rain fed agriculture yields less because of different problems associated with unbalanced rainfall, disease, frost and ultimately poor quality. To solve this problem irrigation shall be used widely by all seed enterprises. Irrigated land for this purpose will be facilitated in collaboration with regional Agricultural bureaus

- To satisfy fruit and vegetable seed demand, research centers working in those fields will be strengthened to release productive varieties and supply the initial seed for seed enterprise. The seed multiplication will be done by seed enterprises and organized farmers supported by the research centers. For example Farmers field school (FFS) participants, Farmers research Group (FRG) and cooperatives working on seed potato production around Holeta Agricultural Research Center. Moreover, foreign investors will be encouraged to bring their own new varieties and invest in the sector, based on the investment low of the country.

- To strengthen bio-technology based research and multiplying disease free fruit and vegetable seed, Ethiopian Agricultural Research Institute (EIAR) will take the lead and operate in its research centers like Holeta, Jimma, D/Zeit and Melkasa; capacitating the bio-technology laboratories with human and material support will enable us to create center of excellence for knowledge transfer and source of disease free biological materials.

- Domestic and international investors are welcome and will be given prior attention to encourage them invest specially in the field of vegetables, fruits, spices and forages seed multiplication.

- Higher learning institutions providing training and doing research on horticulture will be encouraged to focus on identification of problems associated in the sector, so that they can undertake applied research , make result demonstration and fill the gap of educated personnel in the field.

- To improve the seed supply problem of industrial crops like malt barley and durum wheat, in addition to the formal seed system, farmers will be organized to produce seed in cluster and linked with sustainable markets/industries. To solve productivity problems of the crops, research will take the lead in search of better varieties.

- Crop varieties released in overseas shall be imported and researched for their adaptation at different agro ecologies, through federal and regional research centers, so that well adapted varieties will be directly registered and used as additional seed source.
- To improve the quality and volume of cotton production in the country especially BT-cotton variety will be encouraged to be officially allowed by the government for domestic cotton seed multiplication.

- Capacity of farmer's cooperatives, in terms of warehouse and so on, will be improved by their own or through government/ development partners' support; to make them able to timely supply member farmer's agricultural input needs; like chemical fertilizer, seed and other.

- Distribution system for locally produced fertilizers that engage both cooperatives and legally registered private companies will be designed. Fertilizer that is not produced locally will be entertained with the current system of procurement and distribution.

Agricultural Inputs and credit supply system

- In relation to a growing agricultural development and fast scale up of irrigation scheme inputs and credit demand is increasing in size and type. Moreover, fertilizer supply that need high resources will be

entertained without collateral from regional government's budget, and will be substituted by regular and independent financial system of banks; and this will be performed by strengthening the piloted voucher approach aligned with the newly designed rural financial strategy.

- The newly designed and piloted direct seed marketing and voucher credit system will be exercised in the first and second year of GTP II period and after reviewing performance at the end of second year gaps on the system will be improved.

- Problems associated with technology multiplication and distribution will be solved by multiplying ample amount of breeder and pre-basic seed by the research system. In this regard the experience from MoU will be strengthened to fulfill initial seed demand of certified seed producers, so that certified seed supply will be insured. In addition to this public seed companies will be capacitated and private investors will be encouraged to involve in the system, seed will be multiplied in rain fed and irrigated farms in all seasons and the experience from direct seed marketing will be well formulated and implemented widely.
- Fertilizer supply will be changed in type and volume in the coming GTP II period, so that a system appropriate and compatible to the current system will be designed. In this regard industrial capacity to mix and blend fertilizers locally will be strengthened in collaboration with farmer's cooperatives and private sector. Fertilizer, especially Urea, production capacity is expected to come on board in GTP II period. Therefore, its distribution system shall be designed to perform efficiently. Farmers of all places not only shall get one type of input at a time but will be worked out on menu of inputs to be availed simultaneously where they are.
- With regard to rural finance system, a new system will be established to solve credit accessibility problem; and providing appropriate saving service that enable to host wealth created by farmers in rural area. The relation of micro finance institutions playing a key role with banks will be strengthened to operate well in their part. Saving and credit cooperatives in cooperation with other type of cooperatives in rural area will be geared to create an aligned cooperative bank. Agricultural inputs marketing aligned with financial institutions through voucher approach system will be scaled up step by step. As

well as, credit for agricultural inputs which was performed by regional budget collateral will be replaced by the new voucher approach being reviewed, enriched and made official.

1.9 Plant Health Regulatory

1.9.1 Plant Protection

Goal

The climate change, wide use of imported Agriculture technologies including seeds from abroad and weak regulation for movement of seeds multiplied inside the country and dispatched to different administrative regions, increased area of investment, movement of agriculture equipments, expansion of irrigation agriculture and repeated cropping due to availability of water etc, are conditions which are created suitable environment for the introduction of new pest species and spread of established pests.

Currently emphasis is given to upgrade the existing pest management support service system in a position to offer standard service according to the demand of the current diversified and increasing agriculture sector. It is planned to improve pest management support service and the intervention through strong monitoring, forecasting and early warning system which can reduce the introduction of new pest species and occurrence. In addition, it is also planned to develop fast and modern technology based pest occurrence information exchange by using SMS/Web based system. The plan also focus on building skilled and well committed professionals and supporting personnel at all levels from the Federal Ministry of Agriculture up to District Agriculture Development offices. In this second cycle of GTP attention is given to build capacity of Regional plant health clinics in a various aspects, to prepare annual plant protection package, national plant protection strategy and work flow which enable the system to reduce percentage of crop yield loss from 20-30 to 10 % and this is the major area of the goal.

Implementation Methods

- Prepare plant protection package on major crops and pests.
- Prepare national plant protection strategy, work flow, establish good information exchange system and strong network with region Bureau of Agriculture, Plant health clinic, zones and District Agriculture offices.

- Establish pest out break monitoring, Forecasting and Early warning system for Migratory pests (Desert Locust, African Armyworm and Quelea birds) and Recurrent pests which will be supported by modern information exchange system (SMS or Web based).
- Establish pest management system that can introduce and strengthen integrated pest management (IPM) system.
- Build capacity of plant protection experts at different level on pest biology and behavior, identification, survey, monitoring, forecasting and timely management.
- Build human and material capacity of National level laboratories and Region bureau plant health clinics.
- Establish new Regional plant health clinics based on needs
- Set standard plant protection structure at national level and advice will be given to regional bureaus to revise their plant protection structure which holds plant protection disciplines at all levels until Districts to address the country pest problem.
- Develop system and strategy to carry out monitoring, forecasting and early warning, survey and control of Migratory pests (Desert Locust, African Armyworm and Quelea birds) and also defines the responsibility and duties of Federal Ministry of Agriculture and Region Bureau of Agriculture up District offices.
- Scale up Community Based Armyworm Monitoring, Forecasting and Early Warning system to untouched target areas and other major regular crop pests.

1.9.2 Plant Health and Production Quality Control

Goal

The performance evaluation of the last five years showed that there is a constraint regarding the full implementation of the world standards. This enhances the chance of entrance of insects and disease to the country which has an impact on plant health. The implementation of the past five years, when evaluated, had shortcomings in terms of fulfilling international standards. For this reason it is planned to give due attention to improve standards which

controls the entrance of pests & diseases which have an impact on plant health and overall production system. For instance, in the current fiscal year quarantine pests like leaf borer on flowers, viral and fungus disease of plants, mealy bug on cotton, fruit & leaf borers on tomato and pesticide residue has been observed.

The use of chemicals which are registered and permitted to be used in export investment farms is lacking proper use and handling. For this reason their impact on environment & human health is not under estimated. Hence, in the coming years, it is planned to bring basic changes in this department by upgrading the system to the world standard.

Implementation methods

- By upgrading the structure at federal & regional levels, creating awareness and strengthening especially inlet & outlet. In addition by establishing additional quarantine stations & laboratories by considering strengthening of the existing manpower & material to make strong plant health regulation.
- New & ongoing laws (pesticide, quarantine law & regulation), which are needed for regulation of plant product & input quality control, will be completed and implemented.
- Pesticide registration could be strengthened by improving & strengthening the existing activity and supporting it by information technology.
- Man power in this sector could be strengthened in alleviating problems through enhancing knowledge & skill.
- In order to ensure exportable agricultural produce fulfilling the requirements of buyer countries & to establish modern & organized laboratory, which enable to investigate pesticide residue & mycotoxin of agricultural inputs to be imported to the country.
- Effort could be done to give improved service by enhancing the knowledge & skill and by acquainting senior experts & newly hired ones with international laws, standards & implementation and by giving short term domestic trainings & trainings abroad.
- Concerning exportable crops like sesame, pulses & others, taking the buyer countries interest into account in addition to coffee pesticide residue test of other crops also could be undertaken. This could be done trough test monitoring or by implementing laboratory test. In addition to avoid this menace at its source strengthening follow-up capacity.

- To make the service accessible to the customers and to avoid the entrance of pests through the outlets 10 quarantine stations will be strengthened by manpower & material and 11 new quarantine stations will be established in addition to the existing ones.
- To evaluate & register pesticides and follow-up their handling & disposal the system will be supported by information technology and would be guided orderly.

1.9.3 Goal and implementation strategy of variety release, protection and seed quality control

Goal

The multiplication and supply of improved quality varieties and better quality seed without changing its genetic behavior are the one and main issue that determine the crop development and productivity. The effectiveness of varieties supplied from researchers and different technology provider organizations were expressed with unique productivity, resistance to disease and quality behavior which could be ensured and diagnosed by quality, standard and independent body system. The seed delivered for development should be monitored and controlled to its standard starting from research field up to reaching farmers at different stages of production, processing, storage, distribution and sales (in all seed value chain).

However, the main bottlenecks come across to implement this properly are lack of stretching legible institutional system from federal up to region, incapable of approving the newly developed varieties were stable during production process; because of unfavorable environment for breeder to grant breeders right cause not to find the required varieties both in type and quantity at different ecological zones; most of the variety trial and evaluation were conducted by researchers and also varieties approved for release is by researcher dominated committee; lack of established independent body and qualified man power to conduct the trials and evaluation; shortage of well equipped seed laboratory both in man power and necessary lab equipments to conduct seed quality test at regional level, enhanced the occurrence of illegal seed distribution and on top of this lack of transportation to perform the field inspection has created ~~a~~ great impact on the supply of quality seed.

- From variety release and registration, to increase the economic benefit obtained from seed, developing a legal framework relating to plant

breeder's right, restriction, and responsibilities to enable them to register and to increase the breeder contribution on selected crops has planned to provide breeders right for 15 breeders;

- The goal targeted on the seed supplied to farmers by formal seed system in which it's is quality control carried out all in all to be reached 95% at the end of the planning year; and
- The goal targeted on the seed supplied to farmers through quality declared seed system in which 10% of the quality was controlled is to be reached 70% at the end of the planning year.

Implementation Methods

- To enhance the capacity of the trial performance and access of new varieties for development either from the country or outside should be based on the country legislation;
- To implement the DUS and National performance trial(NPT) effectively in the country, the required qualified man power and necessary equipments and properly organized performing capacity should be developed and mainly managed in the form of self administration and that entered in to practical work;
- To register the morphological description of the variety through conducting the trials under different agro ecological zones and grant the plant breeders, discussion should have to done with regions and research institute to get enough land, and fencing the site and fulfilling necessary;
- To resolve the seed quality problems of the country , the MOA will make a memorandum of understanding with the regional regulatory body will laid out understandable support system;
- To enhance the seed industry and make competent, the currently established regional seed quality controlling authorities to be enabled to have similar organization, working procedure and to administer themselves;
- To be practical the quality control on the seed produced in each region, the existing 13 regular seed quality control lab should be fulfilled with necessary facilities and also to building 8 additional new seed lab in regions; in addition making modern and accredit the federal seed lab;
- Facilitate training both inside and outside the country to create enabled experts for work; and

- For legal bodies found at different stage and others concerned bodies aware on proclamation to play their roles, awareness creation forums will be widely organized and conducted.

1.10 Cooperative Development

The major importance of the second phase five years growth and transformation plan (GTP-II) (2015-2020) of cooperative sector is focusing on strengthening cooperative sector from Federal to kebele level by implementing its main responsibilities such as strengthening different cooperatives, capacitating the sector, organizing new cooperatives, strengthening the existing cooperatives to be safe, facilitating market linkage to assure members' benefit, preparing problem solving plan and establishing strong monitoring and evaluation system and installingstrong data base system. During GTP-I implementation much attention has not been given in ensuring the participation interms of their role in membership, leadership and get benefited from the cooperatives. Hence in GTP-II due attention will be given to improve the situation

To implement the above mentioned activities and to achieve cooperative sector vision and mission, this second phase five years growth and transformation plan (GTP-II) is prepared.

The following strategic objectives have been identified as part of the GTP II in order to transform cooperative sectors.

Strategic objective 1: Organize and strengthen cooperative societies;

Strategic objective 2: Provide Capacity building support to cooperatives;

Strategic objective 3: IncreaseCooperatives' market share and;

Strategic objective 4: Regulatethe institutional safety of cooperative societies;

Main goals of strategic objectives are narrated as follows;

1.10.1 Organize and strengthen cooperative societies

Under this strategic objective the following major goals are identified.

- Organize cooperatives based on feasibility assessment in a selected economic activity during the GTP II period. Therefore, the number of

primary cooperatives will increase from 65,341 to 70,341; Cooperative Unions increase from 330 to 340; the proportion of women and youth members reach to 50% and 30% respectively; the total number of individual members in primary cooperatives increase from 10,225,423(male 7,738,793, female 2,486,630) to 20,680,062 (male 10,340,031 and female 10,340,031) and the union affiliated primary cooperatives increase from 8,932 to 65,430; capital of primary cooperative increase from billion birr 9.25 tobillion birr17.73, and cooperative unions capital from billion Birr 2.22 to billion Birr 6.08 and cooperative federation reach birr 2.5 billion.

- Strengthen 64,401 primary cooperatives, 324 cooperative unions and 4 regional cooperative federations, so that they can be able to provide quality and accessible services to members and solve members economic & social problems, as well as increase members per capita income by 5% as compared to non-members in a given locality.
- Focusing on the four emerging regions (Afar, Somali, BenishagulGumuz and Gambella), FCA will provide support in strengthening existing cooperatives and organizing 2000 additional primary cooperatives and increase their number to 5981 by 2012 in collaboration with each respective regions based on feasibility study. Moreover, the agency planned to increase the number of Cooperative unions in emerging regions from 23 to 30 by 2012. The number of members of cooperatives is planned to be increased from 140,591 in 2008 to 252,136 in 2012. On top of this the participation of women and youth is planned to be increased from 28% and 20% to 50% and 50%, respectively. Similarly, the capital of primary cooperatives is to be increased from 192 million Birr to 335 million Birr whereas the capital of cooperative unions is planned to be increased from 29.5 million to 36.1 million Birr in 2012.
- Currently, cooperative societies are playing a key role in the creation of employment opportunity through recruitment and self employment, cooperatives hire qualified professional staffs in order to deliver quality and system based service. Based on this the number of cooperative employees will increase from 181,133 to 957,000 and job opportunity for members through self-employment and thereby enable them get Birr 32.6 billion Birr as salary and 987 million Birr as tax at the end of GTP II (2020).

1.10.2 Capacity BuildingSupport

- Ensure members benefit by enhancing and building reliable cooperative development system and strong development army at all levels (from federal to kebelle).

- Promote the importance of cooperatives among the stakeholders to get integrated stakeholder support to the sector by organizing;
  1. 26 conference for policy makers and higher officials
  2. 48 conference for cooperative sector stakeholders and
  3. 48 conference for cooperative customers/clients
- Strengthening Ardaita and establishing new regional cooperatives Centers of Excellence through identified capacity gaps of cooperative sector and increase number of trainees in cooperative promoters from 25,435 to 26,706, increase number of cooperative societies leaders trained from 1,586,735 to 1,761,735 and increase cooperative societies employees from 48,906 to 462,684, increase cooperative societies members trained from 16,164,988 to 20,680,060 and improve quality of training from 67 percent to100 percent.
- And enhance the capacity of female headed household and married women to attract them to membership and leadership.
- Establish strong data base system to enhance rapid cooperative development and image building through strong & sustainable developmental communication system.

1.10.3 Increase cooperatives market share

- Increase domestic market share of cooperative from 18 percent to 30 percent; with the focus on major agricultural and non-agricultural products; increase export market share of cooperatives from 7 percent to 40 percent and generate (earn) 603.5 million US dollars of hard currency to the national economy.
- Supply the necessary agricultural input and enhance them to be benefited fromagricultural product marketing.
- Strengthening saving and credit cooperatives to mobilize saving from Birr 5.5 billion to Birr 15.5 and the share of saving and credit cooperative(SACCOs) to domestic national saving will reach 4 percent; increasethe amount of loan to members from Birr 4.3 billion to Birr 8 billion.
- Agro-processing and other factories/plants engaged in value addition will increase from 105 to 243 at the end of GTP II.

1.10.4 Regulate the institutional safety of cooperative societies

- Increase audit coverage of primary cooperatives, cooperative unions and cooperative federations from 50 percent to 100 percent; inspection coverage for primary cooperatives, cooperatives unions and cooperave federations from 70 percent to 100 percent and to ensure effective service delivery and solve economic and social problems of their members and focus on promoting women,children and youth saving cultures
- Based on the progress reached at the end of 2012 audit coverage of primary cooperatives, unions and cooperative federations will increases from 50% to 100%, inspection service coverage from 70% to 100% and 70,341 cooperatives will be certified during GTP-2 period as well as providing effective legal service for cooperatives in order to assure cooperative safety and members' benefit.
- Support women and youth to get them engage in small and medium agro processing and value addition.

1.10.5 Implementation strategies

In order to achieve the above objectives the following issues must be implemented with major emphasis. Moreover, to unlock the bottlenecks identified in the sector the following implementation strategies wil be implemented.

- The fisrt key issue is considering cooperative development activities as the main agenda in evaluation. The major ones are;
    - Statusof participation of cooperative societies in market
    - Level of cooperative saving and credit repayment status
    - Audit coverage of cooperative societies
    - Certification of the level of the cooperative societies
    - Membership growth
    - Leadership by role models
    - Leadership by hired professionals
- The major issue is conducting cooperative movement like success factors in watershed works and HIV/AIDS. We can change the attitudinal challenge in the sector if the sector is mobilized like these sectors through leadership of top management. This is because we already have successful cooperatives that become role model even at Africa level.
- A system must be established where cooperatives stop traditional way of leadership and adopt professional staff. To implement the first step will be convincing the cooperatives to hire professionals. If the cooperatives do not

have capacity the government and other stakeholders should hire professional staffsfor 2-3 years for coopertaves that involve in strategic activities.

- The other issue is fulfilling human resource for cooperatives audit staructures at woreda and Zone level. To implement this support will be given to help regional governments allocate budget for and hire auditors;
- Identification of cooperatives which are practically providing services for their members and those which do not will be done. Moreover, technical support and motivation given to sector experts will be matched with the level where the cooperative reached and provide support and follow up for certification and recognition of cooperatives for their level and success. This includes staff employment, budget allocation, implementation monitoring and evaluation.
- Solving cooperative sector bottlenecks to increase cooperative participation in marketing to create stable and healthy marketing system. Among the bottlenecks warehouse and quality improvement equipment, finance, especially for export crops, integrated market information system and linking rural urban cooperarives.
- Provide integrated support for cooperatives that start agroprocessing based on motivation that the law provides them.

Implementation Strategies to Achieve the Targets

- Cooperatives which were organized under proclamation No.147/91 are expected to have pertinent finance documents and books, minute books. In addition to these, it will be supported to have complete management committee and sub committee members in cooperatives
- There will be necessary to support cooperatives to establish internal working system (such as purchasing and selling, human resource administration, store and properties management, finance administration and other working manuals) because they cannot function properly without such working procedures and manuals.
- cooperatives should be supported, followed up and strengthened in such area like controlling term of office for management bodies and fostering democratic system, registering and closing their account daily, auditing yearly, facilitating members discussion forum on their cooperative issues, approving annual plan and evaluating performance, hearing and making decision on audit and inspection report, taking corrective actions commented by auditor and inspector so that cooperatives are able to obey

the law and system to carry out their activities, and additionally, encourage cooperatives to increase their members by recruiting new members.

- Cooperative will be supported and followed to work by focusing on aim to benefit their members and develop members' ownership sentiment.
- Cooperative will be supported to manage themselves with educated, progressive and strong management members and will get continuous capacity building for management bodies on cooperative management
- New cooperative will be organized in identified areas based on standard feasibility study to assure members economic benefit
- Continue the Cooperative movement on increasing community awareness on the importance of organizing in cooperatives to achieve the targets of 64401 primary cooperatives and 324 cooperative unions, during GTP-II period.
- Special attention will be given for new emerging regions to provide holistic support in order to strengthen and build their implementing capacity,
- Provide strong support needed to strengthen existing cooperatives and organize new ones.
- Support the emerging Regions to fulfil competent professionals and to give attention to improve their limited implementation capacity.
- Support established cooperatives to fulfil necessary precondition to solve their organizational problems and to have hired professionals.
- Follow up and support those cooperative promotion implementing bodies getting at each level with logistic and budget by organizing various consultative forums to integrate supports.
- Technical support will be given to cooperatives to enable them participate in markets effectively
- Based on studies/assessments link agricultural, consumers and saving and credit cooperatives to work with integrity to solve financial problems by creating linkages with other financial institutions
- Certifying each cooperative according to their level to give effective support based on their level
- Developing well organized national and international market information and strengthen cooperative practice in value addition to get better price for their commodities
- Design uniform cooperative inspection systems, which protects cooperatives from embezzlement and corruption in order to keep their safety.

- Balancing the number of auditors and inspectors with the number of organized cooperatives to deliver and outreach audit & inspection services in all cooperatives
- Capacitate the existing auditors and inspectors to increase their efficiency and effectiveness
- Identify financially strong cooperatives and support them to outsource the inspection work for certified professional inspectors and closely follow to take corrective actions based on findings.
- based on cooperative proclamation, advise cooperative to solve their disputes through arbitration and reconciliation
- cooperative legal service should be given to cooperatives by Federal cooperative Agency based on the representations given, especially on high court case
- Provide legal supports on disagreements encountered to be solved by arbitration
- Provide legal support for cooperatives in courts based on delegation given by regions

1.11 Horticulture Export Plan

1.11.1 Targets

The sector has witnessed a huge gap in fulfilling the envisaged targets of GTP 1 in the last five years (2010/11 – 2014/15). Therefore, the major setbacks have been identified and the thematic issues to alleviate such problems are planned for the upcoming 5 years (GTP II). The targets are depicted as follows:-

Land Development

- **Flower**
  - The land to be developed by existing flower companies is planned to be 2,466.4 hectares at the end of 2019/20 by showing an average annual growth of 10%. It is forecasted based on the estimated performance of 2014/15 and by considering the expansion plan of the companies.
  - In addition, the newly emerging companies will develop 600 hectares of land at the end of 2019/20. It is assumed that infrastructure development, attracting new potential investors and land transferring activities will go concurrently according to the plan set.

- In total, 3,066.4 hectares of land is planned to be covered by flower development with expected average annual growth of 16%.

- **Vegetables**
  - 2,325.4 hectares of land is envisaged to be covered by vegetables with expected 12% average annual growth. Of which 32.3% will be developed by out growers.
- **Fruit**
  - The fruit land coverage area is planned to be 11,314.8 hectares at the end of 2019/20 of which 10,000 hectares of land is expected to be covered by Arbaminch organic banana growers. The baseline is estimated to be 10,783.2 hectares in 2014/15.
- **Herbs**
  - It is planned to cover 447.3 hectares of land by herbs at the end of 2019/20 which was only 138.4 hectares in 2014/15 with 26.6% average annual growth.

Export Exchange Earning

- It is envisaged to fetch 455 million USD from flower; 75.8 million USD from vegetables; 29.66 million USD from fruit; and 16.6 million USD from herbs export at the end of 2019/20. In total 577 million USD is planned to be secured from the horticulture export sector. It is assumed that there will be a 21% average annual growth from the baseline value of 2014/15.

1.11.2 Strategies

- **Develop the Delivery of Effective & Efficient Services of Horticulture Development Agency**
  - Revisit the organization structure and reinvigorate assignment of employees to effectively implement tasks as per the Agency's mandate,
  - Produce capable staff that can proactively engage in supporting the industry through training,
  - Expedite and implement the 'Reform Army' to effectively realize the planned goals and objectives of the Agency,
  - Create partnership and strong development impact by involving and engage stakeholders and the Public Wing together with the Agency in crafting strategies and in monitoring and evaluation activities.
  - Adopt benchmarks and new best practices from successful countries and incorporate to the Agency in order to identify and alleviate the problems of the sector.

- **Improve Land Provision and Administration**
  - Provide land to existing companies located in the Oromia region which need to expand their development by paying reasonable compensation.
  - Transfer the ownership of the land contracted from farmers to the government,
  - Identify undeveloped land under the holdings of the existing companies; make ready new, suitable and feasible land in different regions and allocate it to potential investors.
  - Facilitate fund for compensation to farmers in cooperation with Federal and Regional Governments in places where many investors need to be enrolled.
  - Transfer land to potential investors by institutionalizing the land bank scheme through further study; register identified new lands to the land bank; facilitate the development of infrastructure; organize lands by parcels and prepare legal documents that brings about transparency and accountability during land transfer.
- **Attract Potential Investors**
  - Attract and screen potential investors who are successful in the global horticulture industry in collaboration with Ministry of Foreign Affairs through Ethiopian Embassies.
  - In order to facilitate the sector's development, devise a scheme to give priority to those companies which depend fully on their own capital for investment.
  - Fulfill the demand of investors by facilitating holistic service delivery system together with different stakeholders so as to induce them start business following their decision.
- **Facilitate Infrastructure and Logistics Services**
  - Based on the directions to be given from the National Export Council, identify suitable land and facilitate the development of necessary infrastructure and availability of logistics in the identified 6 horticulture development corridors in collaboration with Regional and Federal Government offices.
  - Strengthen sea transport services together with stakeholders to enhance the competitiveness of vegetables and fruit export to the Middle East market.
  - Increase revenue from the Regional export by enhancing the quality of produces and involving in direct sales.

- Modernize the marketing support in order to diversify the variety of flowers and increase the volume of export.
- Put in place competitive air and sea freight services for vegetables and fruit produces by assessing experiences and best pracuces of Kenya, North African and Middle East countries.

➢ **Facilitate Financial Services**
- Facilitate loans from Development Bank of Ethiopia for those investors who have got land upon submission of their business plan.
- Facilitate loan taking in to account the amount of capital invested by farms.

➢ **Facilitate Input Supply**
- Support local packaging material suppliers together with stakeholders so that they can supply quality packaging materials at reasonable price.
- Undertake a study and identify appropriate inputs and services with competitive price and better quality to enhance the competitiveness of the sector.

➢ **Enhance Productivity and Quality**
- Support less performing companies by developing different capacity building packages and transferring best practices.
- Support vegetables and fruit growers to develop using greenhouses by providing different incentives to enable them supply throughout the year.
- Enhance the quality of produces by practicing the cool chain management based on the standards.

➢ **Minimize Data Limitation**
- Organize and provide information to investors by identifying highly demanded varieties in the market.
- Provide information related to weather, soil, water, labor and infrastructure to new investors joining the sector.

➢ **Institutionalize Supportive Industries**
- Institutionalize a research center which supports the horticulture development in technology and production systems.
- Revisit investment incentive directives and disclose to all actors; support and strengthen institutions which are supplying capital goods and spare parts involved in maintenance, soil and water laboratory service, supplying cold store spare part with maintenance service, etc…

- Support breeders who are producing different varieties of flowers highly demanded in the market by facilitating the legal ground and providing attractive incentive packages.
- Provide attractive incentive packages to investors so that they can produce demanded varieties in direct markets; facilitate incentives for seed suppliers.

➢ **Improve Market Support Provisions**

- Implement modern marketing system (including consolidation unit) for direct markets.
- Identify the gaps in the cool chain management for every produce; allow stakeholders participate across the value chain process the find solutions for the identified gaps; carryout peculiar and shared responsibilities; and timely monitor and evaluate the performance. In addition, examine the transport service competitiveness and work for its practicality.
- Identify major buyers in destination countries with high per capita consumption of horticulture produces; strengthen existing markets and diversify new markets by facilitating feasible logistics, transport and consolidation practices.

➢ **Strengthen Outgrowers Scheme**

- Enhance the out growers scheme which will have a greater effect on the vegetables and fruit sub-sector development by linking small-scale farmers with commercial farms that can provide technology, input and market support.

➢ **Strengthen the Partnership with Stakeholders**

- Strengthen the working culture with key government stakeholders in the areas of air freight, reefer container, revenue and customs, identifying investors, investigating markets, bank loan administration, etc… and find solutions for problems by developing common plans and distributing respective responsibilities among stakeholders.
- Establish government owned hire lease purchase arrangement for Ethiopian professionals who have experience and entrepreneurial capability in the sector.
- Develop and implement investment incentive packages to promote regional development of the sector.

1.11.3 Thematic Areas of Horticulture Export Sector

In order to achieve the goals for GTP-2, the thematic areas for horticulture export sector are identified as – expand corridor development, linking out growers with commercial farms, and increasing the area coverage of the development accompanied with productivity and quality of products to be competitive in the international market.

- **Corridor Development**
  There will be a special focus to identify suitable land in the six development corridors; transfer to potential investors; develop infrastructure and facilities using different promotional mechanisms to attract potential investors.

- **Linkage of Out growers with Commercial Farms**
  The export horticulture sector is highly concentrated on commercial farms. However, the importance of out growers' participation in the sector is crucial. Therefore, the sector will focus on strengthening the out growers scheme in Oromia – Addis Ababa and South Gondar – Abay Valley development corridors.

- **Enhancing Area Coverage, Productivity, Quality and Competitiveness**

The development of the sector shows inconsistency for the last two years. Hence, the Agency will focus on increasing area coverage, enhancing productivity and quality in order to withstand and ultimately win the competition from developing countries.

1.12 Agriculture Investment Land Administration Plan

The main objective in GTP-2 is to identify and transfer suitable lands to agricultural investment for local and foreign investors, provide adequate support of infrastructure and other services, ensure the benefit and active involvement of the community by establishing technology transfer to sustain the project, so as to attain better productivity and production and ultimately to strengthen the role of the sector in the promotion of national food security and foreign currency earning capacity of the country.

1.12.1 Priority focus areas

Though, promising and inspiring government policy and incentives mechanisms are in place and accordingly the investors are provided with all rounded support to ensure their fruitful engagement.So far the contribution of

the private sector to attain the national production plan is still remains relatively low.

To improve these situation efforts has been made in GTP I in delivering big areas of agriculture investment lands to investors and provide various support to ensure its proper utilization. But, unfortunately the result achieved was unsatisfactory in comparison with the expected amount of land to be developed which was only about 2.3 million hectares of land in the hand of investors in the last five years and level of production.

On the other hand with the aim of intensifying and reinforcement of the sector, though it is not to the projected level, putting in place global competent incentive arrangements and improved infrastructure services has created convincingly a decent opportunity to transfer the sector and improve its impact on the economy.Therefore,inorder to improve production and productivity of the sector adressing issues identified in GTP-I implementation given high priority.

To realize this task effectively in the coming five years, strengthened infrastructure services, createawareness among the community and other stakeholders to have clear understanding of the economic and social importance of the sector, enhance adequate andskilled labor, enhanced enabling environment and create strong integration with the stakeholders in the sector.

Accordingly, to realize energetic and effective engagement of investors and ensure the better contribution of the sector to the national economy, the following areas should be focused and implemented progressively:

- Strengthening the capacity of the agency to accomplish its mission;
- To resolve problem of labor accessibility in collaboration with relevant institutes and other stakeholders at federal and regional administrative levels;
- Ensure good governance and fight rent seeking attitudes and manage conducive investment environment through conducting people's mass mobilization events at different level;
- To bring all the transferred land (2.3 million ha.) under development/cultivation.
- To improve production and productivity investment farms through provision of close follow-up and M&E activities support;
- To identify agriculture investment lands, which is free of government, regional programs and individual holding; verify and establishing a land bank; and transfer to developmental investors;

- To provide rural infrastructure service in collaboration with relevant parties;
- Creat enabling environment for women and youths to actively participate in the agricultural investment
- To encourage more Ethiopian investors and careful attraction of FDI and support them to engage in the sector.
- To facilitate input provision service and provide other support required are the main focus areas of intervention in GTP II period;

1.12.2 Major Goals and Indicators

Land identification, Verification and Transfer

The main focus area of the sector in order to reinforce the economy of the country and ensure sustainability through improvement of production and productivity, provision of investment lands to developmental investors timely in transparent manner.Accordingly:-

- Identified 500 thousand hectares of land and this will make the total land stock country wide to 4.315 million hectares with annual average growth rate of 3% of the base years.
- verified 1.343 million hectares of land and as a result the total area ready for the investment by the end of GTP II (2020E.C) will reach 2.443million hectares whichis 25.6 % annual average increment of the 2007 base year
- Concerning land bank, it is planned to deposit a total amount of 335.5 thousand hectares of land and this will lift up the capacity of the land bank to 2.54 million hectares. This shows land stock of the bank increased by 3% of the base year.
- Concerning land transfer, targeted to transfer 671.8 thousand hectares to local and FDI investors which is together able to attained 2.4 million hectares country wide by the end of 2020, will enhance the amount of land in the hand of the users to a total of 3.1 millionwith an annual average growth rate of 5.5% from the baseline.

Agricultural economic zone land development

Aiming to attract more and more investors with a better capacity to the sector, agriculture economic zone development activities such as land verification, delineation and fulfilling infrastructures will continue to make ready for

investors. Hence, verify 120 thousand hectares of land and make ready for the interested investors/companies and among which 50 % of it (60 thousand hectares) will be transferred until by 2020.

Agricultural Investment Land Use, and Production and Productivity

Targeted to develop 2.0 million hectares under prior agriculture investment crops (coffee, tea, cotton. sesame.Soya bean,and maize, wheat, sorghum, rice and haricot beans with an average annual growth rate of 26.6 % from the base year

Regarding productivity; tea and sesame remained as the base year while crops such as coffee and other crops will increase by 0.9 and 0.1 tons annually, respectively for the first two years of implementation and remains constant for the remaining three years of implementation. However, crops such as Bio-fuel and palm oil are not included in the plan because investors did not show interest on the indicated crops.

Regarding the production plan, by the end of GTP II (2012) it is expected to harvest a total of 4.68 million with an annual average growth of 35% from the 1.7 million ton achievement of 2015.

Environmental Protection

Concerning sustainability of the investment and safety of its surrounding, a goal has been set to do essential interventions strictly parallel to land development activities. Accordingly, the amount of investment lands expected to be under implementation of environmental code of practice expected to be 2.2 million hectares by the end of GTP II (2020).

Job Opportunity Creation

With labor- land ratio index of the years' 2014 and 2015; 17,329 permanent and 359,603 temporary labor forces will be employed at the end of second GTP.

1.12.3 Major interventions/ area of activities

Identification, verification and transfer of agriculture investment lands

Identification of new large scale agriculture investment lands, free from farmers' holding and traditional/cultural beliefs, verification and transfer them to users in organized manner will be given due consideration and implemented. This will serve as a benchmark for implementation and ensure

quick, fair and transparent provision of land to the users and to advance the sector entirely for subsequent years.
Ensuring fair and transparent land provision activities certainly could play an important role in fighting rent seeking attitudes and prevent it from its source and finally to ensure the country and particularly the society will benefited from the sector accordingly.

Experience has shownthat the complex and finance intensive task was agriculture investment land preparation activity, which is one of the major obstacles to lag the investors behind their project plans. In order to alleviate this problem, a new approach of agriculture economic zone land development is one of the focus areas which will facilitate land preparation, infrastructure services provision and transfer the land to interested agro-business companies for agriculture investment.

Improving land Development:
An issue of improved agriculture investment land deployment performance through providing adequate technical and administrative support and facilitating access to inputs etc.will be given due attention and carried out effectively. Besides, timely M&E activities should be conducted, which could feed basic information for management decision to take corrective action for smooth implementation of the agribusiness. And also it creates an opportunity to select better performing investors and to provide special support and also to take corrective measures on those who have failed to implement as per their production plan.

- Create strong integration between the stakeholders in the sector through strengthening public wing, agricultural investment mobilization forum, diagnose previous investment procedures and introduce new approaches, identify bottlknecks and propose solutions.
- Promote technological and management transition through exchange of best practices.
- Capacitate and train both investors and experts employed in the companies on (farm management; pre and post harvest technology etc.) to address the skill gaps observed on the ground.

Strengthening promotion activities:
Promote conducive agricultural investment opportunity in the country through different mass media and diplomatic mission of Ethiopian embassy in different

countries and provide timely efficient and accessible investment information for potential investors.

Organization and human resource capacity building:
At the federal level the agency hasset up a new institutional arrangment with trained professionals to deliver efficient services on identification of lands favorable for large scale agriculture investment, verification and transfer of these lands to investors. In addition, M&E activities and provision of necessary support to the investors are carried out constantly.

Strengthening the capacity of the agency in human resource and materials should be undertaken persistently so as to deliver its responsibility to the level of satisfaction of the investors and other users. Besides, work is also in progress to establish agriculture investment land administration branch offices in different regions. In addition building the capacity of the human resource of the agency is a key activity to be implemented in the course of the growth and transformation program period.

Environmental friendly agriculture investment:
Along with expansion of modern agriculture to boost production and productivity, the use of inputs such as fertilizers and chemicals is highly intensified; the farming system is more mechanized and exposed highly to soil and water management problems. Therefore, one of the critical tasks in the coming GTP is to ensure the responsiveness of the investment to the surrounding ecology and community.

Accordingly, in parallel with the customary support to the investors in provision of necessary inputs and to keep safe the environment from pollution, guidelines such as 'environment protection Code of Practice' will be introduced and there will be technical support and follow up of its implementation accordingly

Ensuring agricultural investment activities are conducted as per legal procedures:

With the ambition to expand the sector fast, land transfer activities at regional level was executed without strictly appraising the request from the investor as per the criteria set in the investment law which makes the monitoring and

evaluation task difficult especially to control improper utilization of investment lands.

Landtransferred to investors without submission of feasible projects,in the absence of signed agreement with the lessor institute create a problem to provide evidence for court when there is conflict of interest between the investor and the agency. Besides, provision of tax holiday, competency certificate and various supports for those who were not eligble as an investor raise the issue of accountability and have impact on the economy.

Therefore from the lesson of GTP 1 implementation, every investorshould follow the legal procedure to acquire agriculture investment land which helps to ensure transparency and accountability in the service delivery and encourage developmental investors.

1.12.4 Implementation strategy

Identify new investment lands and verification

- Based on lessons from GTP-1 and best practices, guidelines used for the identification, verification and transfer of land will be reviewed;
- Problems related with land transfer activities will be studied thoroughly and relevant corrective measures will be taken;
- With extraordinary attention, already stocked and new investment lands will be verified and confirmed that it is free of the communityholdings or government needs/program;
- Establish a system which helps to review the applicant's reputation; financial status; and readiness for the business to transfer investment lands to developmental investors.

Improving land development

a. Support service

Provide fair and transparent support services to agriculture investors engaged in the sector as per the citizen charter standards in a complete manner;

- Screen best performing investors based on previously applied project evaluation checklist and recommendation from periodically carried out field evaluation reports.
- Based on investors follow up and support directives, prepare Terms of Reference (ToR) in order to timely identify problems encountered and give fast remedy

- Any kind of M&E activities will be carried out with complete involvement of regional and zonal relevant parties and experts;
- Start to utilize the questionnaire designed in order to analyze the satisfaction level of the investors/users against the support services provided.
- To create a competition atmosphere among investors and reward better performing ones, the prepared screening manual will be put into practice;

b. Capacity building

- Collect data on skill gaps in the process of M&E activity on the field.
- Design training manuals from different sources to effectively provide skill improvement training
- Training programs will be carried out together with the relevant parties.
- Support investor to use moder technologies to enhance production and productivity and and collect production data.
- Provide training to investors on the impacts of climate change to agriculturand investment and associated protection measures based on climate change analysis

c. Best practices experience sharing:

- Review bench mark studies and investment best practices communicated with investors
- Facilitate learning from evaluation and proposed recommendation

d. Promotion activities strengthening

- Electronics media local and foreign, exhibitions, journals and radio services will be effectively utilized in order to introduce the agriculture investment potential of the country.
- The role of our diplomatic missions will be strengthened to attract mainly foreign investors including the Ethiopian Diaspora and ensure their active and productive involvement through the provision.

e. Organization and human resource capacity building

- strengthen the agency and its branches with trained manpower, materials and budget to deliver their responsibility effectively,et;
- Weekly change army capacity building performance evaluation reports will serve as to identify the skill gaps prevailing among the professionals in the service.
- Relevant training document will be prepared and used for training.

f. Environmental friendly agriculture investment

- The direction put to oblige the investors to prepare environment impact assessment (EIA) shall be implemented.
- To ensure the effective implementation of environmental code of practice, training support on the subject matter and M&E activities will be carried out constantly;

g. Complying agricultural investment with Climate Resilient Green Economy

- Support investors to contribute to green economy objectives and to protect agricultural investment from climate change impacts
- Ensure investors prepare proper action plan to integrate CRGE measures in their agricultural investment

h. Ensuring the legal status of the support service

- Land lease agreement documents improved with the global lessons and experience will be issued and implemented accordingly;
- Service provision standards will be implemented in complete manner;
- All legal documents related with agricultural investment such as working documents, regulations and proclamations will be fully implemented so as to ensure the satisfaction of the customers of the sector.

1.13 Establish System to Improve Internal Work Process

In GTP-II major areas which need improvement are identified. Besides the capacity building efforts establishing system to make the internal process efficient is critical. In addition to the implementation strategy indicated in each sub sectors the following are key focus areas to realize agricultural transformation in the implementation period.

1.13.1 Crop health system

Due to the fast growth in the agricultural development, climate change, trade and human movement there is high incidence of pests and diseases. Strong capacity will be built with efficient monitoring and evaluation system including human resource, laboratory, and logistics which will be responsive to the incidence expected to happen. Strengthening the existing laboratories and build new one to increase the agro ecology coverage. Early warning systems

with modern information technology exchange will be established which enable to forecast the incidence and take timely actions.

1.13.2 Crop health and quality control

Focus should be given to ensure product quality from production plan especially to meet the standard requirement of potential buyers. Quality assurance will start from input supply, product quality control and systematic certification through modern information system and laboratory check up.Institutional and system establishment will be in place to implement the road map. Project based construction and training integrated with the extension system will be executed.

Design proclamation, laws, and directives which are consistence with international and national conventions and introduce them to relevant stakeholders. Issue directives for the existing seed proclamation;breeders right proclamation if issued this year laws and directives will follow; prepare pest registration and control directive, revise the law of crop health proclamation and design the directive for it. Organic agriculture production proclamation,design implementation strategy to organize and manage laboratory and create integration between federal and regional government.

1.13.3 Agricultural input supply and credit system

In relation to a growing agricultural development and fast scale up of irrigation scheme inputs and credit demand is increasing in size and type. Moreover, fertilizer supply that need high resources will be entertained without collateral from regional government's budget, and will be substituted by regular and independent financial system of banks; and this will be performed by strengthening the piloted voucher approach aligned with the newly designed rural financial strategy.

The newly designed and piloted direct seed marketing and voucher credit system will be exercised in the first and second year of GTP II period and after reviewing performance at the end of second year gaps on the system will be improved.

1.13.4 Coffee development extension system

Having understood the contribution of coffee to the national economy, increase cultivable land, productivity and quality product and lesson from past experience shows that a separate coffee extension system is needed. Experience

showed that even in high coffee potential woreda and kebele the focus is still on the production of annual crops. With the vision to become second world coffe exporter in the coming six years, the implementation should be guided by a separate management, expert and support projects.

1.13.5 Urban Agriculture

In the developed world it is common to promote agricultural development in urban and peri urban areas. Evidences show that about 40-60% of vegetables come from urban agriculture. However, in the context of Ethiopia there has not been clear direction in urban agriculture. It has a plan to prepare detail strategy and work plan to operationalize the urban agriculture policy designed by Addis Ababa city council which has a potential to create job opportunity, sustainable urban development, establish green environment. The implementation should be aligned with urban development and land use.

1.13.6 Support to rural youth job creation

There is an increasing unemployment rate due to high number of land less in rural areas. In the past GTP-I period an encouraging effort has been made by regions to engage rural unemployed youth in the agriculture development process and make them key oartner to the agricultural transformation. To make the implementation effective, institutions and system has been already established. With the expectation that the number of unemployed youth will be high, slow implementation rate. High finance demand, and input requirement national system to support strong integration beytween federal and regional government, provide packages with best practices from other countries and create effective market linkage is indispensable.

1.13.7 Agricultural product marketing

Even though agricultural marketing is the mandate of ministry of industry, to ensure sustainable agricultural growth and benefit the farmers from their produce marketin should be implemented integrated with relevant stakeholders. Hence Agriculture development specifically the crop productivity and quality should be enhanced by strengthening the cooperatives

1.13.8 Outgrower and contract farming

The out grower and contract production system is a modern system which will be implemented in agreement based on quantity, quality, timely and reasonable price of the product. System establishment is necessary to promote

the production of high value crops for export and input to industry; make the quality certification institutional to resolve issues fairly among different parties. Hence promote lessons from the past two years piloting program by taking into consideration the growth level of the farmers and cooperative and ensure fast growth.

2. Strategic Objective2: Reduce Natural Resource Degradation and Improve Its Productivity

The second round Natural Resource Management sub sector GTP is designed based on basic directions provided for GTP II, GTP I implementationperformace, national, continental and international contexts and agreements. The plan includes targets to be achieved, implementation strategies and expected results; and presented as follows.

1. Build Rural land administration, utilization and management system
2. Build Rural land adminstartion and utilization capacity and community participation
3. Enhance and strengthen watershed development works
4. Improve water resource management and utilization
5. Create fertile ground to build climate resilient green economy and build climate change mitigation and adaptation capacity
6. Build modern soil information system and provide suitable soil fertility improvement technologies
7. Benefit share based biodiversity conservation and improve sustainable use

2.1 Goal 2.1 Establish Rural Land Administration and Utilization System

During the Second phase of Growth and Transformation Plan, it is planned to carry out Second Level Land Certification for 28.6 million parcels in 359 Woredas and issue a land use right certificate for 7.2 million Household heads. Moreover, it is planned to establish and strengthen Rural Land Administration Information System within these Woredas, which makes the data management and exchange process smooth and finally develop an integrated and harmonized land administration database at woreda, regional and federal level.

To improve the land utilization,it is planned to prepare a master rural land use plan for the country and implement 10% of this plan. All regional states would prepare their own respective master plan and out of them seven regions would start putting their plan into practice.Moreover, 456 woredas would prepare rural land use master plan out of which about 300 woredas will start implementing it. Similarly, 6,521 Kebeles would prepare Local Level Participatory Land Use Plan and 3,970 of the prepared plans would be expected to be implemented during the plan period.

During the plan period long and short term training that can strengthen land administration and use system will be provided for 10,625 experts out of which 30% would be female trainees. Moreover, to strengthen the community's participation and awareness about modern rural land administration and use system training for 86,100 model farmers (30% female) on various rural land administration and use will be provided.

2.2 Goal 2.2: Expanding and Strengthening Watershed Development Activities

Watershed development work begins with the identification of potentials and natural endowments of each community catchment and fully relies on participation of communities both on the preparation of full-fledged plan and its implementation. The overall execution is divided into three phases namely, preparation; implementation and winding up phases. Based on these, making an increase of 55% on the 60,460 achievement attained by the end of 2015 (which is considered as a base year), by preparing a development plan for 33,253 community watersheds, it is planned to increase total number of community watersheds that have a development plan 93,713 in the country.

By increasing base year 11.737 million hectares area enclosure by 92% additional total area under enclosure will be 10.798 million hectare which increase overallrehabilitated land through area enclosure to 22.535 million hectares at the end of the GTP II. In2015 base year, the total area covered with different soil and water conservation practices is 20.17 million hectare. This will be increased by 35% to make additional 7.059 million hectares covered by different soil and water conservation practices to make total area to 27.23 million hectares by the end of GTP II. Within the GTP II 7,735 quintals of seeds of multipurpose trees (of which 50% is fruit tree seed) will be collected and distributed among communities. To support these, the construction of four

forest seed centers in four regions (Oromia, Amhara, Tigray and SNNPR) will be completed and become operational.

Community watershed conserved by biological soil and water conservation technologies will be increased from 12.162 million hecatares to18 million hectares by 2020. This means 48% increment over the base year and additional 5.830 million hectares will be coveredby the end of 2020. Including those conserved during the first round GTP period, maintenance of conservation structures will be carried out on 4.7 million hectares of land.

Having the participation of community and integrating the cereal production with livestock rearing, free grazing will be halted by 60% in areas where the agricultural activities are mainly cereal production. By realizing equitable use of benefits from rehabilitated natural resources, job opportunities will be created for 1.5million citizens in the country.

In pastoral and semi-pastoral areas, watershed management will mainly focus on water harvesting and development activities. Due emphasis will be given to experiences gained from the works of the millennium development goals, data is compiled and used for scaling up in other areas and these activities will be effected being integrated with the livestock development and the voluntary villagization program of the country.

2.3 Goal 2.3: Improve Water Resource Utilization and Management and Expand Small Scale Irrigation

The achievements of construction of small scale irrigation, which covers about 2.4 million hectares at the end of the first Growth and Transformation Plan (GTP), will be increased by 75%. As a result of this modern small scale irrigation scheme will be constructed on additional 1,743,000 hectares of land. This will increase the total area covered by irrigation to 4,043,000 hectares by end of 2020.In addition, modern small scale irrigation schemes constructed in the first Growth and Transformation Planon total area of 1,492,000 hectares will be improved and maintained. In the second Growth and Transformation Plan around 8,720 different water sources (irrigation schemes) will be expected to be constructed by different stakeholders. Moreover, at the end of the GTP 80% of farmers will have at least one source of water for irrigation.About 50% of them will be supported to use full package of modern irrigation system.

2.4 Goal 2.4: Create Foundation for Climate Resilient Green Economy by Enabling the Agriculture Sector to Adapt to Climate Change and Reduce GHG Emissions

Strengthening Training and Advisory service

At the end of GTP II 3,133,378 farmers and pastoralists, experts and leaders of which 30% women will acquire training to build their awareness and executing capacity. The training will be held in a series of sessions at an annual basis. Beneficiaries of the training will be drawn from all levels, federal to grassroots.

Increasing access to climate finance

About 10 quality project or program proposals realted to climate mitigation and adaptation thematic areas will be prepared during the plan period. These proposals will be presented to relevant finance instruments focusing on climate change and development and proper follow up will be made.

GHG sequestration and reduction actions

Agriculture has a dominant role in meeting the targets of the CRGE strategy in which more than 50 % of the actions depend on the implementation of measures in the sector. The measures planned in the sector have both GHG sequestration and reduction effects. Measures related to integrated watershed management particularly rehabilitation of degraded lands sequester carbon considerably while measures planned in crop and livestock productivity and efficiency practices reduce GHG emissions.

CRGE indicators and GHG goals are introduced to GTP II proportionally based on the assumptions and targets framed in the CRGE strategy document which can be referred to page 41. Another assumption considered is the late start of the CRGE implementation and the need to readjust allocation of targets. The CRGE was first thought to be implemented starting from 2011, but since there were more preparatory works there is now close to 5 years lag that have to be componseted in the coming years. Based on this, the following measures are included in GTP II of the sector as far as CRGE implementation is concerned.

Land rehabilitation through integrated watershed management and GHG sequestration

The strategy apart from the contributions of forest management has not specifically considered the potential of GHG sequestration from land

rehabilitation through integrated watershed management which covers vast landscapes. Watershed areas being managed by rural communities have not only economical, social and environmental benefits but also they are significant reservoirs too sequester GHG. Therefore, indicators are introduced to show the major contibutions of treated watersheds to the climate resilient green economy during GTP II. For reference and benchmarking purposes, the amount of carbon sequestered will be measured annually by selecting 4 watersheds with average size of 250 hectares each and total area of 1000 hectares where various physicaland and biological conservation measures are applied during GTP I.

Out of the targeted watersheds for rehabilitation using biological soil conservation measures during GTP II, focus will be given to 2.94 million hectares of land where its contribution to sustainable agriculture and an annual sequestration of 31.58 Mt GHG will be evaluated.

The livestock resource sector

According to the CRGE strategy, under business as usual (BAU) scenario the GHG emission from the livestock sector will have reached 125 Mt CO_2^e by 2030. However, through implementing activities which have better contribution for CRGE development such as improving livestock value chain efficiency, using low carbon emitting techniques, improving grazing land management, strengthening and expanding of livestock health services, the GHG emission will be lowered to 77 Mt CO_2^e by reducing 48 Mt $CO_2^{e.}$. By applying the same measures proportional to the GTP II, 16 Mt GHG (CO_2^e)will be reduced at the end of the plan perid.

The agriculture development sector

According to the CRGE strategy, under business as usual (BAU) scenario the GHG emission from the livestock sector will have reached 60 Mt CO_2^e by 2030.However, through implementing activities which have better contribution for CRGE development such as reducing impacts of agriculture on forest, mechanizing farming practices, crop yield increasing practices, the GHG emission will be countered by reducing 77.9 Mt $CO_2^{e.}$. By applying the same measures proportional to the GTP II, 25.97 Mt GHG (CO_2^e)will be reduced at

the end of the plan perid. The plan besides will reach 4.4 million households who are to apply climate smart agriculture technologies to their farmlands.

Biodiversity

Through implementing activities which have better contribution for CRGE development such as enhancing biodiversity conservation and utilization, reducing loss of biodiversity and minimizing climate change impacts,the resilience of biodiversity will be enhanced. Further more, thestudies and researches to beconducted on the impact of climate change on biodiversity will be increased to 9 at the end of GTP II.

The DRMFS sector

Through implementing activities which have better contribution for CRGE development such as establishing disaster security system, modernizing early warning and response system and enhancing accessibility of farmers and pastoralists and engaged private sectors on disaster security systemwill be increased to 6 sectors at the end of GTP II to reduce disasters impacts that will occurr due to climate change.

Agricultural research

Through implementing activities which have better contribution for CRGE development such as identification of climate change tolerant, effective new species increasing production and productivity of agriculture will be introduced at the end of GTP II.

2.5 Goal 2.5: Supply Soil Fertility Improvement Technologies through Developing Modern Soil Information System

2.5.1 Develop Modern Soil Resource Information System

In the second GTP period, based on various state-of-the-art ICT technologies, national soil resource and landscape information will be organized, stored in the database and made ready for use, by building standard national centralized soil resource infrastructure.

Based on 400 woredas where soil fertility status and new fertilizer requirement atlas preparation completed at the end of GTP-I, soil and landscape related data from field, recent satellite imageries, legacy data and soil test results will also be collected and analyzed; and soil fertility status and new fertilizer

requirement atlas of 250 woredas will be prepared so that the most appropriate soil management systems can be designed and implemented.

In addition to soil fertility mapping, soil resource and landscape maps (soil classification maps for 100 woredas and biophysical landscape maps for 300woredas) with 1:50,000 scale will be prepared by thoroughly studying the distribution, potential and constraints of priority major soils and landscape resources which can significantly determine and enhance agricultural production and productivity. As the task will be implemented for the first time in the country with this level of detail, continuous capacity building activities will also be carried out during the implementation period to ensure its sustainability.

Based on soil fertility status and newfertilizer requirement atlas, all farmers will get soil test-based fertilizer recommendation for their parcels. By using various technologies and enhancing urea fertilizer use-efficiency, crop production will be increased by at least 50%.

2.5.2 New Soil Fertility Improvement Technologies Delivery

In the first round Growth and Transformation Plan period, awareness creation on new fertilizer technologiesadoption have been undertaken in Amhara, Oromia, Tigray, and SNNP regions. Similarly, emphasis will be given to strengthen and expand the results in Afar, Dire Dawa, Harari, Gambella, BenshangulGumuz, and Somali regions in the second GTP. Accordingly, attempt will be made to disseminate and adopt K, NPS and NPSZn fertilizers on 10,000 farmers' plots.

In order to increase crop production and productivity, and thus to increase farmers benefit, 10 fertilizer blending factories will be established. Hence, by using blended, mixed and single fertilizers, it is planned to increase number of farmers who use new fertilizer from 3.75 million farmers to 18.58million farmers.

In regards to vertisol development it is planned to increase total area drained by Ivar BBM technology from734,500 hectares to 1,469,000hectares at the end of GTP II period.

By establishing 10 mobile soil laboratories and 3 lime crushers, soil acidity and lime sample tests will be conducted. On this basis, farmer's access to lime will be enhanced and 226,000 hectares of acid soil will be rehabilitated.

In regions where saline soil is a major problem to crop production and productivity, intensive capacity building in saline soil rehabilitation and reclamation will be conducted. Therefore, 128,000 hectares of saline soil will be rehabilitated and reclaimed using alternative agriculture technologies.

Concerning the bio-fertilizer development, it is planned to expand bio-fertilizers use for cereal crops production and productivity. Accordingly, area of pulse crops cultivated by biofertilizers will be increased from 11,963 hectares to 260,000 hectares in the GTP II.

2.6 Implementation Strategies to Achieve the Goals

The next natural resource sector GTP plan is to conserve the natural resourse and create conducive condition for increasing production and productivity sustainably. To put this in to practice it requires continuing watershed based natural resource conservation and transfer it to even higher level. Scaling up the best practices that have been registered to all areas and extend the works to higher level to enable the natural resourse agricultural production and productivity in a sustainable way and ensure the benefit of the society. It requires ensuring the participation and benefiting of all including women and youth in natural resource conservation and use. Technologies and strategies that are suitable for different agroecologies and corridors will be identified and implemented to achieve this. Accordingly technologies that are suitable for rainfall sufficient, moisture stress and pastoral/semi-pastoral areas will be taken.

Moisture Sufficient Areas:the main development focus in this area is using the rainwater properly and increase production and productivity by a higher level.Thewatershed works will be conducted by integrating physical and biological methods in degraded areas and promoting zero grazing. Since this area has sufficient moisture the watershed can develop by simply enclosing from anthropogenic and animal activities.

Moisture Stress Areas:in these areas conserving and using water resources for development purpose efficiently is crucial. In this regard the main activities will be harvesting water and expanding small scale irrigation to accelerate development, conserving the soil and water, rehabilitating the natural resource base and efficient use of the natural resource and integrating the livestock development interventions with natural resourcedevelopment activities.

Pastoral and Semi Pastoral Areas: since animal production is the main activity in this area ensuring avaialability of water for both livestock and human in selected areas will be the central issue. Beaside this scaling up of best practices attained during GTP I period like using river and under ground water for irrigation which gradually led the to start sedentary life will be practiced. Experiences attained from the Millenium Development Goals project in Somali and Afar region will be strengthened during the GTP II period. In pastoral areas in Oromia and SNNP region drought resilience projects will be implemented with a dedicated focus.

2.6.1 Enhance and Strengthen Watershed Works

In order to achieve the target set for the plan period identification of technologies to be implemented in each agroecology and corridor. Details of the technologies to be implemented in each agroecology and corridor (rainfall sufficient highlands, moisture stress highlands and pastoral and semi pastoral low lands) will be identified in annual plans and implemented accordingly. In all areas community watersheds where physical and biological conservation works are conducted will be identified in at all kebeles and woreda levels. The focus areas and implementation strategies in all agroecologiesand corridors is explained as follows**.**

In all the three agroecologies best practices in watershed works will be identified and scaled up. In the previous plan period extensive documents, films and documentary films on experiences are prepared.in this plan period problems faced in quality of watershed works and selection of a combination/mix of physical and biological technologies will be improved and implemented. All watershed works will be implemented to support food self sufficiency works while at the same time conserve the environment to contribute to build climate resilient green economy.

To achieve the goals using the community labor more extensively and effectively will be one of the implementation strategies. In all areas focus will be on transforming the ongoing development army approach to even higher level and solve the bottlenecks observed in attitude, skill and access. We will focus on unlocking the bottlenecks in availability of equipment, lack of skill on watershed works, and especially attitudinal problems on importance of watershed developmentobserved in rainfall sufficient areas. Moreover, the watershed work will be implemented in such a way that it creates

employementopportunities. For areas that need higher resource requirement we will rely on resources that can be attained from our development partners.
In pastoral and agro pastoral areas watershed development will focus on improving productivity of rangeland basically. Unlike the highland areas, where we strive to abolish free grazing, in these areas we will focus on increasing the productivity of grazing land and balancing with the number of animals for modern livestock development. Using the grazing land in shift system will be followed in addition to supplying seeds of forage grasses and multi purpose trees. In relation with this work extensive water harvesting and flood diversion structures will be built to use the rain water resources available efficiently.
During the GTP I period best rangeland management and development lessons have been documented by project implemented in Oromoia (Borena Zone), Somali and Afar regions by financial supports from our development partners. Since these experiences are documentd both in writeen and films they will be the main direction for the scale up works. On the other hand the work of establishing soil fertility improevement and information system will be implemented with integration with rural land administration and utilization.

2.6.2 Improve Agricultural Water Management and Utilization to Expand Small Scale Irrigation

Due to efforts made under GTP I demand for irrigation development is increased. Even if there is still efforts are neded to solve attitudinal gaps on irrigation use in rainfall sufficient areas, irrigation in most areas are considered as a main tool for increasing income and ensuring food security. Therefore, making every farmer household to have at least one water source will be the main strategy. This implementation strategy will be implemented in both moisture stress and rainfall reliable highland areas and will be integrated with the villagization program in pastoral and semi pastoral areas. For this reason the water sources in the identified 3 areas will be classified by woredas and kebeles.
Emphasis will be given to use all alternative water sources such as river diversion, spring development, underground water, pond and rainwater. All irrigation development works will be liked with watershed works to use irrigation opportubities created as a result of watershed development. Since expansion of irrigation is costly, we will continue to give to irrigations thatare less costly and can be contructed by community labor.

To solve bottlenecks in supply of water pumps and other water technologies credit facilities will be arranged for those who cannot directly purchase. In pastoral and semi pastoral areas efforts will be made by investigating limitations in developing irrigation by water pumps around the rivers and improve performance. In Somali and Afar regions the ongoing underground water development will be continued and availed for use.

On the other hand since the water use problem on irrigated lands are linked to water wastage this will be improved and additional areas will be developed by irrigation. In this regards problems on irrigation agronomy and extension services will be solved.

Another issue that deserves attention irrigation agriculture is the supply of irrigated crop seeds and fertilizer. Even if there are several efforst conducted on this issue they are not in a position to unlock the bottleneck sustainably. Due to this reason unavaialibility of quality seed is the major bottleneck in all irrigation user areas. On the other hand since fertilizer is not supplied properly for irrigated seasons unlike the main season farmers apply small amount of fertilizer in irrigated crops. To solve this problem organizing irrigation users in cooperatives and using rural cooperatives to establish the system will be one of the directions.

In our past efforts to expand irrigated agriculture one of the bottlenecks is market problem. To solve this problem organized movement of the producers and basing the production on market plan/demand is highly required. Moreover, by strengthening farmers' movement local and international market opportunities will be created for the farmers. By producing irrigated crops in mass the farmers will be encouraged to engage in agroprocessing activities.

2.6.3 Establishment of Land Administration System

Unlike the gaps in the earlier plan, cadastral surveying methodology has been determined, surveying and registration guidelines and training manuals have been already prepared and ready for implementation. So implementation of these throughout the country would be taken as part of the implementation strategy for this planning period. The leadership at regional level is developing enough awareness on the importance of having robust land administration system in their respective regions; sotheircommitment to keep allocating sufficientresources for the activities will be followed. Resource constraints in the land administration system are the main problem. Thus, certain share of the budget will becovered by development partners, who are engaged currently in the sector and other partners will be encouraged to join the process by

developing project proposal,so thiswill be a more likely implementation strategy for raising sufficient funds.

A project proposal, which has been developed by the support of FAO/TCP to solicit fund for preparation of national and regional master land use plan would help to get some funds from development partners. At the same time, regionalstateswould be encouraged to allocate budget for this purpose each year. Awareness creation forumsat all levels will be organized to increase the awareness on land useand also on the importance of formulating land use policy as well as developmentof kebele level participatory land use plan using the existing manual. Projects, which are working in the land sector will be integrated and harmonized to create enabling conditionsfor the implementation of the land administration and use objective. Strengthening institutional capacity to monitor and evaluate the impacts of the projects will be one of the key strategy directions. Thus, a discussion forum andconsultative meetings for projects and other stakeholders 'working in the area of land administration and use will be organized.

2.7 Organizational Improvements and Capacity Building Activities Required To Achieve the Plan

2.7.1 Small Scale Irrigation

We will give emphasis to solve human resource shortage in irrigation development. In addition to solving irrigation expert problem from federal to the region and woredas, alleviating the skill gaps of development agents at kebele through training and experience sharing will be conducted. At the national level for every 100 hectare of irrigated agriculture there will be one irrigation development agent at kebele level.Similarly, to lead the expansion of irrigation work properly, in every crop growing woredas and special support regions woredas where irrigation is conducted extensively, irrigation developmeny expert, irrigation agronomist, irrigation crop protection, irrigation infrastructure expert and irrigation product marketing and input supply expert will be organized.

In the first round growth and transformation plan poor quality of irrigation projects construction was the main problem. The main reason for this problem is lack of capacity in the projects design and study and the limitations faced during the implementation. Since this is related to skills gaps of the experts and ethical problems ways will be designed to produce experts in adequate amount and establishing center of excellence for providing trainings.

2.7.2 Rural Land Administration and Use

Rural land administration and land use activities at woreda and kebele levels require professionals with different educational levels and skills. The major tasks of the woreda experts are preparing plans, provide training on cadastral surveying and registration, conduct surveying and registration activities, prepare use right certificates ,carry out quality control, data management, data updating, provide information to courts during land conflicts ,prepare and implement land use plan of the woredaand monitor land valuation and compensation practices.

2.7.3 Soil Fertility Improvement and Information System

During the plan period training on soil fertility management for 100 experts with second degree, 200 experts with first degree and 500 experts with diploma is plannd to be given. Moreover, organizational staructure that can develop national soil information system and mapping development for all sectors will be in place.

In order to organize soil resource information at country level, and regularly update the information and determine up to date site-specific fertilizer requirement in a timely manner, a National Soil Resource Focal Institution will be established in GTP-II. Moreover, to strengthen the overall soil resource information system, short, medium and long-term capacity building training of trainers in various fields will be delivered to 400 federal and regional experts.

In developing the National Soil resources information and map, an institute which is capable of coordinating and serving all sectors will be established.

3. Strategic Objective3: Ensure Food Securityand Disaster preparedness and create Jobs for Rula women and Youth

3.1 Goal 3.1: Ensure Food Security

3.1.1 Household Asset Building Program

Over the period 2015-2020 safety net beneficiaries will have first priority in accessing loans that will be used to create asset at household level. Therefore, it is planned that by the end of the GTP II implementation period the number of chronically food insecure households that used household credit package to build asset at household level will be increased from 233,400 households to 628,850 households of which 45% or 282,983 are female household beneficiaries.

3.1.2 Graduation from Productive Safety Net Program

The next phase of PSNP is expected to be implemented in 411 woredas including existing 319 chronically food insecure woredas and additional 92 vulnerable food insecuredworedas of Tigray, Amhara, Oromia, SNNPR and Somali regions. About 20% of the beneficiaries will be direct support beneficiaries which include the disabled, breast feeding mothers, the elderly, and HIV/AIDS carriers while the remaining 80% of the beneficiaries will benefit by participating in public works. The number of productive safety net clients for the period 2015-2020 will increase from 5.115 million to 8.3 million people including 3.5 million transitory caseloads who have been receiving an emergency support over the last three years. Out of the total PSNP beneficiaries it is planned that about 50% will be female beneficiaries.

In general PSNP will be implemented by integrating with other food security programs. Therefore, in the next GTP implementation period the number of safety net graduates will increase from 161,310 households (both male and female headed) to 1,000,223 households or to 5,001,116 graduates. By the end of the GTP II implementation period the number of female beneficiaries that will graduate from program will be 480,007.

3.1.3 Emergency Food Reserve

The plan for food reseve during the GTP I period is not implemented as planned due to several factors. However, based on the country's policy in food self sufficiency and tackle emergency food needs by own resources will remain the main activity under GTP II. To follow and implement this goal a public body will be strengthened both in structue and strategy. Therefore, the food reserve will

increase from the base year amount of 405 metric tons to 1.5 million metric tons at the end of GTP II.

3.1.4 Activities and Implementation Strategies to Achieve the Goals

Ensure that PSNP beneficiaries are receiving their cash & food transfer on timely manner and Improves Their Food Security

- Provide necessary follow up and support to help the resources (cash and food) allocated for safety net beneficiaries is transferred on time & respects one of the program principles that is primacy of transfer
- Annual disbursement plan will be prepared; and communicated to concerned stakeholders to implement as per the plan.
- A year round transfer shall be effected to the direct support beneficiaries in order to fulfill their food needs to those who are eligible.
- To help the safety net beneficiaries improve their nutritional status the program is implemented by integrating the nutrition program. Thus, 4 kilogram pulses will be provided to the beneficiaries in addition to the regular 15 kg cereals.
- The cash first principle will be respected & implemented throughout the programme implementation period. Cash transfer shall be determined by conducting market assessment/studies in the PSNP woredas.
- In order to adjust the cash payment with market every year wage rate study will be conducted and rates will be adjusted accordingly;

Household Asset Building

- The safety net beneficiaries/PSNP/ shall have the first priority to receive the household asset building credit availed by different stakeholders;
- The PSNP beneficiaries will be participated in different farm and non-farm activities at household level so as to build asset at household level and create an additional income that enable them to improve the food security situation and regional governments shall allocate budget for credit services.
- Regional micro finance institutions will allocate resources/money for household asset building programs that shall be used for the intended purposes.
- The loans that have been disbursed during the previous years shall be collected and re-disbursed in the form of revolving fund for building household assets. In order to establish sustainable financial system in the

rural areas as well as to ensure an efficient technology package & credit supply the credit package shall be disbursed through RUSACCOs& micro financial institutions.;

- feasible agricultural packages shall be prepared and implemented that bases up on development corridors to ensure food security of the safety net beneficiaries;
- Among the PSNP beneficiaries those who are using technology packages which enable them shall be identified and for the identified beneficiaries shall be supported in the preparation of business plan, training, credit and extension services that enable them to graduate. Furthermore, special support shall be given for the integration of packages that will be implemented in arid&semi arid low land areas mainly the water harvesting technologies that would ensure the food security.
- Ultra-poor PSNP beneficiaries shall beidentified and provided with asset transfer that enables them to create and build assets at household level.
- In order to ensure the benefit &participation of youths & women who are living in chronically food insecure woredas. Special emphasis shall be given for landless youths & women which enable them to create asset.

Graduation from Productive Safety Net Program

Ensure that the supports provided to the safety net beneficiaries are enable them to create asset & income at household level & improves their livelihoods that fulfill the minimum requirements to graduate from the programme should be on evidence based. Thus;

- Priority shall be given for safety net beneficiaries in providing household packaged credits which enable them to build asset and ultimately to graduate from the program. Hence close follow up &support shall be provided for potential graduates.
- To ensure that the ongoing graduation process is evidence based the Graduation Prediction System (GPS) procedure shall be implemented;
- PSNP beneficiaries who have been supported& receiving credit for building household asset which enable them to graduate from the program will be supported by availing credit7providing technical

trainings that enable them in creation of incomes &resources that can be considered as a better success .

- The safety net beneficiaries shall be used livelihood opportunities facilitated through three pathways agriculture (livestock and crop production), off farm activities and labor marketing activities to improve their food security situation &to create asset that helps them to graduate from the program.

3.2 Create Jobs for Rural women and youths

These days, many women, youths and other community groups living in rural areas need jobs to be created in their residential localities. Therefore, it is proved that mobilizing and organizing rural women and youth to enhance their participation and ensure their benefit from job creation based on their potential and talent is vital for sustainable development. Assessment and identification of exiting potential and talents need to be conducted to create appropriate and viable job alternatives for these groups.

In the same manner, coordination with relevant stakeholders at federal and regional level will be created to develop criteria for selection (recruitment) of job seeking youth and organized them on different alternative job opportunities based on the set criteria.

It is a decisive to create alternative jobs and provide support to male and female youth graduated from different higher institutions by identify and conduct feasibility studies on alternative and viable jobs in relation to their professional background and talents.

Focus will also be given to enhancing job creation capacity by conducting different studies about how to engage rural job seekers in on-farm and off-farm businesses based on local contexts and potentials of their areas.

Market study will be conducted and market linkage will be created for those who engage in created alternative jobs to enhance their production and ensure their benefit. They will be supported to focus on market oriented product and productions through regular follow up. Coordination will be created with relevant bodies to link jobs created in rural area with those enterprises created (or would be created) in urban areas.

For those alternative jobs identified through studies, mechanism of accessing sustainable financial supply will be designed and implemented.Accordingly, additional 3,672,000 jobs will be created on top of 1,033,000 individual for whom jobs was created in GTPI by 2015, that will make a total of 4,750,000 citizen to be addressed by the end of GTPII (2020).

VII. PASTORAL AREA DEVELOPMENT

In addition to the implementation of regular programs mainstreamed into different intervention areas, the irrigation centered watershed development and voluntary settlement program which has been started in GTP-1 shows promising result in improving the socio-economic situation of the pastoral community.

The achievement of GTP-1 on watershed development and voluntary settlement program motivated both the pastoral communities and executive bodies to further strengthen the development process. The second generation Growth and Transformation Plan focus on increase access to potable water, Promote irrigation from surface anmd ground water, strengthen pastoral extension services, implement integrated social services institution and infrastructure development, and strengthen implementation capacity. Hence, the following major activities will be implemented;

- Design and implement animal and human potable water development projects
- Promote irrigation from surface and under ground water by using feasible irrigation technologies
- Build roads and bridges to get access to development corridor areas
- Develop development centers economic and social institution on selected areas
- Build capacity to enhance the implementation of watershed development, road and infrastructure.

VIII. TRANSFORMATION AGENDA TO ADDRESS SYSTEMIC BOTTLENECKS IN GTP-II

The Government of Ethiopia (GoE) will implement an Agricultural Transformation Agenda to address systemic bottlenecks that constrain the achievement of GTP II targets for the agricultural sector.

To catalyze transformation of the agricultural sector from a subsistence oriented, low output sector to a high performing sector well integrated into the national economy and thereby to achieve the GTP II targets for agriculture, it is necessary to identify and unlock key systemic bottlenecks in various aspects of agricultural development. This includes (a) identification and prioritizing transformational interventions as well as developing and aligning around implementation targets, milestones, resources and roles; (b) a dedicated focus for effective implementation; (c) coordinating interventions beyond the agricultural sector; (c) developing real-time solutions for implementation problems as they arise; and, (d) an enhanced monitoring and reporting system.

The priority program areas for the Agricultural Transformation Agenda in the coming 5 years are linked to the GTP II objectives for agriculture as discussed in earlier sections. Accordingly, 31 key program areas have been identified with 1 to 3 transformational interventions that will support the achievement of the GTP II strategic objectives. Each program area will have a particular emphasis on increasing participation of women and youth.

1. Transformation Agendas Related to Crop Development

1.1 Seed Supply and Distribution

To address systemic bottlenecks in the seeds sub-sector two deliverables are identified:

(a) Strengthen the enabling environment to attract investment and develop a vibrant competitive sector and seed market in Ethiopia,
(b) Strengthen federal/regional seed regulatory capacity; finalize structural reforms and legal frameworks to meet international standards

1.2 Fertilizer Supply and Distribution

Together with improved seeds, optimal use of fertilizers and appropriate soil fertility management can increase agricultural productivity by 50-200%. The

transformational deliverable identified towards this end is: to increase local production and availability of custom-made fertilizers.

1.3 Crop Protection and Health

Two deliverables have been identified in the area of crop protection and health:

(a) Strengthen capacity and mechanisms to predict and detect pests and diseases, provide early warning of outbreaks and ensure appropriate response including organic and inorganic solutions;

(b) Enhance effective federal and regional pesticide regulation and management.

As this program area new to ATA the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

2. Market-Oriented Extension

Agricultural extension plays a critical role in enhancing crop and livestock productivity by disseminating information on improved agricultural practices and technologies to smallholder farmers. The following two broad transformation deliverables have been identified to reorient the agricultural extension service in Ethiopia for it to better support technology adoption by smallholder farmers.

a. Tailor extension services to different types of situations and communities to make extension more market-oriented and context specific
b. Strengthen mechanisms by which the extension system becomes better coordinated, accountable and financially sustainable

3. Demand Driven Research

To support agricultural transformation, it is necessary that agricultural research focuses on products that have market potential; and, that research on crops, livestock, natural resources management, and improved nutrition is demand oriented. Towards this end the following two deliverables are identified:

a. Strengthening mechanisms by which research generates and adapts/adopts client-oriented outputs
b. Expand utilization of biotechnology for increased agricultural production and productivity

4. Rural Finance

Credit, insurance and savings are important facilitators for modernizing agricultural production (including use of inputs and adoption of improved technologies) strengthening value chains, and improving farmers' livelihoods. There is therefore a need to improve farmers' (particularly women) and various value chain actors' access to financial services.

Key transformational deliverables are:

(a) Develop a network of financial institutions with a focus on grassroots institutions and their vertical linkages (with due attention for the need to reach disadvantage communities)

(b) Develop appropriate and innovate financial products and services to accelerate agricultural transformation

As this program area new to ATA the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

5. Mechanization

It is important to enhance smallholder farmers' use of mechanized technology as mechanization has the potential to improve agricultural processes, increase agricultural productivity, reduce costs and reduce post-harvest losses. For example, with enhanced mechanization of farmers' processes, it is possible to decrease the use of seeds by 15-90%. The key deliverable on mechanization will be to:

a). *develop and roll out a sustainable mechanization supply chain and service provider model to reach different segments of farmers.*

6. Environmentally sustainable and inclusive agricultural growth

6.1 Irrigation and Drainage

Addressing systemic bottlenecks is required to create vibrant Irrigation and Drainage sector in which smallholder farmers/agro pastoralists have access to at least one option of water source and increase production and productivity. This will thereby insure households' food security and increase household income. This is an area that has received emphasis in GTP I and will continue

to do so also in GTP II. The Agricultural Transformation Agenda will focus on the following two deliverables:

(a) *Identify water resources potential and promote sustainable irrigation development.*

(b) *Strengthen services for irrigation/drainage developmentand supply chain for related technologies to enhance farmers' ability to expand irrigated agriculture.*

6.2 Watershed and Forestry Development

Land degradation and soil erosion is recognized as a critical constraint to agricultural productivity and considerable investments are being made in watershed management. To further encourage environmentally sustainable practices both on private farm lands and on community lands, it is necessary to help develop income sources and incentives related to such practices. .

Thus, transformation in this program area will be promoted through the deliverable:

(a) To develop an incentive structure for farming households to invest in watershed development and sustainable farming.

As this program area new to ATA the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

6.3 Strengthening Biodiversity

Biodiversity conservation is essential from the point of view of preserving fauna and flora essential for human and environmental health. It supports climate change adaptation strategy by protecting and developing species of animals and plants that are resistant to pests, disease and moisture stress tolerant. Biodiversity conservation also supports ecosystem service maintenance and contributes to agricultural transformation. Thus, it deserves attention from the point of view of maintaining the country's natural wealth during the growth process. Two key deliverables to be promoted as part of GTP II are:

(a) Develop capacity for biodiversity assessment, characterization, prospecting, utilization and conservation at federal and regional levels with improved linkages with the research system
(b) Strengthen regulatory system at entry/exit windows for effective control of biodiversity movement

As this program area new to ATA, the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

6.4 Rural Land Use and Administration

Unlocking systemic bottlenecks in the area of land administration is expected to promote better land use by farmers. Additionally, more modern and cost efficient land registration will accelerate the land certification processes, which will serve to formalize farmers' land rights and encourage investments on land. Transformational deliverables are:

(a) Develop appropriate frameworks for sustainable and efficient rural land utilization
(b) Establish and strengthen systems for land use rights (including certification)

As this program area new to ATA the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

6.5 Soil Health and fertility

Low soil fertility, acidity and other soil health related issues reduce agricultural productivity in Ethiopia. Managing for better soil health builds more dependable productivity and increased resilience into farming systems/ agro ecosystems, while decreasing external input needs. Better soil health management can help farmers adapt to and mitigate extreme weather, climate change effects, and other environmental impacts through carbon sequestration, better water availability buffering, better temperature buffering, lower environmental losses and improved ecosystem services. Improved soil health for instance increases soil infiltration and soil aeration, which reduce the effects of high precipitation on runoff, erosion, and compaction, and thus also reduce de-nitrification and nitrous oxide losses. To address these issues, the following are key:

(a) Develop, validate and scale up integrated soil fertility management technology packages for major cropping systems and agro ecologies

(b) Improve fertilizer use efficiency to inter alia enhance crop productivity, reduce GHG emissions, and improve nutrient value

6.6 Climate Change Adaptation and Mitigation

Ethiopia is highly vulnerable to climate change and has experienced different hazards and corresponding disasters in the past decades at various times and in varying degrees and magnitude. Climate change and variability induced hydro-meteorological hazards; drought and flood have in particular remained the leading cause of disaster and human suffering in Ethiopia. Therefore, intervention in the areas of climate change adaptation and mitigation are required to ensure sustainable production and productivity increase and ensure food security into the future.There are no transformational deliverables specific to climate change adaptation and mitigation. Rather, this will be mainstreamed through all program areas.

6.7 Targeted Livelihood Support (especially for youth, pastoralists and agro-pastoralists; and, food insecure populations)

For agricultural development to be truly transformational, poor and marginalized rural communities and households need to be included in the growth and transformation process. In Ethiopia such populations groups tend to be the food insecure households, pastoral and agro-pastoral communities and the youth). To ensure inclusion of such communities, target support is envisaged. Shifting support to such communities from direct assistance (transfers) to support for livelihood development is critical and will be promoted through customized interventions across key program areas such as rural finance, extension, and animal health.

6.8 Nutrition

The agricultural transformation agenda will include a focus on ensuring that production and productivity gains include nutrition dense products to be achieved through interventions mainstreamed across other program areas.

6.9 Gender Equality

Women make crucial contributions in agriculture providing half the agricultural labor in Ethiopia. Their roles vary across regions but everywhere, women face gender-specific constraints that reduce their agricultural productivity (23%) and limit their contributions to agricultural production, economic growth and the well-being of their families, communities and countries. Providing the needed support to women and addressing gender issues will contribute to the increased production and productivity. There are no transformational deliverables specific to gender equality. Rather, gender equality will be mainstreamed through all program areas.

7. Transformation Agendas related to commercial orientation of smallholder agriculture and market development

The Agricultural Transformation Agenda will include six program areas related to agricultural commercialization: (a) market services and infrastructure; (b) food safety, quality assurance and traceability; (c) domestic and export market development; (d) cooperative development, (e) aggregation and storage; and (f) private medium and large scale farm development. Some of these program areas are related to activities undertaken by stakeholders in non-agricultural sectors. Related transformational deliverables will be further identified with relevant stakeholders. The following provides a brief presentation of two programs that are part of the agricultural sector and relate to commercial orientation of smallholders.

7.1 Cooperatives Development

Reorienting cooperatives into business oriented institutions and increasing their participation in output markets as well as increasing their efficiency in agricultural input supply is considered key in terms of commercialization of smallholder agriculture and increasing productivity and incomes of smallholder farmers. The focus on cooperatives is necessary because these are grassroots organizations close to and owned by farmers and therefore able to stimulate smallholder farmers' engagement in buying and selling functions and aggregation for markets. Given the current low membership of women, at only 15%, a particular emphasis on increasing female membership and decision-making roles within cooperatives is also necessary. To enhance the role of cooperatives in Ethiopia's agricultural development, the following transformational deliverables will be implemented under GTP II.

(a) *Enhance cooperative promotion sector capacity and transform Cooperatives into market oriented entities;*

(b) *Develop mechanisms to ensure access to finance for cooperatives to engage in output marketing and value addition.*

(c) *Expanding cooperative capacity in infrastructure to enhance aggregation*

7.2 Private Medium and Large Scale Farm Development

Private commercial farming has the potential to increase agricultural production and to create rural employment opportunities in Ethiopia. It can promote sectoral development through a close engagement with smallholder farmers (e.g., through contract farming and out grower schemes) by supporting product quality control, supplying agricultural inputs and new technologies,

orienting production to high value commodities, creating market linkages and providing social services. Transformational deliverables include:

(a) *Strengthen enabling environment for effective regulation and support to medium and large commercial farms.*

(b) *Develop agricultural economic zone for large commercial farms.*

(c) *Develop and strengthen nucleus-farm based out grower schemes/contract farming linking commercial farmers with smallholder farmers including women farmers.*

8. Enhanced Implementation Capacity

To accelerate agricultural transformation, it is necessary to enhance implementation capacity around the 27 program areas discussed above, Therefore the Agricultural Transformation Agenda will include additional 4 program areas; i.e., organizational and human resource capacity, evidence-based Planning and M&E, and ICT solutions for development and private sector development.

8.1 Organizational Structure and human resource capacity

Regarding organizational capacity, it is important to note that for any type of agricultural transformation to be sustainable; the capacity of local public sector organizations must be strengthened and enhanced. Such capacity will be critical for the generation of innovations as well as the execution of solutions. The Agricultural Transformation Agenda on this area will focus on strengthening linkages between federal and regional institutions as well as ensuring the greatest impact is generated from the various capacity building that are currently underway in key public sector organizations

More specifically, the two Deliverables in this area are to:

(a) *Strengthen the institutional structure, roles/responsibilities and linkages between key federal and regional level organizations necessary for agricultural transformation.*

(b) *Align and coordinate capacity building efforts at key public organizations responsible for agricultural transformation on highest priority issues*

As this program area new to ATA the deliverables identified at this stage will further be refined and developed in consultation with relevant stakeholders.

8.2 ICT for Agricultural Services

In order to effectively support the agriculture and rural development sector, greater emphasis should be placed on the development and expansion of ICT solutions. These ICT solutions will assist in the automation, centralization, and institutionalization of a wide range of manual processes, catalyzing the agricultural transformation. The transformational deliverable that is aimed at achieving these aims in GTP II is to: *develop and expand ICT solutions for selected services that can accelerate agricultural transformation.*

8.3 Evidence Based Planning and M&E

To successfully lead the agricultural transformation process, it is important to be strategic and base decisions on evidence. It is therefore critical to strengthen planning, monitoring, learning and evaluation (PMLE). Transformational deliverables in this area include:

(a) Strengthen institutional structure for sector wide result based PME, particularly linkages between federal and regional stakeholders.

(b) Develop and implement innovative, Results Based M&E (RBM&E) systems

(c) Strengthen and rationalize knowledge management systems (MIS, knowledge products' repository, linkages with information sources, communication systems)

8.4 Private Sector Development

Related transformational deliverables will be further identified with relevant stakeholders

9. Integration of solutions to systemic bottlenecks in Agricultural Commercialization Clusters

Agricultural transformation is catalyzed when systemic bottlenecks are addressed and solutions reach farmers in a coordinated manner. Therefore, the GTP2, Agricultural Transformation Agenda includes an "anchor" deliverable so that initiatives on the ground are coordinated with other initiatives within Agricultural Commercialization Clusters (ACCs). ACCs will serve as a platform for bringing together multiple stakeholders within government, civil society and the private sector that have a role in promoting accelerated and sustainable growth as well as commercialization of smallholder agriculture.

IX. MAJOR IMPLEMENTATION STRATEGIES

In GTP II plan details implementation strategy is already laid down under each of the goals. Here major implementation strategies that must be emphasized and have linkage with working system are highlited as follows.

Implementing the scaling up strategy is our key direction in implementing GTP II.Under GTP I scaling up strategy implementation capcity is immensely strengthened.Organized development army is built in natural resource management which also started in irrigation and crop production sub sectors. The main focal point in GTP II will be building development army in all sub sectors and changing it in to comprehensive implementation capacity in all fronts and implementation chapters/stages which can accomplish all activities at required time and quality. In this regard it is already known what to do and what not to do. The main point is there is common consensus on assessing our achievement in GTP II on our capacity to change to strong comprehensive implementation capacity. On building development army there is also a need to build strong development army in implementing activities to improve livestock production and productivity. Expanding the experiences gained in other sub sectors and relying on activities started in the livestock sector there is a need to organize existing experiences to implement livestock issues in development army approach.

The other implementation strategy that shoulbe given due emphasis will be regional specialization and diversification which need to be implemented with proper leadership. This strategy is crucial in meeting our production and productivity goals, ensuring quality products and thereby increasing our export earnings and meeting industrial raw material demand. Therefore, this will be onducted through identification of the already started clusters, dedicated leadership for institutional capacity and linking the work with other sectors in 2015 E.C and sustainably strengthening this over the remaining years. The Cluster development will be implemented by step by step approach. In the first step increasing production and productivity, improved post harvest handling, storage and aggregation and creating reliable market linkage. In the second stage processing and value addition will be conducted based on commodities produced in stage one.

The other thing that should be implemented with a strong focus is developing technology transfer system comprehensively. Since the technology transfer

system combined both the extension and research system together identification of what should be done by the two systems is important.

Therefore, to strengthen the agricultural research system solving capacity problems will be conducted. Extensive job will be conducted to enhance the capacity of existing staff and including other qualified personnel to the research system. In this regard measures will be tken retaining the existing researchers at the institute through measures taken by the government and including other to the system based on their qualification. Moreover, to relive the capacity constraint of the institute the designed project document will be approved and budgeted for implementation.

The established research council will be further strengthened to avoid duplication of researches in similar issues/areas and use resources for better results.

To improve weaknesses on expediate adaptation of technologies from abroad the Agricultural Transformation agency will search and support adaptation of improved technologies from other countries in a comprehensive way. The research Institute will also strengthen its linkage with international research centers for speedy technology sourcing and adaptation. Moreover, the research institute will be enabled to adequately supply produced technologies by adapting and multiplying basic and pre basic seeds.

In regards to extensionastrategy that solves problems with lack of speedy expansion of profitable/feasible technologies is under development. The strategy will be finalized in a participatory manner and made available for implementation under GTP II period.

The problem related to technology multiplication and distribution is linked to the research system. Therefore, supply of adequate basic (arabi) and pre basic seeds (qidmameserach) will be done as indicated above. Relying on pre basic seeds, adequate basic seeds and multiplication of adequate certified seed will be done based on the experiences so far. In this regard public seed multiplication organization capacity will be strenghthed while private sector participation is increased. Seed multiplication will be done in all seasons.In regards to seed distribution since direct seed marketing is tested and proved it will be scaled up.

Livestock technology multiplication system is not fully developed so far. Based on experiences so far livestock technology multiplication system will be

designed in 2015. Similarly, farm implement multiplication system will be prepared and implemented under GTP II. Since fertilizer type and amount required will change under GTP II, a suitable system that reinforces existing practices will be prepared. Local fertilizer blending and production of blended fertilizer will be strengthened through coordination of cooperative unions and private sector.Since it is assumed production of urea fertilizer will be started under GTP II speedy and effective distribution system will be in place. In every area a system will be in place to help farmers get all inputs they need, instead of one input only, at one place.

In regards to agricultural market system apart from strengthening the ECX, proper focus will be on getting right systems below the ECX. Because cooperatives have key role in agricultural marketing, effort will be made to solve lack of proper political leadership and help cooperatives organized widely and properly to make them key players in system.

Due to this fact implementation of the cooperative strategy will be give special emphasis. Moreover, marketing infrastructure will be fulfilled following the clusters created. Based on the clusters market linkage with export and industries will be created. Details of this will be explaned in details plans and the outgrower and contract farming approach will be implemented.

On the other hand a rural finance system that can solve access problems and absorb the mobilized saving will be built. In this regard strengthening the existing MFIs that are playing key role and their linkage with the banking system is required. However, MFIs lack capacity to reach all kebeles and profitability model and hence establishing rural saving and credit cooperatives will be established widely. In combination of RuSACCOs and other cooperatives cooperartive banks will be established. Expanding the voucher system to link input procurement with finance institutions step by step is another work required under GTP II. Moreover, using regional budget as collateral for input credit will be examined and approved and implemented.

Expansion ofnon farm activities included developing rural agro processing and construction industries in a decentralized wayand developing the rural service sector. Enhancing production of agricultural inputs previously produced by small and microenterprises (e.g. beehives, treadle pump etc.), expanding light industries that process perishable agricultural products for longer shelf life will be given special emphasis. On top of this enterprises that are established and run by youth will be expanded.

New and existing rural towns that emerged as growth centers will be developed through planned and decentralized way to strengthen rural - urban linkages. Therefore, rural center models will be prepared and promoted by aligning them with newly established or rural kebele centers.These rural centers will be made important cluster centers for social and economic institutions essential for rural development and urbanization. Similarly, efforts will be started and strengthened to transfer woreda centers to urban centers where decisive economic activities that speed up rural urban transformation are conducted. For this reason we will enhance leadership conditions in woreda centers in a planned way to make them suitable for living and development. In this regard more attention will be given to expand housing development in woreda centers which will further expand and strengthen the construction industry.

Efforts started to expand quality education and health services in rural areas to improve the productive capacity of the population will be implemented based on the plans of the respective sectors. Similarly, universal road access, rural and kebele centers potable water supply, electric and telephone access and coverage will be implemented based on the sectors five year plan. Since education has strong implication for agricultural works, adult education will be aligned (linked) with technology transfer activities to improve the existing slow progress.

X. AGRICULTURAL GTP II INDICATIVE FINANCIAL PLAN

The indicative budget included here will include the four major sectors in Agriculture, agricultural research, supporting work processes and the agricultural budget subsidies to regions.

Accordingly the total budget needed to implement the set strategic goasl AGTP II is 141,154,934,000Birr. Out of this total agricultural budget 125,366,948,000(89 %) is capital budget while the remaining 15,544,986,000 Birr (11%) is recurrent budget. When we look at it by source 16,602,325,000 Birr (13.2%) of capital budget is from loan, 69,368,215,000 Birr (55 %) is from grant (aid) and 39,396,409,000Birr (31.4 %) is from government. The entire recurrent budget will be covered by the government. The amount of aid money is inflated because about 54 million Birr is to be acquired from donors for the 4th round safety net program.

When we disaggregate the total budget of 141,154,934,000Birr for the five sectors 11,915,039,000 (8.4 %) is for Agricultural development sector; 3, 920,

294, 000 Birr (2.8 %) for natural resource development center and 68,136,500,000 (48.3%) Food Security sector, 4,782,582,000(3.4 %) for agricultural research and 243,000,000 (0.2%) is for support program. The remaining 52,157,518,000 Birr (37%) is subsidy to the regions.The details are presented in table annexed.

For transporting of goods during emergency aids and fertilizer procurement 6.56 billion birr foreign currency is required. That is equivalent to 327,181,224 US dollars.

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XI. AGRICULTURAL GTP II HUMAN RESOURCE PLAN

In order to implement the five year agricultural GTP a total of 12,831 personnel (HR) are required. Out of this 10,656 people are currently on job and the remaining 2175 posts will be recruited during the first two years of the plan. Moreover, human resource requirements in important fields such as horticulture, coffee, tea and spices, agricultural mechanization in first, second and third degree will be fulfilled. Similarly, since there is gap in crop health protection areas vacant posts will be fulfilled in the first two years.

In natural resource development sectorexperts in irrigation, soil and water conservation especially experts specially trained in modern ground mapping and survey and GIS will be hired and fulfilled.

To improve the capacity of agricultural technique and vocational schools 300 teachers will be upgraded to masterd degree level during the plan period.

Since high priority is given to agricultural research in generating, adapting, multiplying and distributing technologies human resource trained at higher level will be fulfilled on time to implement the plan.

In addition to getting human resource from the market, long term training opportunities for on job staff in key sectors will be conducted. Hence staffs in key sectors, with a focus on agrocutural research sector, will be trained in second and third degrees in national universities. In general to implement the second round AGTP the details of human resource requirement is given in the following table.

In order to build the capacity of frontline extension agents in FTCs, 33,335 new development agents will be trained at agricultural colleges in crop, livestock, natural resource, and irrigation development subjects.

In regards to fulfilling regional human resource requirements periodically, under AGTP agricultural experts in horticulture, coffee, tea, spices, plant health and quality control, animal production and feed, animal health, natural resource conservation and development, land survey, GIS, land registration, land administration, land information system (ICT) and etc will be trained and fulfilled. Accordingly 55 experts in PhD, 890 in Master degree and 26,946 in first degree will be fulfilled. Moreover, staff currently on job will be trained in selected national universities master and PhD degree under regular and summer programs.

XII. MONITORING AND EVALUATION SYSTEM

The government, citizens and the development partners' main objective is getting tangible resulst beyond the implementation of plans. For this reason establishing strong and gender sensitive M&E system is a crucial tool to help the stakeholders know whether the implementation has yield desired result for the development of the country. On top if this it will play irreplaceable role to improve weaknesses observed during the implementation and enhance the strengths based on evidences.

During the GTP one performance reports were based on data from various administrative records and the central statistics agency. However, absence strong M&E system to get of get reliable data from different adminstartive level at required time and quality was the major challenge under GTP I. Based on lessons from GTP I strong M&E system that supports timely monitoring, evaluation and taking corrective actions accordinglywill be established.

Accordingly quarterly and annual sector performance reports based on common templates will be collected from the lowest to the the federal administrative tier. The reports will be prepared based on indicators that can measure progress against the targeted development results. For this result M&E framework that indicates detailed annual targets is prepared for use. To help reliable and timely flow of data from kebeles to the federal level web based (improved) data management system (collection and flow) will be established. The data management system will be rolled out in the first year of the plan.

In general the top management of the ministry will follow up and support preparation, implementation, monitoring and evaluation of the AGTP II as per its mandates. On the other hand the ministry's planning and programming directorate, affiliated institutions planning and programming units and regional, zonal and woreda planning and programming units will lead/own the implementation of M&E of AGTP II in close collaboration with other stakeholders.

These bodies will prepare reports by processing and analyzing data that will be used as inputs in to the M&E system both from field studies and administrative sources. The starting point will be M&E reports from federal and regional implementing bodies, related CSA data from census, sample surveys and administrative records. On top of this the M&E system will be strengthened by feedback from field evaluations. Discussion forums for each sector will be organized to provide immedisate solutions for problems identified by periodic reports and field visits. The discussion forums will be conducted at sector employee level, regional and federal council, parliament and top management levels. If the discussion identified slow progress in implementation of some plans, ways to improve it will be suggested. Moreover, best practices from other implementing stakeholders will be presented for learning and information exchange. In order to establish this gender sensitive result based M&E system the following major activities will be conducted;

1. Implement the three M&E strategies in an integrated way
2. Prepare indicator hand book/manual for all result indicators included in the result framework
3. Complete the ongoing web based (improved) data collection and management system establishement
4. Establish data quality assurance systems to improve data quality
5. Prepare data sharing protocols and systems with both governmental and non goverenmental organizations
6. Implement capacity building sytemand deploy adequate staff to enable imeplementation of the M&E system under GTP II in both federal and regional levels;
7. Prepare evaluation system for programs and major projects implemented by the sector.

ANNEX

FINACIAL PLAN

Table 1 Indicative Budget (2015-2020) ('000 Birr)

sector	Source of budget	2008	2009	2010	2011	2012	Total
Agriculture development	**Capital**						
	Aid	216,684	229,175	265,889	275,993	301,220	1,288,961
	Loan	1,078,054	1,091,993	1,126,686	1,136,483	1,137,835	5,571,051
	Public capital budget	615,133	731,990	643,012	734,695	712,396	3,437,226
	Sub total	1,909,871	2,053,158	2,035,587	2,147,170	2,151,451	10,297,238
	Recurrent budget	292,356	307,744	324,677	340,414	352,609	1,617,801
	Total	**2,202,227**	**2,360,903**	**2,360,264**	**2,487,584**	**2,504,060**	**11,915,039**
Natural resources	**Capital**						
	Aid	675,794	768,977	639,284	811,365	807,360	3,702,778
	Loan	10,000	10,000	10,000	10,000	0	40,000
	Public capital budget	331	522	823	1,058	1,023	3,757
	Sub total	686,125	779,499	650,107	822,423	808,382	3,746,535
	Recurrent budget	33,053	36,562	31,400	34,872	37,872	173,759
	Total	**719,178**	**816,061**	**681,507**	**857,294**	**846,254**	**3,920,294**
Disaster And food security	**Capital**						
	Aid	10,800,000	10,800,000	10,800,000	10,800,000	10,800,000	54,000,000
	Loan	1,766	1,766	1,766	1,766	1,766	8,830
	Public capital budget	272,542	1,339,374	4,838,028	4,176,686	3,363,907	13,990,537
	Sub total	11,074,308	12,141,140	15,639,794	14,978,452	14,165,673	67,999,367

	Recurrent budget	26,300	26,970	27,544	27,620	28,699	137,133
	Total	**11,100,608**	**12,168,110**	**15,667,338**	**15,006,072**	**14,194,372**	**68,136,500**
Agriculture research	**Capital**						
	Aid	163,235	192,051	200,212	245,782	300,602	1,101,881
	Loan	81,617	96,025	100,106	122,891	150,301	550,940
	Public capital budget	163,235	192,051	200,212	245,782	300,602	1,101,881
	Sub total	408,087	480,127	500,530	614,455	751,504	2,754,702
	Recurrent budget	258,921	317,394	389,139	477,181	585,245	2,027,880
	Total	**667,008**	**797,521**	**889,669**	**1,091,636**	**1,336,749**	**4,782,582**
Operational budget	**Capital**						
	Aid	-	-	-	-	-	-
	Loan	-	-	-	-	-	-
	Public capital budget	-	-	-	-	-	-
	Sub total	-	-	-	-	-	-
	Recurrent budget	45,000	47,000	49,000	50,000	52,000	243,000
	Total	**45,000**	**47,000**	**49,000**	**50,000**	**52,000**	**243,000**
Budget support to Region	**Capital**						
	Aid	1,206,610	1,447,369	1,695,260	2,327,426	2,597,931	9,274,595
	Loan	1,413,446	1,650,207	1,991,273	2,418,049	2,958,528	10,431,504
	Public capital budget	2,826,891	3,300,415	3,982,546	4,836,099	5,917,056	20,863,007
	Sub total	5,446,947	6,397,991	7,669,079	9,581,574	11,473,515	40,569,106
	Recurrent budget	1,620,282	1,853,046	2,287,286	2,508,673	3,319,126	11,588,413
	Total	**7,067,228**	**8,251,037**	**9,956,365**	**12,090,247**	**14,792,641**	**52,157,518**

Grand total	**Capital**						
	Aid	**13,062,322**	**13,437,572**	**13,600,645**	**14,460,565**	**14,807,112**	**69,368,215**
	Loan	**2,584,883**	**2,849,992**	**3,229,831**	**3,689,189**	**4,248,430**	**16,602,325**
	Public capital budget	**3,878,133**	**5,564,352**	**9,664,621**	**9,994,319**	**10,294,984**	**39,396,409**
	Sub total	**19,525,338**	**21,851,915**	**26,495,097**	**28,144,073**	**29,350,525**	**125,366,948**
	Recurrent budget	**2,230,911**	**2,541,716**	**3,060,047**	**3,388,761**	**4,323,551**	**15,544,986**
	Total	**21,801,250**	**24,440,632**	**29,604,143**	**31,582,833**	**33,726,075**	**141,154,934**

Table 2Financial requirement under GTP II by source (billion Birr)

S.No	Description	Base year 2007 estimate	(projection) 2008	2009	2010	2011	2012	5 year total 2008-2012
1	**Total expernditure**		**23.95**	**29.21**	**34.56**	**35.55**	**37.41**	**160.69**
1.1	Capital		20.98	26.56	31.38	32.05	33.01	143.98
1.2	Recurrent		2.97	2.65	3.18	3.50	4.40	16.71
2	**Foreign exchange demand from total expenditure in USD**							
2.1	National Bank		113.44	53.44	53.44	53.44	53.44	327.18
2.2	Foreign Loan							
2.3	Foreign Aid							
3	**Source of Finace**							

3.1	**Government**		**7.20**	**8.32**	**13.03**	**13.63**	**14.81**	**56.99**
3.2	**foreign aid and loan**		**16.76**	**20.89**	**21.53**	**21.92**	**22.60**	**103.70**
3.2.1	Loan		2.88	2.99	3.39	3.82	4.35	17.43
3.2.2	Grant (aid)		13.88	17.90	18.14	18.10	18.25	86.27
3.3	**Local loan**							

Table 3Human resource required by area of specialization and qualification

Qualification and field of Study	Base year (stock)	Forcast					5 year total
	2007	2008	2009	2010	2011	2012	2008-2012
1-12 grade	**3933**	**1547**	**3213**	**3434**	**1990**	**2210**	**12,394**
4the Grade Complete	3	42			1		43
6th Grade Complete	1	18					18
8th Grade Complete	930	1177	1658	1879	1989	2210	8913
10th Grade Complete	8	104					104
Preparatory (12th Grade complete)	2991	206	1555	1555			3316
TVET Graduate	**2726**	**2973**	**3897**	**4628**	**5343**	**6242**	**23,083**
Level 1	1620	1846	2299	2605	2759	3065	12574
Level 2	1080	1105	1379	1563	1655	1939	7641
Level 3	9	10	215	307	460	613	1605
Level 4	15	6		153	230	307	696
Level 5	2	6	4		239	318	567
College Dieploma	**43,324**	**559**	**924**	**630**	**332**	**622**	**3,067**
Natural Science	***43,302***	***533***	***909***	***610***	***318***	***613***	***2,983***
Laboratory Technician	8	19	18	18	19	20	94
Biology	2						0
General Agriculture	629	71	161	107	54	107	500
Soil Science	52						0
Mechanization	9						0
Agricultural Economics	4						0
Agricultural Extension	3						0
Biometry	1						0
GIS	1						0
Biotechnology	5						0
Nutrition	27						0
IT	38	92	32	21	11	22	178
Surveying	591	53	161	107	54	107	482
Natural Resource	21151	179	322	214	108	214	1037
Plant Science	20781	119	215	143	72	143	692
Social Science	***22***	***26***	***15***	***20***	***14***	***9***	***84***
Property Administration	10	2	3	8	7	4	24
Secretarial Science	2	3	1	2	2	1	9

Accountant		2	2	2	2	1	9
Gender	2						0
Viodeography		1					1
Library Science		1				1	2
Graphics							0
Accounting	5	5	6	3			14
Business administration		2					2
Law	3	10	3	5	3	2	23
First Degree	**2,558**	**1,491**	**1,192**	**1,138**	**1,038**	**994**	**5,853**
Natural Science Field	***2,349***	***1,185***	***1,153***	***1,095***	***1,008***	***968***	***5,409***
Chemistry	2	7	4	7	5	7	30
Laboratory Technician	15	21	22	18	19	20	100
Biology	1	1	1	1			3
Crop Protection	2	2	2	2	2		8
Toxicology		4	1	1	1	1	8
Plant Science	262	75	45	40	34	14	208
Applied Biology	4	16	6	18	9	8	57
Entomology	179	182	195	195	195	195	962
Pathology	177	179	193	193	193	193	951
Agricultural Engineering	1	1					1
Agricultural Engineering and mechanization	1						0
Agricultural Economics	19	8	2	2			12
Statitics		1	1				2
Infrmation Technology		1	1				2
Natural Resource management	1	3	1				4
Agricultural Extension	29	10	3				13
GIS and Remote Sensing	75	17	13	14	5	5	54
Forest Science	84	6	1				7
Arid area land administration	2						0
Weed Science	176	178	192	193	193	193	949
Post Harvest	1	3	3	3	3	3	15
Vertebral Insect Expert	16	35	37	37	37	37	183
Insect and Sprayer management		2	2	2	2	2	10
General Crop Protection	176	194	194	194	194	194	970
Agricultural Economics	3						0
Rural Development and Extension	1						0

Socioeconomics and natural resource	2						0
Environmental Scinece		1					1
Horticulture	14	13	3				16
Engineering	4	4	1				5
Cooperative Development	64	3	1				4
Agronomy	11	1				1	2
Soil Science	319	52	49	40	20	19	180
Mechanization	13	10	10	10	10		40
Gender	15	2					2
Biometry	2						0
Agrometeorology	1						0
Biotechnkolgy	8	10	10	10	17	10	57
Nutrition	54	20	20	20	20	16	96
Irrigation agronomy	4						0
Irrigation engineering	6	3	2				5
Natural resource management	2	1	1				2
Hydrology		2					2
Land administration and use	465	89	109	79	39	40	356
Surveying	120	20	22	16	10	10	78
Software Engineer	1	1					1
Database administrator	2		2				2
Agroforestry	15	7	4				11
Social Science Field (BA)	***209***	***306***	***39***	***43***	***30***	***26***	***444***
Planning	6	1	2	5	5	5	18
Accounting	5	7	7	10	9	3	36
Cashier	0	1					1
Economics	160	264	21	20	10	10	325
Geography and Environmetal Studies	6	2					2
Public Adminstration	1	1	1	1			3
Business Adminstration	1	2					2
Sociolgy and social adminstration	3	2	1	1			4
Social Anthropology	2	2					2
Law	15	17	4	4	4	4	33
Marketing	1	1					1
Language and Literature	3	3	2	2	2	3	12
Development Studies	1						0
Governance and Development	1						0

Management	1					1	1
Pedagogy	1						0
Library	2	1					1
Sociology		2	1				3
Masters Degree	491	274	213	165	150	118	920
Natural Science field	***460***	***256***	***201***	***159***	***143***	***116***	***875***
Chemistry	2	4	3	3	2	2	14
Entomolgy	4	5	5	4	4	3	21
Toxicology		2	2				4
Crop Protection		2	1	1	1	1	6
Biology		1	1				2
Pathology	6	7	9	13	11	7	47
Electrical Engineering			1				1
Plant Science	120	35	24	5	4	2	70
Weed Expert			1	1	1		3
Seend science and Technology	5	9	9	14	9	5	46
Agronomy	36	12	8	17	17	12	66
Breeding	2	1	1	4	3	4	13
Horticulture	10	9	3				12
Biometry	4	3	3	4	1		11
Integrated pest management		2	2	2	2	2	10
Post harvest Expert	17	34	34	34	34	34	170
Small agriculture equipment		1	1	1	1	1	5
Vertebral insect expert		1	2	2	2	2	9
Microbiology	1	2		5		4	11
Natural science	2	7					7
Rural development and Extension	1						0
Arid Area land administration	1						0
Agricultural Extension	16	2	1				3
Agricultural Economics	10						0
Gender	5						0
Watershed management	1						0
Engineering	9	2					2
Cooperative development	21	1					1
Forest science	29	2					2
GIS	8	6	5	1	1		13
Agrometeorology	3	3	3	4	4		14

Soil science	89	29	10	4	4	2	49
Biotechnology	18	10	10	10	10	10	50
Nutrition	14	20	20	20	20	20	100
Natural resource	1						0
Irrigation agronomy	2						0
Range land ecology and management	1		1		1		2
Land administration and use	14	26	20	8	8	4	66
Surveying	8	3	5	2	2	1	13
Information technology		3	2		1		6
System Adminstrator		1					1
Mechanization		10	10				20
Network admistrator		1	3				4
Food microbiology and safety			1				1
Social Science Field	***31***	***18***	***12***	***6***	***7***	***2***	***45***
Management	3	3					3
Law	1	3	1		1	1	6
Urban development	1						0
Economics	19	5	6	2	2	1	16
Sociaology and social adminstration	2	5	3	3	3		14
Rural development	2	2	2	1	1		6
Development Economics	1						0
Linguistics)	1						0
Food Security	1						
PhD (doctorate Degree)	**44**	**47**	**17**	**18**	**11**	**10**	**103**
Natural Sciences	***41***	***47***	***17***	***18***	***11***	***10***	***103***
Chemistry		1	1	2		1	5
Tocxicology			1	1			2
Pathology		3	1	2	1	1	8
Breeding		3		4	2	1	10
Agronomy	13	2	1	1	1		5
Entomolgy		1	1	3	3	2	10
Weed Expert	1	2	2	1	1	1	7
Post harvest		1	1	1	1	1	5
Vertebral insects expert		1	1	1	1	1	5
Small agriculture equipement		1	1	1	1	1	5
Plant science	8	4	6				10
Soil science	10	23					23

Agricultura extension	2						0
Biometry	1	4					4
GIS	1	1					1
Biotechnology	5						0
Nutrition							0
Applied Spatial and Remote Sensing			1	1			2
Statitical Modelling						1	1
Social Sciences	*3*	*0*	*0*	*0*	*0*	*0*	*0*
Economics	2						0
Gender	1						0
Grand Total	**53,076**	**6,891**	**9,456**	**10,013**	**8,864**	**10,196**	**45,420**

Table 4List of agricultural programs and projects

No	Agriculture development sub sector	Natural resources sub sector	Rural Job Creation	Remark
1	Agriculture Growth Program	Sustainable land managment	Productive safety net program (PSNP	
2	Smallholder horticulture Development	Integrated watershed development capacity building		
3	Establish horticulture storage centers at household and cooperative level	Enhance watershed development productivity		
4	Establish fruit nursery site on high productive areas	Rural land information system establishment		
5	Establish fruit, coffee and spice tissue culture center	Rural land administration for agricultural transformation		
6	Capacity building on horticulture production, product handling and quality control technology.	Land use studies and plan preparation		
	Crop Development	Promotion of participatory small scale irrigation		
7	Rice, wheat and sesame irrigation development on lowland areas	Household irrigation and water use efficiency capacity building		
8	Maize beer malt development	Pastoral and moisture deficit area drought resilient project		
9	Pulse and oil seed supply support.	Soil resources survey and information system		

No	Agriculture development sub sector	Natural resources sub sector	Rural Job Creation	Remark
		establishment		
	Agricultural Mechanization			
10	Organize and strengthen Agricultural mechanization service providers			
11	Establish Agricultural mechanization professional training center			
	Coffee, tea and spices			
11	Coffee quality improvement project			
12	Establish grafted coffee multiplication center			
13	Strengthen Goma coffee training center			
14	Turmeric and culmin seed supply improvment			
15	**Advisory and training**			
	Build or strengthen farmers and pastoralists FTC			
16	Organize ICT based extension services			
17	Capacity building to rural youths,Aagricultural experts, pastoralists, Agro-pastoralists and farmers			
18	Strengthen Agricultural technical and vocational training centers			

No	Agriculture development sub sector	Natural resources sub sector	Rural Job Creation	Remark
19	**Agricultural marketing and input**			
20	Seed sector support project			
21	Capacity building of seed producers cooperative			
	Crop health			
22	Strengthen crop protection system			
23	Strengthen crop product quality and quarantine			
24	Strengthen crop seed registration and quality control			
25	**Horticulture**			
26	Horticulture development land compensation fund			
27	Horticultur development land suitability study			
28	Integrated horticulture capacity building program			
29	Horticulture professionals capacity building			
30	Establish horticulture practical training center			
31	Horticulture marketing support			
	Cooperative			
32	Cooperative product storage			
33	Cooperative fruit and vegetable cold storage			
34	Promote post harvest technologies in cooperative			

No	Agriculture development sub sector	Natural resources sub sector	Rural Job Creation	Remark
35	Facilitate loanable credit fund to cooperative			
36	Construction of cooperative marketing centers			
37	Cooperative capacity building			
38	Strengthen Cooperative security			
	Agriculture investment land adminstration			
39	Agriculture economic zone development			
40	Capacitate Agriculture investment human resource			
41	Support agriculture investment public movement			

2. Agriculture Sector GTP-II Log frame (2015-2020)

Overall Goal: Contribute to Ethiopia's achievement of middle income status by 2025

Development Objective: Reduce rural household income inequality and ensure food security through sustainable agricultural growth

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
Strategic objective 1: Increase crop production and productivity											
Goal 1.1: Increase production											
		Mt/Qt	**270.08**	**294.33**	**319.10**	**345.68**	**374.70**	**406.32**	**406.32**		
Increased production	Stalk cereals	Mt/Qt	115.74	126.27	136.37	147.28	159.06	171.79	171.79	CSA Annuaml Agricultural Sample Survey and MoA reports	Stable climate and reliable rainfall suitable for agricultural production
	non-stalk cereals	Mt/Qt	120.31	132.15	143.58	156.01	169.52	184.22	184.22		
	Pulse crops	Mt/Qt	26.44	27.78	30.19	32.81	35.65	38.75	38.75		
	oil crops	Mt/Qt	7.59	8.13	8.96	9.59	10.46	11.56	11.56		
	Major food crops	Mt/Qt									
	Food Barley	Mt/Qt	13.47	14.40	15.48	16.58	17.77	19.04	19.04		
	Rice	Mt/Qt	1.30	1.41	1.55	1.70	1.86	2.04	2.04		
	Pearl millet	Mt/Qt	9.15	10.22	11.04	11.92	12.88	13.91	13.91		
	Tef	Mt/Qt	47.51	53.27	58.39	64.01	70.17	76.92	76.92		
	Sorghum	Mt/Qt	43.39	45.87	49.54	53.51	57.79	62.41	62.41		
	Maize	Mt/Qt	72.35	80.40	86.83	93.78	101.28	109.38	109.38		
	Faba Bean	Mt/Qt	8.39	9.59	10.36	11.19	12.08	13.05	13.05		
	Field Pea	Mt/Qt	3.43	4.09	4.42	4.78	5.16	5.57	5.57		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Lentils	Mt/Qt	1.37	1.41	1.53	1.65	1.78	1.92	1.92		
	Industrial Crops	Mt/Qt									
	Malt Barely	Mt/Qt	6.05	6.63	7.27	7.97	8.73	9.56	9.56		
	Bread wheat	Mt/Qt	26.40	28.36	31.17	32.75	35.19	37.82	37.82		
	Durum wheat	Mt/Qt	15.90	17.31	18.84	20.49	22.30	24.26	24.26		
	Soya Bean	Mt/Qt	0.72	0.84	0.92	1.01	1.10	1.21	1.21		
	Nuge	Mt/Qt	2.24	2.18	2.45	2.45	2.65	3.00	3.00		
	Sun Flower	Mt/Qt	0.06	0.07	0.07	0.08	0.09	0.10	0.10		
	Ground nut	Mt/Qt	1.03	1.13	1.24	1.37	1.51	1.66	1.66		
	Export crops	Mt/Qt	**17.29**	**17.08**	**18.09**	**20.45**	**22.37**	**24.47**	**24.47**		
	Sesame	Mt/Qt	2.89	3.04	3.35	3.69	4.06	4.47	4.47		
	White pea bean	Mt/Qt	2.02	2.21	2.42	2.66	2.91	3.19	3.19		
	Red bean	Mt/Qt	3.12	3.36	3.69	4.04	4.43	4.86	4.86		
	Chick pea	Mt/Qt	4.59	4.82	5.28	5.79	6.34	6.95	6.95		
	Mung Bean	Mt/Qt	0.14	0.16	0.17	0.19	0.21	0.23	0.23		
	Others	Mt/Qt	4.55	3.50	3.18	4.08	4.41	4.76	4.76		
	coffee, tea and spices										
	Coffee	Thousand tone	419.98	503.98	604.77	725.73	870.87	1045.05	1045.05		
	Tea	Thousand tone	0.25	0.29	0.33	0.38	0.44	0.5	0.5		
	Red pepper	Thousand tone	170.77	184.43	199.19	215.12	232.33	250.92	250.92		
	Ginger	Thousand tone	125.2	128.96	132.82	136.81	140.91	145.14	145.14		
	Fenugreek	Thousand tone	25.97	27.27	28.63	30.06	31.57	33.15	33.15		
	Kororima	Thousand tone	9.56	10.23	10.95	11.71	12.53	13.41	13.41		
	Turmeric	Thousand tone	22.75	24.34	26.05	27.87	29.82	31.91	31.91		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Cumin	Thousand tone	6.38	6.83	7.3	7.82	8.36	8.95	8.95		
	Vegetable, Fruit and root crops										
	Vegetable	Thousand tone	959.94	1040.63	1130.23	1227.62	1333.49	2340.24	2340.24		
	Fruit	Thousand tone	503.38	535.92	573.43	613.58	656.53	1186.00	1186.00		
	root crops	Thousand tone	2446.30	2650.82	2893.34	3158.31	3447.83	5695.28	5695.28		
	Major Vegetable, Fruit and root crops										
	Onion	Thousand tone	259.23	285.15	313.67	345.04	379.54	417.49	417.49		
	Tomato	Thousand tone	58.91	64.21	69.99	76.29	83.16	90.64	90.64		
	Pepper	Thousand tone	62.72	67.74	73.16	79.01	85.33	92.16	92.16		
	Head cabbage	Thousand tone	28.60	30.89	33.36	36.03	38.91	42.02	42.02		
	Local cabbage	Thousand tone	346.87	374.62	404.59	436.96	471.91	509.67	509.67		
	Garlic	Thousand tone	201.87	218.02	235.46	254.30	274.64	296.61	296.61		
	Mango	Thousand tone	56.43	60.38	64.61	69.13	73.97	79.15	79.15		
	Banana	Thousand tone	301.13	322.21	344.76	368.90	394.72	422.35	422.35		
	Avocado	Thousand tone	46.49	49.74	53.23	56.95	60.94	65.20	65.20		
	Citrus	Thousand tone	58.23	62.31	66.67	71.33	76.33	81.67	81.67		
	papaya	Thousand tone	38.58	41.28	44.17	47.26	50.57	54.11	54.11		
	Irish potato	Thousand	642.7	707.06	777.76	855.5	941.0	1035.	1035.		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
		tone	8			4	9	20	20		
	Sweet potato	Thousand tone	1023.57	1105.46	1193.89	1289.40	1392.56	1503.96	1503.96		
	Carrot	Thousand tone	20.91	22.58	24.39	26.34	28.45	30.72	30.72		
	Taro	Thousand tone	741.57	815.73	897.30	987.03	1085.73	1194.31	1194.31		
Goal 1.2 Increase crop productivity											
Increased crop productivity	major food crops										
	Food Barley	Quintal/ha	20.5	22.10	23.90	26.00	27.90	30.10	30.10		
	Rice	Quintal/ha	27.78	30.00	32.40	34.99	37.79	40.82	40.82		
	Pearl millet	Quintal/ha	20.16	21.78	23.52	25.40	27.43	29.63	29.63		
	Tef	Quintal/ha	15.75	17.01	18.37	19.84	21.43	23.14	23.14		
	Sorghum	Quintal/ha	23.69	25.59	27.63	29.84	32.23	34.81	34.81		
	Maize	Quintal/ha	34.29	37.03	39.99	43.19	46.65	50.38	50.38		
	Faba Bean	Quintal/ha	18.93	20.45	22.09	23.85	25.76	27.82	27.82		
	Field Pea	Quintal/ha	14.85	16.04	17.33	18.71	20.21	21.83	21.83		
	Lentils	Quintal/ha	13.89	15.00	16.20	17.49	18.89	20.40	20.40		
	Industrial Crops	Quintal/ha									
	Malt Barely	Quintal/ha	18	19.4	21.00	23.00	24.50	26.40	26.40		
	Bread wheat	Quintal/ha	26.4	29	31.00	33.00	36.00	39.00	39.00		
	Durum wheat	Quintal/ha	24	26	28.00	30.00	33.00	35.00	35.00		
	Soya Bean	Quintal/ha	20.15	21.76	23.50	25.38	27.41	29.61	29.61		
	Nuge	Quintal/ha	8.88	8.00	9.00	9.00	9.72	11.00	11.00		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Sun Flower	Quintal/ha	10.39	11.22	12.12	13.09	14.14	15.27	15.27		
	Ground nut	Quintal/ha	16.01	17.29	18.67	20.17	21.78	23.52	23.52		
	Export crops	Quintal/ha									
	Sesame	Quintal/ha	6.87	7.42	8.01	8.65	9.35	10.09	10.09		
	White pea bean	Quintal/ha	16.01	17.29	18.68	20.17	21.78	23.53	23.53		
	Red bean	Quintal/ha	15.81	17.07	18.44	19.91	21.51	23.23	23.23		
	Chick pea	Quintal/ha	19.13	20.66	22.31	24.09	26.02	28.10	28.10		
	Mung Bean	Quintal/ha	8.84	9.55	10.31	11.14	12.03	12.99	12.99		
	coffee, tea and spices	Quintal/ha									
	Coffee	Quintal/ha	7.48	8.1	8.7	9.4	10.2	11.0	11.0		
	Tea	Quintal/ha	22.7	24.29	26	27.81	29.76	31.84	31.84		
	Red pepper	Quintal/ha	18.48	19.2	20	20.8	21.6	22.5	22.5		
	Ginger	Quintal/ha	40.00	40.8	41.6	42.4	43.3	44.2	44.2		
	Fenugreek	Quintal/ha	12.70	13.2	13.7	14.3	14.9	15.5	15.5		
	Kororima	Quintal/ha	5.00	5.4	5.7	6.1	6.4	6.8	6.8		
	Turmeric	Quintal/ha	35.00	37.1	39.3	41.7	44.2	46.8	46.8		
	Cumin	Quintal/ha	11.00	11.7	12.4	13.1	14	14.9	14.9		
	Major Vegetable, Fruit and root crops										
	Average productivity of major Vegetable, Fruit and root crops	**Quintal/ha**	**111.9**	**121.4**	**131.8**	**143.0**	**155.2**	**168.5**	**168.5**		
	Onion	Quintal/ha	105	115.5	127.05	139.76	153.73	169.1	169.10		
	Tomato	Quintal/ha	87	94.83	103.36	112.67	122.81	133.86	133.86		
	Pepper	Quintal/ha	85	91.8	99.14	107.08	115.64	124.89	124.89		
	Head cabbage	Quintal/ha	82	88.56	95.64	103.3	111.56	120.48	120.48		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Local cabbage	Quintal/ha	106	114.48	123.64	133.53	144.21	155.75	155.75		
	Garlic	Quintal/ha	100	108	116.64	125.97	136.05	146.93	146.93		
	Mango	Quintal/ha	65	70.2	75.82	81.88	88.43	95.51	95.51		
	Banana	Quintal/ha	83	89.64	96.81	104.56	112.92	121.95	121.95		
	Avocado	Quintal/ha	52	56.16	60.65	65.51	70.75	76.41	76.41		
	Citrus	Quintal/ha	173	186.84	201.79	217.93	235.36	254.19	254.19		
	papaya	Quintal/ha	155	167.4	180.79	195.26	210.88	227.75	227.75		
	Irish potato	Quintal/ha	100.8	110.88	121.97	134.16	147.58	162.34	162.34		
	Sweet potato	Quintal/ha	179.6	193.97	209.49	226.24	244.34	263.89	263.89		
	Carrot	Quintal/ha	126.7	136.836	147.7829	159.6055	172.374	186.1639	186.16		
	Taro	Quintal/ha	178.7	196.57	216.227	237.8497	261.6347	287.7981	287.80		
	Increased female headed Average crop productivity	Quintal/ha	19.00	21.85	25.13	28.9	33.23	38.22	38.22		
Goal 1.2.1 Increase agricultural extension service coverage											
Increased extension service coverage	Households received extension services	Thousand Number	15,200	15,791	16,406	17,038	17,692	18,237	18,237	MoA Reports and CSA reports	Low staff turnover and availability of skilled human resources
	Farmers	Thousand Number	**14,014**	**14,549**	**15,105**	**15,685**	**16,287**	**16,776**	**16,776**		
	Male headed	Thousand Number	8,343	8,594	8,852	9,118	9,392	9,674	9,674		
	Female headed	Thousand Number	4,253	4,466	4,689	4,924	5,170	5,325	5,325		
	Youths	Thousand Number	1,418	1,489	1,564	1,643	1,725	1,777	1,777		
	Married womens	Thousand Number	4171	4297	4426	4559	4696	4837	4837		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Pastoralists	Thousand Number	**718**	**755**	**794**	**826**	**858**	**892**	**892**		
	Male headed	Thousand Number	427	**449**	**472**	**487**	**502**	**517**	**517**		
	Female headed	Thousand Number	218	**229**	**241**	**254**	**267**	**281**	**281**		
	Youths	Thousand Number	73	**77**	**81**	**85**	**89**	**94**	**94**		
	Married womens	Thousand Number	207	214	225	236	244	259	259		
	Semi pastoralists	Thousand Number	**468**	**487**	**507**	**527**	**547**	569	569		
	Male headed	Thousand Number	278	**287**	**296**	**305**	**314**	**324**	**324**		
	Female headed	Thousand Number	142	**149**	**157**	**165**	**173**	**182**	**182**		
	Youths	Thousand Number	48	**51**	**54**	**57**	**60**	**63**	**63**		
	Married womens	Thousand Number	135	139	144	148	152	157	157		
	Plant technologies generated through research	Number technologies	64	60	69	80	79	86	374		
Goal 1.2.2 Increase agricultural input utilization											
Increased agricultural input utilization	Improved seed utilized	Thousand quintal	1,874	2,617	2,795	3,052	3,296	3,560	3,560	MoA Reports and CSA reports	
	Improved seed utilized by male headed	Thousand quintal		2,015	2,153	2,350	2,538	2,741	2,741		
	Improved seed utilized by female headed	Thousand quintal		602	642	702	758	819	819		
	Artificial fertilizer utilized	Metric tone	1,025,231	1,179,016	1,355,868	1,559,248	1,793,135	2,062,106	2,062,106		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Artificial fertilizer utilized by male headed	Metric tone	789,428	907,842	1,044,018	1,200,620	1,380,714	1,587,821	1,587,821		
	Artificial fertilizer utilized by female headed	Metric tone	235,803	271,173	311,850	358,627	412,421	474,284	474,284		
Goal 1.2.3 Promote agricultural mechanization											
Improved agricultural mechanization	Farm tillage technology	Number	77,000	100,160	109,200	103,210	147,470	171,920	708,960	MoA Reports and CSA reports	Availability of appropriate technologies with standard quality
	Sowing and planter technology	Number	2,000	9,270	9,240	7,295	7,350	7,405	42,560		
	Crop protection/management technology	Number	600	1,015	2,120	6,225	9,825	12,925	32,710		
	Harvester and thresher technology	Number	1,800	8,968	10,790	11,486	12,086	12,386	57,516		
	Product storage technology	Number	-	30,310	60,310	16,210	31,210	36,210	174,250		
	Value addition technology	Number	100	10,450	16,350	22,200	28,050	33,950	111,100		
	Sources of Energy technology	Number	13,000	196,429	245,566	204,582	274,047	313,352	1,246,976		
Goal 1.3 Promote cooperative development											
Organized and strengthened cooperative sector	Number of primary cooperative	Number	65,341	2,000	1,500	1,000	500		5,000	MoA Reports and CSA reports	Provision of facilitated marketing
	Number of cooperative union	Number	330	5	3	2			10		
	Members of primary cooperative	Number	10,225,423	2,378,671	2,378,671	2,078,671	2,239,955	1,378,669	10,454,637		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Male headed	Number	7,738,793	105,186	705,186	705,186	953,771	131,908	2,601,237		services and avaialbility of finance and physical infrustructure like road, energy and ICT
	Female headed	Number	2,486,630	2,273,485	1,673,485	1,373,485	1,286,184	1,246,761	7,853,400		
	Increased female headed members	percent	28	33	38	43	48	50	50		
	Increased youth members	percent	20	22	24	26	28	30	30		
	Primary cooperatives member to union	Number	8,932	11,300	11,300	11,300	11,300	11,298	56,498		
	cooperative capital	Billion birr									
	Primary cooperatives capital	Billion birr	9.25	1.44	1.53	1.69	1.86	1.94	8.47		
	Cooperative unions capital	Billion birr	2.22	0.64	0.79	0.37	1.03	1.03	3.86		
	Cooperative federation Capital	Billion birr							2.5		
	Marketing share of cooperative in domestic market	percent	18	20	22	24	26	30	30		
	Marketing share of cooperative in international market	percent	7	12	17	22	27	40	40		
	small and medium agro processing established	Number	105	1113	1113	1113	1113	1113	5565		
	Cooperative members saving	Billion birr	5.5	1.5	1.5	2	2	3	10		
Goal 1.4 Promote agricultural investment											

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
Goal 1.4.1 Promote Horticulture investment											
Increased horticulture export	Flower existing expansion	hectare	1,672.90	1,871.90	2,066.90	2,230.40	2,355.40	2,466.40	2,466.40	MoA Reports and CSA reports	
	Study to evaluate existing environmental and social impacts from flower existing expansion activities and to propose corrective measures	Number of studies and reports		2.00	2.00	2.00	2.00	2.00	10.00		
	flower new development	hectare	0	100	200	350	450	600	600		
	Conduct EIA on environmental and social impacts from flower new development activities and to propose corrective measures	Number of EIA reports		1	1	1	1	1	5		
	Vegetables	hectare	1,443.4	1,795.7	2,045.7	2,154.5	2,207.4	2,325.4	2,325.4		
	Fruit	hectare	10,783.2	10,944.8	11,044.8	11,134.8	11,209.8	11,314.8	11,314.8		
	Herbs	hectare	138.4	169.8	220.1	272.5	372.9	447.3	447.3		
	Cut flower	Thousand tone	64.38	81.24	85.34	95.54	103.94	110.63	110.63		
	Cutting	million stems (zeng)	464.35	492.25	523.25	556.2	567.7	567.7	567.7		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Vegetable	Thousand tone	130	133.19	137.3	138.64	139.83	142.67	142.67		
	Fruit	Thousand tone	49.94	82.84	83.53	84.17	84.71	85.44	85.44		
	Herbs	Thousand tone	1.46	2.11	2.52	2.94	3.74	4.34	4.34		
	Cut flower	Million dollar	248.52	313.57	329.43	368.77	401.19	427.01	427.01		
	Cutting export	Million dollar	23.22	24.61	26.16	27.81	28.39	28.39	28.39		
	Vegetable	Million dollar	51.15	60.1	65.9	68.1	70.2	75.8	75.8		
	Fruit	Million dollar	8.54	28.03	28.44	28.85	29.24	29.66	29.66		
	Herbs	Million dollar	6.42	8.8	10.2	11.7	14.5	16.6	16.6		
Goal 1.4.2 Promote medium and large scale commercails farm											
Increased Cultivated land	Land transferred to investors	Thousand hectare	2430	2540	2661	2794.1	2940.5	3101.6	3101.6	MoA Reports and CSA reports	Transparent and accountable investment precedures in place
	Cultivated land	Thousand hectare	858	1099.7	1299.5	1538.6	1824.3	2166.2	2166		
Increased productivity	Productivity	Tone/ha	2.3	2.4	2.5	2.53	2.6	2.67	2.67		
	Sisal crop	Tone/ha									
	Cotton(Irrigation)	Tone/ha	3	3.1	3.2	3.3	3.4	3.5	3.5		
	Cotton(Rain fed)	Tone/ha	2.5	2.6	2.7	2.8	2.8	2.9	2.9		
	Stimulant crop	Tone/ha									
	Tea	Tone/ha	3	3	3	3	3	3	3		
	Coffee	Tone/ha	0.7	0.8	0.9	0.9	0.9	0.9	0.9		
	oil crops	Tone/ha									
	Sesame	Tone/ha	1.3	1.3	1.3	1.3	1.3	1.3	1.3		
	Pulse food crops	Tone/ha									
	Soya Bean	Tone/ha	2.2	2.3	2.3	2.4	2.5	2.6	2.6		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Pea bean	Tone/ha	1.9	2	2.1	2.2	2.3	2.4	2.4		
	Stalk cereal food crop	Tone/ha									
	Sorghum	Tone/ha	2.6	2.7	2.8	2.9	3	3.1	3.1		
	Maize	Tone/ha	3.3	3.4	3.5	3.6	3.7	3.8	3.8		
	Non stalk cereal food crop	Tone/ha									
	Rice	Tone/ha	2.6	2.7	2.8	2.9	3	3.1	3.1		
	Wheat	Tone/ha	2.7	2.8	2.9	3	3.1	3.2	3.2		
Increased production	Total production	Thousand Tone	1,703	2,342	2,894	3,149	3,919	4,684	4,683		
	Sisal crop	Tone	216,320	268,498	332,895	412,311	507,463	627,443	627,443		
	Cotton(Irrigation)	Tone	183,597	227,660	282,005	348,981	431,468	532,992	532,992		
	Cotton(Rain fed)	Tone	32,723	40,838	50,890	63,330	75,995	94,452	94,452		
	Stimulant crop	Tone	102,891	123,469	146,172	156,613	168,201	181,118	181,118		
	Tea	Tone	14,493	17,392	20,868	25,044	30,053	36,063	36,063		
	Coffee	Tone	88,398	106,077	125,304	131,569	138,148	145,055	145,055		
	oil crops	Tone	373,037	446,085	535,302	642,362	770,835	925,001	925,001		
	Sesame	Tone	373,037	446,085	535,302	642,362	770,835	925,001	925,001		
	Pulse food crops	Tone	89,384	89,362	136,820	171,530	214,651	268,161	268,161		
	Soya Bean	Tone	63,176	56,258	95,109	119,093	148,867	185,785	185,785		
	Pea bean	Tone	26,208	33,104	41,711	52,437	65,785	82,376	82,376		
	Stalk cereal food crop	Tone	653,621	811,234	1,005,747	1,249,216	1,631,204	1,905,201	1,905,201		
	Sorghum	Tone	318,740	397,200	494,293	614,335	852,621	945,650	945,650		
	Maize	Tone	334,881	414,034	511,454	634,881	778,584	959,552	959,552		
	Non stalk cereal food crops	Tone	99,827	119,792	143,751	172,501	207,000	248,400	248,400		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Rice	Tone	8,871	11,055	13,757	17,097	21,222	26,315	26,315		
	Wheat	Tone	260,320	323,954	402,629	499,815	619,771	767,716	767,716		
1.5. Improve crop health and quality control											
Improved crop health and quality control	Increase productivity by reducing preharvest loss of pest from 20-30% to 10%	percent	30	25	20	15	10	10	10	MoA Reports	
	Increased international compliance standard on export products	percent	98.7	98.8	98.9	99.2	99.5	100	100		
	Increased delivery of quality improved seed in to farmers the regular seed system	percent	0	80	85	90	92	95	95		
	Increased the quality of improved seed delivery to farmers in the QDS seed system	percent	0	55	60	65	70	75	75		
1.6 Promote effective agricultural technologies and contribute to climate resilient agriculture development											
increased area of land cultivated with mechanization and	Land cultivated with small mechanization techniologies	hectare		109,917	109,917	109,917	109,917	109,917	549,585	MoA Reports/ CRGE studies	
	small mechanization techniologiesbeneficiaries household	Number		880,000	880,000	880,000	880,000	880,000	4,400,000		
	Amount of GHG	million metric ton		0.75	0.75	0.75	0.75	0.75	3.75		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
reduced GHG emissions	sequestrated (CO_2e) annually through small scale mechanization										
	land cultivated with modern mechanization technologies	hectare		3,847	3,847	3,847	3,847	3,847	19,235		
	Modern mechanization technologies beneficiaries household	Number		439,667	439,667	439,667	439,667	439,667	2,198,335		
	Amount of GHG sequestrated (CO2e) annually through modern mechanization	million metric ton		0.39	0.39	0.39	0.39	0.39	1.95		
	Amount of land covered by pulse crop cultivated with bio-fertilizers	thousand hectare		20	30	50	70	90	90.00		
	Amount of land covered by crop rotation	thousand hectare		238.84	260.55	282.26	303.98	325.69	1,411.32		
	Households applying crop lower emitting and productivity increasing techniques on their farmlands	Number		880,000	880,000	880,000	880,000	880,000	4,400,000		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Reduced GHG by applying crop lower emitting and productivity increasing techniques on farmlands	Mt		4.49	4.49	4.49	4.49	4.49	22.43		
Strategic Objective 2: Reduce Natural Resource Degradation and Improve Its Productivity											
Goal 2.1 Establish Rural Land Administration and Use System											
Established sustainable land administration system	No. of weredas established rural land administration and information system	Number	74	50	70	85	90	64	359	MoA Reports	Full participation of the community and development partners
	Number of household Heads issued second level land certificate	Mil. Number	0.33	1.1	1.4	1.6	1.8	1.3	7.2		
	Male Headed households	Mil. Number		0.88	1.12	1.28	1.44	1.04	5.76		
	Female Headed households	Mil. Number		0.22	0.28	0.32	0.36	0.26	1.44		
	Number of parcels issued second level land certificate	Mil. Number	1.2	4.4	5.8	6.4	6.8	5.2	28.6		
developed and implemented sustainable land use	Percent of national master land use plan prepared	percent	0	5	15	50	100	0	100	MoA Reports	
	Percent of national master land use plan implemented	percent	0	0	0	0	0	10	10		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
and management plan	Number of regional master land use plan prepared	Number	0	0	0	4	3	2	9		
	Number of regional master land use plan implemented	Number	0	0	0	0	4	3	7		
	Number of wereda level land use plans prepared	Number	0	50	75	110	125	96	456		
	Number of woredas that implemented land use plan	Number	0	0	50	50	90	110	300		
	Number of Participatory local level land use plan prepared	Number of kebeles	158	652	1304	1630	1630	1305	6521		
	Number of Participatory local level land use plan implemented	Number of kebeles	0	320	456	912	1141	1141	3970		
Goal 2.1.1: Conduct rural land administration and utilization capacity building											
Enhanced rural land administration and utilization capacity	Number of land administration and use professionals trained	Number		2000	3000	3000	1500	1125	10625	MoA Reports	
	Male	Number		1400	2100	2100	1050	788	7438		
	Female	Number		600	900	900	450	338	3188		
	Number of farmers and semi/pastoralist trained on land administration and	Number		12,000	17,000	19,500	20,000	17,600	86,100		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	use										
	Male	Number		8,400	11,900	13,650	14,000	12,320	60,270		
	Female	Number		3,600	5,100	5,850	6,000	5,280	25,830		
Goal 2.2: Expanding and Strengthening Watershed Development Activities to ensure sustainable agriculture											
Strengthened natural resource conservation and utilization	Number of community watersheds with development plan	Number	60,460	5,803	6,233	6,706	7,226	7,285	33,253	MoA Reports	Stable climate and appropriate participation all stakeholder
	Area of land protected for rehabilitation	Thousand. Hectare	11,737	1,812	1,993	2,192	2,411	2,390	10,798		
	Area of land intervened with soil & water conservation technologies	Thousand. Hectare	20,170	1,062	1,168	1,284	1,412	2,134	7,060		
	Woredas completely banned free grazing	Percent	?	10	15	25	35	60	60		
	Community watersheds maintained &renewed by physical & biological conservation methods	Thousand. Hectare	0	250	650	1002	1300	1523	4725		
	Community watersheds well vegetated & started providing benefit to	Thousand. Hectare	17009	956	1051	1155	1270	1443	5875		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	communities										
	Quantity of multipurpose tree seeds distributed	Quintal	27197	1268	1394	1533	1686	1854	7735		
	Number of seedlings distributed	Number	0	5.6	6.2	6.8	7.5	8.2	34.3		
	Number of youth and women benefited from developments of rehabilitated land	Thousand number	NA	150	200	300	350	510	1510		
Goal 2.3: Improve Water Resource Utilization and Management and Expand Small Scale Irrigation											
Strengthened conservation and use of water resource	Area of land on which new modern small scale irrigation schemes is constructed and small scal irrigation practised	Thousand. Hectare	2400	286	314	345	380	418	1743	MoA Reports	Full participation of the community and development partners
	Reduced GHG from Area of land on which new modern small scale irrigation schemes is constructed and small scal irrigation practised	Mt				0.37		0.25	0.62		
	Percentage of cultivated land on which modern small	Percent	18	20	22.5	25.3	28.1	30			

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	scale irrigation is constructed										
	Area of previous irrigated land on which improvement and maintenance is conducted	Thousand. Hectare	853.1	211	396	405	220	260	1492		
	Small scale irrigation schemes constructed by projects/different stakeholders	thousand number	11.73	1.43	1.57	1.73	1.9	2.09	8.72		
	Farmers/Agro-pastoralists with at least one water source	thousand number	2600	3900	5200	6500	9100	10400			
	Male Headed households	thousand number	2002	3003	4004	5005	7007	8008	8008		
	Female Headed households	thousand number	598	897	1196	1495	2093	2392	2392		
	Percent of farmers with atleast one water source	Percent	20	30	40	50	70	80	80		
	Percent of irrigation users who applied full package	Percent	NA	10	20	30	40	50	50		
	Male Headed households	Percent		7.7	15.4	23.1	30.8	38.5	38.5		
	Female Headed households	Percent		2.3	4.6	6.9	9.2	11.5	11.5		
Goal 2.4: Create Conducive Foundation to Realize Development of Climate Resilient Green Economy by											

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
Enabling the Agriculture sector adapt to Climate Change Impacts and reduce GHG emissions											
Increased area of rehabilitated land and reduced GHG emissions	Area of conserved land on which carbon content is studied/measured	Thousand hectare		1	1	1	1	1	1	MoA Reports	
	Community watersheds well vegetated & started providing benefit to communities	Thousand hectare		478,000	525,500	577,500	635,000	721,500	2,937,500		
	Annual GHG sequestered by community watersheds well vegetated & started providing benefit to communities	Mt		5.14	5.65	6.21	6.83	7.76	31.58		
Improved capacity on natural resource conservation	Number of experts trained on natural resource conservation and development	thousand number		16	17	19	21	23	96		
	Number of experts trained on CRGE and its implementation	thousand number		75	100	125	150	200	650		
	Number of farmers trained on natural resource conservation and development	thousand number		497	546	601	661	727	3,032		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Number of farmers trained on CRGE and its implementation	thousand number		497	546	601	661	727	3,032		
	Prepare adaptation and mitigation related projects and programs and submit to climate finance institutions	Number		2	2	2	2	2	10		
Goal 2.5: Supply Soil Fertility Improvement Technologies through Developing Modern Soil Information System											
Improved soil fertility	Number of Woredas for which soil fertility atlas of new fertilizer recommendation has been prepared	Number	400	125	125	0	0	0	250	MoA Reports	Full participation of the community and development partners
	Area of acidic soil treated by limestone	Thousand hectare	5.1	26	26	26	26	26	128		
	Area of pulses land cultivated by biofertilizers	Thousand hectare	11.963	20	30	50	70	90	260		
	Area of vertisol land developed by Ibar BBM	Thousand hectare	734.5	294	294	294	294	294	1469		
	Number of farmers using new fertilizer (blended and mixed)	Mil. Number	3.75	1.65	1.76	1.87	13.3	0	18.58		
	Number of plots on which new fertilizer introduced (K,NPS and NPSZn)	Number	40,000	1,800	2,500	2,500	1,700	1,500	10,000		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Number of soil and water conservation technologies generated by research	Number		7	6	9	7	12	41	EIAR Reports	
	Number of SWC technologies generated by the research	Number	25	28	25	31	36	35	155		
Strategic Objective 3: Ensuring Food Security and Increase Benefits to Women and Youths through Creating Rural Employment											
Goal 3.1: Ensure Food Security											
Food gaps filled	Strategic food reserve for immediate response	**Mt**	405,000	542,700	727,218	974,472	1,305,793	1,500,000	1,500,000	Study in target woredas	The required budget is allocated by development partners
	Number of chronically food insecure families participated in Productive Safety Net program	Mil. Number	5.115	7.971	7.8	8.3	8.3	8.3	8.3		
	Male Headed	Mil. Number	2.5575	3.9855	3.9	4.15	4.15	4.15	4.15		
	Female Headed	Mil. Number	2.5575	3.9855	3.9	4.15	4.15	4.15	4.15		
Increased safety net graduates	Number of households graduated from Safety Net programs	Thousand number	161.31	373.65	585.99	798.32	1010.66	1223	1,223		Adequate budget is allocated and household asset is
	Male Headed	Thousand number	83.8812	194.298	304.7148	415.1264	525.5432	635.96	635.96		

Hierarchy of objectives	Indicators	Unit of measurement	Baseline (2007)	Annual targets					End-line (2012	Means of Verification	Critical assumption
				2008	2009	2010	2011	2012			
	Female Headed	Thousand number	77.4288	179.352	281.2752	383.1936	485.1168	587.04	587.04		built
Increased household credit package users	Number of chronically food insecured households received family credit package	Thousand number	233.4	128	226.85	151.3	122.7	0	628.85		budget for household asset building will be allocated
	Male Headed	Thousand number	147.042	70.4	124.7675	83.215	67.485		345.8675		
	Female Headed	Thousand number	86.358	57.6	102.0825	68.085	55.215		282.9825		
Goal 3.2:	**Create Job Opportunities for Women and Youth (educated, non-educated and school- dropouts) and Increase their benefit**										
Citzens for whom jobs created	**Women and youths for whom jobs are created**	Thousand number	1033	582	632	732	782	944	4705		
	Women	Thousand number		291	316	366	391	472	2352.5		
	Youth	Thousand number		291	316	366	391	472	2352.5		