



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
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| Project Title | Improved rural livelihoods through supporting the moringa value chain development in Southern Nations, Nationalities and Peoples' Region, Ethiopia |
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| RBM code: | IC1 Creating Shared Prosperity: (IC11 agribusiness and rural development) |
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| Government coordinating agency: | Southern Nations Nationalities and Peoples Regional (SNNPR) Government |
| Donor | Italy |
| Project Inputs | |
| UNIDO component | 1,564,565 (including psc) |
| FAO Component | 1,435,434 (including psc) |
| Overall project cost | 3,000,000 EUR |

Brief Description:
 In the Ethiopian context, the links between agriculture, agro-industry development, gender and nutrition have important implications on poverty reduction, biodiversity conservation and environmental sustainability; therefore, rural women’s role is critical and necessary in all development agendas. This project is aimed at building on the achievements of the initial pilot phase implemented by UNIDO, to scale-up moringa production and productivity (*M. stenopetala* and *M. oleifera*), strengthen the value chain through integrated utilization of natural resources, and improve value addition through processing and marketing in a sustainable way. To realize its objectives, the project will focus on improving food and nutrition security and livelihood of rural households, targeting especially rural women, through the development of an inclusive and sustainable Moringa Value Chain.

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A. CONTEXT

A1. Project Purpose

The reasons why the assistance from UNIDO is being requested are mainly those indicated or implicit in the letter of official request of the f Office and the former First Lady and the Southern Nation Nationalities and Regional State. The second phase of the project is considered part and parcel of the initial pilot phase and endorsed by the Project Steering Committee.

- Developing and upgrading agri-business value chains, creating networks, cooperatives and clusters of small farmers and producers through public and private partnerships;
- Aligning the project activities to the relevant policy strategies of the government;
- Considering international best practices and engaging with relevant stakeholders.

Taking into account the achievements of the initial pilot phase implemented by UNIDO, this second phase is aimed to scale-up moringa production and productivity (*M. stenopetala* and *M. oleifera*), strengthen the value chain through integrated utilization of natural resources, and improve value addition through processing and marketing in a sustainable way. To realize its objectives, the project will focus on improving food and nutrition security and livelihood of rural households, targeting especially rural women, through the development of an inclusive and sustainable Moringa Value Chain. In particular, the project will:

- i) Enhance sustainable production and productivity of moringa through integrated utilization of natural resources;
- ii) Improve value addition of moringa through processing and marketing of moringa products;
- iii) Strengthen a nutrition-sensitive moringa value chain through inclusive agri-food systems, promotion of nutritious products and conducive enabling environment.

This proposed UNIDO project will be aligned to the ongoing research and development activities without any duplication of effort, rather complementing their scaling up. Furthermore, it will directly contribute towards the achievement of the UN Millennium Development Goals: 1 - eradicate extreme poverty and hunger; 3 - promote gender equality and empower women; 4 - reduce child mortality; 5 - improve maternal health; and 7 - ensure environment sustainability. Moreover, the project will contribute to the implementation of the UN Convention on Climate Change and to Combat Desertification.

UNIDO's Phase One

The project was developed based on the official letter from the Government of Ethiopia requesting UNIDO's support in developing a project that could foster rural women development in terms of technical assistance through skill development, particularly in the organization of women farmers clusters, introduction of value-adding rural agro-processing units, packaging and quality assurances for domestic, regional and international markets. Based on the inception phase, Wezeka Kebele in Arba Minch Zuria wereda, Gamo Gofa zone, has been identified as the priority intervention area. One hundred ten (110) community members participated in the pilot initiative training process; however, the results of the pilot project benefited the entire Wezeka Kebele, composed of about 7,340 people.

The Pilot Initiative of the MVC project recorded the following achievements that laid a base for the current project:

On rural development: Pilot project site was identified, securing 30 ha of land. Under the pilot initiative the first pilot demonstration unit of five ha has been developed, to demonstrate the improved production system. One ha is allocated for seed production and tree planting, with intercropping option, and four ha for dense-planting system. Targeted beneficiaries, selected rural women of Wezeka Kebele, Arba Minch Zuria Wereda, have been trained on improved production and processing techniques. Product development training, knowledge transfer, (e.g. moringa soap production) has been conducted to introduce new aspects of Moringa use. A feasibility study has been conducted on organic production system on the allocated land (30 ha). The study provided a sound base for the establishment of a Moringa seed system, the processing of leaves and Moringa oil, and the scaling-up of the pilot initiative (diversification and marketing). The potential of *M. stenopetala* as a commercial product that can penetrate the commercial market structure both locally and internationally is clear.

On institutional development: Ethiopian Public Health Institute (EPHI) capacity strengthened through provision of laboratory equipment. Two important laboratory instruments, amino acid analyser and fat analyser, procured and installed to enable the Institute conduct the complete nutrition profiling of *M. stenopetala*. Furthermore, international networking has been established between the Italian Public Health Institute, *Istituto Superiore di Sanità (ISS)*, to improve the technical capacity of EPHI and other relevant institutes through training and knowledge transfer, especially on research and development laboratories. The collaboration between *Istituto Superiore di Sanità (ISS)* and local institutes shall be stipulated in the form MOU in the second phase. Institutional support is provided to the Ethiopian Food, Medicine and Health Care Administration and Control Authority (FMHACA) for developing a regulatory framework to ensure the marketing and distribution of Moringa products. Within this context, the MVC project supported the development of a policy document, on Traditional/Herbal Medicines and Herbal Supplements (THM&HS). A draft proclamation and directives have been developed and submitted to the relevant authorities for review. To be presented to the Council of Ministers for endorsement, and submission to the House of Representatives for approval. Arba Minch University and Hawassa University have been supported to conduct a baseline nutritional assessment, which is expected to be completed before the end of 2018. The assessment included a household survey of the existing handling practices, preparation and processing techniques of Moringa in the lowlands of Arba Minch Zuria wereda. Thus, the MVC initiative is considered as a strategic project for the regional Government. The regional government financed the construction of a post-harvest unit and a borehole to supply water for irrigation at the demonstration plot. The value addition of other underutilized agricultural products, which SNNPR is abundantly endowed with. That can further trigger similar value chains development initiative. The intention of the regional government is to create a centre of excellence for Moringa post-harvest handling and agro-processing. The Government anticipated to replicate the lessons learned to other zones in SNNP regional state, as well as to promote Moringa at the national level.

On product innovation & development: Moringa-based improved recipes have been developed based on the study conducted on consumption pattern of Moringa and ways to improve the nutritional values of foods consumed in Arba Minch area. A nutrient analysis performed on the young, old, dry and fresh Moringa leaves and a sensory evaluation conducted on the improved

recipe. A communication strategy, a training manual and communication tools such as recipe cards, leaflets and billboards were developed as well. Trainings of trainers (ToT) have been provided health extension workers of Wezeka Kebele on balanced diet, malnutrition, nutrition during the first 1000 days, complementary feeding, and dietary diversity. The nutritional values of Moringa together with hygiene & sanitation aspects have been emphasized on training modules.

A2. Baseline Scenario

Background

The Government of Ethiopia (GoE) targets the Agriculture sector to play a vital role in GDP growth, job creation, foreign exchange earnings, and small & medium enterprises (SMEs) development over the years. The Growth and Transformation Plan 2010/11-2014/15 (GTP I) has given special emphasis to the role of agriculture as a major source of economic development. The GTP I consists of three components, of which the agricultural production and commercialization component focused on strengthening the capacity of farmer organizations and their service providers to strengthen marketing and processing of selected commodities. The plan also gives priority to smallholder farmers to intensify productivity by scaling up best practices and adopt improved technologies in production to increase average farmers' productivity and integrating them with the market. Furthermore strategic pillars such as; creating conducive environment for industry to play a key role in the economy, and promoting gender and youth empowerment and equality are relevant to the proposed project.

UNIDO Inclusive and Sustainable Industrial Development (ISID) stipulates that industrial development increases productivity as well as employment and generates income, thereby contributing to poverty eradication, while providing opportunities for social inclusion (i.e. gender equality, empowering women and girls and creating decent employment). As industry develops, it drives an increase in value addition and enhances the application of science, technology and innovation (STI), encouraging greater investment in skills and education, and thus providing the resources to meet broader, inclusive and sustainable development objectives.

The Moringa Value Chain (MVC) initiative – Phase One, fits within the interventions planned under GTP I, forms a core component of the GTP II, implementation period planned to cover 2015/16-2019/20). This project is also in line with the Agriculture Sector Policy Investment Framework SO1: “to achieve a sustainable increase in agriculture productivity and production”; “to accelerate agriculture commercialization and agro-industrial development”; and “to sustain rapid and equitable economic growth” it is in line with the National Nutrition-Sensitive Agriculture Strategy 2016. Nutrition-sensitive value chains such as the MVC are likely to leverage opportunities to enhance nutrition value, increasing supply and demand for the product, and minimizing nutrition losses. In the Ethiopian context, the links between agriculture, agro-industry development and gender have important implications on poverty reduction, better nutrition, biodiversity conservation and environmental sustainability.

Country context

Ethiopia is located in the horn of Africa, with an area of 1,127,127 km². It is a country of great geographic diversity with wide altitudinal and agro-ecological variations. The altitude ranges from 116 meters below sea level in the Danakil Depression of the Afar National Regional State to the highest peak of 4,620 meters above sea level on Mount Ras Dashen of the Amhara

National Regional State.

The Great Rift Valley divides the western and south-eastern highlands; these highlands, on each side, give way to vast semi-arid lowland areas in the east and west, especially in the southern part of the country. The country macro and micro-climatic conditions are highly variable, with bimodal rainfall distribution. The major rainy season usually lasts from June to September, followed by the short rainy season that occurs between February and April. The mean annual rainfall ranges from 250 mm to 2,800 mm.

Ethiopia is as one of twelve Vavilov centres of primary plant domestication in the world. Furthermore, due to its geographical position, its agricultural and socio-economic patterns, the production of numerous exotic and endemic crops has developed an enormous secondary diversification in the Ethiopian Regions. Vegetation types are highly diverse, ranging from afro-alpine to desert species. The number of higher plants is over 7,000 species from which 12% is probably endemic. Ethiopian rural farmers play a significant role in the development of the agricultural sector; they are the custodians of important crops genetic materials used as food, industrial raw materials, and medicinal plants.

Sectoral and Institutional Context per Region

Despite registering a fast-growing economy and meeting most of its SDGs, Ethiopia remains one of the least developed countries in the world, with significant challenges. It ranks 174th out of 188 countries in the recent (2015) UNDP Human Development Index. About 27.6% of the population estimated to live below the total poverty line, with strong disparities between regions, as well as between rural and urban areas in income levels, poverty and access to social services.

The country is predominantly rural, with only about 16% of the population living in urban areas. The economy is largely based on agriculture. In Ethiopia, rural poverty and vulnerability are highly gender biased. Women play a significant role in agricultural production, carrying out an estimated 40 to 60 percent of all agricultural labour (R. Holms R. Holmes and N. Jones, 2009)¹ but suffer from unequal access to resources and capacity building opportunities.

Women are generally responsible for household dietary intake of the family. However, women and children under 5 are among the most vulnerable concerning food and nutrition insecurity. The prevalence of undernutrition remains a serious challenge for the country, hence addressing it is essential for the Government of Ethiopia to achieve sustainable development.

Rural women farmers' economic empowerment will be addressed by creating equal opportunities for the beneficiaries to actively involve them in the value chain organisation, through developing capacity in improvement of production and productivity, value addition, marketing and entrepreneurship.

In response to food and nutrition security challenges, the Government is promoting the development of agriculture, agro-processing through sustainable utilization of natural resources and protection of the environment and maintaining biodiversity. In addition, there is a strong governmental commitment for ending malnutrition by 2030 through the Seqota declaration, the elaboration of specific strategies, policies and programs such as the national nutrition-sensitive agriculture strategy 2016 (NNSAS) and the second national nutrition programme (NNP II), with

¹ (R. Holmes and N. Jones December 2009) Gender inequality, risk and vulnerability in the rural economy: re-focusing the public works agenda to take account of economic and social risks Background Report for SOFA 2010

existing roadmaps and gaps in terms of indicators and capacity building, among others. Institutional engagement in inter-sectoral collaboration for nutrition, including mainstreaming the topic into agriculture considerations through the NNSAS is an opportunity for partners to collaborate in tackling those challenges.

Maize, wheat and enset are the three most important staple food crops in SNNPR. Other important crops include barley, teff, haricot bean, Irish potato and sweet potato. SNNPR is the land of the origin of Arabica coffee. In the midland agro-ecological zones, coffee is a major cash crop of this region and contributes to about 40% of the annual coffee production of the country. In Ethiopia, there are two cropping seasons, the short rainy season, from mid-February to mid-June (Belg) and the long rainy season, from July to the end of September (Meher). Belg contributes about 75% of the annual crop production of the region. Crop production of the region has highly increased in the past two decades, due to capacity building and utilization of improved agricultural technologies.

The food and nutrition security situation in the region has highly improved over the past two decades, due to the intervention of different programs supported by the Government and its development partners. Since 2015, the regional Bureau of Agriculture and Natural Resources Development, in partnership with FAO, has been implementing Nutrition Sensitive Agriculture (NSA) interventions in five districts of the region, through strengthening of multi-sectoral collaboration for optimal nutrition outcomes.

A.3 Problem to be addressed

Despite a registered fast-growing economy, the Government of Ethiopia has several challenges ahead to reduce poverty and improve the livelihood of rural communities. Ethiopia remains one of the poorest countries in the world; it is prone to weather-related shocks and experiences high levels of food insecurity, particularly among rural populations and smallholder farmers. Similarly, ensuring food security, nutrition and livelihoods of rural and remote populations remains a challenge for the Ethiopian Government. The vast majority of the population is dependent on rain-fed agriculture with a mix of crops and livestock husbandry. Progress to increase the number of households with access to irrigation water is high. Agriculture in SNNPR reflects altitude, with highland, mid-land and lowland agro-ecological zones, with associated declines in rainfall with altitude.

Over the past two decades, the food security situation of SNNPR has highly improved. However, despite the relatively favourable agro-ecological situation, the prevalence of malnutrition among under five children is still 38% for stunting, 24% for underweight, 10% for wasting while about 30% of rural population lives below the poverty line. The underlying causes of malnutrition comprise household food insecurity and weak economical inclusion.

Moringa is a plant, which, in its diverse forms, is very rich in proteins & micronutrients and can be a valuable complement to diets. Thus, an improved production system and a fostered nutrition-sensitive value chain will contribute to improve nutritional status in farming communities of SNNP national regional state. Moringa is one of allies against malnutrition where food diversification is a challenge, which is the case in pastoralist or agro pastoralist areas. It has high nutritious content especially in Calcium and vitamin A, is instrumental for the fight against undernutrition acting as a shield against eye, skin disease, heart ailments, and diarrhoea. It also contains vitamin C, potassium and proteins. In the pilot phase of the project, the nutrient

analysis of *M. stenopetala* has been evaluated compared to other locally available products. Parameters such as protein, fat, energy, iron, calcium, zinc and vitamin C found to be higher for Moringa with respect to other locally consumed products such as cereals and legumes.

The nutrition analysis in the different preparations/cooking techniques indicates that the improved preparation methods enriched the nutrition values. Five different traditional recipes were tested; in all the preparations, the improved method enriched the protein content on average by 190%, fat by 120%, energy 113%, iron 160 %, calcium 600%. The phosphorous content of some traditional preparations had higher values, but the total average is about 130%.

Largely used for medicinal purposes, when adequately transformed, it can be added to family food and complementary foods for children under 5, and it can also be integrated into livestock feeding through removing leaves from the plant, leaving soft twigs and stems. In addition to human and animal nutrition, Moringa-based products are very marketable and can consequently strengthen livelihoods and alleviate poverty through women/youth empowerment and income generation. Counting with its high nutritional value, especially for *M. oleifera*, its potential medicinal or food use as complement and/or supplement (functional foods) for local consumption, local use or export, and its high potential for improving livestock and poultry feed (thus quality milk, egg production opportunities) are considerable.

The importance of Moringa as food supplement, cosmetic, medicinal and industrial crop is gaining attention as not only affordable protein, mineral and vitamin source for rural communities, but also for its cosmetic and health benefits in the developed world. As Moringa, leaves contain about 46 antioxidants and have anti-aging effects the cosmetic industry considers it as raw material for face and body products.

The past decade has seen significant growth in Moringa products. The growing awareness of the health benefits is a major factor driving the increasing consumer demand for these products, especially in Europe and the Americas. The Global Moringa products market expected to grow at a CAGR of nearly 10% during the period 2018-2022. According to Technavio analysts, the rising awareness of the health benefits of Moringa products is a major factor driving the market's growth.² The above factors are referred to *M. oleifera*. Even though *M. oleifera* is the widely domesticated in the tropics, the two spp. *M. oleifera* and *M. Stenopetala* are considered as the world's most useful multi-purpose trees sharing similar traits.

M. Stenopetala is an important tree for millions of people living in the SNNPRS. It is a staple food for millions in the lowlands of the region, mainly distributed in South Omo, Gamo Gofa and Segen Zones, but also consumed in Sidama, Gedeo, Dawro and Wolaita lowlands.

The demand for the local production is increasing because of the recently created awareness on Moringa health benefits through cooking demonstrations of improved recipes to promote the utilization by the wider public.

Food and beverage industries showed interest to consider Moringa for the fortification of processed foods and as raw material for soft and energy drinks. If the industries develop the right formula for food fortification, the demand of the Moringa leaf powder might reach to several tons per annum. The demand of the beverage industry such as Zebym Trading P.L.C. that produces Melkam Moringa soft drink, current annual demand is about 36 tone of Moringa powder. When the factory reaches full capacity, the need for Moringa powder will exceed 10

² <https://www.technavio.com/report/global-moringa-products-market-2018-2022>

fold of the current demand. The need of Moringa powder would continue to rise as other products such as moringa syrup come to the market.

Improving the production system together with a well-developed value chain of Moringa creates an opportunity to diversify the production system, bring new products to the market that benefits the communities to create wealth. The table below demonstrated the cropping pattern and productivity of the different crops *vis a vis* *M. Stenopetala* (based on the data collected from the demonstration unit) in the area of intervention. However, the results below will be further elaborated on the different scenarios.

Table 1. Average production of conventional crops in SNNPR

| NO | Type of Crop | Estimated Average Price/ Kg (ETB) | Total estimated revenue/ year (ETB) | Productivity /ha/ton |
|----|----------------|-----------------------------------|-------------------------------------|----------------------|
| 1 | Banana | 9.5 | 399000 | 42 |
| 2 | Maize | 6.5 | 26000 | 4 |
| 3 | Sorghum | 10 | 17000 | 1.7 |
| 4 | Haricot Bean | 13 | 5200 | 0.4 |
| 5 | Moringa powder | 65 | 937170 | 14.418 |
| 6 | Moringa Seed | 75 | 145200 | 1.936 |

Average production of conventional crops reference from Arba Minch wereda Agricultural Office. The moringa production is based on the pilot project results.

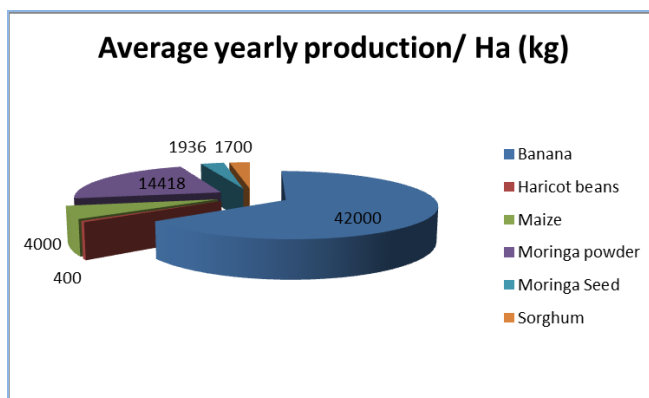


Figure 1. Intervention area cropping pattern and revenue (un-published)

In terms of agro-ecology and sustainability, Moringa is a strong environment cleaner in the sense that Moringa seed proteins can be used as coagulants as a substitute for alumina for water purification, which can prevent aluminium accumulation in the environment. Then Moringa protein-impurities complex produced as a result of water purification are biodegradable, whereas alumina-impurities complex are not. This is one of the numerous examples of use of Moringa to promote circular zero waste economy.

Empowerment of women farmers can be achieved through economic development, enhancing women participation in the value chain including paying leadership role in the cooperative decision making body. The current Moringa processors cooperative attained 4:1 women: man ratio in the Executive Committee. To maintain the proportion and motivate others to actively participate, leadership (decision-making), management skills, and marketing capacity development training will be conducted. Furthermore, continuous training will be required to empower them in all aspects of the value chain and create awareness within the community (men and women) on the importance of women economic empowerment and equality to acquire the necessary support and understanding.

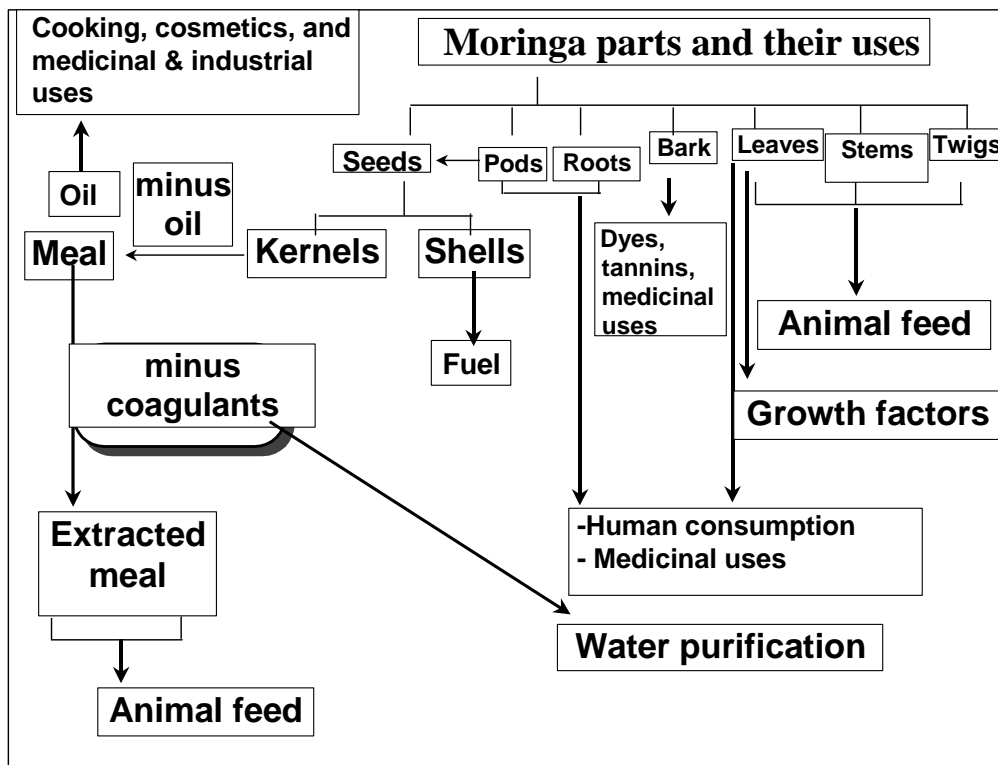


Figure 2. Uses of different parts of Moringa

A.4 Target beneficiaries

One hundred and ten community members in Wezeka kebele, Arba Minch Zuria wereda were direct beneficiaries of Phase One and will be targeted as well during the proposed project. In addition, indirect beneficiaries include families of farmers, youth, women involved in moringa production and processing. Each direct beneficiary (except student) indirectly benefits to 6 other family members.

Year one: about 420 people will be directly involved in the activities relate to the UNIDO operations in demonstration unit in Wezeka, which will have about 2940 an indirect beneficiaries.

Year two: about 700 people will be directly involved in the activities relate to the UNIDO

operations in demonstration unit in Wezeka, which will have about 4900 an indirect beneficiaries.

Year three: about 784 people will be directly involved in the activities relate to the UNIDO operations in demonstration unit in Wezeka, which will have about 5488 an indirect beneficiaries.

Year one: Approximately 790 direct beneficiaries (4140 direct and indirect beneficiaries) in eleven weredas.

Year two: Approximately, 1,330 additional direct beneficiaries (7,080 direct and indirect beneficiaries) in twenty-one weredas.

Year three: Approximately 1934 additional direct beneficiaries (8,336 direct and indirect beneficiaries) in twenty-one weredas.

At the end of year the three about 35,000 direct and indirect beneficiaries will be targeted by the proposed project in Arba Minch Zuria wereda, Dawro zone, South Omo zone, Dirashe special wereda, Gamo Gofa zone, Konso special wereda and Wolayita zone.

Table 2. Estimation beneficiaries

| Direct beneficiaries (individuals) | Year 1 | Year 2 | Year 3 |
|--|---------------|---------------|---------------|
| Production (wezeka kebele) | 210 | 350 | 392 |
| Processing (wezeka kebele) | 210 | 350 | 392 |
| Wezeka operations sub-total (UNIDO) | 420 | 700 | 784 |
| Out-growers schemes (farmers) in weredas (women from groups and farmers) | 200 | 400 | 800 |
| Seedling producers (nurseries) | 40 | 80 | |
| Youth groups (2 in wezeka kebele) | 20 | | |
| Livestock Owners | 100 | 150 | 150 |
| Dairy coop | 10 | | |
| Students from schools | | | 200 |
| Total | 790 | 1330 | 1934 |

A.5 Intervention Strategy

Building upon the results of the phase one (implemented by UNIDO) the proposed project will capitalize on the establishment of the moringa production unit in Wezeka kebele, Arba Minch Zuria wereda, Gamo Gofa zone. The production unit, 30 hectares of land, has been managed by 110 community members(98 women and 12 men). At present, five hectares have been developed as a first pilot demonstration unit for improved moringa production system. One hectare is for *M.*

Stenopetala seed production and tree planting with intercropping option, and four hectares are for dense-planting system of both *M. Stenopetala* and *M. oleifera*. At year one, ten additional weredas will be identified, targeting, Dawro zone, Debub Omo (South Omo) zone, Segen zone, Gamo zone, Gofa zone, Konso special zone and Wolayita zone. Lessons learned from phase one will be replicated and up-scaled. In year two, the number of targeted weredas within the same zones will be doubled – for a total of 20 weredas in addition to Arba Minch Zuria wereda.

Moringa production

During the proposed project, all 30 hectares in Arba Minch Zuria wereda will be cultivated by the established cooperative for organic production of both seeds (multiplication/distribution and sales for oil extraction) and biomass (industrial processing). The existing cooperative expected to grow to 784 members, who will be involved in the operation of the production and processing the 30. An area of about 2 hectares covers the infrastructure; the remaining 28 hectares will be divided to 18 hectares plantation for seed production and 10 hectares for biomass, moringa leaf production. The planting will be done progressively to cover the entire area end of year 2. The regional Bureau of Agriculture will support through development/promotion of a small-scale irrigation scheme. In each wereda, FAO will establish one moringa tree nursery within existing Farmer Training Centres (FTCs) – for a total of ten nurseries in year one, and twenty nurseries subsequently - in collaboration with the regional Bureau of Agriculture. Both *M. Stenopetala* (90%) and *M. oleifera* (10%) seedlings will be produced in the nurseries; hence, piloting the utilization of both species for consumption and animal feed in the targeted area. Each nursery will have a surface of approximately 20x20 meters, in order to address the need of seedling for each wereda (approximately 4,000 seedlings). The management of these nurseries will be handled by women farmers group supported by agriculture extension workers. The BoANR will establish other nurseries in order to distribute seedlings to the selected groups for planting, production and harvesting and linkages will be created with the women farmers group for provision of leaves to the processing units. In case the women groups are established sufficiently close to the nurseries, they will assist the agriculture extension workers in charge of the nurseries' management. In addition, FAO will provide capacity development and the initial seedling infrastructure/equipment, including irrigation. Irrigation schemes may include water harvesting systems for irrigation (e.g. dams), considering that the areas of intervention are drought-prone. A business plan will be prepared jointly with the local Cooperative Development Office, to ensure economic sustainability of the nurseries. The nurseries will be linked to the seed production unit in Wezeka kebele, which will supply quality seed certified by the regional branch of the Ethiopian Seed Enterprise. In order to provide seed certification, FAO will support the Seed Enterprise and will facilitate linkages with the Southern Agricultural Research Institute (SARI) on developing specifications and quality parameters for *M. Stenopetala* and *M. oleifera*.

To promote moringa production at community level, FAO will support the formation of two women groups per targeted wereda (10 individuals per group – for a total of 20 groups and 200 women in year I, and 40 groups and 400 women subsequently). These pre-cooperative groups will be cultivating moringa trees both on individual plots and within marginal lands in their communities. FAO will provide capacity development on GAP and farming as a business. Linkages will be established with the nurseries for purchasing moringa seedlings (on a cost-sharing basis with FAO in year one). Within a landscape management approach, each household will be responsible for 50 moringa trees planted in marginal lands, for a total of 500 trees per

group.³ The expected production is estimated to be 3 kg of moringa seeds per planted tree; which are expected to produce 2 kg per cycle – assuming there are 6 cycles per year so an average of 12 kg leaves produced per tree/per year with the landscape management approach. In addition, each household will cultivate a 5x4 meters plot for high-density production (50 plants of *M. Stenopetala* at 0.4x0.4 meters between rows and plants) near the homestead. For *M. oleifera*, the density of plants in a plot will be slightly higher. Household (family) appropriate irrigation technology (including drip irrigation systems) will be promoted; these systems will be used for production of other vegetables as well. Therefore, each group of ten households is expected to produce one ton of moringa fresh matter (6 tons per year) and 1.65 quintal (1 ton per year) of dry matter.⁴ To maintain household food diversity, targeted farmers will receive high quality diverse seeds and crops for homestead horticulture. This will be mostly addressed by the direct support to MoANR. Capacity development on the use and maintenance of irrigation systems will be provided by FAO, in collaboration with the regional Bureau of Agriculture and Livestock Resources. A business plan will be prepared jointly with the local Cooperative Development Offices, to ensure economic sustainability of the groups.

Table 3. Estimation of production

| Areas | Spacing (meter) | Seedlings/ha | Total surface (hectare) | Yield/ha/tonne | | |
|----------------------------|-----------------|--------------|-------------------------|----------------|------------|-------|
| | | | | Fresh leaves | Dry leaves | Seeds |
| Pilot plot (Wezeka Kebele) | | | 30 | | | |
| Seed production | 4x4 | 484 | 18 | 105 | 13 | 8.7 |
| Moringa leaf production | 0.5x 0.5 | 19,224 | 10 | 1153 | 144 | |
| Homestead gardens | 0.4x0.4 | 50 | 1.2 m2 | 360 | 45 | |
| Marginal land | 4x4 | 500 | 60 | 360 | 45 | 90 |

Capacity building of institutions on land use planning and management, planting, plant management, agroforestry, harvest and post-harvest, in the form of ToT for wereda experts and DAs and community members will be provided. Extension and monitoring will be continuous and on-going to minimize the risks related to intensive production.

A partnership will be established with GIZ on their ongoing project “Supporting the communities in and around the Nechsar National park to improve livelihoods through

³ Equivalent to 1 hectare of trees planted at approximately 4.5 meters apart between rows and plants.

⁴ Based on an average production of 39 tons/hectare of fresh matter and 6.63 tons/hectare of dry matter, and six cuttings per year.

reforestation activities”. The project long term vision is that the communities will benefit from the wood-processing industry; and the country will benefit from the ecological and economic services of forests, such as water storage, erosion protection, improved soil quality, production of wood and non-wood products. Hence, moringa has been considered as an alternative source of income and nutritious food for the communities. Distribution of seedlings from the nearby nursery will benefit both the project beneficiaries, communities around the national park and will contribute to protect the area from deforestation. SARI research activity on *M. oleifera* is ongoing. Even though the project is not yet completed to provide a comprehensive report, results indicated that *M. oleifera* has shown high adaptability, growth performance, biomass production and good response for improved management practices such as pollarding even better than *M. Stenopetala*, for some traits.

Small-scale processing and income generating activities

UNIDO and FAO will support the women groups to engage in primary processing (i.e. leaves cutting and cooking), through capacity development and provision of initial capital and equipment. The women groups will perform primary processing of moringa leaves, preparation of moringa-derived products (e.g. moringa soap), as well as livestock feed for the consumption of their own cattle. They will be able to sell processed products in the local market as income generating activity. Capacity development will be provided on processing/recipes and social behavior change and communication (SBCC) food safety and food losses reduction. The regional Bureau of Agriculture will provide the necessary land for the establishment of the primary processing units. In addition, FAO will support the formation of at least two youth groups in Wezeka kebele (10 individuals per group, at least 50% women) for animal feed production. The youth groups will further process the by-product of oil extraction into animal feed in higher quantity (e.g. cakes, etc.) mixing it with crop residues and other supplements; their expected production capacity is in average 1800 kg from the 500 trees. FAO will provide capacity development on GMP and business skills, as well as initial equipment and start-up capital. The regional Bureau of Agriculture will provide the necessary land for the establishment of these units. A business plan will be prepared jointly with the local Cooperative Development Offices, to ensure economic sustainability of the groups. In addition, FAO will develop and test moringa-based animal feed products, in collaboration with SARI.

Human nutrition

The BoANR will provide ToT’s and community trainings in FTCs, incorporating activities of NSA about nutritious crops - including but not limited to Moringa - and food preparation for children under 1,000 days, adolescent girls, pregnant and breastfeeding women. FAO will ensure technical assistance to the BoANR. Each household expected to retain 5% of the moringa leaves for home-consumption, i.e. cooking and complementary feeding for children under 5 years of age. Another 20% will undergo primary processing, cleaning and drying using locally made mobile solar dryers, for the local market (village) outlets. The remaining 75% will be sold to local institutional buyers (e.g. schools, etc.) as well as to the processing plant located in Wezeka kebele. Linkages will be established with the on-going UNICEF-FAO’s “Multi-sectoral interventions to improve nutrition security and strengthen resilience” in South Omo and Wolayita zones. Indeed, the approach used on complementary feeding units will be up-scaled to the remaining target areas.

On this topic, linkages will be created through SARI with the ongoing research by EFRI/ EPHI

on moringa-based recipes development for complementary foods (building upon results of Phase One and on the UNJP/ETH/090/CEF). Links with institutional procurement and school-feeding initiatives in SNNPR (especially through project GCP/GLO/775/ITA) will ensure that students get diversified fresh products for their meals, if optimum standardization and quality for children feeding are met. In line with the National Nutrition Guidelines and NNP2, WHO will support the development of the moringa and moringa products through an evidence-based clinical research on the nutritional benefit (bioavailability of micronutrients) as food and food supplement (fortification) of *M. Stenopetala* and *M. oleifera*. The study will be the responsibility of the BoANR with EPHI (and/or other relevant institution) with the technical assistance of WHO.

Animal feeding

On a pilot basis, FAO will promote the use of moringa-based animal feed products for cow and goat milk production. In particular, 400 livestock owners – 200 dairy cow owners and 200 goat owners (at least 50% women) - will be targeted in year one. FAO will facilitate linkages with the youth groups for purchasing of animal feed (on a cost-sharing basis with FAO in year one), thus increasing production and milk quality on zero grazing environment. Capacity development on GAP (livestock rearing) and business orientation will be provided. On a marginal basis, the women group will process animal feed for the consumption of their own cattle. In addition, FAO will support the organization/strengthening of one dairy cooperative for the collection and marketing of cow and goat milk. Initial infrastructure and equipment will be provided by FAO, together with capacity development on hygiene and food safety, Post-harvest Management (PHM) practices and marketing/business skills. The milk produced and marketed through the dairy cooperative will integrate on a piloting basis the human complementary foods production activities (especially targeting children under 5 years of age) to the extent possible. In addition, it is expected that the livestock owners will increase their revenues from milk sales, through ameliorated market linkages with local (village) outlets as well as business arrangements between the dairy cooperative and institutional buyers (e.g. schools, hotels/restaurants, etc.). SARI will be involved in monitoring some key indicators related to milk production: productivity increase, physio-chemical composition.

Industrial processing

During phase one, the regional Industrial Parks Development Cooperation constructed 500 sq. meters processing facility next to the 30 hectares production unit in Wekeza kebele. In order to manage this facility, UNIDO will support the creation of a processing unit branch of the existing cooperative. At the end of the third year about 756 people will be directly involved in the day-to-day activities of the central processing unit, out of which 378 will be involved in the post-harvest handling and processing unit. The processing facility will have two production lines, one for moringa powder/moringa tea and the other for moringa oil extraction, and will be equipped with the necessary technologies such as, dehumidifier, dryer, processing tables, grinder, oil press, packing, bottling machine. UNIDO will provide capacity development to the ‘processing unit’ branch of the cooperative on post-harvest handling, GMP, including food safety, quality and certification. Furthermore, UNIDO shall support the establishment of primary processing unit through identification of appropriate technology for locally made mobile/fixed drying units, in the different weredas for the youth and women group organized by FAO.

Capacity development training will be provided on post-harvest handling, food safety, and

quality. It will also support the certification of the products and the establishment of market linkages. UNIDO will further support the group with capacity development on entrepreneurship, maintenance and services for the machineries, business plans preparation, branding, and marketing. Concerning the fresh biomass, the produce will be sourced from both the demonstration unit in Wezeka kebele and the women's groups in other targeted areas. By the end of the project period, from the demonstration unit, about 1,258 tons of fresh moringa leaves fresh biomass, shall be harvested, which will correspond to close to 157 tonnes of dry moringa powder/ year. From the 18 hectares, assumed to be planted for seed production, about 8 tons of seeds per year are expected to be produced. Each household will sell the seeds collected in marginal lands (landscape management) to the processing plant in Wezeka kebele for oil extraction.

Moringa products innovation

UNIDO will facilitate linkages with market outlets at national level for moringa products (including fresh ones). In addition, it will explore the export potential for processed products. The organic production system and certification (on a pilot basis) for the demonstration plant could create opportunities to access to better market and fetch higher prices, especially in the international market. Organic certification for the out-growers scheme and willingness of farmers in certification will be studied. To ensure traceability and quality for organic production, the processing of the production grown at the demonstration plot and that of the out-growers can be separated. The food industry is considering using moringa to improve the nutrition content of processed food. Several companies have been identified for the industrialization of enriched foods such as GUTS Agro Industry PLC, and Hilina. Linkages between the cooperatives and the private sector will be established to create and secure a sustainable market for the farmers/cooperative members. In line with the above, the demand for moringa powder from the beverage industry, such as Zebym Trading P.L.C, an enterprise that manufactures soft drinks, and Melkam Moringa; other products will be considered and will be fulfilled by the cooperatives with the support of UNIDO to produce quality and certified products for a sustainable market.

UNIDO and FAO will collaborate with organizations such as Global Alliance for Improved Nutrition (GAIN) and other private sector entities for the identification of innovative approaches to develop, test, and certify products for moringa mainstreaming as a supplement, fortifying ingredient, to increase nutrient density of locally processed food. The Ministry of Industry's, Food, Beverage & Pharmaceutical Industry Development Institute (FBPIDI) is expected to support the linkages with the private sector and foster sustainability. Recipes developed during the pilot phase will be utilized for product diversification and will be promoted to improve the nutrients content of the food both at the project intervention area and beyond.

Regulations and Certification

Following-up on results from phase one, FMHACA is expected to finalize the legal framework including the publishing of the proclamation Traditional/Herbal Medicines and Herbal Supplements THM and HS). The regulatory authority shall develop/adopt a framework, considering WHO traditional herbal medicines and supplements guideline on regulation model for harmonization of scientific assessment and facilitation of product marketing. This will enable producers to register and certify their products and safeguard the public from altered products. ISS will strengthen the capacity of EPHI, FMHACA, Ethiopian Standard Authority and regional/local laboratories on food control and quality certification. UNIDO will ensure the

coordination between the regulatory authorities and ISS to ensure the establishment of national standards for all moringa products, quality certification and registration of *M.stenopetala*. In addition, ISS will strengthen the Ethiopian regulatory framework on food and nutrition and will provide tools for its implementation. Finally, it will support FMHACA to achieve registration and legal commercialization of *M. stenopetala* in Ethiopia, other African countries and in the EU market (preparation of the dossier to access the EU market). The on-going activities related to the regulatory framework with FMHACA will be continued. The draft proclamation that has been derived from the policy document will be presented to wider public for debate and publication of the policy documents, proclamation and regulations. FAO will ensure linkages with the on-going projects on “Update of the National Food Composition Table” and “Elaboration and Implementation of Food-Based Dietary Guidelines”, in particular during the field surveys and the analyses of nutrition profiles conducted by EPHI for moringa and moringa products.

By year three at least two products (moringa powder/tablets and oil for cosmetic use) shall be certified and marketable in European Union countries.

B. UNIDO APPROACH

The overall goal of this UNIDO-FAO project is to “contribute to economic empowerment and poverty reduction, food and nutrition security and sustainable use of natural resources in SNNP regional state, towards the achievement of targets set by Ethiopia’s national development plans. The **specific objective** of the project is to improve income, livelihoods and nutritional status of the targeted rural communities in SNNPR, through the development of nutrition and gender-sensitive Moringa Value Chain and the sustainable use of natural resources.

The expected outcome from the joint intervention is improved food and nutrition security and livelihood of rural households through the development of an inclusive and sustainable moringa (*M. Stenopetala* or *M. Oleifera*) value chain.

B1. Rationale

The UNIDO intervention of the project is guided by UNIDO’s overall mandate of Inclusive and Sustainable Industrial Development (ISID) and contributes towards the individual thematic programmes such as HC1 (Creating Shared Prosperity), more specifically “agribusiness and rural development (HC11)”, as well as the thematic programme HC2 (Advancing Economic Competitiveness).

The UNIDO project will take into consideration ongoing activities while considering the value chain approach to support the development of rural farmers, especially women farmers, SMEs. It will address the major constraints present in the country and supporting specific target beneficiaries in capacity building with a focus on marginalized and underdeveloped small producers and businesses.

The UNIDO component of the project will contribute to the overall objective of the project through two expected outputs, output 2 and 4 while FAO’s intervention will be through outputs 1 and 3 described below:

Output 1: Enhanced sustainable production and productivity of moringa through integrated utilization of natural resources (FAO-led)

Under output 1. FAO will identify 200 women head of families (2 women groups of 10 each), per wereda on year 1, 200 additional on year 2, and support them to enhance their production and productivity through integrated utilization of natural resources through the implementation individual plots of 5*4 m² and landscape management (Activity 1.1), promoting the establishment of appropriate land use, irrigation systems and carbon sequestration (Activity 1.2). Quality control mechanisms will be established for genetic material and a well-structured seed system (Activity 1.3). Multiplication of *M. Stenopetala* and piloting of *M. Oleifera* will be promoted for different landscape niches, like livestock feed and fodder, as well as functional foods/medicinal purposes using *M. Oleifera* as a pilot (Activity 1.4). Specific training material and curricula will be developed on good production practices and processing of both moringa species (Activity 1.5). FAO will promote out-grower schemes to link producers to processing units and the central plant (Activity 1.6). Government agricultural extension services and other local institutions in SNNPR will be strengthened through their involvement in the value chain and capacity building (1.7). The central production unit in Arba Minch will be strengthened and expanded to 10 ha for biomass production and 18 ha for seed production.

Output 2: Improved value addition of moringa through processing and marketing of moringa products (UNIDO-led)

Under output 2 **UNIDO will** conduct a detailed market assessment for moringa (both species) and moringa products for animal consumption and human consumption, including for medicinal use, in order to identify products requirements: quantity, quality, continuity of supply (activity 2 (activity 2.2). UNIDO, in collaboration with FAO, will strengthen the analytical, regulation, certification and registration capacity of the national regulatory authorities (FMHAC/EPHI/ESA) in collaboration with international organization (ISS) (activity 2.3). Agribusiness skills (e.g. management, marketing, maintenance and services, etc.) for cooperatives and pre-cooperative groups will be developed (activity 2.4).

UNIDO will establish a moringa processing unit in Arba Minch Zuria wereda, Wezeka kebele, which will engage about 784 people in the processing in both the production and processing activities (Activity 2.5). The capacity of beneficiaries (with special emphasis on women) will be strengthened on the principles of GAP, GMP, management and entrepreneurship (activity 2,6). The development of moringa products in collaboration with the private sector to promote its industrialization (Moringa oil, cosmetics etc.) will be supported (Activity 2.7). Other value chain actors will also be trained on GAPs and GMPs (activity 2.8)

UNIDO will finally support to create marketing opportunities through internationally recognized regulatory framework and popularization and facilitate forward and backward linkages between value chain actors (linking with national and international markets) (activity 2.9). Forward and backward flow of information about products, functions, relationships, roles and strategies along the value chain will be guaranteed by UNIDO (activity 2.10).

Output 3: Strengthened nutrition-sensitive value chain through inclusive agri-food systems, promotion of nutritious products and a conducive enabling environment (FAO-led)

The 40 women groups identified under activity 1.1 will be formed with FAO support (Activity 3.1) and organized in appropriate business modalities and processing units of moringa-derived products for human and animal consumption. Two (2) youth groups will be organized in Wezeka kebele specifically for moringa-derived livestock fodder production (Activity 3.2) and the utilization of moringa-derived products will be promoted, in order to enhance livestock nutrition

and limit land grazing in an integrated manner through the support of 400 livestock owners and the organization/strengthening of one dairy cooperative (Activity 3.3). Both agencies will jointly manage an assessment about regulation and certification schemes of *Moringa stenopetala* and *oleifera* (Activity 3.4). The Activity 3.5 will see FAO support the procurement of both species as food/food complement at household level, home-grown school feeding and their utilization in complementary feeding value chain through market linkages with complementary feeding units when existing, strengthening the market at the same time. In collaboration with UNIDO, FAO will support the development of innovative products and recipes for the local communities and markets (Activity 3.6).

Output 4: Improved knowledge about the intervention areas and the projects results dissemination (UNIDO led)

Project Implementation Unit (PIU) will be set up between the implementation agencies (UNIDO/FAO/BoANR), for overall project coordination, monitoring & evaluation and reporting. The implementing agencies shall develop detailed joint work plan and agree on the specific activities relevant to the individual implementation agencies. Collaborate on overlapping and cross-sectoral activities relevant to respective agency. 4.1) Appropriate communication strategy will be established to popularize the utilization of moringa nationwide. School clubs, cooking demonstrations, public lectures and events will be organized to inform the public the appropriate use and value. Professional workshops, mass media and social media platforms will be used to promote the project's outcomes and the role of the Donor. PSC meetings will be organized by the joint implementation unit, which will also facilitate the preparation of mid-terms and final report. The multi-disciplinary project team (extended implementation unit) will be closely monitored by the PIU. A Project Steering Committee (PSC) composed of the project implementation partners, implementation agencies and the Donor will oversee the smooth coordination. On monitoring & evaluation (M&E), the project coordinators of each component (UNIDO/FAO/BoANR) will provide monthly updates on activities and progress to the PIU, against the stated milestones in the logical framework and project document. They will undertake regular missions to the project sites, for supportive supervision and monitoring project progress. There will be a total of 6 joint supervisory missions in the field. The project shall be subject to a mid-term evaluation (formative) and a final independent evaluation (summative) during the final year. The PIU will organize a biannual experience sharing and review meetings which includes the donor, to share lessons learned and best practices among the stakeholders. A team composed of the donor, the executing agencies and key partners will conduct in addition biannual joint field visits.

Knowledge management, communication and dissemination of project best practices and results.

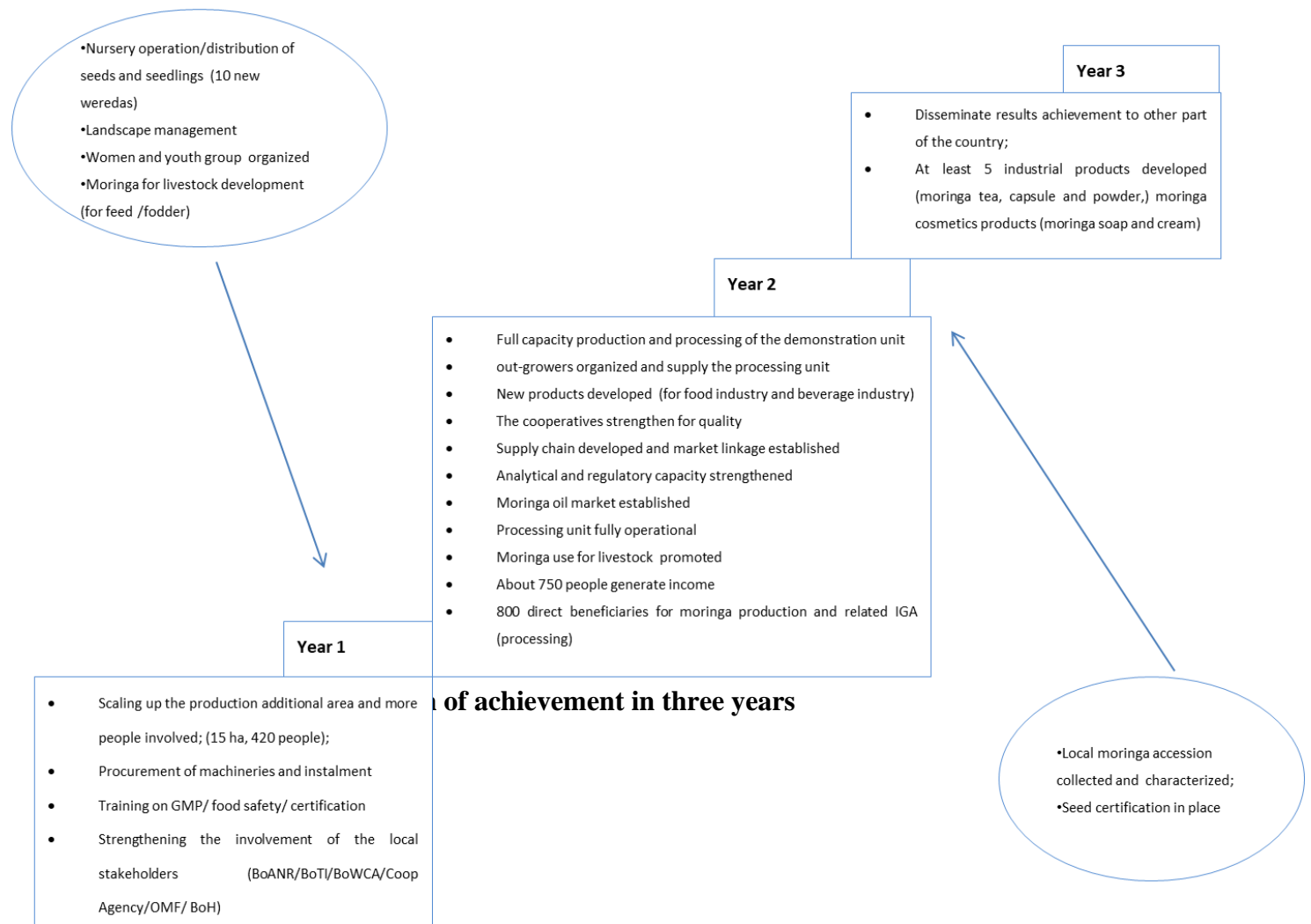
UNIDO together with FAO will ensure the communication, knowledge sharing and visibility of the project. An increased effort will be made by UNIDO for promoting knowledge sharing in moringa product transformation and FAO will assist in providing information on nutrition and market value-addition.

The visibility of AICS contribution to phase two will be ensured through the following:

- (i) UNIDO and FAO publications such as posters, brochures, agenda, web stories, blog,
- (ii) Press releases issued by UNIDO and by FAO for the recognition of donor contribution,

(iii) Media events for major interventions and milestones.

A communication and visibility plan, in close consultation with AICS, will be elaborated by both agencies and a portion of the budget will be dedicated.



B2. Comparative Advantage

UNIDO's overall mandate is to promote and accelerate Inclusive and Sustainable Industrial Development (ISID) in developing countries and economies in transition. UNIDO's ISID mandate places an emphasis on industry-specific instruments, including technology and innovation, investment in manufacturing, skills, industrial financing, infrastructure and competition policy, towards the achievement of the Sustainable Development Goals and particularly, Goal 9.

With respect to this project, UNIDO has competence in the following:

Food processing and income generation through value addition:

UNIDO promotes appropriate technologies for food production and processing in developing countries to be able to improve the industrial potential and delivery of globally competitive products in terms of a consistent supply of quality products, for domestic consumption and export. It provides advisory services for the development of a comprehensive and sound legal and regulatory environment conducive to sustainable and inclusive food system growth. This includes enhancing compliance with national food safety regulations and with international norms and standards for improved access to global markets as well as supporting the development of an enabling business environment to allow agro-food businesses to grow and be competitive. Emphasis is given to industry-driven interventions and the promotion of partnerships with the private sector. Leveraging the network with UN sister agencies, global initiatives and partnerships, such as the Global Food Safety Initiative (GFSI) and the Global Food Safety Partnership (GFSP), research institutions and universities is a key element in UNIDO's food safety-related activities and helps to achieve ISID.

Technology transfer and ensuring sustainability of agro industries

Safeguarding the environment is a key element of promoting UNIDO's ISID mandate. UNIDO recommends reduced levels of natural resource utilization as well as the reduction of emissions of greenhouse gases and other sources of pollution in industrial processes. It supports capacity development of industries, government, environmental service providers, as well as of intergovernmental and non-governmental entities. It will be instrumental to scale up and mainstream the adoption of more resource-efficient and cleaner patterns of production through recycling, resource recovery and/or environmentally sound treatment and disposal of wastes, waste waters and toxic and/or hazardous chemicals, and in particular through the sustainable use and management of water and other natural materials used in industrial processes.

UNIDO office in Ethiopia

UNIDO has extensive years of experience working in Ethiopia. The UNIDO office in Addis Ababa is headed by a UNIDO representative and supported with essential administrative staff. For the implementation of its programmes and projects, UNIDO draw on the local services available through its field offices, in particular in administrative and financial matters but also through its regular contacts and relations with government institutions, private sector, etc. The field office also allows UNIDO to have a direct and short-notice communication with counterparts whenever needed. Under the responsibility of the MoTI as part of UNIDO's Programme for Country Partnership (PCP), an overarching coordination structure has been developed between government and development partners for the development of the four initial IAIPs.

B3. Project implementations phases

The project will have three phases of implementation: Inception, Implementation and scaling up and dissemination. However, the project is part of the on-going MVC project, considering the amendments and the partnership between UNIDO-FAO the first quarter of the project implementation period shall be considered a Joint Project Implementation unit set up period, and 2, 25 years project implementation. To ensure the sustainability the in the last 6 months dissemination and project exist strategy will be developed and implemented.

B6. Environmental and Social Assessment

Inception phase:

An inception period of 4 months will be applicable for the project during which the following main activities will be conducted

- Set up a Joint Project Implementation Unit.
- Define baseline indicators and targets including gender responsive indicators for outputs and outcomes and the timeline to the indicators
- Define the means of verification of the indicators at the General Objective, outcome and output levels
- Develop a detailed monitoring and evaluation plan as well as the detailed environmental and Social Management Plan (ESMP) required for an ESSPP category B project
- Confirm project partners and beneficiaries, co-ordinate all project activities, ensure that duties and responsibilities, of all project staff and partners are well defined, and liaise with collaborating institutions for timely implementation
- The inception phase will also identify other cross cutting issues to improve the efficiency of the intervention and in ensuring sustainability.
- An inception workshop will be organized to present the refined log frame with the timeline of indicators and means of verification, key findings and recommendations of the ESMP, implementation modality and final schedule of events. The inception workshop will also raise awareness, build partnerships for the project at national and local government level, and mark the launch of the project.

Implementation phase:

This phase will consist of the actual implementation of all the foreseen and selected activities.

Dissemination and Scaling up

The implementation phase will include dissemination of the research and development results as well as a scaling up of the products through industrial processing and marketing initiatives at national and international level.

B4. Sustainability Strategy

Political and Institutional sustainability

As stated above, the project goals and activities are aligned with the ones in GTP II and 2016 NSAS. As the component is planned in participation with governmental stakeholders from the outset, and will be implemented and owned by the government structures, potential for its continuity is high. Furthermore, the extensive capacity building planned by Government institutions and staff will not only sustain the project within the target institutions but also will have multiplicative effects to a wider community.

This will ensure (i) harmonized coordination, monitoring and evaluation between the project and Government-owned initiatives, and (ii) continuity after the project ends. Through its strong capacity-building component, the MVC initiative is meant to be enshrined in the SNNPR agricultural and business landscape for further scale up.

Financial and economic sustainability

Improved diet awareness and community-increased demand for quality nutrition products

will have a positive effect on moringa based product consumption and agricultural extension delivery. The stronger the market linkages, the higher sustainability of the MVC. Comparative advantage of using *M. Oleifera* or *M. Stenopetala* will be assessed in terms of financial profitability, as well as land use and time spent for economic activities, since producers have in general mixed production systems with staple crops.

B5. Gender Mainstreaming Strategy

Strengthening women farmers' capacity is critical to achieve the desired economic development. In the agrarian communities' the traditional socio-cultural structure is male-dominated, constituting a major obstacle to the active women's participation, especially at decision-making processes. Strengthening the skills and self-confidence of women in leadership, management and marketing shall be in place to build confidence within the targeted women groups. It is equally important to educate the communities on the important role women play in society and their right to equal opportunity and participation in socio economic development. Furthermore, trainings and community awareness activities shall be conducted on the role and importance of women economic empowerment to improve the livelihood of the family life, which improves food and nutrition security. The implementation of the MVC project will mainly address the increased role of women beneficiaries in agro-processing. The beneficiaries of the project will be mostly women, organized in cooperatives or pre-cooperative groups. Economically empowered, they will have facilitated access to the market, improved and nutritious foods and food supplements as a project outcome. Reporting and all log frame indicators shall be gender-disaggregated as per Donor requirement.

The major objective of the project is to empower rural women without discriminating the male farmers to participate in the project. In the initial pilot phase of the project, survey and gender analysis has conducted. Baseline survey and gender analysis will be conducted in the new intervention areas. The project is closely working with the national Women Affairs offices and takes into account the gender aspect in the entire project activates and infrastructural development.

- Designed a women/child care centre in the pilot processing unit, established women farmers associations and cooperatives and work closely with the women affairs office of the region and other partner organizations; and
- Regular monitoring and reporting of gender issues and behavioural changes towards greater gender equality and empowerment of women.

Moreover, the gender expert will seek to ensure balanced access and participation of women and men in project activities, with particular attention to capacity building and related support activities to economically empower rural women. Develop specific actions to ensure gender balance and activities taking into consideration special needs of rural women. For example:

- Ensure that training curricula and tools are developed to accommodate the different education/skill levels that may exist between women and men;
- Implement targeted awareness outreach activity to increase women's participation in project activities;
- Include special transportation or have mobile training units to address any security or distance challenges; and
- Provide childcare services for women trainees.

Regarding project staff, gender balance in the recruitment of project management and staff will be emphasized, and efforts will be made to ensure that either recruited staff has existing knowledge on integrating a gender perspective or their capacity will be built in this area, or will be trained.

In line with UNIDO's gender mainstreaming guidelines, all project staff will be sensitized on gender and will take basic online course; "*I Know Gender*" course on UN Women's eLearning Campus <https://trainingcentre.unwomen.org> to participate in gender training and promotion of gender."

B6. Environmental and Social Assessment

Moringa is a plant that can be used in landscape management for soil erosion prevention and carbon sequestration. Afforestation activities in agreement with local communities (kebeles) will allow putting into practice a circular economy model that will increase the ecosystem resilience, while providing opportunities for increased household incomes through the harvesting of moringa leaves and seeds. Some research shows that moringa may be used as a biodegradable water purifier to prevent aluminium accumulation in the environment, though this project will not focus on this function of moringa.

With a food system, (holistic) approach the value chain aims at being nutrition-sensitive and climate change sensitive as well. Regarding landscape management, this project is strongly in line with the Great Green wall initiative, which the African Union put in place. FAO's support to build the resilience of communities and ecosystem in the dry lands of Africa by combating land degradation, desertification, loss of bio-diversity and climate change through the promotion of Sustainable Land Management and Restoration.

In the design and development of the IAIP and RTC in Ethiopia, extensive consultations and analysis of the environmental and social impact of the IAIP and RTC has been conducted. Environmental Impact and Social Assessment (ESIA) studies were conducted for all 4 IAIPs and RTCs by The United Nations Office for Project Services (UNOPS). Stakeholders then reviewed the studies and the relevant inputs incorporated. The studies have now been endorsed and certificates were issued for the continuation of construction by the legal authority (i.e. the Ministry of Environment and Forestry). Other recommendations on compensation and relocation of the affected communities have been implemented.

This UNIDO project has been categorized as "Category B" a detailed an Environmental and Social Management Plan (ESMP) will be developed during the inception and findings and recommendation will be applied to the project during implementation.

C. THE PROJECT

C1. Project Logical framework matrix (overall UNIDO and FAO joint intervention)

| OBJECTIVE, OUTCOMES, OUTPUTS | Indicators | Estimated completion Date | Means of verification | ASSUMPTIONS |
|--|--|--|--|---|
| <p>Objective: To contribute to poverty reduction, food and nutrition security and sustainable use of natural resources in SNNP regional state, towards the achievement of targets set by Ethiopia's national development plans.</p> | <ul style="list-style-type: none"> - UN and Government annual reports on Ethiopia's national development plans | <ul style="list-style-type: none"> - 31.03.2022 | <ul style="list-style-type: none"> - % of GDP rate - Other economic performance indicators | <ul style="list-style-type: none"> - Government is on track of national development plan |
| <p>OUTCOME: Improved food and nutrition security and livelihood of rural households through the development of an inclusive and sustainable moringa (<i>M. stenopetala</i> or <i>M. oleifera</i>) value chain.</p> | <ul style="list-style-type: none"> - 800 farmers that generate income from moringa and moringa products - 800 farmers, out of which 75 % women, involved in the moringa value chain. - 400 of households that have adopted moringa and moringa based products in their diets. | <ul style="list-style-type: none"> - 31.03.2022 | <ul style="list-style-type: none"> - Project report - Government institute's Annual report - Service providers report - Midterm and final Independent evaluation reports. - Baseline survey | <ul style="list-style-type: none"> - The SNNP Regional Government maintains its commitment towards improving food and nutrition security and livelihood of rural households. - Political stability in SNNPR and Ethiopia in general remains at the same level or improves. - The donor maintains its financial commitment. - There is no major natural disaster and climate change impact is limited. |
| OUTPUTS | | | | |
| Output 0 Project management system is established | | | | |
| Activities | | | | |
| 0.1 Set up a Joint Project Implementation Unit. | | | | |

| | | | | |
|---|--|--------------|---|--|
| | 0.2 Ensure stakeholders' coordination. | | | |
| | 0.3 Co-ordinate all project activities, ensure that duties and responsibilities, of all project staff and partners are well defined, and liaise with collaborating institutions for timely implementation | | | |
| Output 1 - Enhanced sustainable production and productivity of moringa through integrated utilization of natural resources (FAO-led) | <ul style="list-style-type: none"> - 800 farmers actively engaged in moringa production - 400of farmers trained in GMP and integrated NRM - 100 AEW and decentralized government staff trained - Effective quality control mechanism established for seeds - 75% of production (increased) and productivity levels. - 60% Income generation and increases from farm's productivity disaggregated by gender - 6 times increased of moringa-cultivated area. - Proportion of <i>M. stenopetala</i> vs <i>M. oleifera</i> planted 90/10 - 20% of moringa sold to the local market - 75% of moringa sent to the central plant for transformation - 50% of moringa utilized for transformation for human consumption vs animal feed - 6 times Size of irrigated land used for moringa production. - 50% use of moringa leaves and other parts to be utilized in livestock feed - Size and type of rehabilitated/ restored land due to lower land grazing by milk cattle | - 31.03.2022 | <ul style="list-style-type: none"> - Project reports, training reports, including service providers report. - Government annual reports (CSA, etc) - Report of control mechanism - Household and farmers interviews | <ul style="list-style-type: none"> - Availability and affordability of production inputs (seeds, etc.) remains at the same level or improves. - Farmers and other value chain actors are willing to participate in project activities and increase their knowledge and technical capacity. |
| | Activities | | | |
| 1.1 | <p>1.2 Identify 400 women heads of families (2 Women groups of 10 each) per wereda (20 weredas) and support them to enhance production and productivity through integrated utilization of natural resources and production of 1 moringa plot (5x4 m2) per household + moringa landscape management: Develop specific training material and curricula to enhance production and productivity of moringa (<i>M. stenopetala</i> and <i>moringa oleifera</i>).</p> <p>1.3 Promote the establishment of appropriate land use, irrigation systems and carbon sequestration for sustainability</p> <p>1.4 Establish quality control mechanisms for genetic material and a well-structured seed system</p> <p>1.5 Promote multiplication of <i>M. Stenopetala</i> and piloting of <i>M. Oleifera</i> for different landscape niches, livestock feed and fodder, and for functional food/medicinal purposes.</p> <p>1.6 Develop specific training material and curricula to enhance production and productivity of moringa (<i>M. stenopetala</i> + <i>M. oleifera</i>) as well as processing techniques</p> <p>1.7 Promote out-grower schemes to link producers to processing units and processing units to central plant</p> | | | |

| | | | | |
|---|---|--------------|--|--|
| | 1.8 Support local institutions such as BoANR, BoI, CA, BoWCA, improving Government agricultural extension services 1.9 The central production unit in Arba Minch will be strengthened and expanded to 10 ha for biomass production and 18 ha for seed production | | | |
| Output 2 - Improved value addition of moringa through processing and marketing of moringa products (UNIDO-led with FAO contribution) | <ul style="list-style-type: none"> - 2 moringa-based products developed and introduced to the market. - About 75% of moringa processed and commercialized (value added). - 500 farmers with established business linkages with processors- i.e. participating in the value chain (also through cooperatives and pre-cooperative groups). Number of value chain actors/ institutions trained (both technical and managerial capacities). - About 800 people involved on training and capacity development activities conducted on GMP. - About 800 farmers/women farmers trained of food quality and safety. - Number of capacity development activities organized for stakeholder partner organization. - About 800 of cooperative members trained on management, marketing, maintenance and services - About 800 of jobs created for women and youth with in the processing and value addition activities. | - 31.03.2022 | <ul style="list-style-type: none"> - Project reports, training reports, including service providers' reports. - Reports and documents from sectoral associations, chamber of commerce and other private sector institutes. - Government annual reports (CSA, etc) | <ul style="list-style-type: none"> - Market demand for moringa (<i>M. stenopetala</i>) remains at the same levels or increases. - Value chain actors (private sector) understand the potential of moringa for increased incomes and are willing to invest in the sector. |
| Activities | | | | |
| | <p>2.1 Conduct a detailed market assessment for moringa (both species) and moringa products for animal consumption and human consumption including for medicinal use, in order to identify products requirements: quantity, quality, continuity of supply</p> <p>2.2 Develop capacity of public Institutions (e.g. Bureau of Industry, Bureau of Agriculture and Livestock Resources, Cooperative Agency).</p> <p>2.3 Strengthen the capacity of regulatory authorities (e.g. EPHI/FMHACA/ESA) to ensure quality, certification and registration of <i>M. stenopetala</i> in the global market</p> <p>2.4 Develop agribusiness skills (e.g. management, marketing, maintenance and services, etc.) of cooperatives and pre-cooperative groups.</p> <p>2.5 Support the establishment of processing units for moringa-based products including for the pilot on <i>M. Oleifera</i>;</p> <p>2.6 Develop training procedures, manuals for the coop members, and conduct trainings based on the concepts and principles of the Food Quality and Safety procedures.</p> <p>2.7 Support the communities developing new products in collaboration with the private industries (Moringa oil, cosmetics etc.)</p> <p>2.8 Develop capacity of value chain actors (BoTI, wereda and zone industrial/agricultural development experts, and Cooperative members) on GAP, GMP.</p> | | | |

| | | | | |
|---|--|---|---|---|
| | 2.9 Support the development and promotion of moringa based products, to create market opportunity (e.g. collaborate with industries to development new products), in line with national and international regulatory frameworks (in synergy with Output 3). | | | |
| | 2.10 Facilitate forward and backward linkages between value chain actors (linking with national and international markets). | | | |
| Output 3 - Strengthened nutrition-sensitive moringa value chain through inclusive agri-food systems, promotion of nutritious products and a conducive enabling environment (FAO led) | <ul style="list-style-type: none"> - 40 women group organized in moringa based production and trained - 40 women groups trained in processing, cooking techniques, safety and SBCC - 2 youth groups organized in fodder production and trained - 2 livestock owners supported through procurement of moringa derived fodder - 50% milk production increase - 5moringa based recipes developed for CF and other products in link with the local market - 5%cultivated moringa utilized for consumption - 25% household consumption of milk and milk derived products increase - 400households utilizing regularly moringa in complementary feeding and/or family diet - 50% MDDW (minimum dietary diversity score for women of reproductive age) - 2CFU utilizing moringa - 10 schools utilizing moringa - 400moringa producers and retailers trained (nutrition, product optimal utilization, moringa processing, food loss/waste management) - 5of (nutritious) morning products available on the local market at an affordable price - All the necessary of measures taken to optimize the regulatory framework, including certification - 1 nutrition standards established for public procurement and catering services to ensure moringa products are supplied in schools and public services | - | <ul style="list-style-type: none"> - Project reports. - Business plans from the women and youth groups. - Interviews, household's visits and focus groups reports of beneficiaries and partners. - Policy/regulations documented in alignment with international standards. | <ul style="list-style-type: none"> - Availability of diverse moringa-based products in the local markets at affordable prices - Willingness of communities to adopt moringa-based products in their diets - National regulatory framework include moringa and moringa products and is in alignment with international standards (e.g. <i>Codex Alimentarius</i>) |
| | Activities | | | |
| 2 | 3.1 Organize 40 women groups in appropriate business modalities/processing units for moringa -based products on <i>M. stenopetala</i> and <i>M. oleifera</i> | | | |

| | | | |
|---|--|--|---|
| | <p>3.2 Organize 2 youth groups in Wezeka kebele in appropriate business modalities/processing units for moringa derived livestock fodder production</p> <p>3.3 Promote utilization of moringa based feed and fodder for livestock (goats, milk cows) to enhance livestock nutrition and limit land grazing in an integrated manner through support of 400 livestock owners (200 cows/200 goats) and 1 dairy cooperative</p> <p>3.4 Carry-out an assessment on <i>M. stenopetala</i> and <i>M. oleifera</i> and related products regulation and certification scheme</p> <p>3.5 Support the introduction and foster the procurement of moringa <i>M. stenopetala</i> and <i>M. oleifera</i> as food/food complement such as (i) its utilization at household level, (ii) its utilization in home-grown school feeding programs, (ii) its utilization in complementary feeding for children <5 at household level and in linkage with CFU</p> <p>3.6 Develop moringa-based (nutritious) products and recipes at community level (link with UNIDO industrial product innovation and market output)</p> | | |
| <p>Output 4 - Improved knowledge about the intervention areas and the projects results dissemination (UNIDO led)</p> | <ul style="list-style-type: none"> - 2 of baseline data collected; - Monitoring system is established; - Project milestones and targets reached. - 6 promotional initiatives performed; - 6 of press release organized, awareness workshops conducted; - 6 of awareness workshops and seminars; - 3 Visibility supports created incl. brochures, promotional materials | | <ul style="list-style-type: none"> - Reports / technical publications prepared / distributed |
| Activities | | | |
| 4 | <p>4.1 conduct a baseline survey and gender analysis of the new intervention areas</p> <p>4.4 Develop Project factsheets, videos and other promotional material (including media local campaigns, awareness raising initiatives at national and international).</p> | | |

C2. Risks & Mitigation measures

Risks are considered in the implementation process. The likelihood of risks to happen, the threats they constitute and the means of combating the risk are indicated in below.

| Risks | Likelihood 1-minimal 5- high | High, Medium or Low | Risk management |
|--|------------------------------------|------------------------|--|
| Limited local market interest /buy in | 2 | High | The promotion of the moringa products shall be designed well and strategized to promote both the local and international market |
| Limited human resource capacity in the partner organization to follow up the project | 2 | High | Capacity building exercises are planned for the project for staff of counterpart bureaus and institutes. |
| Delay of the finalization of the Processing unit | 2 | Medium | Effective institutional coordination through the PSC for close monitoring and quick trouble-shooting. |
| Small holders are not interested in intensifying the production Moringa. | 2 | High | 1. Continuous training and consultation with the beneficiaries. 2. Involve of the private sector to insure sustainable market and identifying the possible bottlenecked and take prompt action at a regional and local level. 3. Involve the industries interested in the processing of moringa. |
| Lack of credit facilities for the cooperatives. | 1 | High | 1. Effective coordination between microfinance institutes and the cooperatives. 2. Continues support and training for the Coops regarding business plan preparation and funding possibilities. |
| No compliance of our-growers to the market | 3 | High | Develop inclusive and attractive forward agreement modality among buyers and smallholder. This should be supported with legal mechanisms. |
| Disease prevalence | 3 | High | Consider early warning system and set up effective planning and protection schedule. |
| Lack of good quality seeds | 3 | High | Accelerate the seed selection, evaluation and certification process. |
| Imbalanced moringa products demand and supply. | 2 | High | The value chain actors need to synchronize the planning and market promotion to ensure the supply and demand balance. |
| Insufficient energy source available locally. | 3 | High | Working closely with the Regional Government where access to energy sources is possible in sufficient amounts. Renewable energy sources should be examined. |

C3. Institutional Arrangements and Coordination Mechanism

Coordination mechanisms

The Government counterpart is the Bureau of Agriculture and Livestock Resources (BoANR) of SNNPR region. The Bureau has appointed the SNNPR Agricultural Research Institute (SARI) as a focal institute to link the relevant stakeholder in the implementation process and to follow up and support the project. The head of the BoANR chairs the Project Steering Committee (PSC) (TOR of the PSC see annex 1).

The achievements of the pilot project created interest both at the regional and federal level to scale up the lessons learned. The involvement of federal institutes such as Ministry of Industry, Ministry of Agriculture and Livestock Resources, and Ministry of Health etc. is important to disseminate the information and scale up the activities.

Project Steering Committee (PSC)

The Project Steering Committee is considered the highest level of the project governance structure composed of relevant federal and regional institutes. BoANR is the chair of the PSC, SARI, the Bureau of Health (BoH), the Bureau of Women and Children Affairs (BoWCA), the Regional Cooperative Promotion Agency (CPA), the Bureau of Trade and Industry, Omo Micro Finance (OMF), EPHI, FMHACA, Italian Agency for Development Cooperation (the Donor), UNIDO and FAO.

Technical Advisory Group (TAG)

The TAG is a multi-disciplinary team representing the relevant stakeholder institutes from research, development and regulatory authorities. In the TAG SARI, AMU, EPHI, FMHACA, ESA, Arba Minch Agricultural Research Centre, AICS value chain and gender and nutrition experts, UNIDO and FAO project coordinators, BoANR expert, CPA, BoWCA are represented and contribute to the implementation of the project

UNIDO and FAO, under the overall ownership and leadership of the SNNPR regional Government, will be the implementing agencies of the project. UNIDO and FAO will be responsible for the overall project coordination function, program management and performance. UNIDO will be responsible for product development, value addition, quality assurance, certification and marketing while FAO will be responsible for enhancing production and productivity, sustainable use of natural resources, product quality standardization, nutrition-sensitive value chain management, women's inclusion, effective integration and backward and forward linkages of value chain actors. In addition, FAO will support the Bureau of Agriculture and Natural Resources through continuous staff presence backstopping.

The Italian Agency for Development Cooperation (AICS), which provided financial support in the initial pilot phase, is expected to support the second phase of the project as well. The Agency will, continue to receive project reports, monitor activities on the ground and participate in meetings to review project progresses and agree on the strategic direction of the project. AICS will contribute with 3 million Euros for the second phase of the project.

Project management and time frame

Financial mechanism

AICS will be signing separate contracts, one with UNIDO and one with FAO, regarding finance

and administration. Each agency will be accountable for the fund allocated to the corresponding activities and outputs and reporting to the Donor accordingly.

UNIDO will continue to support the BoANR and BoTI, to establish the processing unit envisaged to process moringa based products. The BoWCA, the Cooperative Agency and Omo Micro Finance will be supported to organize the communities and empower rural farmers. FAO will support the BoANR at regional level through the presence of permanent specialized staff and focal points that will ensure continuous follow up of projects as well as capacity building of agriculture extension workers.

Operational Mechanism

The project, as it was done during the pilot phase, envisaged to ensure sustainability by integrating the technical assistance into the institutional framework to maximize the benefits of the communities from value chain development. UNIDO approaches the value chain development bringing desirable change and improve project operations, developing the capacity to bring a sustainable production system that support the economic empowerment to bring gender equality and nutrition security. FAO value chain approach is a useful way to analyse and navigate the complexity of the food system to improve food security and nutrition outcomes. It helps to identify entry points for investment decisions and capacity development.

The SNNPRS will take the lead of the project ensuring, the participation of all relevant organizations from both regional and federal level. The coordination and overall supervision of the project will be held by a consortium of 2 project managers (1 per implementing agency), namely one in FAO for outputs 1 and 3, and one in UNIDO for outputs 2 and 4, both supported by national experts.

Within the Regional Government, the implementing partner is the Bureau of Agriculture and Natural Resources. The Bureau appointed, since the project formulation, Southern Agricultural Research Institute (SARI) as the technical counterpart and focal institute to link the relevant stakeholder in the implementation process and to follow up and support the project. The project office has been provided by SARI in both Hawassa and Arba Minch research centre premises.

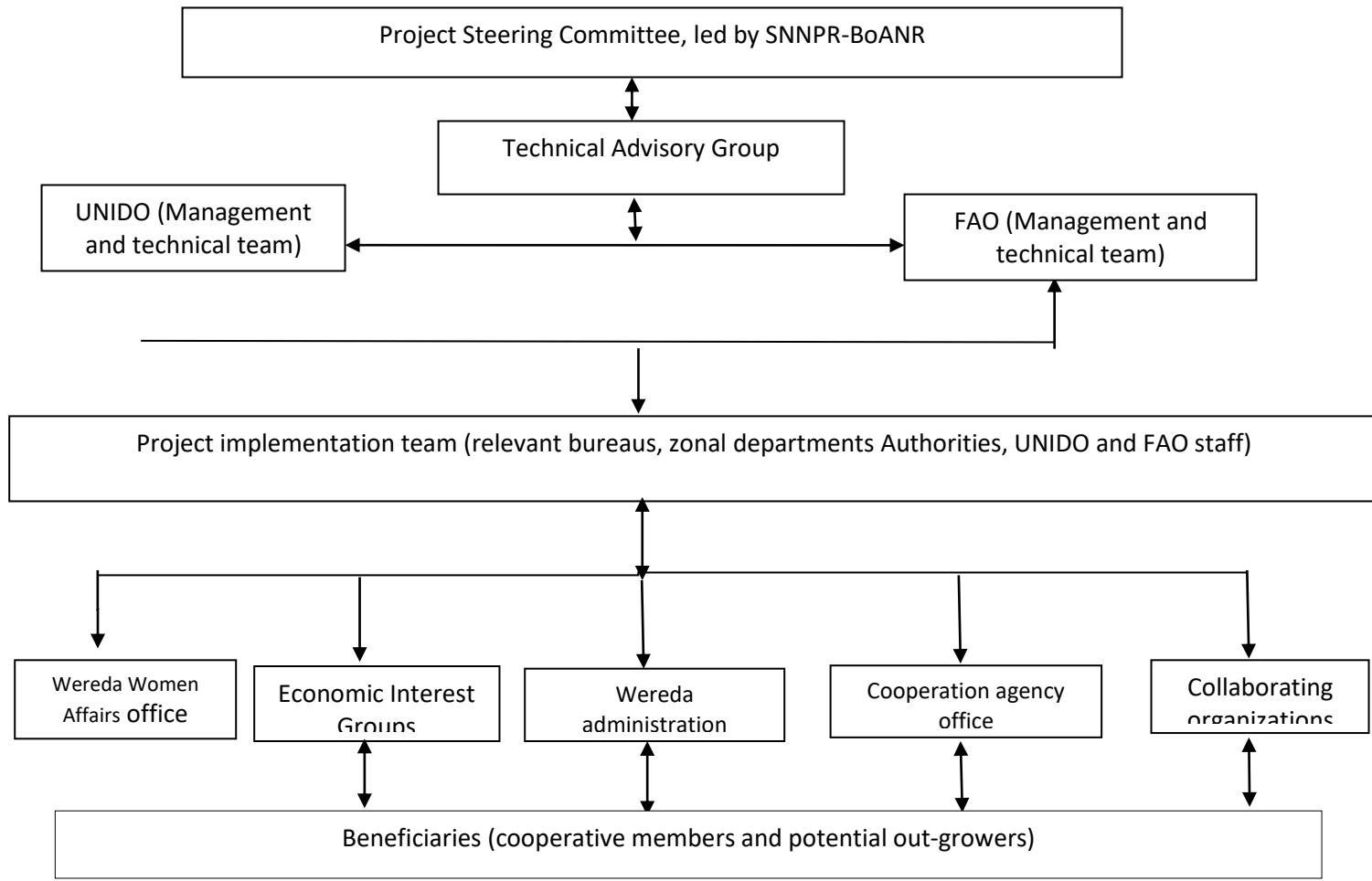


Figure 5. Project Structure

C4. General time line of the project (overall UNIDO and FAO joint intervention)

| Description | Year 1 | | | | Year 2 | | | | Year 3 | | | |
|---|--------|----|----|----|--------|----|----|----|--------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Coordination, Monitoring | | | | | | | | | | | | |
| Set up a Joint Project Implementation Unit. | | | | | | | | | | | | |
| Ensure stakeholders' coordination. | | | | | | | | | | | | |
| Co-ordinate all project activities, ensure that duties and responsibilities, of all project staff and partners are well defined, and liaise with collaborating institutions for timely implementation | | | | | | | | | | | | |
| Output 1 - Enhanced sustainable production and productivity of moringa through integrated utilization of natural resources. (FAO led) | | | | | | | | | | | | |
| Identify 400 farmers head of families (W) per wereda (20 weredas) and support them to enhance production and productivity through integrated utilization of natural resources and production of 1 moringa plot per household + moringa landscape management: Develop specific training material and curricula to enhance production and productivity of moringa (<i>M. stenopetala</i> and <i>moringa oleifera</i>) | | | | | | | | | | | | |
| Promote the establishment of appropriate land use, irrigation systems and carbon sequestration for sustainability | | | | | | | | | | | | |
| Establish quality control mechanisms for genetic material and a well-structured seed system | | | | | | | | | | | | |
| Promote multiplication of <i>M. Stenopetala</i> and piloting of <i>M. Oleifera</i> for different landscape niches and livestock feed and fodder | | | | | | | | | | | | |
| Develop specific training material and curricula to enhance production and productivity of moringa (<i>M. stenopetala</i> + <i>M. oleifera</i>) as well as processing techniques | | | | | | | | | | | | |
| Promote out-grower schemes to link producers to processing units and processing units to central plant | | | | | | | | | | | | |
| Support local institutions such as BoANR, BoI, CA, BoWCA, improving Government agricultural extension services | | | | | | | | | | | | |
| The central production unit in Arba Minch will be strengthened and expanded to 10 ha for biomass production and 18 ha for seed production (UNIDO-managed) | | | | | | | | | | | | |

| Output 2 - Improved value addition of moringa through processing and marketing of moringa products (UNIDO led) | | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Conduct a detailed market assessment for moringa (both species) and moringa products for animal consumption and human consumption including for medicinal use, in order to identify products requirements: quantity, quality, continuity of supply | | | | | | | | | | | | |
| Develop capacity of public Institutions (e.g. Bureau of Industry, Bureau of Agriculture and Livestock Resources, Cooperative Agency). | | | | | | | | | | | | |
| Strengthen the capacity of regulatory authorities (e.g. EPHI/FMHACA/ESA) to ensure quality, certification and registration of <i>M.stenopetal</i> in the global market | | | | | | | | | | | | |
| Develop agribusiness skills (e.g. management, marketing, maintenance and services, etc.) of cooperatives and pre-cooperative groups to run the processing unit. | | | | | | | | | | | | |
| Support the establishment of processing units for moringa-based products including for the pilot on <i>M. Oleifera</i> ; | | | | | | | | | | | | |
| Develop training procedures, manuals for the Coop members, and conduct trainings based on the concepts and principles of the Food Quality and Safety procedures. | | | | | | | | | | | | |
| Support the communities developing new products in collaboration with the private industries (Moringa oil, cosmetics etc.) | | | | | | | | | | | | |
| Develop capacity of value chain actors on GAPs, GMPs. | | | | | | | | | | | | |
| Support the development and promotion of moringa based products, to create market opportunity (e.g. collaborate with industries to development new products), in line with national and international regulatory frameworks (in synergy with FAO led Output 3). | | | | | | | | | | | | |
| Facilitate forward and backward linkages between value chain actors (linking with national and international markets). | | | | | | | | | | | | |
| Output 3 - Strengthened nutrition-sensitive moringa value chain through inclusive agri-food systems, promotion of nutritious products and a conducive enabling environment (FAO led) | | | | | | | | | | | | |
| Organize 40 women groups in appropriate business modalities/processing units for moringa-based products on <i>M. stenopetala</i> and <i>M. oleifera</i> | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Organize 2 youth groups in Wezeka kebele in appropriate business modalities/processing units for moringa derived livestock fodder production | | | | | | | | | | | | |
| Promote utilization of moringa based feed and fodder for livestock (goats, milk cows) to enhance livestock nutrition and limit land grazing in an integrated manner through support of 400 livestock owners (200 cows/200 goats) and 1 dairy cooperative | | | | | | | | | | | | |
| Carry out an assessment on <i>M. Stenopetala</i> and <i>M. Oleifera</i> and related products | | | | | | | | | | | | |
| Support the introduction and foster the procurement of moringa <i>M. stenopetala</i> and <i>M. oleifera</i> as food/food complement such as (i) its utilization at household level, (ii) its utilization in home-grown school feeding programs, (ii) its utilization in complementary feeding for children <5 at household level and in linkage with CFU | | | | | | | | | | | | |
| Develop moringa-based (nutritious) products and recipes for local communities and market (link with UNIDO product innovation and market output) | | | | | | | | | | | | |
| Output 4 - Improved knowledge about the intervention areas and the projects results dissemination (UNIDO led) | | | | | | | | | | | | |
| Carry out baseline survey and gender analysis in the new intervention areas | | | | | | | | | | | | |
| Develop Project factsheets, videos and other promotional material (including media local campaigns, awareness raising initiatives at national and international). | | | | | | | | | | | | |

D. BUDGET ITEMS

D1. Counterpart inputs

Southern Nations and Nationalities People Regional State (SNNPRS) allocated 30ha of land for the demonstration unit, provided with borehole for the supply of water for supplementary irrigation, and constructed a processing unit. Furthermore, the regional government provided with office facilities and utilities for the Project Management Unit and temporary training site, for the beneficiaries, in the premises of Arba Minch Research Centre. The SNNPRS assigned the Southern Agricultural Research Institute (SARI) as a focal point and confirmed the institutional infrastructures fully available to cooperate and participate in the implementation of the project.

D2. UNIDO Inputs

The project will be implemented through a direct agreement between the AICS and UNIDO. UNIDO will assign Professional staff (at P4) and General Staff (at G5 level) from the Food Systems and Nutrition division (PTC/AGR/FSN), to provide in-house technical advisory and programme management services.

UNIDO will be responsible for:

- Recruitment of the Project management staff (Chief Technical Advisor, National Project Coordinator, Administrative Assistant, Secretary and Driver).
- Recruitment of all the international and/or national experts and consultants required by the project.
- Remuneration of all the experts and consultants recruited by UNIDO.
- Subcontracting the execution of specific activities to NGOs and/or other organizations.
- Organizing the training activities.
- Procurement of equipment for processing unit and materials for drying and packing unit (when are not included in the above-mentioned subcontracts).

International and National Experts

Experts and consultants will be identified in consultation with the coordinating Ministry in Ethiopia. In all the recruitments, due attention will be given to have a gender balance according to UNIDO's Individual Service Contract Policy.

Procurement and subcontracting

Procurement of all the equipment and supplies and contracts for works and services as envisaged for the project activities will be procured through open international competitive bidding, in accordance with UNIDO regulations, and using UNIDO standard documents. Expression of interest and request for offers will be advertised internationally through the UNIDO and UN procurement websites.

The Terms of References for subcontracting and the list of equipment to be purchased during the first year of implementation will be compiled and finalized during the first six months of the project implementation. The similar lists for the second, third and fourth years of implementation will be annexed to the work plan developed for those respective periods.

Where local and/or regional expertise is envisaged, expression of interest and request for offers will, in addition to the internationally advertised channels, be advertised in local newspapers and through UNDP-Ethiopia

Visibility

Visibility and communication activities will be incorporated in the knowledge management component of the project described in section B1 above.

BUDGET

Overall Budget (UNIDO Component)

The UNIDO component of the project given in the table below follows the results-based management budget structure. In order to be able to respond to changing conditions and to ensure swift implementation, UNIDO may make budgetary adjustments, not foreseen in the project document, according to its rules and regulations: UNIDO will inform the donor about changes between budget components. In the case that shifts between outputs, greater than 15% become necessary, UNIDO will submit a revised budget for approval by the donor, showing and explaining the required changes. Changes between budgetary components are not to affect the total budget made available for the project.

| Description | | Instalment as per Agreement | | | |
|--|---|-----------------------------|----------------|----------------|------------------|
| | | 1st | 2nd | 3rd | Total |
| Output 2 Improved value additional of Moringa through processing and marketing of Moringa products | | | | | |
| WBS 190016-1-01-01 | | | | | |
| BL1100 | Internat. Cons/Staff | 90,500 | 72,600 | 60,100 | 223,200 |
| BL1500 | Project travel | 5,760 | 6,720 | 6,720 | 19,200 |
| BL1600 | Staff travel (FSN) | 4,500 | 4,500 | 4,500 | 13,500 |
| BL1700 | Nat. Consult./Staff | 25,236 | 28,190 | 28,190 | 81,616 |
| BL2100 | Contracts for works/services | 217,000 | 80,000 | 60,000 | 357,000 |
| BL3000 | Workshops/meetings/in- service training | 9,450 | 11,025 | 11,025 | 31,500 |
| BL3000 | Study tours | 25,000 | 35,000 | | 60,000 |
| BL4500 | Equipment/ Procurement | 160,150 | 57,000 | 40,000 | 257,150 |
| BL5100 | Miscellaneous and other direct costs | 2,714 | 2,915 | 2,371 | 8,000 |
| <i>Subtotal output 2</i> | | <i>540,310</i> | <i>297,950</i> | <i>212,906</i> | <i>1,051,166</i> |
| Output 4 Dissemination of knowledge and information | | | | | |
| WBS 190016-1-01-02 | | | | | |
| BL1100 | Internat. Cons/Staff | 21,600 | 25,200 | 25,200 | 72,000 |
| BL1500 | Project travel | 1,440 | 1,680 | 1,680 | 4,800 |
| BL1600 | Staff travel (FSN) | 2,450 | 2,500 | 2,600 | 7,550 |
| BL1700 | Nat. Consult./Staff | 6,984 | 8,148 | 8,148 | 23,280 |
| BL2100 | Contracts for works/services | 8,900 | 12,050 | 12,050 | 33,000 |
| BL3000 | Workshops/meetings/in-service training | 10,000 | 15,000 | 15,000 | 40,000 |
| BL3500 | Intentional Meetings, workshops | 4,050 | 4,725 | 4,725 | 13,500 |
| BL5100 | Miscellaneous and other direct costs | 2,400 | 2,800 | 2,800 | 8,000 |
| <i>Subtotal output 4</i> | | <i>57,824</i> | <i>72,103</i> | <i>72,103</i> | <i>202,130</i> |
| Monitoring and coordination | | | | | |
| WBS 190016-1-51-01 | | | | | |
| BL1100 | Internat. Cons/Staff | 19,444 | 22,680 | 22,680 | 64,804 |
| BL1600 | Staff travel | 2,430 | 2,835 | 2,835 | 8,100 |
| BL1700 | Nat. Consult./Staff | 3,564 | 5,408 | 5,408 | 14,380 |
| BL5100 | Miscellaneous and other direct costs | 4,400 | 4,800 | 4,791 | 13,991 |
| <i>Subtotal monitoring & coordination</i> | | <i>29,838</i> | <i>35,723</i> | <i>35,714</i> | <i>101,275</i> |
| Mid and Terminal Evaluation | | | | | |
| WBS 190016-1-53-01 | | | | | |
| BL1100 | Internat. Cons/Staff | | 10,000 | 10,000 | 20,000 |

| | | | | | |
|--|------------------|---------------|---------------|---------------|------------------|
| BL1700 | National experts | | 5,000 | 5,000 | 10,000 |
| Subtotal evaluation | | | 15,000 | 15,000 | 30,000 |
| Total Installments as per Agreement | | Year 1 | Year 2 | Year 3 | Total |
| <i>Total project cost (excl. psc)</i> | | 627,972 | 420,776 | 335,723 | 1,384,571 |
| <i>Indirect cost (13%)</i> | | 81,636 | 54,701 | 43,644 | 179,994 |
| <i>Grand Total</i> | | 709,608 | 475,477 | 379,367 | 1,564,565 |

E. MONITORING, REPORTING EVALUATION

F1. Monitoring and evaluation

The multi-disciplinary project team will be closely monitored by the joint team composed of the Project implementation partners, implementation agencies and the Donor.

The project coordinators of each component (UNIDO/FAO) will provide monthly updates on activities and progress, against the stated milestones in the logical framework and project document. They will undertake regular missions to the project sites for supportive supervision and monitoring the project progress. The monitoring of the activities and financial disbursements will be under the responsibility of UNIDO and FAO, according to their respective implementation modalities. The PSC will approve annual work plans and will review annual progress reports. Reporting to the PSC, the TAG shall follow the activities and advise the PSC on technical matters. The project shall be subject to a mid-point evaluation (formative) and a final independent evaluation (summative) during the final year. The organization, terms of reference and precise timing of the evaluations will be decided after consultation among counterparts.

UNIDO and FAO will organize a biannual experience sharing and review meetings, which include the donor, to share lessons, learned and best practices among the stakeholders. A team composed of the donor, the executing agencies and key partners will conduct in addition biannual joint field visits.

The performance monitoring of the UNIDO component will be executed based on a detailed work plan and log frame. A detailed monitoring and evaluation plan will also be developed during the inception phase and baseline indicators established at inception will be monitored on an annual basis.

Day-to-day technical and financial monitoring will be part of UNIDO responsibilities

The Project will be subject to independent review processes assisted by the UNIDO Evaluation Group. This will include:

- The mid-term review; and
- The final evaluation.

The indicative budget allocated for the mid and terminal evaluations will be EUR 50,000 in total. The conclusions and recommendations of the mid-term review will determine the follow-up actions to be taken and any corrective remedy, including, if deemed necessary, the reorientation of program components. The counterparts and beneficiaries will be informed at least two months in advance of day foreseen external mission dates. The counterparts and beneficiaries shall collaborate efficiently and effectively with the monitoring and/or evaluation experts, and inter alia provide them with all necessary information and documentation, as well as access to the project premises and activities.

F2. Reporting

UNIDO and the national focal point will develop a reporting structure in line with the accountability of the project management unit, taking into account the existing UNIDO reporting guidelines and AICS reporting schedule and requirements. Reports shall be in a format normally followed by UNIDO

Bi-annual technical reports: Prepared twice a year, no later than 30 calendar days after the last day of every 6th month. The bi-annual will be on project activities detailing progress achieved towards meeting the stated outputs, the problems, constraints, and recommendations for correcting them, and additionally a detailed work plan for proceeding period. The indicative work plan submitted at the start of the action for year 1 will be reviewed and validated at the inception workshop. The report will also provide a summary of the expenditure for the reporting period.

Annual financial reports: An annual financial report showing income, expenditures for the year and assets and liabilities as of 31 December with respect to the funds provided by the donor.

Final technical and financial report: Prepared within 6 months after the expiration of the project.

F. PRIOR OBLIGATIONS AND PREREQUISITES

There are no specific prior obligations or prerequisites that need to be met before project implementation can start. Most of the open questions with regard to target areas and beneficiaries will be covered during the Inception phase

G. LEGAL CONTEXT

The Government of the Federal Democratic Republic of Ethiopia agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Program and the Government, signed on 26 February 1981 and entered into force on 5 November 1984.

ANNEXES

ANNEX1: TERMS OF REFERENCE OF PSC AND TAG

The Project Steering Committee is considered to be the highest level of the Project governance structure composed of relevant federal and regional research and development institutes, Italian Agency for Development Cooperation (the donor) and UNIDO etc. BoANR of SNNPR will chair the PSC. The purpose of establishing the Steering Committee is to review the progress and obstacles encountered and ultimately suggest solutions. The main functions and responsibilities of the PSC is to:

Overseeing the overall project activities:

- a) Provide the project with strategic direction in terms of implementation of the activities;
- b) Ensure the effective coordination and cooperation between relevant stakeholders;
- c) Monitor the progress towards achieving the planned outputs as well as to review and approve the annual work plans;
- d) Guide and direct to resolve problems that might arise at the different level of Project structure during its implementation;
- e) Provide policy direction as deemed necessary for the sustainability of the Project;
- f) Ensure that the available resources are used to achieve outcomes and output defined in the Project document;
- g) Monitor the application of the approved annual action plan of the Project.
- h) The SC will hold quarterly meetings: the Project Management Unit (PMU) will act as the secretariat of the PSC.

Specific Activities of the PSC

The PSC will receive a detailed progress report of the Project every 3 months, depending on the intensity of implementation as well as on a need to discuss urgent matters, which could affect the Project's life. The UNIDO project team (PMU), in cooperation with the Project Manager, will prepare the report.

This report will include:

- a) A description of the activities planned to take place in the reporting period, and results achieved;
- b) Explanations on any deviations or delays of activities, which were planned and could not take place, or had to be postponed;
- c) A description of all activities planned for the following 3 months, including a projection of results to be achieved, as well as their effect on the overall implementation of the project;
- d) Presentation of challenges or obstacles, which need to be brought to the attention of the donor country and the Government of Ethiopia.

The PCU secretariat will distribute an agenda of the meeting prior to the scheduled meeting, (at least 15 days before), as well as other relevant documentation.

Composition of the Steering Committee

In the pilot phase of the project, the Project Steering Committee has been composed of representative of the following institutions and organizations. In the next phase of the project, the composition of the PSC shall be revised, based on the current institutional structure and representative of the respected offices. Furthermore, the PSC shall nominate or invite representatives of relevant federal or other regional institute representative to support the dissemination and scaling up of the project outcomes.

| Responsible Institute | Duties and responsibilities |
|---|---|
| Head of the Bureau of Agriculture and Livestock Resources, Chair the PSC | Over all Implementation partner of the project, ensures the overall coordination with the relevant government body and the implementation partners. |
| Head of the Bureau of Women and Children Affairs (BOWCA); SNNPR | Facilitate the implementation of the project related to women economic empowerment, ensure the equal participation of the rural women in the project, and facilitate the coordination of the project at zone, wereda and kebele women organization. |
| Head of Southern Agricultural Research Institute (SARI) | Focal institute to follow up and facilitate the operation of the project. Coordinate/liaison between the project and the stakeholders. Closely collaborate on the implementation of improvement of landscape management, production and productively. |
| Head of SNNPR Cooperatives Agency | Support the establishment and strengthening of the cooperatives, to promote the economic interest and general welfare of members in accordance with cooperative principles and values. |
| Ethiopian Public Health Institute | Ensure the implementation of the activities indicated related to the nutrition assessment, fingerprint development, quality assurance in collaboration with the relevant regulatory authorities (FMHACA/ESA). |
| Director General, Food Medicine and Health Care Administration and Control Authority (FMHACA) | Ensure that the regulatory framework is in place to distribute and market moringa based products. |
| Head of the Bureau of Health; SNNPR | Follow up and support initiative of the project to utilize for nutrition improvement and safeguard the communities in collaboration with the regulatory authorities. |
| Head of the Bureau of Trade and Industry | Support/promote the product development and marketing of moringa products. |
| Head of Omo Micro Finance Institution | Support the beneficiaries of the project/ cooperative members to have access to the finance related to the Moringa Value Chain |
| Director, Italian Agency for Development Cooperation | Donor |
| Project Managers (UNIDO/FAO) | Implementation partners |

The Chairperson of the Steering Committee will be Head of the BoANR of SNNPRG. The Steering Committee will have one secretary, i.e. National Project Coordinator of the project.

Meeting Schedule of the Project Steering Committee

The Steering Committee will meet every 3 months in Hawassa/Arba Minch. The duration of the meeting depends on the volume of matters to be discussed, but should not exceed two days, including travelling, for those coming from outside of the meeting venue.

Financial and administrative arrangements

For participants coming from Addis Ababa and Arba Minch, financial and administrative arrangements will be made in accordance with UNIDO's rules and regulations: a Daily Subsistence Allowance (DSA) at the prevailing UN rate of Birr per day will be paid to the participants from Addis Ababa and Arba Minch. The DSA will cover taxi rent, lodging, and incidentals for the period of attendance for a maximum of two days. If the SC meeting is conducted at the project site, the above arrangement shall prevail for members coming from Hawassa.

Language:

The working language of the Meeting, both PSC and TAG will be English.

Terms of reference of the Technical Advisory Group (TAG)

The composition of the TAG should be multi-disciplinary that contributes to the development of moringa production and processing to improve the livelihood of the rural community, with special emphasis on rural women. The TAG members' expertise shall cover agronomy, agro-processing, nutrition, community development, gender mainstreaming, marketing and quality and standards components. The members shall be nominated based on their technical merits and contribution to the Moringa R&D both at national and international level. In this phase of the project, the composition of the TAG shall be revised, based on the current institutional structure and technical requirement.

The role of the TAG is:

- Provide technical support and advice to achieve the project objectives;
- Work closely with the PMU;
- Review the project activities quarterly;
- Advise the Steering Committee on technical issues;
- Guide the project in establishing quality and slandered parameters and structure
- Conduct quarterly meetings in Hawassa, visit the project site as it deems necessary and report to the SC.
- Guide, advise and follow up the sustainability of the project

Composition of Technical Advisory Group (TAG)

The members of the TAG will included representation from the following institutions

- Southern Agriculture Research Institute
- Ethiopian Public Health Institute (EPHI, MTF)
- Ethiopian Public Health Institute (EPHI)
- Food Medicine and Health Care Administration and Control Authority (FMHACA)
- Ethiopian Standard Agency (ESA)
- Arba Minch University

- Director of Arba Minch Agricultural Research Centre
- AICS
- UNIDO
- FAO

Rules and criteria for Technical Advisory Group (TAG) Members

- The TAG members shall meet every three months to review the progress of the project and advise the SC on technical matters;
- The TAG meetings shall take place in Hawassa; however, field visit will be conducted to advice on the developments.
- The Chairperson of the TAG shall be nominated by the SC to serve for 1 year;
- Additional member can be nominated if it deemed necessary;
- TAG members are expected to attend extraordinary meeting and events such as field day other project promotion events;
- The Project National Coordinator shall serve as a secretary of the TAG;
- Agenda must be distributed to all members 2 weeks prior to meeting. Additional items can be added up to 2 days before meeting;
- The SC will give annual feedback to the TAG with regard to minutes, direction and priorities.