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Moringa

Tapping the potential of Ethiopia's miracle tree



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT



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Establishing a moringa-based economic development programme to improve the livelihoods of rural women in Ethiopia

It is a sun-loving, fast-growing tree, which tolerates poor soils and long spells of dry weather. Rich in vitamins, minerals and amino acids, it is a versatile source of food, is used as fodder, and enjoys growing popularity worldwide for its value in medicinal and cosmetic products. It yields edible oil and biofuel, and is used to purify water and combat land degradation. *Moringa stenopetala*, or African moringa, is native to southern Ethiopia and Kenya. While it also goes under the humble name of “cabbage tree,” it is frequently – and more fittingly – called the “miracle tree” and the “tree of life.”

While moringa is regarded as one of the world’s most valuable multi-purpose trees, it is its nutritional value that has received the greatest attention from researchers and food supplement developers. Leaves, pods, flowers and roots are all edible. Moringa leaves contain more vitamin A than carrots, more iron than spinach, more calcium than milk, more vitamin C than oranges, and more potassium than bananas. Moringa is rich in omega oils and antioxidants and its protein quality rivals that of milk and eggs.

As a source of nutritious food, moringa is seen as particularly important for African countries plagued by drought, poverty and rudimentary agricultural infrastructure. During the last three decades, significant efforts have been made to promote the cultivation and processing of moringa in Africa to combat malnutrition, especially among infants and nursing mothers, and to contribute to food security in rural areas.

Ethiopia is a country that faces these challenges and is striving to develop capabilities to harvest the benefits of moringa. The plant is a staple food for some five million people in the country’s south and is also used as fodder and water purification agent.

Gender equity and sustainability: an ISID project

In July 2014, the United Nations Industrial Development Organization (UNIDO) received a request from the Office of Ethiopia’s First Lady and the Southern Nations Nationalities and Peoples Regional State (SNNPRS) to help design and implement a programme to develop the moringa value chain with the primary objective of improving the livelihoods of rural women. In February 2017, a 12-month pilot intervention was launched as the stage-setter of a five-year project supported by the Italian Agency for Development Cooperation within the Programme for Country Partnership – Ethiopia.

A comprehensive assessment of development potential and challenges was carried out by experts of UNIDO’s Agro-Industries Technology Division in collaboration with Ethiopian partners, most notably the Office of Ethiopia’s First Lady, the SNNPRS, the Southern Agricultural Research Institute and the Ethiopian Public Health Institute.



The Government of Ethiopia is committed to ensure socio-economic and political equity by facilitating the participation of women, with emphasis on rural women, in the national development endeavour. The strategic pillars of the country's Second Growth and Transformation Plan (GTP II), 2015/16-2019/20, include maintaining agriculture as a major source of economic growth and developing agro-industries, and "promoting gender and youth empowerment and equality." Moreover, Ethiopia's National Nutrition Strategy supports all initiatives capable to help alleviate widespread malnutrition, particularly among children, and promote healthy diets and lifestyles.

Focused initially on SNNPRS's Gamo Gofa zone, the UNIDO project aims to develop the entire moringa value chain (production, processing, product diversification and commercialization) by providing adequate technologies, developing skills, and strengthening relevant institutions to ensure sustainability. UNIDO successfully carried out moringa projects elsewhere in Africa (Sudan, Burkina Faso), and its partner and project sponsor, the Italian Agency for Development Cooperation, has long since focused on Ethiopia as a priority recipient of its contributions to international efforts to alleviate poverty, insure food and nutrition security, and help developing countries improve the living standards of their populations.

Initial pilot phase: setting the stage for production and processing

The project management set four main objectives for the initial pilot phase, which is expected to benefit directly some 3,000 people, most of them women:

- a) Organizing groups active in moringa value chain to empower women and establish links to local and regional markets.
- b) Establishing a pilot processing line for moringa and moringa-based products such as oil, tea and nutraceuticals.
- c) Strengthening the capability of the Ethiopian public health system to undertake nutrition profiling, regulation, quality certification and standardization activities on moringa-based products.
- d) Improving the nutritional status and income level of targeted households.

To achieve these objectives, the project proceeded to:

- select specific beneficiaries with due attention to gender equity and empowerment of women;
- define a training programme for target groups;
- establish a pilot project unit to demonstrate the improved production system and appropriate technology for processing and value addition;



- establish an appropriate operation framework and economic structure that benefit communities with regard to the pilot project infrastructure;
- develop a marketing strategy and establish linkages to both local and international markets;
- conduct nutrition assessments, develop alternative moringa food recipes and food supplements with special attention to children under the age of five and pregnant women and lactating mothers;
- initiate collaboration on nutrition profiling and product certification with partner institutions such as the Ethiopian Public Health Institute, the Food, Medicine and Health Administration and Control Agency, and the Ethiopian Standards Agency.

Site selection

Four woredas (districts) in SNNPRS's Gamo Gofa administrative zone were considered in the selection process for the site of the project's pilot site using as criteria the natural distribution of moringa, the use and knowledge of the resource in local communities, the potential for production improvements, and proximity to outlets. Within the selected woreda, Arba Minch Zuria, six kebeles (wards) were the subject of basic on-the-ground assessment, and two of them, Lante and Wezeka, were short-listed for further in-depth assessment. Secondary data was collected by conducting discussions with woreda and kebele administration officials, development agents and experts. Individual farmers were interviewed to obtain information on moringa uses, production methods and traditional knowledge.

The final decision favoured the kebele of Wezeka, located about 30 kilometres from the town of Arba Minch and easily accessible by a main road, where 30 hectares were made available for the project site. Wezeka has a population of 7,340 and 750 households of which more than one third are female-headed families. The kebele's most widely cultivated crops are banana, maize, mango, sesame, papaya, sorghum and avocado. Moringa trees are grown on farmlands and in home gardens where women harvest the leaves on a daily basis.

Wezeka: pilot project site and training ground

The 30-hectare area covered with thorny shrub species of *Acacia* and other genera was cleared and nursery and planting operations for both leaf and seed production are under way with cultivation practices which ensure sustainability and encourage replication in the region.

A crucial component of the project, skill development started in October 2017 with nine groups of beneficiaries participating in a *Training in moringa production system and practices* course.



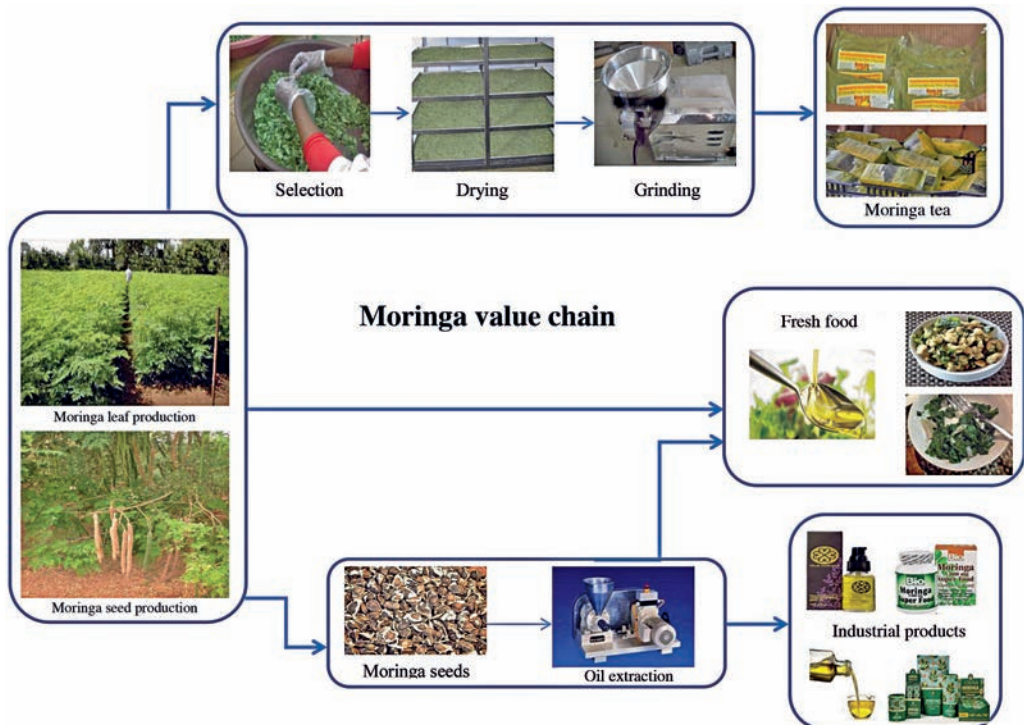
The training sessions are carried out at the Agricultural Research Centre in Arba Minch and at the project site and have been attended to date by 110 villagers, 98 of them women, from the Wezeka kebele.

Adding value to a versatile resource

Post-harvest operations such as leaf selection, cleaning and drying (on racks or hung in bunches) have already been carried out as part of the project's initial pilot phase, and processing facilities will soon be built at the project site by the regional government.

The project will focus on nutrition values of moringa leaf powder and moringa oil as products with good prospects in international markets. As a food supplement ranked in the “green superfoods” category, moringa leaf powder is a front-runner of the global nutritional supplement industry, which has enjoyed significant growth in recent years. In the cosmetics industry there is a steadily growing demand for oils extracted from exotic plants, and moringa oil is seen as having a great potential as a key ingredient of face and body cream.

The UNIDO project will seek to develop food safety and quality assurance standards to ensure conformity with international norms and thereby boost the export prospects of Ethiopian moringa products. Organic and GMP certifications and Fair Trade labelling are also expected to play an important role in this endeavour.





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