

Objective

This project develops local, accessible, and affordable food solutions for pregnant women and young children to increase diet diversity through financially viable private-sector collaboration and to reduce reliance on public funding.

Background

Ethiopian diets are monotonous and predominantly cereal-based, with very low or no consumption of fruits, vegetables, or animal-sourced foods. Diets that are low in diversity have been associated with poor child growth, contributing to high rates of stunting (38.5%) among children under 5 years of age. It also leads to a high prevalence of pregnant women with low Middle-Upper-Arm Circumference which can lead to low birth weight of a child. A key cause is the unavailability or unaffordability of nutritious foods for most households.



Figure 1. Egg powder processing plant, HILINA Food Products PLC @2021

Nutrient-dense foods are subject to high loss and waste, given their perishability, meaning they often do not reach the rural markets. Where they do, costs are too high for most households. Given the low purchasing power and low margins, there is insufficient incentive for the private sector producers to innovate for these markets. The Ethiopian government is committed to several key strategies to leverage food systems to combat malnutrition, focusing largely on mothers, children 0-24 months, and adolescent girls. Through different policies and strategies, they have strongly expressed the need for innovative research and capacity building to help implement, learn, and support food systems approaches to improve diets.

The Theory of Change

To apply a food systems approach to agricultural transformation innovation, there must be collaboration between businesses, research institutions, and enabling institutions in the food sector. Through the development of several prototypes of innovative food products, the project aims to increase diet diversity and increase macro and micronutrient intakes. To ensure an adequate intake of animal proteins, processing whole eggs into powder and product prototypes has many advantages. Egg powder is a shelf-stable and safer product; it can fill local production gaps through cost-effective transportation; powder reduces food loss through breakage and spoilage; and it can be easily integrated into traditional and commercial recipes.

In addition, among locally available fruits, papaya is a very good source of vitamin A, vitamin C, and foliates. Drying techniques offer a good solution to reduce post-harvest losses and secure availability throughout the year which means that smaller portions can be purchased. Thirdly, a foliate-producing microbial yeast strain is developed, to be used in fermented local cereal (*teff*) to produce foliate enriched staple flat bread "*injera*" (in situ fortification). Enriched "*injera*" is an innovative solution that could ensure that women have and maintain an adequate folate status before, during, and after pregnancy, while not changing consumption habits.

To develop new animal and fruit source foods that have a long shelf life and that are affordable, the project established a collaboration between research institutions, small and medium national businesses, and institutions from the food sector. All these actors needed to be brought together in a public/private sector collaboration to develop new quality products that are available and affordable and that can help fill dietary gaps. The research institutions developed the technical approaches with the private sector. Once the production lines are in place, the small and medium businesses provide free samples, in exchange for the equipment made available, to be distributed into national safety net programmes. The resulting food product prototypes are pushed on the commercial market to create demand and ensure its wide use at the country level. Market research is undertaken in parallel with product development to ensure acceptance by the general public.

Main activities

The project determines and tests the commercial feasibility and nutritional potential of the different prototypes developed. The main activities are:

- ✓ Surveys such as production testing in collaboration with small and medium national businesses, acceptability studies to understand the reaction of the developed product among the Ethiopian population especially pregnant, lactating mothers and children's caregivers, and calculation of market costs.
- ✓ Laboratory shelf-life testing.
- ✓ Optimizing several production lines for producing egg powder at scale.
- ✓ Seminars engaging the private sector.
- ✓ Test and develop the social protection-facilitated route to market (samples into national safety programmes).

Results achieved to date (June 2022)

The first phase with technology transfer and proof of principle for local production of egg and papaya powder has been successfully completed. This includes prototype development and formative assessment of product stability, shelf life, acceptability, nutrient content, and safety. In collaboration with the Ethiopia Standards Agency (ESA), quality and production standards for egg and papaya powder have been developed and endorsed. Branding for egg powder production has been developed for the public as well as for commercial distribution. In addition, context-based recipes have been developed promoting the use of egg powder.

The next phase focuses on scale-up, where optimization of existing equipment, value chain and market assessments, and business plan will be completed. Next-generation food products include new variants of yeast for improved folate yield injera (teff).

A mid-term evaluation commissioned by the EU has been successfully completed and informs the further implementation of this programme. This innovative programme has received a high level of visibility at the regional level with countries drawing inspiration from Ethiopia to develop local food solutions, including egg powder. In collaboration with Addis Ababa University, lessons learned have been documented and disseminated through peer-reviewed publications, reports, and presentations at national and international forums.

Organization

The implementation of the project is in collaboration between the United Nations Children's Fund (UNICEF), the Global Alliance for Improved Nutrition (GAIN, a Swiss-based NGO), the University of Addis Ababa (through the Organization for Social Science Research in Eastern and Southern Africa (OSSREA,) an NGO linked to the university), the regulatory authorities (Ethiopian Food & Drug Administration (EFDA) and Ethiopian Public Health Institute (EPHI)), and the private sector. UNICEF is the project coordinator and leads the aspect of egg transformation and

tests, with the government and other partners, the inclusion of new products into the government social protection scheme. GAIN aims to transform food systems to deliver more nutritious foods for all people.

Therefore, they have been leading the technical assistance on papaya prototypes to selected private sector actors in terms of product development, nutrition and food safety, value chain, and marketing development. OSSREA is a regional research and capacity-building organization whose mission is to promote dialogue and interaction between researchers and policymakers in Eastern and Southern Africa, to enhance the impact of research on policymaking and development planning. In collaboration with the University of Addis Ababa, they are managing the product development/testing acceptability and leading the development of the yeast.

To ensure a smooth implementation and buy-in from a large group of partners, a steering committee of agencies in charge of the project was created with the interested private sector companies and government.

Implementing Organization

United Nations Children's Fund (UNICEF)



Partners of the project

- ✓ Global Alliance for Improved Nutrition (GAIN),
- ✓ Organization for Social Science Research in Eastern and Southern Africa (OSSREA),
- ✓ Hilina Foods PLC,
- ✓ Ethio-Gabana PLC,
- ✓ Addis Ababa University

Other main stakeholders

The project collaborates with the Seqota Declaration Coordination Unit, Ethiopian Public Health Institute (EPHI), Ethiopian Food & Drug Administration (EFDA), Addis Ababa University, Mekelle University, and Small and Medium Enterprises working in food processing.

Location

Ethiopia

Funding and co-funding

EU	€2,000,000
Total Budget	€2,000,000

Duration

48 months (July 2020 – June 2024)

Updated on 08/11/2023

