

Project update

Project title (Acronym):	NaviNut
Geographical focus:	Benin, Kenya
Call reference:	FENV Food environments for improved nutrition
Collaborating Partners:	<p>German Institute for Tropical and Subtropical agriculture (DITSL)</p> <p>South Westphalia University of Applied Sciences, Faculty of Agriculture (SWUAS)</p> <p>Prolinnova – PROmoting Local INNOVation in ecologically oriented agriculture and natural resource management</p> <p>University of Parakou (UP), Benin</p> <p>University of Abomey-Calavi (UAC), Benin</p> <p>Center for Research and Development in Drylands (CRDD), Kenya</p> <p>Tropical Institute of Community Health and Development (TICH), Kenya</p> <p>Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya</p>
Duration	09/2020 – 06/2024
Budget:	1.172.935 Euro





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Aim of the project:

NaviNut aims to empower women in their various roles in nutrition, food production, and health, and to help them navigate changing food environments.

NaviNut's main objectives are to

- a) understand the complexity and dynamics of women's nutritional decision-making in child-feeding practices, including their purchase and consumption criteria;
- b) contribute to designing healthy food environments by increasing accessibility, convenience and desirability of locally available, highly nutritious traditional food products (TFPs) with emphasis on consumer communication in order to nudge healthier purchase and consumption decisions;
- c) Improve nutrition-related governmental and nongovernmental population health services by developing appropriate nutrition dialogue models.

The project is conducted in northern Benin in the districts Nikki and Banikoara and in northern Kenya in Laisamis and Saku sub-county.

Results

The project follows a transdisciplinary approach characterized by intensive collaboration with social actors, especially mothers but also micro-processors and local health workers.

It focusses on societal actors' knowledge and practices. For instance to understand mothers' knowledge on child nutrition, interactive sessions were conducted where mothers shared their routine and problem-solving actions in Kenya. These sessions revealed that mothers actively engage in routine actions encompassing proper child feeding, hygiene practices, and facilitating child developmental milestones to ensure optimal health and nutrition for their children. However, they encounter challenges such as difficulties in feeding, child illnesses, maternal health issues, and delayed developmental milestones. These challenges are further compounded by their contextual factors; poverty, time constraints and a lack of social support. To overcome these challenges, mothers employed a range of problem-solving actions, including enriching their children's diet, diversifying their income sources, borrowing food, money, and search for social support from family members and the community.

To learn about successful practices from Positive Deviance mothers that positively impact their children's nutritional status a 6-stage Positive Deviance Inquiry was conducted in Benin. These practices include longer periods of exclusive breastfeeding, more frequent feeding, and the use of nutritious foods made from local ingredients such as Idouwarê, Dambu, Dibou Kpé Sari, Kobsa, and Sauce de lait. Additionally, these mothers demonstrate better care and hygiene practices. These positive deviant practices will be shared through nutritional training sessions, and some have been documented in a project video which can be found under [Alimentation et nutrition des enfants \(Documentaire\) TREFLE \(youtube.com\)](#).

In order to develop contextual training material, a curriculum was developed in Benin to compile the behaviour change messages. It includes 22 topics in 7 categories, based on an analysis of the experiences made during the NaviNut project and the difficulties encountered by mothers in implementing the nutritional recommendations. These categories include: (1) breastfeeding, (2)



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complementary feeding, (3) hygiene, (4) family health, (5) care (and attention), (6) feeding myths and (7) assessment of the child's nutritional status.

In both in Kenya and Benin, the action funds contribute to an increase in the innovative capacity of the local partner communities. The funds enable several women groups to develop and implement entrepreneurial projects aimed at generating income and improving child nutrition.

Some women groups have used the funds for exchange visits to learn from existing child food processing enterprises, experimenting with enhanced child feed, or professionalizing child food production by investing in equipment. The foods produced can either be consumed by the household or sold, thus contributing to both food security and income diversification for families. It was noted that the opportunity offered by the NaviNut project's action funds for women to learn from their peers generated great enthusiasm among both the visiting and the hosting women and led to a spontaneous sharing of knowledge among still more women. This shows the positive effects of the action funds in stimulating learning between women even beyond the activity that was initially funded.

Several of the funded initiatives focus on the production and processing of child food. Additionally, two women groups, already involved in child food processing in Benin developed a business plan for their enterprise, while representatives from women groups in Kenya received training on marketing tools. All these activities create a fertile environment where entrepreneurship and innovation are encouraged, empowering mothers to play an active role in the fight against malnutrition.

These locally produced, healthy and affordable foods for children based on traditional recipes have the potential to improve the high rates of child malnutrition in Africa's drylands. Professional, informative packaging is needed for women's groups producing such foods to access the formal market. To identify suitable packaging designs, a conjoint experiment was combined with eye tracking. The results suggest that packaging designs for children's foods that include food safety symbols and detailed nutritional information could help Kenyan consumers build trust in the product being offered. Consumers gain information from images showing the product's ingredients and a logo composed of the colours of the Kenyan flag. The image of a cute cartoon animal helps consumers identify the product as a children's food.

Based on the traditional recipes, recipes for 4 traditional foods with higher nutritional values, particularly in terms of protein content and the availability of iron, zinc and vitamin C, were initially developed in the laboratory. The recipes took into account both the locally available ingredients identified by the mothers and processors and their prices in order to avoid a sharp increase in costs. Furthermore, the common cooking processes were analysed to determine when nutrient losses occur during traditional food preparation. In addition, low-cost local ingredients were identified that could be used to improve nutrient content (e.g. soya, sorghum malt, moringa leaves, baobab). The new improved food recipes were tested with local processors and samples of the improved foods were tasted. Three of the four improved foods did not differ significantly from the traditional versions in terms of preference, whereas one improved food is still in need of further development so that it can keep up with the traditional version in terms of flavour.

In order to disseminate the outcomes of NaviNut a series of radio shows was produced by over- all 50 women belonging to the different ethnic groups in the partner communities in Benin. A



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total of 15 shows were broadcasted by local radio stations during prime time and streamed live on the internet. The anticipated number of listeners was greatly exceeded, with the first show alone attracting nearly 600,000 listeners. The women who produced the radio shows expressed pride in their work, and this activity enhanced their sense of belonging to the multi-stakeholder initiative aimed at raising awareness and combating child malnutrition. Feedback from listeners indicated that they found the shows informative, particularly as they learned about traditional foods, healthy child nutrition, entrepreneurship, and the co-development of improved Traditional Food Products (TFPs).

Key messages and policy advice:

The Activity and Knowledge Analysis conducted with mixed groups of experienced and inexperienced mothers in Kenya revealed that young mothers are eager to learn from their more experienced counterparts about maternal, infant, and young child nutrition. They prefer interactive and participatory methods, such as consultative workshops and practical teaching aids like relatable photos.

At the community level, some mothers known as "positive deviant mothers," use local solutions such as good feeding practices and nutrient-rich foods to combat child malnutrition. This knowledge should be considered and distributed by other stakeholders such as NGOs or governmental organisations when designing educational programmes to reduce child malnutrition in the project region.

For improved child nutrition, it is crucial for external support, including the government and NGOs, to recognize and build upon existing capabilities rather than imposing new solutions that may not align with the context. By acknowledging and reinforcing the resourcefulness of mothers, we can effectively tailor interventions to provide meaningful support and empower them to overcome challenges in nurturing their children's health and well-being.

Innovations in food processing such as fermentation of children's porridge mix can significantly increase its nutritional value. It eliminates some anti-nutritional factors, such as phytate, making the micronutrients more bioavailable. Such knowledge can be taken-up in a start-up to produce fermented porridge flour for commercial sale.

Entrepreneurial capacity building, such as on how to write a business plan and conduct cost-benefit analyses, is essential to ensure the long-term sustainability of the small business activities that enable the women to make a reliable contribution to income and food security of their families.



Preparation of positive deviant foods in Northern Benin (photo by I. Cherif)



“Dambu”; example of positive deviant food (photo by I. Cherif)



Co-development of improved TFPs in Northern Benin (photo by A. Dogo)



Recording session for radio show in Northern Benin (Foto: I. Lafia)



Bulk fermentation of porridge flour in Kenya (photo by C. Musita)



Drying of porridge flour in Kenya (photo by C. Musita)



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Workshop on participatory video production in Kenya. Mothers learn about storyboards (photo by Z. Abdulkadir)



Workshop on participatory video production in Kenya. Mothers learn about storyboards (photo by Z. Abdulkadir)



Star Women Group presents their products at the Marsabit Trade Fair, Kenya (Photo by J. Omar)



Consultative workshop in Marsabit, Kenya. Women learn from experienced mothers (Photo by Z. Abdulkadir)



Example of packaging design for locally produced, healthy infant formula



Examples of images of infant food packaging used in conjoint analysis