

## Feed the Future Innovation Lab for Collaborative Research on Sustainable Intensification Annual Nutrition Integration Highlights

### **Nutrition Integration Highlights FY18:**

During the FY 2018 reporting period, SILL also requested the Consortia and subwardees to provide additional information on how their projects were addressing nutrition as a cross-cutting theme into their research activities. Below are the highlights from few selected projects:

From the GFC, numerous projects have adapted RHoMIS framework to track nutrition related progress among others in nearly 17,000 households across 22 countries.

As a part of the SILL-Polder project in Bangladesh, 300 mothers of school-aged children, along with teachers and other household members, were trained on nutritional crops. About 70% of those trained were women. They also observed the nutritional benefits of rice+fish farming systems in the communities.

In Burkina Faso, the ASMC project facilitated the training of 500 farmers in six locations on proper oxen handling and nutrition, and twenty maize-growing planters were constructed, funded by National Research Funds for Development (FONRID). Crop and Livestock Production Systems project is undertaking a study of eight villages to determine the influence of intensification on food security and household nutrition. Preliminary results of the household dietary diversity surveys showed that pastoralist households in Seno province consumed more diverse diets than the households in Yatenga province who are farmers by tradition. The consumption of animal-sourced food, particularly milk and milk products, by the pastoralists in Seno province, is a major reason for the differences in household dietary diversity. Additionally, to help improve household nutrition, a moringa garden has been established in the towns of Bani and Tougou, which is managed by women from those communities.

In Cambodia, the Women in Agriculture Network (WAgN) project is working to understand and encourage increased adoption of 'Wild Gardens' is a critical step toward improving nutrition through balanced diets. Wild food plants are quite often valuable sources of nutrients, have an important documented presence in local produce markets, and can possess important medicinal properties. Thus, they are a powerful tool in the battle against malnutrition and also contribute substantially to food security and income generation via increased market access, especially by women. Overcoming nutritional insecurity in the most vulnerable groups such as pregnant and lactating mothers and young children is a challenge in Cambodia, where people's diets rely heavily on rice which is high in calories but deficient in essential macro and micronutrients. WAgN is also partnering with ECHO Asia, the World Vegetable Center and CIRAD to identify and promote neglected and underutilized species (NUS) to provide people with well-adapted seeds for home gardens.

In Senegal, a research project studying the bioavailability of dual-purpose millet varieties, using information received from the KSU's Department of Nutrition, is underway. Researchers are trying to

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assess how well micronutrients such as iron, zinc, and magnesium— three nutrients critical for development in those under 5 years old— might be absorbed in an infants' body.

Ethiopia project is also measuring nutritional and health outcomes of their innovations. The observed benefits of yield improvement and income on nutritional and health outcomes in the target communities.

Finally in Tanzania, a Master's (MS) student was recruited by Nutrition Scholar Neema Kassim at Nelson Mandela Institute for African Science and Technology. The MS thesis research proposal was developed and approved and training was carried out during Spring 2018. A household survey was implemented with samples collected on a variety of foods from the households and a biochemical analyses is underway. Out of 10 villages, 290 households were interviewed with 240 complementary food samples collected.

### **Nutrition Integration Highlights FY19:**

During the FY 2019 reporting period, SILL also requested the Consortia and subwardees to provide additional information on how their projects were addressing nutrition as a cross-cutting theme into their research activities. Below are the highlights from few selected projects:

For the Bangladesh polder project, nineteen training events were organized involving 67 male and 281 female teachers and mothers of kindergarten, primary and high school children during the reporting period. The main reason for involving the school teachers is to teach them about the nutritional aspects of zinc bio-fortified rice, sunflower oil, and nutrition from pulses and maize that SILL-Polder project has introduced in polder 30 so that they can teach their students on those nutritious crops. In addition, 434 household members (37% women) of the farm families of ten LHs were also provided nutritional awareness training. In these trainings, the importance of micronutrients and protein on the overall nutrition on children, pregnant, and lactating mothers were discussed. We have also made them aware that the nutrients are available in higher amounts in the crops introduced by the SILL-Polder project.

For the ASMC-Burkina Faso subaward, 492 farmers was trained on animal nutrition with 115 women from six locations in the Hauts-Bassins Region.

The main reason of food insecurity in Burkina Faso is the low yield of crops and drudgery of labor. By using the planter, farmers – especially female – save time and will be able to use it for other activities to benefit family nutrition. The theory of improvement of ASMC is: how the extra-time opened up by the farmer due to mechanization can be used to produce vegetables for family consumption. The project developed a small drip irrigation system affordable by small holder farmers and especially women to produce vegetables.

Nutrition data collected from the eight study sites in Burkina Faso will allow the project to evaluate the distribution of access to food not only among surveyed households but among the separate eating groups within households (often shaped by gender).

In Ethiopia, the SIPSIN project found that the use of irrigation during the dry season to expand cropping produced additional food and generated income. The increased income as a result of irrigated crops sales, especially fodder and tomatoes, allows the household to purchase additional food items such as

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animal products (milk, eggs, beef, and chicken) from the markets to complement their nutrition. Production and sale of fodder increased the availability of animal feeds at the market.

In Senegal, the dual-purpose millet project initiated the study of infant flours prepared from the target varieties shows that the variety SL169 followed by the variety SL243 would be more recommended for local cereal processors to produce flours in order to fight against protein-energy malnutrition in children, particularly. The basis of this recommendation could be reinforced by the results of organoleptic tests conducted with an internal ITA panel.

### **Nutrition Integration Highlights FY20:**

During the FY 2020 reporting period, SILL also requested the Consortia and subwardees to provide additional information on how their projects were addressing nutrition as a cross-cutting theme into their research activities. While many projects reported implementation issues due to COVID-19, below are the highlights from few selected projects:

A key accomplishment of WAgN was the characterization of the potential wild food plant nutritional impact on small farms. During this reporting period, activities included development of a nursery network focused on wild food plant propagation and distribution. One Battambang nursery is producing over 500 Acacia pennate, which will become a key component of wild gardens in the S3 Green Labs.

Policy Research Consortium partner, Dr. Will Masters, and colleagues, will continue their work on developing an indicator to measure the market cost of nutritious diets. Such an indicator is needed as households rely on markets to fill food needs, markets and changing and existing markets are changing rapidly, including in response to the policy. As a result, a nutrient-adequate diet is out of reach for many people and targeted action is needed to lower and stabilize prices of nutrient-rich foods and nutritious diets.

The ASMIH-Ethiopia hub conducted research on "Adoption & Contribution Of Post-Harvest Storage Technology For Women Farmers: The Case Of Dengeshita And Kudmi Kebele In Dangila Woreda And Merawi Town Amhara National Regional State, Ethiopia" with the help of an MA student and the final report was submitted to ASMC.

### **Nutrition Integration Highlights FY21:**

During the FY 2021 reporting period, SILL also requested the Consortia and subawards provide additional information on how their projects were addressing nutrition as a cross-cutting theme into their research activities. While many projects reported implementation issues due to COVID-19, below are the highlights from few selected projects:

The S3-Cambodia project collected and propagated over 30 species of wild food plants, many of which are nutritious. They are also promoting the production of tomatoes during the rainy season as an additional source of income and nutrition. The curriculum developed for the "Green Labs" incorporate nutritional messaging about balanced and diverse diets.

The Policy Research Consortium supported HWIES project worked to draw connections between water and nutrition for the target communities, such as at the plenary session at the American Society for Nutrition and the resultant paper. American Society for Nutrition, 2020. "Household Water

Insecurity and its Importance for Ensuring Food, Nutrition and Well-being.”

<https://ondemand.nutrition.org/s/2020an/annual/ASN20-27>.

The Bangladesh polder project organized a nutritional awareness training involving the mothers of the school children and female schoolteachers. The farming community was also included in the nutritional awareness program while empowering them on the production of zinc-enriched rice, maize, and sunflower. The project developed a colorful leaflet on nutritional awareness and provided training to 85 mothers of school children and female schoolteachers, focusing on the consumption of zinc enriched HYV rice, pulses, and enriching household nutrition directly by consuming maize flour, or indirectly via feeding the poultry and livestock (egg, milk, and meat). The project team also provided training to 1744 men and women farmers on improved rice-based production system focusing on improving household nutrition cultivating and consuming zinc-enriched HYV rice, maize, and sunflower.

### **Nutrition Integration Highlights FY22:**

During the FY 2022 reporting period, the SILL also requested the consortia and subawards to provide additional information on how their projects were addressing nutrition as a cross-cutting theme into their research activities. Below are the highlights from few selected projects:

The S3-Cambodia project promotes the diversification of food systems by integrating Wild Food Plants (WFP) perennial species into home gardens, producing rainy season grafted tomatoes, and growing post-rice secondary crops. In partnership with NUBB, graduate student, Huot, organized a training for agricultural groups on producing confectionary products that extend the shelf-life of WFP species.

The Bangladesh polder project continued its regular Nutritional Awareness Program involving the mothers of school children and female schoolteachers, in which 318 women participated during this reporting period. The farming community was also included in the Nutritional Awareness Program while empowering them on the production of zinc-enriched rice, maize, and sunflower. A total of 399 men and women participated in the training

### **Nutrition Integration Highlights FY23:**

During the FY 2023 reporting period, the SILL also requested the consortia and subawards to provide additional information on how their projects had addressed nutrition as a cross-cutting theme in their research activities. Below are the highlights reported from the projects:

The S3-Cambodia project worked with a variety of schools and community-based organizations to help scale SI technologies. As part of this, they worked with a local organization called Partners for Rural Development. This organization manages a program for girls that teaches a variety of topics, including agriculture. The project was able to present to the girls in the program agribusiness training, conservation agriculture approaches to vegetable gardens, as well as the value of Wild Food Plants in a garden.

The Bangladesh polder project continued its regular Nutritional Awareness Program involving the mothers of school children and female schoolteachers, in which 378 women participated during this reporting period. The farming community was also included in the Nutritional Awareness Program while

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empowering them on the production of zinc-enriched rice, maize, and sunflower. A total of 1,105 men and women participated in the training events.