### Understanding local contexts and knowledge around feeding practices and food availability

Sorghum and pearl millet are major staple foods for smallholder farm families in West Africa where malnutrition is common. Local cereal fortification with indigenous legumes (cowpea, groundnut, Bambara groundnut), which are generally richer in protein, minerals and vitamins (e.g., iron, zinc, vitamins A and D), can be a means to remediate micronutrient deficiencies in commonly consumed diets. More efficiency in processing flours facilitates the production of these formulations for both home consumption and sale.

#### Research and promotion of post-harvest technologies and value-added products for better nutrition

51 fortified formulations (with various percentages of millet/legume incorporation) were developed and tested and are being optimized at the rural project sites.

- Millet incorporated with cowpea and peanut received high acceptability scores.
- Tigernut was the most preferred legume in dakoua cake. Texture and taste are the most important quality characteristics for dakoua.
- There are significance differences (P<0.05) among extruded millet foods samples. Consumers preferred extruded foods from decorticated grains compared to those from whole grains. Acceptability scores for extruded thick porridges (tuwo) in Tera were higher and with less variability than those of couscous (dambou) in Falwel, and beverage (Toukoudi) in Maradi.

#### Training of rural families

2011: 15 associations (15-30 members each) of woman processors received training in food safety, hygiene, micronutrient powder fortification, packaging, and marketing of processed sorghum and millet foods.

2016-2017 in Niger: 29 more villages were trained by lead women already experienced in food innovation dynamic.

#### More diversified and nutritious food production throughout the year

2013-2014: 4 processing sub-centers were established/equipped in Burkina Faso (1) and Niger (3). The centers in Niger received milling machines, electrical and wood roasters, and dryers and operational resources. Equipment installed in Burkina Faso include steamers and roasters.

2017: Six (4 in Niger and 2 in Burkina Faso) food types (flour, agglomerated, pasta-like, porridge, baked foods and enriched foods for better nutrition) were developed and market-tested by rural women groups.

2016: Local market for grain-based foods was developed.

2017: ETC, a grain-based processing enterprise (lead by a woman) was awarded financial support from UKAID for a 3-year project to scale-up. The project will use about 300 tons of cereal and legume grain for Year 1, benefiting ~300 farmers at project sites and, at end of Year 3, 1,025 farmers (2/3 men, 1/3 women) with a total benefit of USD ~375,000.

#### Value heterogeneity: build on & enhance diversity

- Connect to other institutions and initiatives

#### Influence policies and practices around ag-nutrition interventions

2016: 4 government rural community healths centers in Niger are affiliated to food innovation centers to develop and promote nutritional/fortified foods products.

#### Create markets for nutritious foods

2016-2017: More than 100 rural households/day/site are benefiting from grain milling, threshing, and processing equipment at the sub-rural processors’ incubation centers. Many of the users are part of women processor groups.

#### Gender

- Support next generation of AEI researchers