



## Food & Nutrition Security



## Market Systems Development

Nutritionally Improved & Climate Adapted Seeds,  
Low-cost Storage Technology &  
Access to Local Markets for  
Small Scale Farmers in  
Zinder, Niger.

May 2024



# S4Nut

## A Systems Approach to Resilient Food & Nutrition Security

S4Nut is GOAL's Systems Approach to Resilient Food & Nutrition Security. It is a framework to increase access to, availability and consumption of nutritious food using three evidence-based approaches.

1. A **Market Systems Development** (MSD) approach for increased food production and availability, and the protection and regeneration of natural resources critical to the identified food system.
2. A number of **Social Behaviour Change** (SBC) methodologies to improve consumption of nutritious food, identify and prevent malnutrition and to influence social and gender norms, and
3. **Financial inclusion** to increase people's access to food, their investment in their livelihoods and resilience to shocks. Initiatives are risk-informed and contribute to women's socio-economic empowerment.



S4Nut is a **risk informed systems approach** to increase food & nutrition security, **protect natural resources** critical to food systems and to contribute to **women's socio-economic empowerment**.

With support from Mohammed Rashid Al Maktoum Global Initiatives through UNITLIFE & Irish Aid, GOAL is implementing a food & nutrition security programme in Zinder Region in Niger, using GOAL's **S4Nut** framework.

This working document focuses on the MSD component of S4Nut, more specifically nutritionally improved and climate adapted seeds, low-cost storage technology and access to local markets for small Scale Farmers in Zinder, Niger. Later in 2024, a learning brief will be drafted encompassing all elements of S4Nut.

## Increasing Food & Nutrition Security for Small-scale Farmers

**Small-scale farmers** provide about 80% of all food consumed in low-middle-income countries.



In Niger, 47% of children <5 years are chronically malnourished and almost half of all women of reproductive age are anaemic. Nutritionally improved crops increase the nutritional value of what people already eat.

Climate adapted seed and short maturing crops go some way to mitigating weather related production risks.



Cereal crop yields are often <25% of potential yields. Improved seed increases production without increasing land under cultivation.

With 30-40% of food lost before it reaches the consumer, low-cost storage technology reduces food loss.



Increasing food production efficiencies and reducing food loss will have positive impacts on GHG emissions and can protect natural resources.

If women farmers had the same access to productive resources as men, they could increase yields by 20-30%.



### In Zinder, between 2021 and 2023:

- 68.9 Tons** Of nutritionally improved and climate adapted Millet, Groundnut & Cowpea seeds bought by small scale farmers
- 1,075 Kgs** Of vegetable seeds (cabbage, carrot, okra and moringa), bought by small scale farmers
- 137-257%** Increase in production of Millet, Groundnuts & Cowpeas when compared to local varieties (2022 data).
- 76%** Of small-scale food producers keep more than 75% of their production for household food security.
- 108,421** Low-cost (PICS) storage bags bought by small scale farmers, to reduce food waste.
- 352 tons** Staple crops aggregated and bought (2022 & 2023), from small scale producers by a buyer, providing a road to market for small scale producers.

## Increasing Access to Nutritionally Improved & Climate Adapted Seeds for Small-scale Farmers

Millet

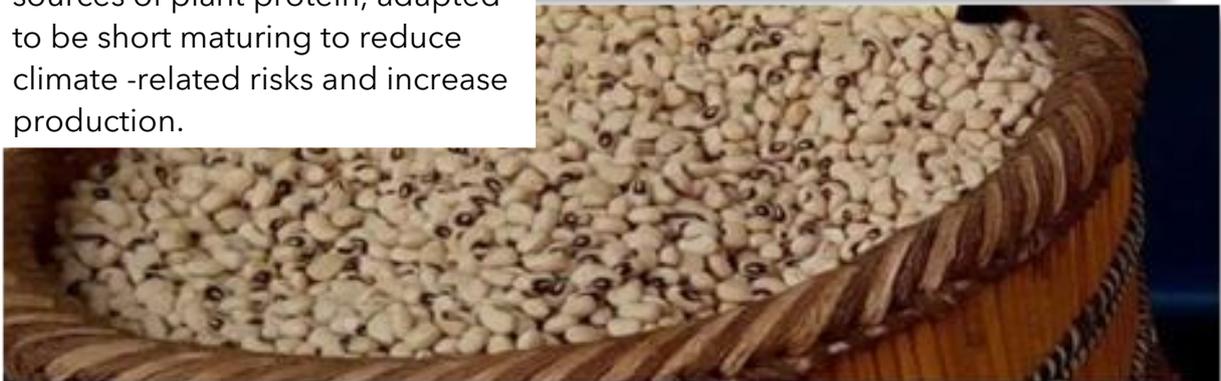


**Millet** - Naturally biofortified with Iron and Zinc to increase the nutritional value of what people already eat. Short maturing to reduce climate related risks. Higher yields for better return for farmers on their production investment

Groundnut



Groundnuts & cow peas are good sources of plant protein, adapted to be short maturing to reduce climate -related risks and increase production.



Cowpeas

**68.9 Tons** Of nutritionally improved and climate adapted Millet, Groundnut & Cowpea seeds bought by small scale farmers using a smart subsidy to encourage farmers to try new improved seed.

**1,075 Kgs** Of vegetable seeds (cabbage, carrot, okra and moringa), bought by small scale farmers with a smart subsidy for women, men paid full retail price. Women purchased 84% of the seed.

## Reducing Small-scale Farmers Food Loss through Low-cost Storage Technology

**The Purdue Improved Crop Storage (PICS) bags** technology is helping to improve food security and increase income of millions of smallholder farmers in Africa and beyond. The PICS bags are a simple and cost-effective way of storing grain and seed without using chemicals to control insect pests.

The PICS bag has three layers, two liners fitted inside a woven sack. When each layer is tied and closed separately, it creates a hermetic environment for storing harvested grain. This oxygen-deprived environment proves fatal for postharvest insects.

PICS enables farmers to store a variety of legume and cereal crops for more than one year after harvest.

<https://picsnetwork.org/resources/>



The President of the Guidimouni Village Women Association, Zinder, Niger



**108,421** Low-cost (PICS) crop storage bags bought by small scale farmers, to reduce food loss. An initial investment of \$7,800 was used to catalyse this initiative. With no new financing since 2022 sales continue to grow year on year.

## Increasing Production and Access to Local Markets for Small-scale Farmers

GOAL works to support small scale farmers to be more food secure.

In Zinder, farmers increased production of millet, groundnuts and cowpeas when compared to local varieties of between: **137- 257%**

**76%** of small-scale food producers keep more than 75% of their production for household food security.

GOAL works to increase access to local markets for small scale farmers so that they can generate income for other essential costs such as healthcare.

**352 tons** of **staple crops bought** (2022 & 2023 harvest), from small scale farmers by a private sector partner, providing a road to market for small-scale farmers. Two of the six aggregators are women, demonstrating that even in this traditional society, **women can hold key positions as market actors.**

### Our Private Sector Partners

**FESA** - A multiplier and wholesaler of improved seed to a network of retailers

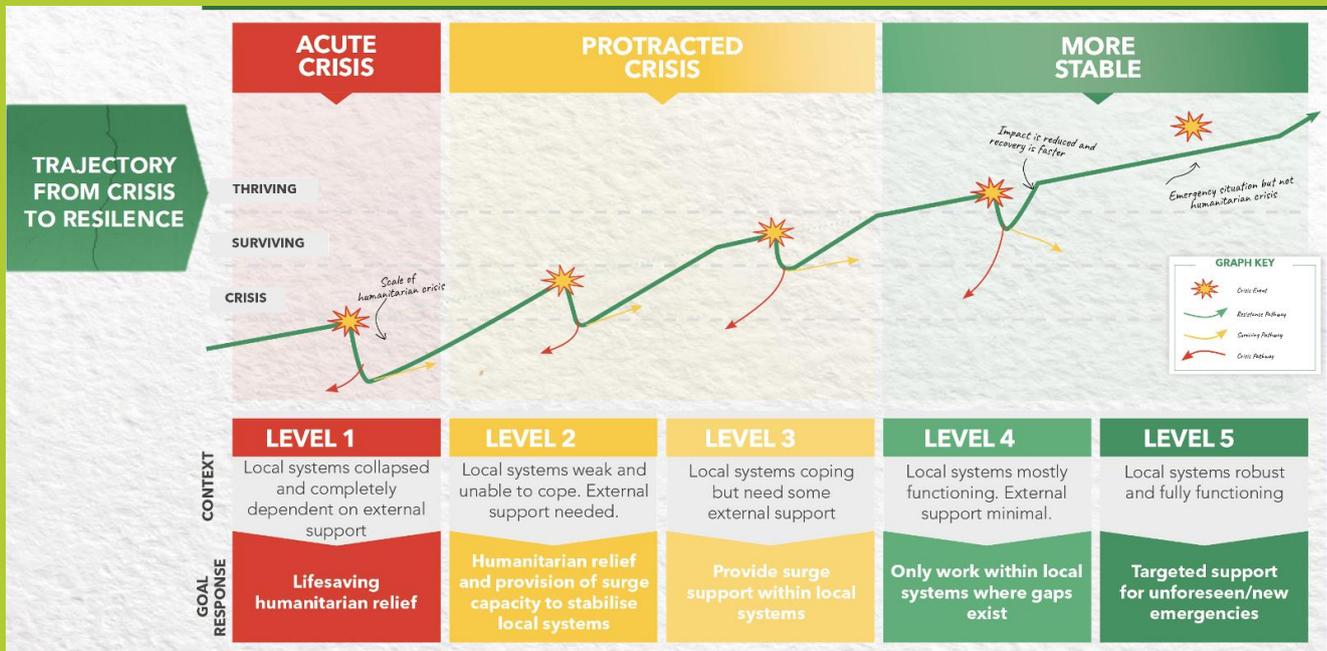
**AINOMA** - A multiplier and wholesaler of improved seed to a network of retailers.

**Abdul Azizou** - An entrepreneur who wholesales and retails improved seed and PICS storage bags through a network of retailers, who also aggregate commodities for off taking to local markets.

Year	2021	2022	2023	2024	2025	Total
<b>Through 3 private sector partners and their network of input (retailers) /output (aggregators) agents:</b>						
Number of private sector partners	1	2	3	3		<b>3</b>
Nutritionally improved & climate adapted millet, groundnut & cowpea seed sold to farmers and % off smart subsidy	22.5 tons 50%	15 tons 40%	31.3 tons 30%	tons 20%	tons 10%	<b>68.9 Tons</b>
Donor resources used to finance the smart subsidy for improved seed	\$23,004 (UNITLIFE)	\$19,189 (UNITLIFE)	\$15,219 (UNITLIFE)	€	€	<b>\$57,412</b>
Cost comparison if directly delivered (only procurement cost considered for illustrative purposes only)	~\$46,008	~\$47,972	~\$50,730			<b>~\$144,710</b>
Vegetable seed sold to farmers and % off smart subsidy (to)	57Kg 50% (F&M)	389Kgs 40% (only women)	659Kgs 30% (only women)	Kgs 20%	Kgs 10%	<b>1,105Kgs</b>
% vegetable seeds bought by women	30%	89%	78%			
Donor resources used to finance the smart subsidy for veg. seed	\$7,037 (Irish Aid)	\$6,910 (Irish Aid)	\$11,654 (Irish Aid)	€	€	<b>€25,601</b>
Increase in production, when compared to local varieties: Millet	183%	216%	No data			<b>216%</b>
Groundnut	187%	137%	No data			<b>137%</b>
Cowpeas	242%	257%	No data			<b>257%</b>
Percentage of production kept 75% or more of production for household food consumption	87%	73%	76%			<b>73% - 87%</b>
Low-cost storage bags sold to farmers and % off smart subsidy	27,000	50,150	31,271			<b>108,421 Bags</b>
Donor resources used to finance the smart subsidy	\$7,800	\$0	\$0			<b>\$7,800</b>
Staple crops off-taking	NA	306 Tons	46 Tons*			<b>352 Tons</b>
Donor resources used to catalyze off-taking	NA	\$13,537	\$0			<b>\$13,537</b>

\* Production less than in 2022 a direct result of rainfall timing & variability, so less available for the market.

GOAL's new strategic intention – from **Crisis to Resilience**, providing life-saving emergency assistance and building resilience by stabilizing and strengthening systems.



**Small scale food producers** provide about 80% of all food consumed in low- middle-income countries. In Sub-Saharan Africa (SSA), women represent 50% of the agricultural workforce. If women farmers had the same access to productive resources as men, they could increase yields by 20–30%. In SSA, cereal crop yields are less than 25% of potential yields and 30–40% of all food produced is lost before it reaches consumers. Increasing food production efficiencies and reducing food loss would have positive impacts on the environment, lower GHG emissions and protect natural resources, increase food & nutrition security and income for small-scale food producers.

In Niger in the 2023 lean season, 3.3 million people (13% of the pop.) were acutely & severely food insecure, 47% of children under 5 years are chronically malnourished and 12% are acutely malnourished. Almost half the population of women of reproductive age in Niger are anaemic (49.5%), with 55% of pregnant women suffering from anaemia. The main drivers of food insecurity in Niger include the combined effects of armed conflicts, climate shocks, low agricultural productivity, and high food prices.

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