Netherlands

ENROOT

EXECUTIVE SUMMARY

VALUE CHAIN ANALYSIS

Private Sector Promotion of the Agriculture Sector in Upper Egypt

ACKNOWLEDGEMENT STATEMENT

This publication is part of the "Private Sector Promotion for the Agriculture Sector in Upper Egypt" project. The project is implemented by Enroot Development in collaboration with the universities of Aswan, Assiut, South Valley, Luxor, and Sohag, with funding from the Embassy of the Netherlands in Egypt.

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ABOUT ENROOT:

Enroot is a social business set up to develop disruptive models that empower communities with untapped potential, particularly youth and women, across the MENA region and Africa. It was established in 2018 with a mission to address the root causes of development challenges and to capitalize on youth innovation. We design and execute socio-economic development projects as well as conduct research aimed at promoting inclusive, participatory, and sustainable economic development.

ABOUT CLIME UP!

The Private Sector Promotion for the Agriculture Sector in Upper Egypt, implemented by Enroot and funded by the Embassy of the Netherlands, aims to enhance climate resilience and water smart agriculture in Upper Egypt. The project follows a private sector promotion approach in upscaling the quality of agricultural products and enhancing accessibility to international markets. Through the promotion of the private sector and the integration of civil society organizations (CSOs), the project's theory of change envisions the enhancement of the technical skills and market accessibility of both the businesses and the farmers. The adoption of climate-smart practices by farmers, sustained by the CSOs and incentivized by their integration of the private sector companies enhances the sector's resilience and adaptability to climate hazards and risks. As such the Clime Up! project objectives are articulated as follows:

• Enhancing market access and financial resources for agribusiness enterprises.

• Improving the socioeconomic living standards of smallholder farmers in Upper Egypt.

• Strengthening market Linkages and accessibility to the international markets, with a special emphasis on the European Union.

• Fostering climate resilience of the agriculture sector in Upper Egypt. The project focus areas are as follows: Locations Assiut Sohag Qena Luxor Aswan Crops Onions Pomegranates Hibiscus Fennel Henna Pumpkin Loofah.

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Executive Summary

The Private Sector Promotion for the Agriculture Sector in Upper Egypt, implemented by Enroot and funded by the Embassy of the Netherlands, aims to enhance climate resilience and water smart agriculture in Upper Egypt. The project follows a private sector promotion approach in upscaling the quality of agricultural products and enhancing accessibility to international markets. In line with the project's objectives and interventions, a Climate-Sensitive Value Chain Analysis study was conducted to develop an understanding of the agricultural value chains in Upper Egypt, identify their challenges and areas of intervention. Across 5 governorates in Upper Egypt, the value chain analysis focuses on seven crops namely, hibiscus, henna, onions, pomegranates, fennel, pumpkins and loofah. The selection of the value chains was directed towards crops with untapped opportunities. The selection undertook a long listing and shortlisting process, utilizing a scoring matrix.

A mixed method was adopted, following an MSD approach to develop a value chain analysis study. The mixed method entailed combining both secondary and primary sources of data through leveraging in-person surveys, IDIs and FGDs with key actors across the agriculture sector in Upper Egypt. The value chain analysis study was conducted in line with a climate risk assessment study, with the aim of analyzing and identifying the prevailing climate hazards and their implications across the value chains.

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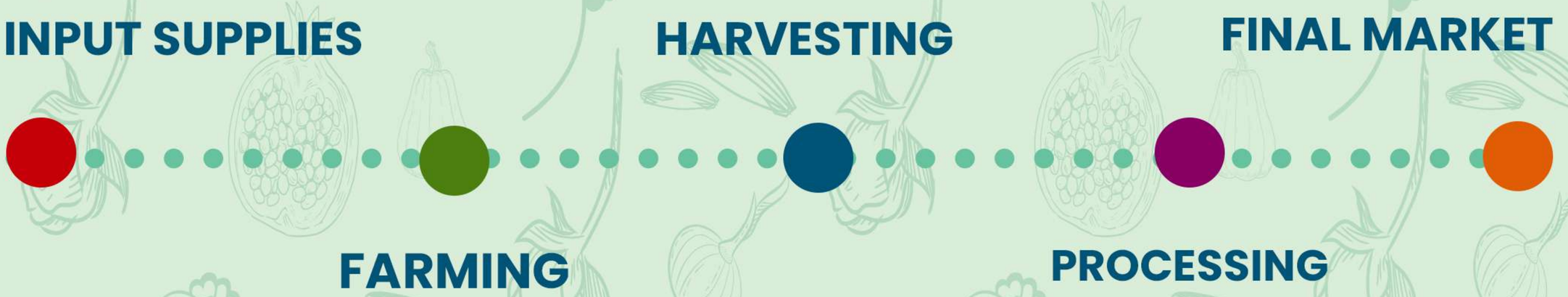
Agriculture Value Chain Overview

The agricultural value chain in Upper Egypt undergoes similar opportunities and challenges. The prevailing challenges of the agriculture sector trickle down across the various phases of the value chain and across the studied value chains. The following figure depicts the prevailing common challenges across the stages of the value chains, starting with the input supplies and pre-farming and up to the end market.



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INPUT SUPPLIES

- Most input supplies are counterfeit or low quality, but their prices are inflated.
- Most farmers don't know how to use the input supplies or how to mix them together.

FARMING

- Most farmers don't know how to deal with waste, use modern or smart agriculture practices.
- Most farmers don't know how to mitigate the climate change risks.

HARVESTING

- Harvesting methods are manual and traditional, which is a labor and time -consuming process.
- This can lead to waste due to mismanagement.

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PROCESSING

- Processing units are rare and ill-equipped.
- Most activities are related to sorting, packaging, and storage.

FINAL MARKET

- Export is mainly of raw produce.
- Local market receives more processed produce but at a lower quality.
- Price fluctuation is also common and affects all key actors.

Pre-farming and Farming Process

Farming and cultivation methods are largely consistent across the seven crops, with differences mainly in fertilization practices and pest control strategies. Some crops, like henna and pomegranates, are long-lasting, with trees that can thrive for over seven years. Others, such as loofah, require specialized techniques like trellis posts or raised beds. Farmers commonly face challenges in accessing necessary input supplies due to shortages, applying pesticides and fertilizers effectively, managing water schedules, and implementing climate adaptation and disease prevention strategies.

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Post harvesting and Final Market

Post-harvesting activities are minimal across most of the value chains studied. The activities undertaken primarily involve drying, packaging and storing. Onions, pumpkins, and fennel require proper drying and refrigeration, with onions additionally processed into ground spice. Drying is often through farms or in women's homes, with crops like fennel, hibiscus, and onions dried on racks before packaging. Hibiscus is also peeled manually or with a peeling tool.

Henna and pomegranates undergo more advanced processing in specialized facilities. Henna is machine-ground in a two-step process, while pomegranates are transformed into various products, including molasses, face masks, and hair dye products. Most crops are exported in its "fresh" form and must meet strict packaging standards.

Implications of Climate Vulnerabilities

Climate change threatens agriculture in Upper Egypt, with crop yields projected to decline by over 10% by 2050 due to heat stress, water scarcity, and soil salinity. The conducted climate risk assessment of the agriculture sector in Upper Egypt revealed the different implications across each governorate and each crop. Aswan is the most vulnerable to heat waves, high temperatures, and drought, all classified as high to very high risk. Biological hazards pose a very high risk in Assiut and Sohag and a high risk in Qena and Luxor, while Aswan faces a medium risk. Cold wave frost is a major concern in Assiut and Sohag, categorized as very high and high risk, respectively. Soil salinity, however, is considered a very low risk across all governorates. These different climate hazards have severely impacted the selected value chains.

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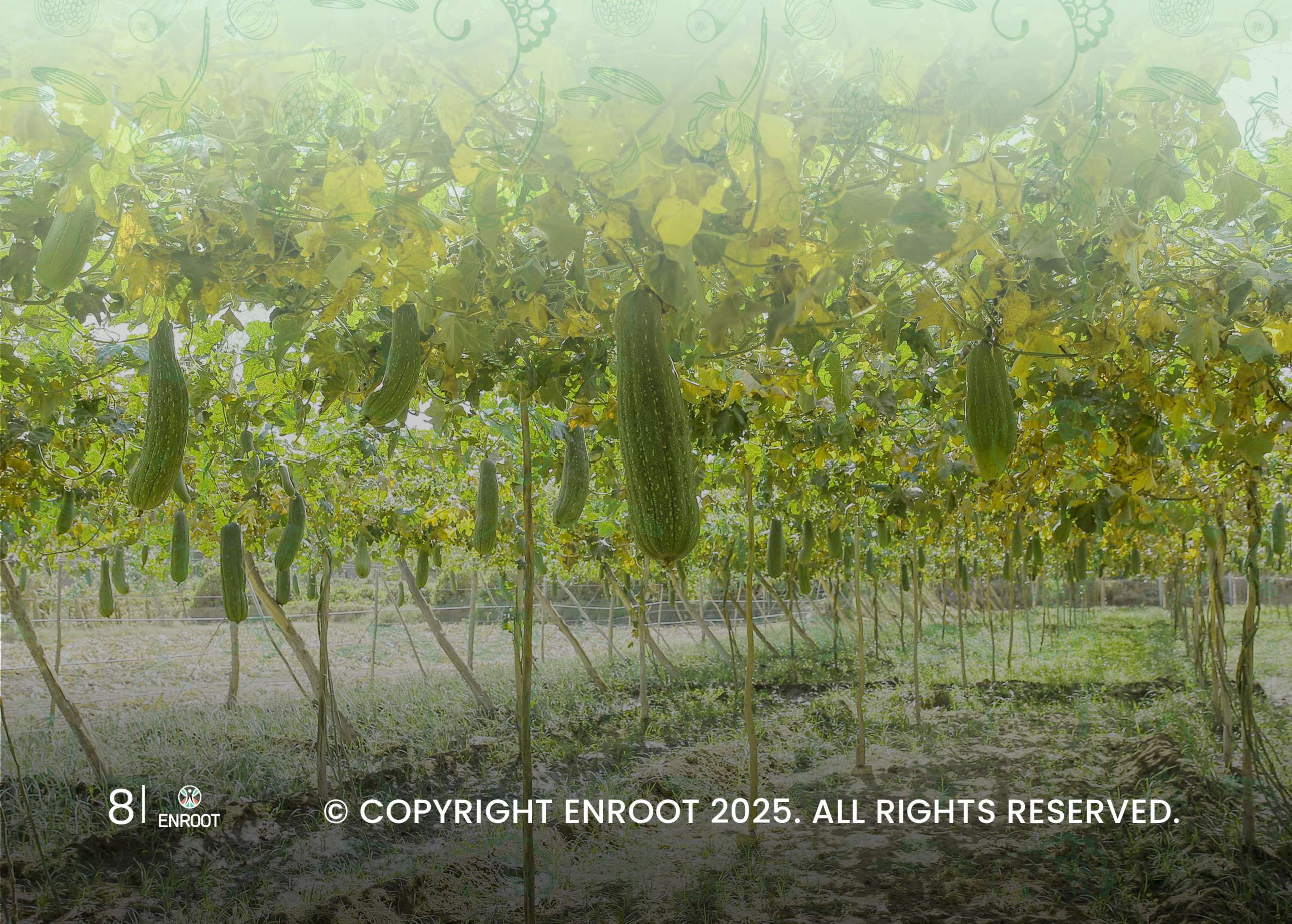
Climate change is increasingly undermining Upper Egypt's agricultural export sector, threatening both local livelihoods and national economic stability. Rising temperatures, water scarcity, and soil degradation are reducing crop yields and quality, particularly affecting high-value exports like pomegranates. This has led to increased shipment rejections in key markets such as Europe due to quality issues. In response, farmers are shifting toward climate-resilient crops like dates and moringa, but these face hurdles in global market integration, risking a temporary decline in export volumes. At the same time, escalating production costs, driven by the need for new infrastructure, pest control, and cooling technologies, are making Egyptian produce less competitive. These pressures jeopardize Egypt's longstanding reputation as a reliable exporter of premium fruits and vegetables, underscoring the urgent need for strategic adaptation to safeguard future export performance and rural economic stability.



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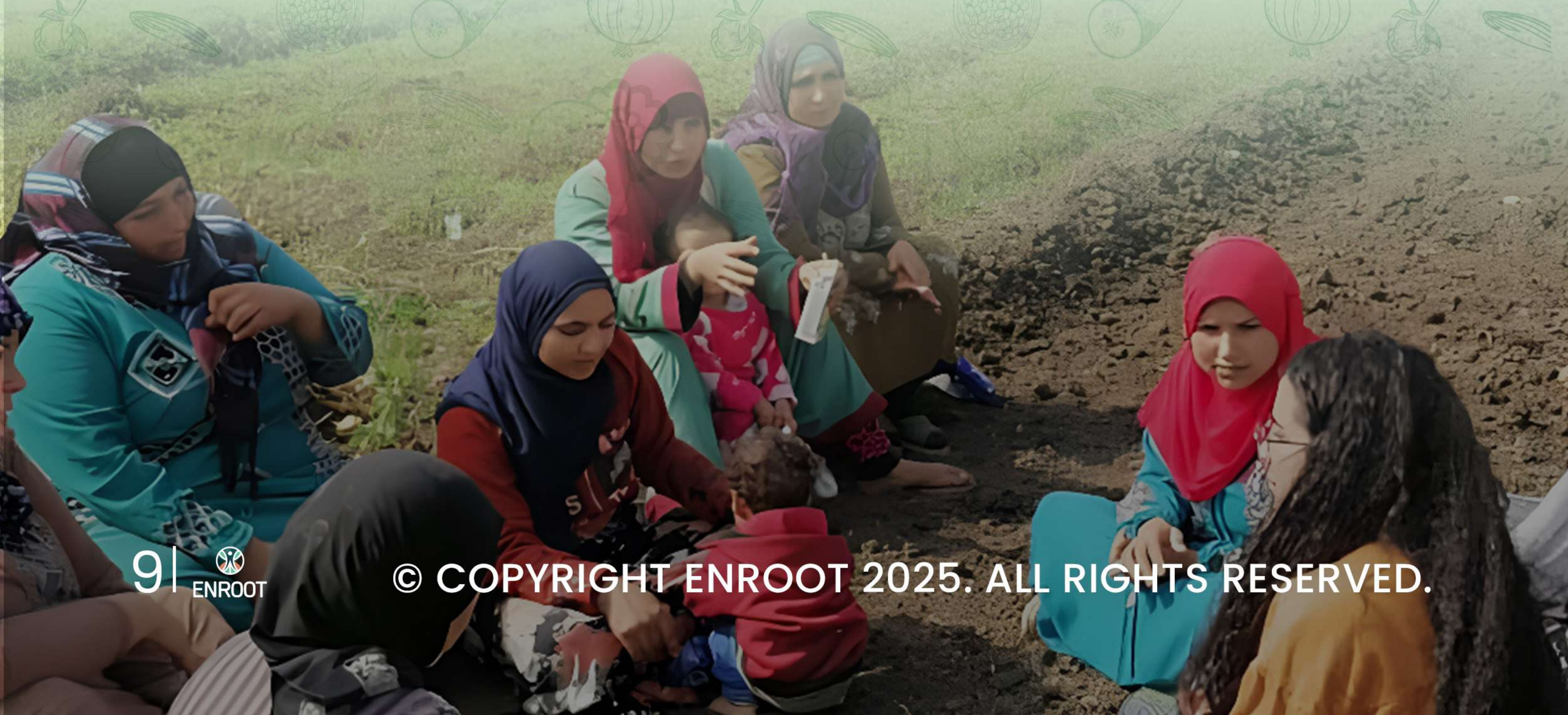
Role of Women

Women integration in the agricultural sector is a key factor across the selected value chains. Women are mainly engaged in the harvesting and post harvesting activities across the different crops, such as drying, sorting, and grinding. This stems from their prevailing delicate and careful skills in handling the produce. It should be noted that, as primary caregivers, women are either engaged in agricultural family business, rendering their work unpaid or their wages remain significantly lower than men's, earning 1.5 times less, according to the conducted discussions.

Across hibiscus, pomegranates, and loofah value chains, women play a growing role in harvesting and post-harvest processing. However, cultural norms in Luxor and Qena, where these crops are mostly cultivated, prevent women's participation in non-family farms/facilities.

In Sohag, Aswan, and Assiut, women play a more active role, though their engagement depends on the crop. For instance, women rarely work with henna cultivation. Despite these limitations, many express a strong interest for trainings in essential skills like composting, drying techniques, and climate adaptation. Civil society organizations (CSOs) report high enthusiasm among women for learning and adopting modern agricultural practices.



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Proposed Interventions

Feeding into the identified challenges and areas of intervention, the study highlights a set of research-backed interventions and solutions. The proposed interventions are categorized into the following:

Areas of Intervention	Strategies
Agriculture Extensive Support	• Provide pest and disease identification, soil analysis services, context specific pesticides and fertilizer advice. • Set up field schools for practical hands-on training. • Connect the value chain actors with one another. • informing actors on export requirements and quality assurance.
Value Chain Linkages	• Create linkages between farmers and processing facilities and exporting companies. • Connect farmers directly with the end market. • Connect farmers and traders with better transportation methods.
Infrastructure Development	• Upgrade equipment used in processing facilities • Use climate sensitive storage units • Connect actors with facilities outside of their respective governorates for better local market access
Women Integration	• Integrate women's work more thoroughly across • Work on a better division of labor for women.
Digital Solutions	• Introduce digital market access. • Create platforms to connect farmers with traders and/or processing facilities. • Connect farmers with agriculture services through digital platforms.

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2. Crop specific interventions

Crop	Vulnerabilities	Adaptation Strategies
	• Heat stress • Water shortage	• Use drought-resistant varieties • Improve irrigation methods
	• Soil degradation • extreme heat	• Adapt agroforestry practices • Use organic fertilization & compost
	• Temperature fluctuation • Pest infestation • Heat stress	• Use climate-controlled storage • improve pest control methods • Adopt soil management strategies including inter-cropping
	• Drought-sensitive • Heat and humidity stress	• Use drip irrigation • Apply moisture conservation methods
	• Heat stress • Water shortage • Soil degradation • Temperature fluctuation	• Preserve soil health • Integrate Intercropping & crop rotation practices
	• Temperature rise & fluctuations • water stress	• Plant fennel early • Improve storage units
	• Heat stress • water stress	• Use drought-tolerant varieties • Adapt agroforestry practices

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3. Value chain phase specific interventions

Key Areas of Intervention	Strategies
Pre-Farming and Farming Practices	• Use good quality input supplies, and seed selection. • Provide capacity building in pesticide use, waste management and recycling methods, pest handling, and making compost. • Provide capacity building in using modern faring techniques such as drip irrigation, integrating solar power and using sensors
Climate Change Mitigating Methods	• Provide capacity building in soil conservation techniques, intercropping and agroforestry practices. • Promote the use of drought and climate resilient seed varieties • Allow for community collaboration to implement climate mitigation methods and knowledge sharing.
Value-added Activities	• Provide capacity building in practices such as drying, grinding and peeling. • Provide capacity building in activities such as jams and spices making, baskets weaving…etc. • Inform actors on storing and packaging international and local standards. • Provide better packing materials to meet international and local standards.
End Market	• Equip farmers with a better understanding of the market, to ensure there is no oversupply. • Connect farmers and processing facilities to the end market.

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