



Smart Farms for Drought and Climate Resilience



MINISTRY OF AGRICULTURE
AND IRRIGATION FGS

 **Afgoye District**  **4th March 2026**

Prepared by

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1. Executive Summary

Somalia faces increasing climate-related challenges including prolonged droughts, erratic rainfall, land degradation, and declining agricultural productivity. These climate shocks threaten food security, rural livelihoods, and economic stability. In response, the Beero oo Barwaaqee Soomaaliya (BBS) initiative—led by the Federal Ministry of Agriculture and Irrigation under the leadership of H.E. Mohamed Abdi Hayir (Mareeye)—aims to transform Somalia’s agricultural sector through climate-smart and resilient farming systems.

The BBS initiative promotes a national development strategy that integrates climate-resilient agriculture, youth empowerment, and sustainable agribusiness development. The vision is to transition vulnerable rural communities from traditional nomadic livelihoods toward sedentary, technology-enhanced mixed farming systems capable of withstanding climate stress.

Nasri Cooperative Farm – A Success Story in Climate-Smart Agriculture

Over the past decade, Somalia has experienced increasing climate challenges, including recurrent droughts, erratic rainfall patterns, and land degradation. These environmental pressures have severely affected traditional pastoral and agricultural livelihoods. However, during the same period, a new trend has emerged, particularly in the agricultural areas surrounding Mogadishu and the Lower Shabelle region: the establishment of youth-owned smart farms.

Many young Somali entrepreneurs have begun investing in climate-smart agriculture and mixed farming systems, combining crop cultivation, livestock production, and innovative agribusiness activities. These smart farms use improved farming techniques, irrigation systems, and diversified production models that allow them to operate year-round, even under difficult climate conditions.

One of the most notable examples of this transformation is Nasri Cooperative Farm, located along the Mogadishu–Afgoye agricultural corridor. As part of the Beero oo Barwaaqee Soomaaliya (BBS) initiative, a technical field assessment was conducted to evaluate the farm’s resilience to drought and its potential to serve as a model smart farm for climate resilience.

Nasri Cooperative Farm is a youth-led cooperative operating a diversified mixed farming system that integrates crop production, livestock rearing, and water purification services. The farm cultivates a variety of vegetables, fruits, and fodder crops while maintaining approximately 700 goats and sheep, which provide both food and income for the cooperative members.

Despite severe drought conditions affecting the region, the farm has demonstrated remarkable tolerance and resilience. While drought has reduced productivity in some areas, a significant portion of the farm continues to produce crops and sustain livestock. This resilience is largely due to the farm's diversified production system, access to underground water sources, and the adoption of improved farming practices.

In addition to its agricultural activities, Nasri Cooperative Farm also plays an important community support role. Currently, the farm hosts livestock belonging to five internally displaced pastoralist families who were forced to migrate from drought-affected nomadic areas in Lower Shabelle. By providing space and resources for these animals, the cooperative contributes to protecting livelihoods and strengthening community resilience.

Another innovative feature of the farm is its mineral water purification and bottling system, which produces clean drinking water distributed to nearby communities and the local town. This activity not only generates an additional income stream for the cooperative but also improves access to safe drinking water for surrounding populations.

However, despite its strong performance and resilience, the assessment identified several constraints limiting the farm's full potential. These include:

- Water shortages and high irrigation costs due to reliance on fuel-powered pumps
- Limited access to drought-resistant seeds
- Increasing pest and disease pressures
- Outdated agricultural machinery and low mechanization
- Lack of storage facilities and cold-chain infrastructure

Addressing these constraints would significantly strengthen the farm's productivity and climate resilience.

With targeted support—particularly the installation of solar-powered irrigation systems, access to improved agricultural inputs, farm mechanization, and capacity-building programs—Nasri Cooperative Farm has strong potential to evolve into a national model of climate-smart agriculture and youth agribusiness development.

By scaling such initiatives, Somalia can promote a new generation of resilient smart farms that not only improve food production but also create employment opportunities, strengthen rural economies, and enhance the country's ability to withstand climate shocks.



2. Background

2.1 Importance of Afgoye for National Food Security

Afgoye district is one of the most important agricultural zones in southern Somalia. Located along the Shabelle River, the area benefits from fertile soils and irrigation opportunities that support large-scale agricultural production.

Due to its proximity to Mogadishu (approximately 30 km), Afgoye functions as a primary food supply corridor, delivering fresh produce to urban markets.



Key crops produced include:

➔ Bananas

➔ Maize

➔ Sesame

➔ Vegetables (tomatoes, onions, peppers, curcuma)

➔ Fruits (mango, papaya)

➔ Fodder crops



2.2 Climate Variability and Agricultural Stress

Despite its strong agricultural potential, the region is increasingly affected by climate variability and drought.



Over the past decade, Somalia has experienced:

- **Erratic rainfall patterns**
- **Prolonged drought cycles**
- **Reduced river flow levels**
- **Increased pest outbreaks**
- **Soil degradation and nutrient depletion**

These environmental stresses reduce crop productivity, increase production costs, and threaten the livelihoods of rural farmers.

2.3 Smart Farming as a Climate Adaptation Strategy

Smart farming systems provide a critical solution for improving resilience in drought-prone regions.

Climate-smart farms integrate:

- *Efficient irrigation systems*
- *Drought-tolerant crop varieties*
- *Mixed farming systems*
- *Renewable energy solutions*
- *Water conservation technologies*
- *Digital and modern agricultural practices*



These systems improve the adaptive capacity of farms, enabling them to continue production even under climate stress.

Nasri Cooperative Farm represents an emerging example of such climate-smart agricultural transformation.

3. Objectives of the Assessment

The assessment mission aimed to:

- 1. Evaluate the farm's resilience and tolerance to drought and climate shocks*
- 2. Identify the type and structure of the farming system practiced*
- 3. Assess infrastructure accessibility and security conditions*
- 4. Observe current crop and livestock production activities*
- 5. Identify constraints and opportunities for BBS program support*

4. Farm Profile

Item	Description
Farm Name	Nasri Cooperative Farm
Location	Afgoye District
Farm Size	60 hectares
Greenhouses	20 operational, 5 affected by drought
Management	Youth-led cooperative
Farming System	Mixed farming (crop and livestock)
Main Crops	Vegetables, fruits, fodder
Livestock	Goats and sheep
Additional Role	Hosting livestock of displaced pastoralists

Other Activities Mineral water purification and distribution



5. Key Findings

5.1 Current Farm Situation

The assessment revealed several important features of the farm's resilience:

- *Approximately 700 goats are currently maintained on the farm.*
- *Five internally displaced families have relocated their livestock to the farm due to drought in pastoral areas.*
- *Around 50% of cultivated land has been affected by drought, leading to reduced yields.*
- *Irrigation relies on boreholes and a traditional hand-dug well.*
- *Fuel-powered pumps significantly increase irrigation costs.*
- *The farm produces clean drinking water using a mineral water purification machine.*

These features demonstrate that the farm plays a dual role as both a production center and a social safety net for displaced pastoral communities.

6. Accessibility and Security

Factor	Assessment
Road Access	Good
Market Access	Favorable
Security Situation	Relatively stable

The farm's strategic location along the Mogadishu–Afgoye agricultural corridor provides strong market connectivity and enhances its potential as an agribusiness hub.

7. Challenges Identified

Challenge	Description
Water shortage	Heavy reliance on expensive fuel pumps
Climate-resilient seeds	Limited availability of drought-resistant crop varieties
Pest and diseases	Frequent crop damage

These constraints limit the farm's ability to scale production and fully adapt to climate variability.

8. Opportunities

Despite these challenges, Nasri Cooperative Farm demonstrates strong potential due to several factors:

Youth-driven cooperative leadership

Diversified mixed farming system increasing climate resilience

Strategic location along a major agricultural corridor

Potential to serve as a training and demonstration center

Clean water production supporting surrounding communities



The mineral water purification and bottling system represents an innovative diversification strategy that strengthens the farm's economic resilience.

9. Importance of Smart Farm Resilience to Climate Shock

Nasri Cooperative Farm demonstrates how smart farms can withstand climate shocks through diversification and innovation.

Key Resilience Mechanisms Observed

1. Mixed Farming Systems

Integrating crops and livestock reduces climate risk. When crop production declines due to drought, livestock production can sustain income and food supply.

2. Water Resource Utilization

Use of boreholes and wells allows continued irrigation even during dry periods.

3. Diversified Income Sources

Water purification and livestock hosting provide alternative income streams.

4. Community Support Functions

Hosting livestock from displaced families strengthens community resilience and social stability.

5. Youth Leadership

Young farmers are more open to adopting modern technologies and climate-smart practices.

This model demonstrates that smart farms can function as climate-resilient hubs that protect both livelihoods and food systems during environmental stress.



10. Recommended Interventions

10.1 Water and Irrigation

- *Installation of solar-powered irrigation systems*
- *Construction of water reservoirs and storage tanks*

10.2 Agricultural Inputs

- *Provision of drought-resistant seeds*
- *Integrated pest management training*

10.3 Farm Expansion and Mechanization

- *Expansion of cultivated land*
- *Provision of modern farm equipment*

10.4 Post-Harvest Infrastructure

- *Construction of storage warehouses*
- *Establishment of cold storage facilities*

10.5 Youth Agricultural Training Centre

A training center should be established to focus on:

- *Climate-smart agriculture*
- *Modern irrigation systems*
- *Agribusiness management*
- *Livestock production*
- *Digital farm mapping*
- *Good Agricultural Practices (GAP)*

10.6 Demonstration Plots

Demonstration farms should be established to showcase:

- *Improved crop varieties*
- *Efficient irrigation systems*
- *Integrated pest management*
- *Climate-resilient fodder production*



11. Conclusion

Nasri Cooperative Farm represents a promising example of climate-smart agriculture in Somalia. Despite significant drought impacts, the farm has maintained partial productivity and continues to support livestock and surrounding communities.

Through targeted support from the Beero oo Barwaaqee Soomaaliya (BBS) Program, the farm can evolve into a national model of smart farming, climate resilience, and youth-led agribusiness development.

Training provided by the BBS technical team has already strengthened the farm's adaptive capacity by introducing:

- Efficient water management techniques
- Drip irrigation systems
- Drought-tolerant crops
- Improved land preparation methods
- Proper crop spacing and farm planning

These practices allow farmers to continue agricultural production even during periods of water scarcity.

With further investment in renewable irrigation, mechanization, improved seeds, and farmer training, Nasri Cooperative Farm could become a regional centre of excellence for climate-resilient agriculture in the Mogadishu–Afgoye corridor.



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