SALAAM DEVELOPMENT CENTER

SDC & MOAI JOINT ASSESSMENT REPORT ON GREENHOUSE UNDER THE JOINT RESILIENCE PROGRAMME (JRP) PROJECT IN GALDOGOB, MUDUG REGION.

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Introduction

Salaam Development Center (SDC) is an independent, nonprofit and non-government Organization providing project management services and research & development solutions, in the thematic focus area of livelihoods, economic inclusivity, climate change, social development, protection and good governance.

As a corporate partner of WFP, SDC is now implementing Joint Resilience Programme (JRP) project which has been formulated under the Food systems lens, which aims to enhance food security, mitigate climate shocks, and improve livelihoods and income-generating activities for youth and small-scale farmers. The project will particularly focus on internally displaced persons, women, and youth. The project targets nine cooperative sites including villages of Galdogob, Qansahleh, Isqambuus, Xero-jaalle, Daarusalaam, Bursalah, Kuweyt, Laan-madow and Tuulo Xanan-Dudun.

The JRP project focuses on improving the resilience of local farmers through innovative practices, including the distribution of inputs, technical training, and infrastructure support. One of the key interventions under this project is the introduction of greenhouses, which provide farmers with a controlled environment to grow crops. Greenhouses help mitigate the harsh climate conditions, enabling year-round farming and improving the quality and quantity of agricultural production.

Greenhouse assessment, also known as controlled environment agriculture, has gained significant attention in recent years due to its potential to revolutionize crop production. By providing a controlled environment for plant growth and optimizing resource utilization, greenhouse technology offers numerous benefits, including increased crop yields, extended growing seasons, and reduced environmental impact.

This report has been compiled and prepared by SDC in collaboration with MOAI to assesses the potential for greenhouse adoption in farms across Galdogob and all other sites. It aims to evaluate the suitability of selected cooperative farms based on several criteria, including farm size, access to water, topography, and protection from environmental hazards. The assessment further examines challenges, key findings, and provides recommendations for successful implementation.

Specific Objective of the Assessment

The primary objectives of this assessment are:

- To evaluate the readiness of farms in Galdogob and Bursalah for greenhouse installation.
- To identify suitable farms based on specific criteria, ensuring they have the infrastructure and resources needed to sustain greenhouse farming.
- To identify challenges and assess the needs of farmers for greenhouse systems.
- To provide recommendations for improving agricultural resilience through greenhouse farming.

Methodology

The assessment utilized a mixed-methods approach, combining qualitative and quantitative data collection through direct field visits, consultations with farmers, and a review of existing agricultural records. A structured assessment tool was developed, focusing on key criteria for farm selection.

A total of 35 farms across Galdogob and other 8 sites were reviewed, with five farms selected for greenhouse installation. The selection was based on their ability to meet specific requirements, including farm size, availability of water, land topography, and environmental protection.

Developing Selection Criteria

The following criteria were used to evaluate and select farms for greenhouse installation:

1. **Request**: Priority was given to farms that submitted a formal request for greenhouse support. The level of interest and commitment demonstrated by the farmers was crucial in the selection process.
2. **Farm Size**: Farms with adequate land size to support both traditional farming and a greenhouse structure were favored. Larger farms were better positioned to benefit from greenhouse technology.
3. **Water Source**: Farms with reliable access to water, including those with proximity to wells, boreholes, or existing irrigation systems, were given priority. A stable water supply is essential for greenhouse farming.

4. **Land Topography**: Farms with flat or gently sloping land were preferred, as these areas are more suitable for greenhouse construction. Uneven or hilly terrain poses challenges for both greenhouse stability and water distribution.
5. **Solar Pump Availability**: The presence of a solar pump was a critical factor, as greenhouses rely heavily on irrigation. Farms equipped with solar-powered pumps were better prepared for sustainable water usage.
6. **Flood Protection**: Farms located in areas with flood protection measures, such as levees or raised land, were prioritized. Flooding can severely damage greenhouses, making this an important consideration.
7. **Wind Protection**: Greenhouses are vulnerable to wind damage, so farms situated in areas with natural windbreaks or man-made barriers were favored. Trees, hills, or fences can provide necessary wind protection.

Identification of Successful Farms Based on Criteria

Target Greenhouse Farms.											
Farm Information			Assessment criteria							Status	
S/N	Name of Farm representatives	Phone number	site	Requested	water source	land topography	water availability	solar pump	flood protection	Wind protection	
1	Mahamed Dhalawayn (Cooperative leader)	7749753	Galdogob	√	Shallow well	√	√	√	√	√	Accepted
2	Abdijaliil Mo'alin Ahmed (Cooperative representative)	7718461	Galdogob	√	shallow well	√	√	√	√	√	Accepted
3	Abdirsack mahamed Mahamud (Cooperative representative)	7478905	Galdogob	√	shallow well	√	√		√	√	Accepted
4	Baarliin Said Shire (Cooperative representative)	5600612	Bursalah	√	shallow well	√	√	√	√	√	Accepted
5	Ali Sh Osman (Cooperative representative)	6901590	Bursalah	√	Borehole	√	√	√	√	√	Accepted

Table1: These selected farms have fulfilled the necessary requirements and are well-positionedto take advantage of greenhouse technology to enhance their agricultural practices.

Collaboration between SDC, MOAI and Farmers' Cooperative committee, a set of selection criteria was developed to determine the eligibility of farms for greenhouse installation. After evaluating a significant number of farmers, the assessment revealed that 9 cooperative farms from various locations met the established criteria and were considered suitable for greenhouse installation. Following is the criterion list, farms found to be eligible will receive greenhouse installation, enabling them to leverage agricultural technology for long term benefit.

Challenges

Despite the selection of five suitable farm sites, the assessment revealed several challenges as listed below:

- All 35 cooperative farms under the JRP expressed interest in receiving greenhouse systems, highlighting the widespread demand for this technology. However, limited resources meanthat only a few farms can be selected at this stage.
- Some farms, though eager for greenhouse installation, lack critical infrastructure, such as reliable water sources or solar pumps, making them unsuitable for immediate greenhouse adoption.
- Wind and flood protection remain a concern for many farms, particularly those in low-lying or exposed areas.

Findings

The assessment of agricultural technology has yielded significant findings, which are summarized below: -

Request from Target Farms: Throughout the assessment period, the team engaged with the target community and effectively communicated the advantages of adopting greenhouse technology and fencing in agricultural practices. This led to the community acknowledging the potential benefits and expressing a strong desire for the installation of greenhouses and fencing. The primary motivation behind their request was the technology's ability to reduce reliance on traditional farming methods. The community recognized that greenhouses offer a controlled environment that safeguards crop from adverse weather conditions, pests, and diseases.

Flood Protection: During the assessment, we discovered that 80% of the surveyed farmers were located in elevated areas with effective drainage systems, indicating suitability for greenhouse implementation in terms of flood protection. These locations were identified as having a reduced risk of flooding, creating a more secure environment for greenhouse structures and crops. The findings highlight the advantage of selecting farms in such areas to minimize the potential impact of floods on greenhouse operations and ensure the safety and productivity of the farming systems.

Water Source and Availability: During the assessment, a total of 35 target farms were evaluated for greenhouse implementation. Among these farms, all selected 5 farms were found to have Boreholes. A significant observation from the assessment was that all of the target farms possessed adequate water resources to support production when operating greenhouses. This finding indicates that the presence of either shallow wells or boreholes provided sufficient water supply to meet the irrigation needs of the greenhouse systems on these farms.

Wind Protection: The assessment findings regarding windbreaks for farms considering greenhouse installation indicate that all the target farms assessed were found to have sufficient wind protection measures already in place. This suggests that the existing natural or man-made features surrounding these farms effectively mitigate the potential impact of strong winds on the greenhouse structures.

Land Topography: The conducted assessment thoroughly examined the land sites and concluded that each of them possesses a level topography, making them highly suitable for the installation of greenhouses. This finding indicates that the flat nature of these land sites provides an advantageous foundation for the successful implementation of greenhouse structures.

Recommendations

I. It is recommended to expand the installation of greenhouses and fencing to increase agricultural productivity, allowing farmers to better control environmental factors. By increasing the number of these inputs, farmers can effectively control environmental conditions such as temperature, humidity, and light, creating optimal growing conditions for crops. This not only extends the growing season but also protects plants from pests, diseases, and adverse weather conditions.

II. To ensure efficient water usage and maintain crop health, it is crucial to conduct a thorough assessment of the water quality used for irrigation and Implement Treatment Measures.

III. The team recommends installing solar systems on the remaining three farms, which account for 30% of the targeted greenhouse farms. Greenhouse operations can produce high crop yields by combining dependable water supplies with solar panels.

IV. To enhance agricultural productivity within the community, we recommend providing training to farmers on adopting advanced greenhouse technologies for achieving high-yield outcomes.

Conclusion

This assessment demonstrates the significant potential for greenhouse adoption in Galdogob and other 8 sites. The selected farms meet the necessary criteria for successful greenhouse farming, though challenges remain, particularly regarding infrastructure and environmental protection. The strong demand from all 35 farms indicates that expanding the greenhouse program could greatly enhance agricultural resilience in the region. Moving forward, addressing the identified challenges and scaling up greenhouse installations will be key to improving food security and sustainable farming practices in these areas.

ANNEXES: CAPTURED PICTURES SHOWING ASSESSMENT ACTIVITIES

Figure 1: Selected Land for greenhouse installation based on selection criteria at Galdogob.

Figure 2: Selected Land for greenhouse installation based on selection criteria at Bursalah site.

Figure 3: selected land for greenhouse at Bursalax site

Figure 4; selected land for greenhouse at Galdogob