FACT SHEET

RESILIENCE OF HOUSEHOLDS TO CLIMATE CHANGE-INDUCED SHOCKS IN JOWHAR DISTRICT, SOMALIA

2024

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BACKGROUND

Jowhar, located in southern Somalia's Middle Shabelle region, lies about 90 km from Mogadishu. The district has a semi-arid climate with two rainy seasons (Gu: April-June, Deyr: October-December), frequent droughts, and seasonal flooding from the Shabelle River.

Jowhar's population of around 300,000 relies heavily on rain-fed and irrigated farming, along with livestock rearing.

The economy of Jowhar District is primarily agrarian, with the majority of households engaging in subsistence farming and livestock rearing. Farmers in the region cultivate staple crops such as maize, sorghum, and rice, while bananas and vegetables are grown in areas where irrigation is feasible.

Livestock, including cattle, goats, and camels, also play a critical role in the livelihood strategies of the rural population. However, these activities are highly vulnerable to the effects of climate variability.

KEY CHALLENGES

1. **Climate Shocks:** Droughts and floods impact agriculture, worsen food insecurity, and damage infrastructure.
2. **Flooding:** The Shabelle River floods regularly, destroying crops and displacing people.
3. **Water Scarcity:** Despite the river, access to irrigation and clean drinking water is limited.
4. **Poor Infrastructure:** Lack of roads, healthcare, and education limits development and resilience.
5. **Insecurity:** Ongoing conflict causes displacement and disrupts livelihoods.

POPULATION AND LIVELIHOODS

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The district has a population largely dependent on agriculture and livestock for their livelihoods. Subsistence farming, along with small-scale livestock rearing (cattle, goats), forms the backbone of household income. Crops like maize, sorghum, and bananas are commonly grown, with some areas relying on irrigation from the Shabelle River.

METHODOLOGY

STUDY OVERVIEW

The study employed a cross-sectional survey to assess the resilience of households in Jowhar District to climate change-induced shocks. The resilience was measured using the Climate Resilience Index (CRI), which integrates three key capacities: absorptive, adaptive, and transformative.

Data Collection

1. H**ousehold Survey:**
    - A sample of 300 households was selected using a simple random sampling technique.
    - The questionnaire focused on identifying households' resilience to climate shocks through questions on income sources, access to resources, water availability, and coping strategies.
2. **Focus Group Discussions (FGDs):**
    - Three FGDs were conducted (one in each agro-ecological zone: lowland, midland, highland) with 8-12 participants per group.
    - Participants included farmers, livestock keepers, local leaders, and women's groups.
    - The discussions explored past climate shocks, community responses, and the socio-ecological dynamics of the region.

3. Key Informant Interviews:

- 15 interviews with local officials, agricultural extension workers, and elders were conducted to gather insights on institutional responses to climate risks and resource management practices.

Sampling

- Households were randomly selected from village lists provided by local administrators.
- The sample size was calculated based on a population size of 2,500 households, using a 95% confidence interval and a 5% margin of error, resulting in 300 households.
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Climate Resilience Index (CRI) Calculation

The CRI was calculated by aggregating indicators across the three capacities:

1. **Absorptive Capacity:** Indicators such as preparedness for shocks, early warning system access, and land stability.
2. **Adaptive Capacity**: Measures of livelihood diversity, asset holdings, income levels, and access to health and water services.
3. **Transformative Capacity:** Access to public services, infrastructure, and social capital like community organizations.

Data Analysis

1. **Principal Component Analysis (PCA)**: Used to reduce data complexity and identify key factors contributing to household resilience.
2. **Multiple Regression Analysis:** Employed to predict the overall resilience of households based on socio-economic, infrastructural, and environmental variables.

FINDINGS

The study revealed important insights into the resilience capacities of households in Jowhar District to climate-induced shocks. These findings provide a detailed understanding of how various factors, such as household characteristics, access to resources, and infrastructure, influence the ability of communities to cope with and recover from climate extremes, particularly floods and droughts. The findings are structured around three core capacities: absorptive, adaptive, and transformative capacities.

1. Absorptive Capacity

Absorptive capacity refers to households' ability to withstand and buffer the immediate impacts of climate shocks without significant disruption to their livelihoods. In Jowhar, absorptive capacity was found to be moderate, but it varied across different communities based on their access to resources, preparedness, and social capital.

- **Preparedness for Shocks:**

- Only a small proportion of households reported having access to early warning systems for floods or droughts. As a result, many were caught unprepared during extreme weather events, leading to severe losses of crops and livestock. Early warning systems, where present, were often not well disseminated, particularly in remote areas.

- **Access to Social Support:** Social capital, particularly the sharing of resources and community cooperation, played a key role in enhancing resilience. Households with strong social networks, such as participation in community-based organizations or savings groups, were better able to cope with shocks. However, such social structures were underdeveloped in many parts of the district, leaving many households to rely solely on their limited resources during crises.

- **Impact of Floods and Droughts:**

- Households exposed to flooding reported significant crop and infrastructure damage, especially those living near the Shabelle River. Meanwhile, droughts led to high rates of livestock mortality and water shortages. These repeated shocks eroded household assets, such as livestock and stored crops, limiting their ability to recover quickly.

FINDINGS

2. Adaptive Capacity

Adaptive capacity reflects households' ability to adjust their livelihood strategies and make incremental changes to reduce their vulnerability to future shocks. The study found that adaptive capacity in Jowhar was generally low, as a result of limited livelihood diversification, poor access to markets, and inadequate infrastructure.

- **Livelihood Diversification:**

- The majority of households relied primarily on rain-fed agriculture, particularly maize, sorghum, and rice cultivation. These crops are highly sensitive to climate variability, making households vulnerable to droughts and floods. There was minimal diversification into other income-generating activities, such as small-scale trading or handicrafts, which could serve as buffers during agricultural crises.

- **Livestock Holdings:**

- Livestock was an important asset for households in Jowhar, providing a source of income and food security. However, many households reported that their livestock numbers had declined significantly due to droughts, disease outbreaks, and lack of grazing land. Households with larger herds were better able to absorb the impacts of climate shocks, while those with few animals were more vulnerable.

- **Access to Resources and Services:**

- Limited access to financial services, such as credit and savings institutions, restricted households' ability to invest in climate-resilient agricultural practices. Moreover, the absence of reliable markets for selling agricultural produce further weakened their ability to generate income during times of need. Poor road infrastructure made it difficult for farmers to access markets, leading to high post-harvest losses and reduced profitability.
- **Use of Climate-Smart Agriculture:**

- Few households reported using climate-resilient agricultural practices, such as drought-resistant seed varieties or soil and water conservation techniques. This limited the district's ability to adapt to changing rainfall patterns and increased the risk of crop failures during periods of drought. Households that did implement climate-smart practices, such as rainwater harvesting or improved irrigation systems, reported better crop yields and resilience to drought.

FINDINGS

3. Transformative Capacity

Transformative capacity refers to the ability of households to make larger systemic changes that can fundamentally reduce their vulnerability to climate shocks. This involves long-term investments in infrastructure, governance, and social safety nets. In Jowhar, transformative capacity was the weakest of the three resilience capacities.

- **Access to Public Services:** Access to basic public services, such as healthcare, education, and markets, was extremely limited, particularly in rural areas. Households located far from roads or public facilities had a much lower capacity to recover from shocks, as they lacked access to markets where they could sell goods or buy essential supplies. Schools and healthcare centers were few and far between, leaving households without critical services during crises.

- **Institutional Support:** There was limited government presence and few formal institutions to provide support during or after climate shocks. Households reported that the lack of formal safety nets, such as disaster relief programs or government assistance, made it difficult for them to recover after losing assets to floods or droughts. In areas where community-based organizations or cooperatives were active, households had better access to assistance and were able to recover more quickly.

- **Infrastructure Deficits:** The lack of infrastructure, especially roads and bridges, compounded the district's vulnerability. Poor road networks hindered the transport of goods to and from markets, while weak bridges and roads were often washed away during floods, cutting off entire communities. Investment in infrastructure development was identified as a critical area for enhancing transformative capacity in the region.

- **Conflict and Displacement**: The ongoing insecurity in parts of Somalia, including Jowhar, exacerbated the impacts of climate shocks. Many households had been displaced by conflict or were hosting internally displaced persons (IDPs), placing additional pressure on limited resources. Displacement also disrupted traditional coping mechanisms and social networks, leaving communities more vulnerable to climate impacts.

KEY DETERMINANTS TO RESILIENCE

Based on the data collected through household surveys, focus group discussions, and key informant interviews, the study identified several key determinants that contributed to household resilience in Jowhar:

- **Access to Water:** Households with access to irrigation, either through the Shabelle River or other sources, were more resilient to droughts. However, water scarcity remained a major issue, particularly for those relying solely on rain-fed agriculture.
- Land Ownership and Quality: Households with larger, more fertile plots of land were better able to recover from shocks. However, many households reported land degradation and soil fertility loss, which reduced agricultural productivity and increased vulnerability.

- **Social Capital:** Participation in local organizations, such as savings groups, farmer cooperatives, and community-based disaster response teams, significantly improved household resilience. These social networks provided critical support during crises, including labor sharing, food distribution, and financial assistance.

- **Livelihood Diversity:** Households that diversified their income sources beyond agriculture, including small-scale trade, fishing, or remittances from relatives abroad, had greater resilience. Livelihood diversification reduced their reliance on a single source of income and provided alternative means of support during agricultural downturns.

- **Early Warning Systems and Disaster Preparedness:** Communities with access to early warning systems and disaster preparedness plans had a better capacity to respond to climate shocks. However, such systems were not widespread in Jowhar, and many households lacked the information or resources needed to take preventative measures.

Conclusion

The study found that households in Jowhar District possess varying levels of resilience to climate change-induced shocks, with absorptive capacity being the most developed, followed by adaptive and transformative capacities. Key areas of vulnerability include the over-reliance on rain-fed agriculture, limited access to water and markets, and weak institutional support. Strengthening these areas, through investment in infrastructure, improved access to financial services, and the expansion of social safety nets, would significantly enhance household resilience to future climate shocks.