Impact of Desert Locust Infestation on Household Livelihoods and Food Security in Ethiopia

Joint Assessment Findings

Technical Analysis Partners

Assessment Partners

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Assessment Methodology

- The Assessment covered all the seven Regions affected by the Desert Locust (DL).
- A total of 29 Woredas (districts) were selected (those perceived to be worst affected).
- Fifty-eight Focus Group Discussions (FGDs) were conducted.
- Twenty nine informant interviews (KII) including with local authorities were held.
- A total of 1,832 household interviews were conducted.
- Federal and regional government, United Nations, local and international Non-Government organizations conducted data collection. Data analysis was conducted by a multi-agency team Government (Ministry of Agriculture (MoA), National Disaster Risk Management Commission (NDRMC), (Technical NGOs - Save the children, and FEWSNET), Food and Agriculture Organization of the United Nations (FAO) and World Food Program (WFP).

Limitations

- A total of 29 Woredas of the 153 affected by DL as of early February 2020 were sampled. More sampled Woredas in Somali and Oromia could have been much better. To fill the gaps in all Woredas that were not assessed, government experts advised on how the assessed areas best represents the situation in Woredas not visited.
- Due to a systematic error in the electronic questionnaire, data on the impact of DL on household practicing mixed farming was not captured. This gap was filled with results from KII and FGDs.
- Data from one market per region were used to estimate impacts on market prices and Terms of Trade.

Key Findings for Livelihoods

- Communities estimated pasture damage of around 50 percent. However, remote sensing products only shows a small decrease in pasture in March 2020 in the areas around Somali and Eastern Oromia that have suffered continuous DL attacks.
- The DL caused an estimated cereal loss of 3,562,856 quintals (356 286 MT) affecting about 806,400 farming households, 197,163 hectares of cropland and 1,350,000 hectares of pasture and browse.

Key Findings for Food Security

- The proportion of households reporting poor food consumption (Food Consumption Score) has deteriorated slightly from 37 percent in August 2019 to 41 percent of in Feb 2020.
- The quality of household diet (Dietary Diversity Score) has worsened slightly in February 2020 (3.07) against 3.45 in August 2019.
- The average Coping Strategies Index showed an increase from August 2019, demonstrating frequent use of consumption coping strategies and an indication of worse food security situation.
- There was an increase in the proportion of households using emergency livelihoods coping strategies from 22 percent in August 2019 to 49 percent in February 2020, particularly in Oromia, Somali, Amhara and Afar regions.
- An estimated 25 percent of households were relying on markets for food, and cereal prices had increased soon after harvest by about 50 percent from last year.
- There were negative Terms of Trade in Afar, Somali and Oromia regions-mainly because of very high cereal prices. There is a sign of lower cereal stock against stagnant or falling livestock prices.
- There were stagnating livestock prices - a bad sign given that year-on-year inflation stood at 25.1 percent in February 2020. The sale of livestock will likely erode the resilience of livestock keepers.
- Majority of the assessed households either had no or very limited cereal food stock barely a month after completing Meher harvest.
- Due to DL invasion and damage on crops and pasture, the Household Economy Analysis (HEA) using Livelihood Early Assessment and Protection – Livelihood Impact Analysis Sheet (LEA-LIAS) interface platform shows that 976 381 people should be included in the emergency food assistance plans.
**Recommendations**

- **Develop a response strategy** to cater for the additional humanitarian needs, aimed at safeguarding livelihoods and meeting food gaps because of the DL invasion.

- **Strengthen DL Early Warning and Preparedness** including supporting regional governments to set up a functional DL Task force to develop a contingency plans.

- **Timely information sharing and response.** Work closely with the regional bureaus to ensure timely supply of equipment and chemicals to respond to DL invasions promptly as well as information on the extent of damage and loss.

- **Build additional capacity to support DL control** within government and communities.

- **Ensure healthy pipeline for consistency of humanitarian assistance** to the existing caseload in the context of the COVID 19.

- **Conduct a comprehensive food security and Nutrition Survey** in June 2020, to produce Integrated Food Security Phase Classification (IPC) analysis on the impact of DL, seasonal food insecurity and impact of COVID-19, and associated food and livelihoods assistance requirements.

- Explore options for **conducting IPC analysis** in spite of the social distancing requirements due to COVID 19.
Impacts on Agriculture and Livestock Production

The DL damaged pasture and browse for animals

Figure 1 shows March 2020 pasture and browse condition depicting a slightly worse situation in areas invaded by the DL compared to the other areas that were not invaded especially in parts of Somali, Oromia regions. Community members, however, estimated a significant reduction in pasture availability of 50 percent or more in - Somali (61%), Afar (59%), Oromia (31%), Dire Dawa (35%), Southern Nations, Nationalities, and Peoples' Region (SNNPR) (22%) and Amhara (28%) compared to normal situation prior to the invasion of the locusts. Most of these areas received adequate Karan and Deyr rains in 2019 that came after a prolonged dry spell. These rains led to substantial improvement in pasture and browse availability that would sustain the existing demand over the dry season. Nevertheless, the DL invasion reduced availability of pasture and browse conditions.

Crop Loss due to Desert Locust

Figure 2 shows that DL has damaged different crops but the worst affected was cereal especially Sorghum where 113 639 hectares were affected followed by maize (41 341 ha) and wheat (36 188 ha). Oromia was worst affected with total cereal loss of 1 228 352 quintals (122 835 MT) on 41 051.4 hectares of cropland. Somali region experienced the second largest cereal crop loss of 1026 132 quintals (102 613 MT) on 90 076 ha of cropland. Tigray region was third with 843 241 quintals (84 324 MT) lost on 40 577 ha of land. In Tigray, a significant loss was also due to post-harvest losses. Afar region lost 202 882 quintals (20 288 MT) from 4421 ha and SNNPR lost 134 420 quintals (13 442
MT) from 4 158 ha. Dire Dawa and Amhara lost a total of less than 100 000 quintals (10 000 MT) In Afar, Somali, SNNPR and Oromia vegetables, legumes, chat, coffee and fruits also affected.

Increased expenditure for animal feed

Cattle keepers in Afar and Somali regions indicated they were spending a significant portion of their income from livestock sale not only to purchase their own food but also to purchase supplementation for their animals especially the draught animals like camels, donkeys and shoats.

Loss in household incomes

In Afar region, communities in Eli Dar Woreda reported that DL consumed the date palms that is used for making mats for the traditional Afar traditional house – a major livelihood activity for women. Estimated incomes are likely to reduce from about 7 500 Ethiopian Birr last year to around 2 700 Ethiopian Birr this year.

Impacts of Food Security

Food Consumption Score (FCS)

Food consumption data was collected and analyzed using the standard methodology: the variety and frequency of different foods and food groups consumed over a seven-day recall period was recorded to calculate a weighted Food Consumption Score. Weights were based on the nutritional density of the foods. Standard cut-points or thresholds were established to enable the analysis of trends and to provide a benchmark for success. Households are then classified as having either ‘poor’, ‘borderline’ or ‘acceptable’ consumption based on the analysis of the data.

Households classified as having ‘poor’ food consumption based their diet on cereals on a daily basis and vegetables four days per week. This is considered a bare minimum and is generally regarded as a sign of extreme household food insecurity. Households with ‘borderline’ consumption are eating the equivalent of cereals and vegetables on a daily basis plus oils/fats and sugar/sugar products about five and three days per week respectively. Only households classified as having ‘acceptable’ consumption were having, along with daily intake of cereals, vegetables, oil and sugar, on some day(s) consumption of items with high concentration of proteins: animal products, (meat, eggs and milk/dairy consumed on average 2 days/week, fish 1 day/week) and pulses (average two days/week).

Food consumption indicators for February 2020 were compared with those collected in August 2019 and used in the Nov 2019 IPC analysis. Households with poor consumption increased in all the seven regions assessed. Overall, food consumption deteriorated slightly at the time of the assessment, with 41 percent of interviewed households having poor food consumption in February 2020 when compared to 37 percent in August 2019 (Figure 3).
The highest proportion of households with poor consumption was found in the Afar region where 91 percent of households had poor consumption at the time of the assessment (February 2020), compared to 58 percent in August 2019. This was followed by Somali region, where proportion of households reporting poor food consumption increased from 46 percent in Aug 2019 to 52 percent in Feb 2020. In Oromia region, the proportion of households reporting poor food consumption increased from 38 percent in Aug 2019 to 50 percent in Feb 2020. The proportion of households with borderline consumption increased in SNNPR, from 32 percent in Oct 2019 to 39 percent in Feb 2020, while for Amhara and Tigray, a reduction of the proportion of households with poor consumption was noted. For instance, in Amhara (from 29 percent in Aug. 2019 to 11 percent in Feb 2020) and in Tigray (from 5% in Aug 2019 to 3% in Feb. 2020).

The Food Consumption Score breakdown by Woreda, showed similar results. For example, all interviewed households in the assessed four woredas in Afar region reported a high level of poor food consumption.

In Oromia, a relatively high proportion of households in Goro Gutu (65%), Teltele (64%), Gursum (48%) and Dubluk (47%) reported poor food consumption during the seven days prior to the date of the interview. Likewise, in the Somali region, a high proportion of households with poor food consumption was reported from Shilabo (87%), Kabridahar (80%) and Tuliguled (45%). In the SNNPR, a relatively higher percentage of 40 percent reported poor food consumption as compared to the other assessed Woredas.

The deterioration by February a major concern especially in the crop-producing areas where the data collection period was in post-harvest season. The consumption pattern and food security situation should have been better during February as compared to August, which is a lean season for the cropper and the dry season for the southern pastoralist. Therefore, though it is difficult to attribute the deterioration in food consumption to DL impact alone, it is an indication that the infestation might have contributed to the deterioration of food consumption in the assessed areas.
**Household Dietary Diversity Score (DDS)**

A Dietary Diversity Score (DDS) is a proxy indicator for measuring household food access. It is meant to reflect, in a snapshot form, the economic ability of a household to access a variety of foods. It shows the number of different food groups consumed over a given reference period. The DDS is an important proxy indicator due to a more diversified diet is highly correlated with such factors as caloric and protein adequacy, percentage of protein from animal sources (high-quality protein), and household income.

Overall, 63 percent of the interviewed households in the assessed areas consumed three or fewer food groups during the seven days prior to the date of the interview - Figure 5. A higher proportion of households in Afar region (97 percent) consumed three or fewer food groups followed by assessed areas in the Somali and the Oromia regions, 74 percent each. The assessed areas in the Tigray region, with 20 percent of households consumed three or fewer groups followed by Dire Dawa (29%) and Amhara (39%) had a relatively lower proportion of households that consumed three or fewer food groups during the seven days prior to the date of interview.

The breakdown at Woreda level showed that almost all interviewed households in the assessed four Woredas in Afar region reported consuming...
three or fewer food groups during the seven days prior to the date of the interview - Figure 6. In Oromia region, a relatively high proportion of households in Goro Gutu (95%), Teltele (91%), Gursum (88%) and Dubluk (87%) reported that they consumed three or fewer food groups. Similarly, in the Somali region, a high proportion of interviewed households in the five Woredas out of six reported that a high proportion of households consumed three or fewer food groups. Interviewed households in Malle (SNNPR) and Werebabo (Amhara) also reported a high proportion of households consumed fewer food groups as compared to other households in the assessed woredas.

![Figure 6: Household Dietary Diversity by Region and Woreda](image)

**Reduced Coping Strategies (rCSI).**

The rCSI measures the stress level a household is facing when exposed to food shortage by assessing the frequency of adoption of five food-related coping mechanisms, as well as their relative severity. The higher the reduced coping strategy index, the severe the household stressed.

The average rCSI showed an increase in February 2020 from August 2019, indicating that households were practicing more frequent use of consumption coping strategies. The highest rCSI was registered in Amhara (17.44) followed by the assessed areas in the Somali region (17.42) and then the Oromia region with 17.19 scores.

![Figure 7: Reduced Consumption Based Coping Strategies Index (rCSI)](image)

The disaggregation of data by *Woreda* level showed that most of the households in the assessed *Woredas* in Amhara, Oromia and Somali regions had higher rCSI indicating that interviewed
households in these Woredas are relatively more stressed as compared to the others - Figure 8. In contrary to the other indicators, the rCSI was low for the interviewed households in the Woredas in the Afar region. This could be related to the respondent households’ perception of these coping mechanisms as normal and indication of chronic food insecurity, there is need to further study the reason behind the exceptionally low rCSI.

**Frequency of Employing Consumption Based Reduced Coping Strategy**

Limiting the portion size of meals and relaying in less preferred food were the two rCSI more frequently used by the interviewed households, followed by reducing consumption by an adult member of the household for children to consume during the seven days prior to the date of interview. Borrowing food or cash was a less frequent strategy. The frequency of practicing these strategies was more frequent in Amhara followed by the Oromia and Somali regions. The higher the frequency of use of restricting consumption by an adult member of the household for children to consume shows the severity of the stress at the household level and deterioration in the food security situation.
Livelihood Based Coping Strategies
The Livelihood Coping Strategies (LCS) indicator is derived from a series of questions regarding the household’s experience with livelihood stress and asset depletion during the 30 days prior to the date of the interview. All strategies are classified into three broad groups, including stress, crisis, and emergency strategies. Households engaging in routine economic activities that did not involve any of these strategies would be considered equivalent to food secure on this indicator.

The LCS helps to assess longer-term household coping and productive capacities and their future impact on access to essential needs, including food, shelter, health, education, etc. Responses are used to understand the stress and insecurity faced by households and describes their capacity regarding future productivity.

The February 2020 assessment shows an overall increase in the proportion of households experienced the use of emergency livelihoods coping strategies. Up to 49 percent of the interviewed households experienced emergency coping strategies during the 30 days prior to the assessment (in February 2020) whereas approximately 22 percent experienced the same during the 30 days prior to the date of the interview conducted in August 2019 - Figure 10. Except for assessment areas in Dire Dawa and the Somali regions, the higher proportion of the remaining areas had been practicing emergency livelihood coping strategies. This shows that some areas in a better food security situation are under stress, depleting their assets and their long-term food security could be compromised if there will not be an intervention.

Frequency of Employing Livelihood Coping Strategies in the last 30 days
Selling more animals, reducing expenditure on livestock and agricultural inputs, consuming seed stocks and selling breeding animals were the strategies employed more, in descending order - Figure 11. Seed consumption and selling breeding animals are emergency coping strategies that the households do as a last resort. The use of these indicators during the 30 days prior to the date of the interview is at the higher side to the expectation and needs further assessment especially under the condition of ongoing humanitarian assessment. Given the assessment includes area dependent on pastoralism, the adoption of sale of more productive animals and reduction of expenditure on livestock and agricultural inputs crisis coping strategies is concerning. Households under moderately high levels of food stress practice these types of coping mechanisms are practiced when the.

A comparison of areas covered by the assessment showed that households in Afar, Amhara, Oromia, and Somali regions were practicing more of the severe LCS during the 30 days prior to the date of the interview more frequently. This is despite the
better weather performance in 2019 except for Afar region that received below-average rain during the main rainy season.

Proportion of households with Cereals in Stocks (Self-reported)

In general, approximately 72 percent of the interviewed households had cereal stocks ranging from one to five bags during the survey period (self-reported) - Figure 12. A comparison of assessed areas showed that areas in Tigray had better stock during the assessment period followed by the SNNP and the Amhara regions. Overall, there were limited stock sizes, which may not last long.
The main sources of reported stocks were own production followed by a market purchase - Figure 13. A relatively higher proportion of households (17%) in the Somali region reported the cereal stocks were sourced from humanitarian assistance followed by the Afar and the Dire Dawa (rural) as compared to the other regions. Some households reported that they were depending on precarious sources such as gifts and other unspecified sources which can easily fall in case of shocks. More households’ dependency on market, especially in the rural areas also leads to food insecurity in case market is not functioning well; and the assessment results show early move to market as sources of cereals in some of the assessed areas.

The interviewed households reported on how long their current cereal stocks would last. Accordingly, approximately 42 percent reported that the stock they had during the survey was expected to last in less than a month - Figure 14. Out of those who reported having cereal stocks, a higher proportion of interviewed households in the Amhara, the Tigray and the SNNP regions reported having stock to last for a relatively long period of time - two to three months. These are cropping areas that had expected to have stocks that last longer at this period of the year.

Coverage of Humanitarian Interventions
There are many humanitarian and development interventions in the assessed areas, but the coverage varies as per the perception of the households interviewed. Health service is a widely available intervention and a higher proportion of interviewed households indicating the availability of health intervention. The assessment did not tackle quality and the capacity. General food distribution, livestock-related interventions, and farmers' training services were the intervention reported by a quite significant proportion of households interviewed during the assessment - Figure 15. Households in Somali (51%), Afar (50%) and Dire Dawa (41%) reported availability of general food distribution in their areas, respectively.

Markets

Staple food prices and Terms of Trade (ToT)

Overall, 25 percent of households were relying on markets for food at the time of assessment. Terms of Trade is an important measure of food security especially for communities that rely on other incomes to buy food. The Terms of Trade of a goat to maize refers to the amount of maize from the market that the income from a single goat can purchase.

In all analyzed markets located in all the livestock dependent areas namely: Assayita market in Afar, Chiro market in Oromia, Gode market in Somali showed that livestock prices were stable despite the increasing inflation which stood at 25.1 percent in February 2020 compared to same time last year while the food prices had risen significantly.
The assessment looked at the quantity of cereal that a goat can purchase and made a comparison of how this had changed compared to previous year and previous five years. The largest fall was in Assayita market where year on year loss of 36 percent was recorded. The prices of maize in Gode, one of the major markets in Somali region, goat to maize ToT remained 13 percent lower than the last five years and the last year, despite an increase in goat price. The situation at Woldia market (Amhara), however, showed a favorable Terms of Trade for goat keepers by 29 percent. This was because of a significantly higher rise in prices of goats compared to that of cereals. In Mehoni market (Tigray), the Terms of Trade was at the same level as the previous year, albeit, showing a declining trend. Overall, market-dependent pastoralists were disfavored by a high increase in cereal prices.

Additional Food Assistance Needs

Figure 16 shows the estimation of additional food needs based on HEA analysis using LEAP-LIAS interface platform based on the following assumptions:

- Reported crop and pasture/browse losses by community members during assessment.
- FEWS NET market price and Terms of Trade analysis.
- The assumption that the reported crop and browse losses in regions and market projections were representative of all DL affected Woredas in the region.
- The analysis shows that the additional number of individuals requiring humanitarian food assistance is 976,381 due to impacts of the DL. IPC update analysis was postponed due to COVID 19 so the numbers cannot be compared with the last IPC numbers. These numbers are further broken down by Woreda.
- More humanitarian food assistance needs are in Somali and Oromia, regions that experienced larger crop loss according to MoA. However, the result for Oromia was combined with Dire Dawa in the HEA analysis process although the two were assessed separately.