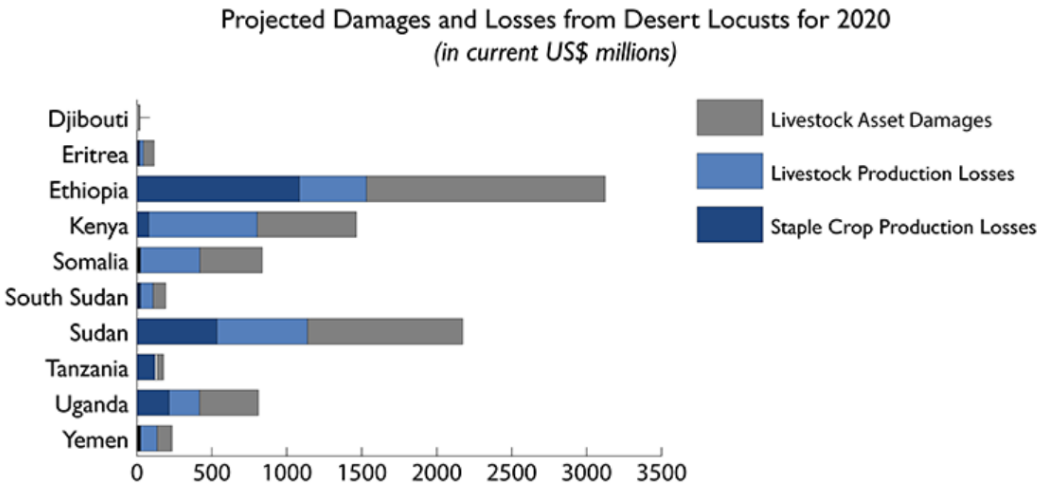
Rewriting New Chapter of Locust Crisis

Photo Credit: World Bank Group.

An unprecedented desert locust outbreak destroying millions of hectares of crops and pastures is worsening food security and livelihoods of millions in East Africa, Middle East and Asia. In Kenya, it represents the most devastating outbreak the country has experienced in 70 years. Two neighboring countries Somalia and Ethiopia are facing the worst desert locust crisis in 25 years. Yemen in the nearby Arabian Peninsula is also threatened as 18 million Yemenis are already in acute food insecurity and depend on international humanitarian aid. Damages in crops are also reported in India and severely in Pakistan where the worst locust infestation in 25 years will likely result in £4.3 billion crop losses. As reported by Locust Watch, widespread rains in late March and May in parts of Kenya, Somalia and Ethiopia created conditions conducive to desert locust development. Without proper control, rains continuing in June could result in another devastating wave in the region from September through December this year.

Locusts are considered the most destructive migratory pests in the world. An average swam of 40 million adults can travel more than 90 miles in a day as they ride the wind, devouring almost all vegetation along the path with the capacity to consume the same amount of food in one day as 35,000 people, according to FAO. Without timely control of the locust population, the Horn of Africa as the epicenter of the outbreak, which already has 22 million severely food insecure people and over 12 million internally displaced, will soon be facing a

critical food security emergency. Agricultural production and associated household incomes of farmers in those agriculture-dependent economies will continue being adversely affected. According to World Bank's estimate, damages and losses could amount to as much as US$8.5 billion in 2020.



Source: https://blogs.worldbank.org/voices/locust-plague-fighting-crisis-within-crisis.

Chart: S. D'Alessandro/World Bank.

Factors contributing to the locust outbreak

The current crisis is driven in part by heavy rainfall and warmer temperatures. The torrential rainfalls in East Africa and Middle East caused flooding, leaving thousands of people homeless while creating breeding ground for locusts to proliferate rapidly when waters receded. The past weather conditions enabled exponential breeding by 8000-fold. In addition to meteorological conditions, studies also indicate ecosystem externalities including land degradation affected by agricultural practices could influence the propensity for locust outbreaks. Although immature locusts before developing wings are easier to control, the early detection is usually difficult due to origination in remote, desert areas over a vast and sparsely populated territory. Moreover, under the impact of climate change, weather patterns become more erratic, making locust swarms unpredictable. Experts fear that locust outbreak may become more common as more frequent tropical storms create favorable breeding conditions. Consequently, despite the progress in research on locust over the years, predicting and managing locust outbreaks remain insufficient. A perfect storm of favorable weather, lack of preparedness for the low-frequency high severity event accompanied by poor monitoring particularly in food insecure/conflict zones and challenges in moving resources due to curfews from the pandemic has fueled locust adversity to reach a scale unseen in decades.

Current relief initiatives

Against this backdrop, the World Bank Group through its *Emergency Locust Response Program* has committed an initial $500 million support complemented by policy advice and technical assistance which could possibly limit the damage to $2.5 billion. This Program will focus on emergency assistance such as social protection and livelihoods programs, including cash transfers to help meet basic needs. It will also help provide input and animal fodder packages to help farmers and pastoralists restore livelihoods. The first package of $160 million will go to Djibouti, Ethiopia, Kenya, and Uganda. It is noted that the last major outbreak (2003-2005 in West Africa) ultimately cost over $450 million to end the plague which led to approximately $2.5 billion in crop losses.

The World Food Program estimates that long-term response and recovery costs could top $1 billion if swarm growth is not curbed. As of early June, FAO is finalizing a revised $311 million appeal from the previously allocated $153 million to assist aerial and ground locust control operations in addition to livelihood protection. Lacking recent experience on locust outbreak, many national and local governments in the affected countries already experience the need to have robust locust-control/survey mechanisms, tools and institutional knowledge to quickly respond as well as proper equipment, pesticides and staff training necessary to manage the crisis. Additionally, COVID-19 movement restrictions tend to slow down control measurement and delay the delivery of pesticides and helicopters. FAO and development partners have been supplementing national efforts by providing support for surveillance and control operations through aerial and ground spraying. However, security threats in fragile states could run into some risks of preventing local control teams from conducting aerial operations.

As part of the long-standing locust program, FAO's eLocust3, a digital survey system, is used to collect field observations on locust presence and environmental conditions as well as treatment control for ongoing monitoring and forecast. Satellite data (vegetation, climate, soil moisture and other variables), although containing technical limitations, can assist locust risk management. For example, NASA scientists are using satellites to monitor soil moisture and vegetation from space to learn how environmental changes affect locusts and potentially use the information to prevent future outbreaks. The Europe Space Agency in partnership with FAO has conducted an analysis to show how earth observation data can help assess locust impacts and risk of infestation by detecting anomalies in vegetation productivity. There are some historical cases that satellite-derived information was useful in directing the ground survey teams towards potential habitats; however, it does not solve all the problems, as evident in the 2003-2005 upsurge and the current one. Nevertheless, with the availability and increased quality of high spatial resolution data alongside the advancement in locust research, remote sensing technologies combined with ground-based

data show some promise in providing timely information to support targeted preventive measures.

Looking Ahead

Since large swarms pose a major threat to local food security and rural livelihoods, developing farmer resilience and safeguarding agrarian communities is key. Technology can help advance early warning systems and more relevant analytical insights to engage communities in risk reduction and mitigation activities. As for risk transfer, locust invasion is typically not covered in the crop insurance offering due to usually high localities of the damages and inadequate field data to quantify risks by commercial insurers particularly in Africa. (With exceptions where the government-led agriculture insurance scheme based on area yield index insurance in some Asian countries covers crop damages from pests including locust). However, the current crisis has raised interest for data collection, damage assessment and methodology development in the international communities that can be helpful in insurance application to de-risk farmers. At a national level, devastating locust swarms may facilitate legislation of disaster risk management law that could strengthen financial preparedness for future outbreak through a multi-stakeholder approach incorporating inputs from a wide range of representatives from farmers, human and animal health experts, academia in addition to regional and international organizations.

Locust outbreak and associated devastation have a long history in agriculture and the struggles continue in the 21st century with compounding risk factors such as climate change, pandemic and political instability for certain regions. The outbreak is a syndrome of larger hidden systemic issues such as climate change and unsustainable land use. To recover rapidly and in a better way, community engagement, cross-institutional and trans-national collaboration led by a comprehensive approach of the risk, leveraging data and technology, is vital to building resilience, more importantly, the right relationship with the larger environment we live in.

To get timely update on Locust crisis by country, please stay tuned to FAO's Locust Watch.