

Implications of **Climate Change and Russia-Ukraine War** on Food Security in the East African Countries

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Introduction

The projections made by intergovernmental panel on climate change (IPCC) indicates that global mean temperature may rise from 1.1°C to 6.4 °C by 21st century. The rise in temperature has many implications inform of rising sea levels, melting of glaciers, frequent storms, and floods (IPCC 2014). The number of food insecure people is increasing across the globe. The climate change and wars are some of main factors of the rising trend in the global food insecurity. The climate change primarily affects the food production and other supply chain issues are secondary in this phenomenon. The impact of these climatic changes may be realized to much extent in resource poor countries including east African countries due to less adaptive capacities, poor access to early warning systems, technologies, and other resources. The FAO simulations showed that number of under nourished people in the world may be 7.6 million under moderate shock, while it will be 13.1 million under sever shock. The regional increase in 2022-23 showed that 4.2-6.4 million people may be in Asia-Pacific, 2.6-5.1 million from Sub-Saharan Africa and 0.4-0.96 million from East and North Africa (FAO, 2022).



The climate of Somalia is arid to semi-arid in which changing rainfall pattern is mainly affecting the food security. Somalia has been affected by the series of climatic shocks for many years. The temperature changes ranked second factor of food insecurity. The agriculture is the main asset which also contributes to the regional food security. Somalia is recognized as one of most vulnerable countries to the climate change (Warsame et al. 2021). About six droughts between 1983 to 2017 were recorded in Somali regions of Ethiopia, out of which five were moderate and one was sever (Abrham & Mekuyie, 2022). The people of this region reported that food shortage was the results of crop failure and death of livestock due to climactic shocks (Abrham & Mekuyie, 2022). These shocks have destroyed the crops, livestock and many people were forced to leave their homes in search of water. About two third of Somalia's population live in rural areas. The agriculture is the main income source for Somali economics. It contributes about 75% in gross domestic product and 93% in total export of the country (Warsame et al., 2022b).

In the current year 2022, the country is facing hydrological drought due to lack of rains in the months of March, April and May. It could be the fifth failed season provided that October-November-December (deyr) fails to receive the rains. The rainfall deficit in this year is the most severe than the last 70 years (World Food Programme, 2022). The exceptional drought has increased the air temperature and increased the evaporative demand. The continuous rise in air temperature was witnessed since 2000s. The recurrent droughts have negatively affected the crops and livestock. The food shortage has been recognized as one of the prominent impacts of droughts. The cereal crops harvested in July accounts 60% of cereal outputs of the Somalia. These crops were severely affected by the lack of precipitation during growth period. The cumulative precipitation in south, the key cropping zone, was half which hampered the germination and crop operations. The higher food prices accompanied with persistent drought drained the household income and farmers were unable to pay the labor to carry field operation. The maize is the main agriculture crop and third most important food crop of Somalia. The reduced precipitation due to climatic changes may reduce the maize yield. In addition to climatic hazards, the farmers of the region have to pay excessive taxes to Federal government, militants and Al-Shabab terrorist group. It makes the farming less profitable, risky and costly. The maize production is declining since early 2000 due to droughts and political instability. The lower Shabelle Region is main pocket for maize production which accounts about 60% of country total output. The drought badly affected 85% of the cropland in this region. The Bay region is sorghum producing area where drought affected 70% of cropland. The cow pea is major food crop of the country and mainly intercropped with sorghum in Middle Shabelle, Galgaduud, and Mudug regions. Almost all the cropland (95%) was affected by the drought.

The supply of feed and forage to the livestock was badly affected due to climate change. It reduces the overall growth, milk, meat production and animal reproduction capacities. The livestock death and abortions due to recent prolonged drought of 2022 were mainly reported in central, southern and northern parts (World Food Programme, 2022). There have been already great losses to livestock since mid 2021. Because of huge share in the rural economies and food security, the people livelihood was badly affected.

The impact of these climatic changes may be realized to much extent in resource poor countries including east African countries due to less adaptive capacities, poor access to early warning systems, technologies and other resources. In east Africa, 32 million people were identified as food insecure population as a result of local armed conflicts and localized tensions. However, the number of people facing food crisis due to climatic shocks is addition to this population. The impacts of local conflicts are so worse that these are also visible on the child weight at birth if the mother is exposed to conflicts during pregnancy. The situations get worse with appearance of locust in 2020 in east African countries (Kemmerling et al., 2022). In the migration process due to conflicts, the food producers become food consumers which severely disrupts the food supply in the markets. The disrupted food supply and demand balances under war conditions also results the price hikes which further enhances the food insecurity. In response to climatic shocks and poor economic conditions of the people, the Somalian Federal government kept the wheat prices at the level of 2011. However, these prices jumped upto 15-20% following the start of the war between Russia and Ukraine at during February 2022. The crop failure and livestock death reduced the income of people, while the prices of food have increased many times. Millions of people in the country were displaced. More than 7 million livestock have been died and millions of people are under the threat of starvation (World Food Programme, 2022). It

increases the food insecurity where the estimates show that 7.1 million people need urgent assistance (Somalia Food Security and Nutrition Analysis Unit (FSNAU)). In another report, it was estimated that about 4.8 million people (31% of total population are experiencing crisis or worse conditions since the beginning of 2022 (Somalia: IPC Acute Food Insecurity Update Snapshot 1 March - June 2022)). It was further reported that drought may prolong further till mid-June leading to worse the nutrition and food security. The consecutive failure in harvest in most of regions of the country reduced the food availability which further get worsen with the global hikes in food prices. It makes the food out of reach of the poor people. There is risk of famine due to recent droughts and the country is under drought emergency. It was appraised that 4.5 million people were affected, out of which 700,000 people have been displaced for search of livelihood, pasture, water, and food (IFRC, 2022).

According to latest report on state of food security 2022, the 41.6% population of Somalia is experiencing severe food insecurity, 77.4% is facing moderate food insecurity and 27.4% population of children below 05 years is stunted. Although reasonable improvement was observed in 2020 in comparison with 2012 (FAO, IFAD, UNICEF, WFP and WHO. 2022). There are millions of households which are already facing the gaps in food consumption. The cumulative effect of climate change, political unrest, increased food prices and low income make them highly vulnerable and food insecure population. The integrated phase classification (IPC) analysis for Somalia found that there is risk of famine provided that crop and livestock fails, food prices increased and some humanitarian assistance is not provided. The malnourished population are already high in East African countries. The number of severely malnourished children admitted in the hospitals during first quarter of 2022 represents the 30% population. The survey for food insecurity in eleven regions of the Somalia was jointly conducted by the FSNAU and World Food

Programmed in April/early May 2022 represents the severe concern about the food insecurity in south Somalia. The survey concluded that malnutrition in children was acute and adult mortality was above emergency level.

There are four logics of the war linked to food insecurity and these are destruction, conflict induced displacement, food control and hunger. The agriculture lands, irrigation and other related infrastructure are destroyed from the wars. The local people stocks the food items in war days which also create food shortage in local markets. In this sense, massive populations face the severe food insecurity both in the country and across the border. The latter is mainly concern of the countries which are dependent upon the food import from the other countries. The borders are sealed for trade which influence the overall food supply chain of the world. Therefore, the wars left many people foods insecure. The agriculture production will be below the current levels in war affected countries. Severe bombing and use of other chemical weapons destruct the agriculture lands and demolite the infrastructure including irrigation schemes, road and bridges and other building. The area sown under maize, sunflower and barley in Western part of Ukraine was badly damaged due to war and other fighting activities. The economic sanction imposed on Russia will disrupt the export of fertilizers, seeds and pesticides. In these circumstances, the area under crops and yield of crops is likely to decrease worldwide. The lack of fertilizer trade and current crops damages would have an important implication for future food security. Furthermore, the availability of seeds and other agriculture inputs are not stabilized for years after settlement of wars. All this shows that much time will be required to streamline the food supply chain. It is very alarming for future food security for both the residents of war specific country and export dependent countries.

The climatic shocks, COVID-19 and Russia-Ukraine war together put the significant population of the world near starvation. The contribution of both the countries in world production of agriculture commodities are very high. The crop failure and livestock death reduced the income of people, while the prices of food have increased many times. The World Food Programme (2022) reported that poor people in Southern Somalia, still having healthy goat to sell, are able to purchase only 50-75% of required cereals. There have been dramatic changes in humanitarian assistance resources available for East Africa. The severity and scale of crisis is increasing day by day in Somalia and economic and climatic projections shows that duration of crisis could be longer than previously observed crisis (Majid et al., 2022). The income sources of people are substantial and mainly depends upon the rainfed agriculture and pastoral systems in East African countries. In response to climatic shocks and poor economic conditions of the people, the Somalian Federal government kept the wheat prices at the level of 2011. However, these prices jumped up to 15-20% following the start of the war between Russia and Ukraine at during February 2022.

In general, the cereals are exported to other countries to support their food system. Both the countries are among three top exporters of sunflower, wheat, barley, maize, rapeseed, and sunflower oil in the world. These countries are 30% net exporter of wheat in the world. In addition to these, the Russian federation is the also exporter of nitrogen, phosphorus, and potassium fertilizer. The Russian Federation alone is source of nitrogen, phosphorus, and potassium for 25 countries of the world. The wheat and wheat products represents 1/3rd of total cereals consumed as food in East African countries. The wheat requirement (84%) in these countries is mainly dependent on import (Vam Food Security Analysis, 2022). These countries for import of cereals i.e 72% from Russia and 18% from Ukraine (Caprile, 2022). The other countries of the region like Kenya and Uganda import 18% and 19% wheat from Russia and 1% and 7% wheat from Ukraine,

respectively (Duho et al., 2022). The Somalia alone depends upon Russia and Ukraine for 90% import of wheat. The price of wheat has already been increased up to 36% in Somalia and 66% in Ethiopia (IFRC, 2022). It will get further worse due to import disruption because of this war. The supply disruption will affect the production of bread which is third most important food item in Kenya.

The price of sorghum was increased four time than previous year price and 50% higher than its historical peak price 2016-17. While the maize price in Ethiopia were increased by 60-85% over last year price. The price hike was not only due to drought but was also contributed from the Russia-Ukraine war (World Food Programme, 2022). The drought in Kenya already slumps 70% crop production, while the food crisis will get worse with the Russia-Ukraine war due to high volume wheat import from these countries. About 3 million people in the Kenya are already facing acute hunger (Gbadamosi, 2022). The Russia-Ukraine war put further upward pressure on food prices by threatening food security of the millions of the people in Somalia. The local prices of sorghum and maize was increased up to 50% in southern region of Somalia. The fuel prices have been increased which would increase the cost of imported food items especially. The grains and edible oil prices go upward during first half of 2022. The rise in wheat prices were mainly due to tightened export volume ahead of 2022-23. The tentative projections for mid 2022-23 showed that wheat export from Ukraine may decline by 50% to the level of mid 2021-22 due to persistence of war related disruptions. The recent assessment by local sources reported that 28% area of rye, winter wheat and barley was lost in Ukraine due to war. Moreover, 10% reduction in wheat yield was projected as a result of poor nutrient application and poor pest management. Again, the post-harvest losses could be high because of labor shortage.

The above discussion showed that Russia-Ukraine war will result in hikes in prices of food and agriculture inputs. Its impacts are beyond the localities from domestic to worldwide. The local population may be food insecure due to increased price hikes, however, the sudden and prolonged food export reductions will worsen the global food security. The countries like East African countries which depend on these countries for grains import, will have to look for alternative resources to make them resilient to these shocks. On the other hand, it is also crucial that import-dependent countries should enhance their domestic production by adopting innovative and efficient farming technologies.

The war affected people in Ukraine required urgent humanitarian assistance and many organizations supporting the fragile and food insecure population in other parts of the world shifted their resources toward Ukraine. The projections made by Food and Agriculture Organization as a joint effect of climate change and war suggested that the number of food insecure people may be between 8-13 million in 2022/23. Most of these concerns are Asia-Pacific, Sub-Saharan Africa, East and North Africa (Food and Agriculture Organization, 2022). The issue may become very severe and ever increasing until and unless joint actions are not taken well in time. Many organizations like World Food Programme are leading in this regard. The impact of the war between Russia-Ukraine will be more realized in countries like Somalia which mainly depends upon the grain import to support their fragile food system.

END NOTES

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