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INDEPENDENT STRATEGIC ANALYSIS OF AUSTRALIA'S GLOBAL INTERESTS

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African Food Security: Immediate Challenges Conceal Long-Term Opportunity

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Key Points

- Conflict, drought and an outbreak of fall armyworm, an invasive pest from South America, are the main factors that could undermine African food security in 2018.
- Fall armyworm is unlikely to be eradicated from the continent and will continue to threaten crop yields, but with close management that is appropriate to the African context the threat can be minimised.
- Continued research and development of underutilised and overlooked crops, increased development and adoption of drought tolerant crop varieties, the expansion of irrigation, modern agricultural technologies and mechanisation will help to improve food security outcomes across the continent.

Summary

Food security weakened across Africa in 2016 as the number of food insecure people rose from 200 million in 2015 to 224 million. Of the four countries most likely to experience famine in 2017 (Somalia, South Sudan, Nigeria and Yemen), three are located on the continent. While none of the country-wide famines eventuated, parts of South Sudan briefly experienced famine conditions. African food security in 2018 is likely to be undermined by drought, particularly in East Africa, the spread of fall armyworms, on-going conflict in South Sudan and the potential deterioration of socio-political conditions in the Democratic Republic of the Congo (DRC), the Central African Republic (CAR) and the Lake Chad region. Despite these trouble spots, there are grounds for long-term optimism in the development of African agriculture.

Analysis

Drought Conditions in the Horn

The drought in the Horn of Africa is forecast to continue into 2018. In Kenya, two consecutive years of lower than average rainfall has left it with its most severe humanitarian emergency since a major drought in 2011. In Turkana state, in the north-west, where the drought is most severe, pastoralists and herders have been left with little option but to sell their livestock, creating an oversupply in the market and bringing prices down by 90 per cent in some areas. Prolonged drought conditions could heighten tensions between pastoralists and herders.

Somalia experienced the most severe famine of the 21st century in 2011-12. Drought, economic crisis and conflict all contributed to an emergency that cost 250 thousand lives. Somalia experienced below-average rainfall throughout 2017 leading to fears that a similar crisis could again develop. The *Gu* season (April-June) cereal crop in the southern "breadbasket" was 13 per cent lower than average and the north-west fared even more poorly, with the harvest 87 per cent lower than average. Low cereal stocks led to an earlier start to the lean season. Poor and erratic rainfall in the *Deyr* season (October-December) is likely to result in a below average harvest, in January 2018. The political and economic situation of the country has improved since 2011, however, and it is unlikely that conditions will deteriorate to the same level.

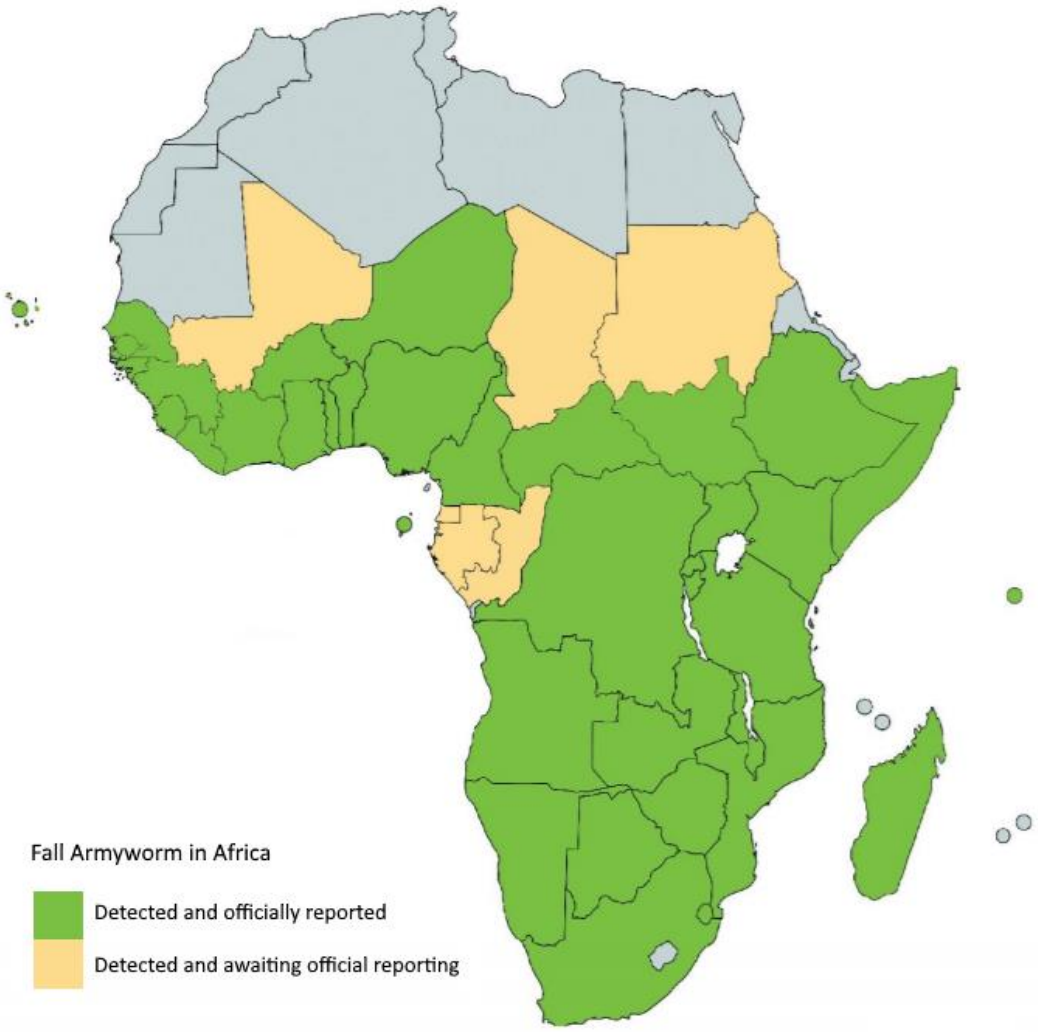
Dry conditions alone are unlikely to lead to severe food crises as food imports and aid will likely be sufficient to meet demand. Unstable socio-political conditions in Somalia, however, could present a challenge to the distribution of food if the situation deteriorates.

Continued Spread of Fall Armyworm

Fall armyworm, an introduced species that is native to South America, has officially spread to 43 African countries. While the pest can affect more than 80 plant species it is particularly attracted to maize, a staple food for more than 200 million sub-Saharan Africans. The Food and Agriculture Organisation (FAO) estimates that about 35 million hectares of maize is grown by small-holder farmers across this region, and most of it is infested or at risk of infestation. It is estimated that eight to 20 million tonnes of maize could be lost to fall armyworms across Africa each year, enough to feed 40 to 100 million people. Large producers, such as Nigeria or Tanzania, could lose more than half of their maize harvest, according to the Centre for Agriculture and Biosciences International.

African farmers have been quick to react to the new pest, however, with many receiving advice on the best methods to combat it. Over 95 per cent of maize producers are small-holder family farmers, many of whom are unlikely to have the financial means to purchase the advice or pesticides required to contain the threat. Brazil spends more than US$600 million ($750 million) annually to contain the spread of fall armyworms, an expense that many African countries would struggle to afford.

Map of areas affected by Fall Armyworm (as of December 2017)



Source: Food and Agriculture Organisation

The South American experience also suggests that the response in Africa will need to constantly evolve, as fall armyworm develops resistance to common insecticides. In response, Brazilian producers have adopted genetically modified (GM) maize to help control the pest. With the exception of South Africa, however, African countries remain opposed to the adoption of GM crops. The FAO recommends that farmers in affected areas adopt an integrated pest management approach that favours utilising natural control agents, such as biological pesticides and native predators of the fall armyworm, and minimise the use of synthetic chemical pesticides to reduce the risk of resistance.

Fall armyworm will not be eradicated in Africa, but it can be managed. The continuation of close monitoring, extension services that share knowledge on how to control the pest and the controlled provision of pesticides in particularly severe infestations will help minimise crop losses.

Conflict Undermines Food Security

Food insecurity can be both a cause and a consequence of conflict. In Africa conflict has heightened food insecurity and some of the world's most food insecure populations are located in the continent's conflict zones. South Sudan is the most destructive conflict in Africa, but civil unrest and insurgencies are also weakening food security in other parts of the continent. A number of emerging conflicts, which are at risk of escalating, also pose a potential threat to the food security situation.

Estimates of People Requiring Food Assistance in African Conflict Zones

	People in Need of Food Aid (millions)	Total Population (%)
Burundi	1.8	18
Central African Republic	1.1	30
Democratic Republic of the Congo	7.7	11
Lake Chad Basin (Cameroon, Chad, Niger and north-east Nigeria	2.9	15
Somalia	3.1	25
South Sudan	4.8	45
Sudan	3.8	9

Source: Food and Agriculture Organization and World Food Programme, 'Monitoring Food Security in Countries with Conflict Situations', January 2018

South Sudan continues to be the most food insecure country in Africa. It was the only country to officially experience famine in 2017, after food distribution networks broke down and briefly interrupted the food supply in parts of Unity State. The political situation is the main driver of the food crisis as the country's civil war enters its fifth year. A ceasefire that came into force on 24 December 2017 lasted only a few hours before fighting resumed. Peace talks continue in Ethiopia, but without the co-operation of those on the ground it is unlikely that a solution to the conflict will be found.

The United States, which is the largest provider of humanitarian aid to the country, has threatened to reduce its level of assistance unless conditions begin to improve. This threat, however, is unlikely to have much bearing on the actions of the South Sudanese

Government which has increased the fees that humanitarian organisations pay to operate in the country.

The spread of famine was averted by an increase in relief operations, but the situation remains critical. The root cause of the hunger crisis has not been addressed and there is a strong possibility that conditions will deteriorate again. Unless the political situation in South Sudan improves, food insecurity could be more severe in 2018 than in 2017 as food stocks and access to markets further erode.

Conflict has affected the eastern provinces of the DRC since the 1990s. In recent months, however, rebel groups have begun to spread further west and a potential political crisis, caused by the president's refusal to leave office, could further exacerbate tensions.

Amid fears that the DRC could experience a similar level of violence to the civil war years of the late 1990s, the United Nations elevated the country to a category three humanitarian emergency, putting it on par with Yemen, Iraq and Syria. More than 1.7 million people abandoned their farms and villages in 2017, in addition to the 900,000 that fled in 2016. Hunger rose across the country in 2017 and 7.7 million people, about eleven per cent of the population, are believed to be facing acute hunger.

President Joseph Kabila's constitutionally mandated two-term limit expired in December 2016, but he refuses to hold elections and vacate the office. Violent demonstrations broke out across the country, particularly in the Kivu and Kasai regions. Kabila signed the Saint Sylvester agreement, which allowed him to lead a transitional government until a presidential election in December 2017 but precluded any constitutional change that would allow him to run for a third term. The election has been postponed until the end of 2018, but it could be deferred again. A failure to hold elections is likely to increase social tensions within the country and possibly lead to an increase in violent demonstrations which, if they become severe enough, are likely to further undermine food security.

The volatile security situation in the CAR has also deteriorated since July 2017. While the country has never been particularly stable since independence in 1960, the overthrow of the government in 2013 and the sectarian violence that followed has increased the level of instability in recent years. Agricultural output is expected to have declined in 2017, for the fifth consecutive year, as large-scale population displacement and input shortages make agricultural production difficult. Poor market access in conflict areas, mainly in north-western, south-eastern and central provinces, is likely to further exacerbate food insecurity.

The Lake Chad region is likely to continue to experience heightened food insecurity as a result of instability brought about by Boko Haram. Military operations have restored security in major towns, but access to smaller settlements remains limited. In parts of the region, roadside crop growth has been restricted to less than one metre in height to prevent armed groups from hiding in fields. The distribution of fertiliser has also been curbed due to fears that it could be used in the manufacture of explosives. Both policies have reduced the production of regional staples, including millet, sorghum and maize.

Long-Term Opportunities in African Agriculture

Despite these challenges there is considerable agricultural potential across the continent. Africa has 60 per cent of the world's uncultivated arable land, crop yields are between one-third and one-half of the global average – indicating that there is potential to increase production - and soil quality is often poor, although with better soil management, this can be rectified.

Greater research and development attention is being given to underutilised and overlooked crops that are favoured by small-holder farmers, who account for 70 per cent of agricultural production in Africa. Increased research and development of these crops will help to improve yields, biodiversity and overall food security.

Greater access to new and improved seeds will also help to strengthen long-term food security. The Drought Tolerant Maize for Africa Initiative, for instance, helped farmers in 13 African countries gain access to drought tolerant maize varieties. A successor programme, the Drought Tolerant Maize for Africa Seed Scaling project, continues to expand the availability of drought tolerant maize in major production areas. Access to drought tolerant sorghum, millet and cowpea seeds have also helped to more than double yields in parts of Africa. Ensuring that drought tolerant seeds are more widely distributed and that they are developed in partnership with local growers and communities will help accelerate their adoption.

Expanding irrigation systems will also help to minimise drought risk in Africa. Most African farmers, and particularly small-holders, rely on rainfall for crop production and their livelihoods are therefore entirely dependent on seasonal weather patterns. Only five per cent of the African continent is irrigated, but irrigation technologies are beginning to penetrate the African market. Drip irrigation, which conserves water and can also deliver fertiliser directly to the roots of plants, is the most rapidly expanding type of irrigation on the continent. Access to fuel to power water pumps is a barrier to more widespread adoption, but renewable energy-powered devices, while often requiring greater initial capital outlay, are often cheaper to run as they carry less recurrent costs.

African farming systems remain the least mechanised of any continent. Difficulties in getting access to credit to purchase machinery, limited access to spare parts and limited numbers of skilled mechanics are the main impediments to mechanisation.

Previous efforts at mechanisation have had mixed results. Large-scale commercial operations can afford to purchase and maintain machinery, but small-holder farmers have struggled to gain access. Corruption and patronage networks have also increased costs, putting machinery further out of reach of small-scale producers. Two-wheel tractors, which are cheaper to purchase and easier to maintain, are seen as a more appropriate solution for African small-holder farmers. These devices are an improvement on the hand tools that are still used by a majority of farmers.

Conclusion

While parts of Africa are at risk of greater food insecurity in 2018, the long-term outlook for the continent is hopeful. Provided that current investment, research and assistance programmes are maintained and expanded as necessary, it is possible that the continent will begin to realise its underutilised agricultural potential.

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