

Strategic Analysis Paper

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Madagascar's Food and Water Security as Affected by Natural Disasters

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Key points

- Natural disasters act as a stumbling block towards Madagascar's food and water security and the economic development at large.
- One quarter of the rural population is food insecure and 8 per cent of the total population is affected by chronic food insecurity.
- With the recurrent natural disasters, measures to promote adaption to such conditions are being promoted by organisations such as the United Nations Food and Agriculture Organization and its partner International Crops Research Institute for Semi-Arid Tropics, the World Food Programme and many others.
- The government should consider policies that promote long term disaster management and rehabilitation.
- Strongly determined efforts from the government, its people and international organisations are required in order to promote the food and water security of the Malagasy people.

Analysis

Madagascar is the world's fourth largest island after Greenland, New Guinea, and Borneo. It is located on the western side of the Indian Ocean and is about 8,885 kilometres from Australia. It is sometimes called the "eighth continent" due to the diversity of its flora and fauna, most of which is unique to the island. Madagascar's unique heritage of nature owed to the island's isolation makes it one of the greatest attractive destinations for tourists.

Madagascar, inhabited by the Malagasy people, has around 19 million people. It is classified by the United Nations as an underdeveloped, food deficit, low-income country and is ranked the 145th poorest out of 177 countries in the 2009 *United Nations Development Programme Human Development Report*. According to the UN Children's Fund (UNICEF), more than 70 per cent of the population live below the poverty line and over 50 per cent of children under the age of three years suffer retarded growth as a result of their inadequate diet. Chronic food insecurity affects about 8 per cent of the population, while another 50 per cent experience transitional food insecurity, particularly during the "lean season" between October and March.

The country's main economic activities are agriculture, and industries such as food processing, clothing, textiles, mining, tourism, vehicle assembly, paper manufacturing, crude oil refining, glassware, construction and soap, cement, tanning and fishing. The agricultural sector, which is the main economic activity in Madagascar, produces cocoa, cloves, cassava, coffee, sugarcane, vanilla, rice, beans, bananas and livestock products.

Despite efforts to increase economic productivity, disasters such as cyclones, drought, locust infestation and floods continue to act as a stumbling block and increase threats to Madagascar's food security. Over the last four decades, more than 50 natural disasters have hit the country. Other contributing factors include (but are not limited to) low sanitary conditions and education levels.

Food and Water Security

Food insecurity is common in the south due to a generally dry environment as well as prolonged drought conditions. It is seasonal in the east due to flooding from cyclonic rain. Food insecurity is usually most distinct just before the main harvest; from October to March. Locust infestation also plays a significant role in the destruction of crops discouraging farmers from putting any more efforts into further production.

Cyclones

Cyclones are not foreign to Madagascar. On average the country is hit by three storms per year during the October to April cyclone season, one of which is normally hurricane strength. These have remarkable impact on the general food security of the country. The most recent cyclone 'Bingiza,' with wind speeds up to 185 kilometres per hour hit the country on 14 February 2011. It provoked torrential rainfall in the northeast coast of Madagascar and affected five districts: Sainte Marie, Soanierana Ivongo, Maroantsetra, North of Mananara and Mandritsara. The cyclone is said to have destroyed roads and bridges and left villages without access to food and water. It also destroyed many cash crops such as coffee, vanilla, rice, and fishing communities in the Masoala peninsula - a great setback to the economy. The Masoala Peninsula is one of Madagascar's most conserved areas, particularly its relatively extensive rainforest and high biodiversity of animal and plant life.

It is unfortunate that natural disasters such as cyclonic events and seasonal food insecurity have been, and will continue to be, recurrent in Madagascar. Secondary data analysis commissioned by the World Food Programme in June 2009 confirmed that 25 per cent of

the rural population was food-insecure. It is, however, through endless efforts by organisations such as the World Food Programme, USAID, Irish Aid, the Red Cross and the United Nations that the country continues to cope with such events.

By 2050, Madagascar's population is expected to grow to approximately 42 million people. The future is not promising. In this context, it is worth engaging with policymakers, researchers and development agencies to devise ways to boost agricultural yields. This should aim to make agriculture more sustainable and less susceptible to changes in climate and could help counter the effects of the cyclone cycles. Although evidence indicates that it takes quite a long time for innovation systems to deliver new ways of farming, these organisations should consider helping the country to invest in new science to address the recurrent disasters.

Cyclones also play a role in the rate of deforestation in Madagascar. When the trees are uprooted the rate of rain cloud formation is reduced, making the area prone to drought. Cyclones also cause rivers to flow at a slower rate and therefore reduce the amount and quality of water in the cities as well as water for agricultural purposes.

Floods

Floods usually go hand in hand with cyclones. They tend to cause massive deforestation as well as saturate the soil and make it unfavourable for agricultural production. As much as water is vital in agriculture, saturated soils hinder crop production as there is no air in the soils. Floods also affect the guarantee of safe and clean water as all the sources of water become the hub for all residues transported by floods.

Many communities in the country rely on shallow wells which can be easily contaminated during flooding. Flood water attracts waterborne diseases such as malaria, cholera and dysentery. Madagascar relies heavily on human labour so diseases have an impact on production levels. It is not easy for families to concentrate on agriculture when they are suffering from diseases.

Drought

Drought conditions generally decrease food production because of insufficient moisture levels in the soil. Plants require both water and air in order to grow well. With the global climatic changes, the potential for droughts and floods pose challenges for farmers in Madagascar. Additionally, the enduring changes in climate, water supply and soil moisture makes it less feasible to continue crop production in certain regions of the country.

Almost 720,000 people in the south are facing food insecurity after two consecutive drought years and have drawn down their livestock levels and possessions in order to survive. According to daily online news channel *the African Press International*, people have given up. The report, by Harinesy Rajeriharineranio, the Southern Madagascar coordinator for Actions Socio-Sanitaire et Organisation Secours (ASOS), an NGO focused on health and sanitation, suggests that since the beginning of the lean season in October 2010 people have been changing their eating habits, with many eating red cactus usually used as cattle food, or tamarind mixed with water and clay.

In addition to concerns over drought conditions in the south, poverty and neglect by the political powers play a great role compared to the north, where the capital, Antananarivo, is located. As mentioned earlier, more than 70 per cent of the population lives below the poverty line but the number of poor people tends to rise as one moves further to the south, where most depend on subsistence farming.

Madagascar is not facing food security challenges alone, since with continued rainfall scarcity, some organisations such as *FAO and ICRISAT, the International Crops Research Institute for the Semi-Arid Tropics* have seen the need to help the country adapt to these challenges. As a result they have reintroduced drought –resistant crops such as sorghum, which is also a nourishing crop which can easily survive in harsh dry climates. In addition, the partner organisations are introducing short growing-cycle maize, which is less vulnerable to dry conditions.

Locust infestation

For a long time now locusts have been a great threat to the food security of Madagascar. In fact, the country is currently being confronted with a plague threat due to the build-up of the population of locusts in south-western parts of Madagascar. If the situation worsens, FAO estimates that approximately 13 million people could be affected unless there are preventive measures to save their crops. The organisation also suggests that around 300,000 hectares of locust-infested territory currently requires treatment from November 2011 to May 2012 at a cost of US\$7.6(AUS\$6.96)million dollars.

One of the most remarkable plagues that the country has faced so far is the four year plague which ended in 2000. Memories of how only the far north of Madagascar was spared from invasion by the Malagasy Migratory Locust are still in the minds of the Malagasy people. Therefore, recapitulating from such a situation brings fears that these current warning signs need to be considered and action taken.

Other factors

Aside from these environmental and climatic challenges on the country's food and water security political forces also play a great role in risking the food and general security of the Malagasy people. As a result, this indirectly affects the country's economy including agricultural production. In addition to this, food security is becoming a significant issue in many parts of the world especially due to global climatic changes.

In the 18 May 2011 *Strategic Weekly Analysis*, '[South Korea Food Security Concerns Prompt Land Grab](#)' it was noted that South Korea made an attempt to secure nearly half of the country's arable land. If not for the resignation of the then Madagascan president, Marc Ravalomanana, the lease would have been successful. As a result, the locals would lose access to land, water and other resources found on the land thus increasing the potential of domestic food insecurity. Furthermore local markets would suffer.

With such things as land grabbing, what is the fate of developing countries like Madagascar?

Conclusion

Despite the extent of Madagascar's arable land, threats and the recurrence of natural disasters will continue to be a hindrance to the country's ability to meet food and water needs of its people. This is why many more sustainable measures to adapt to these disasters are important. The government should consider policies that promote long term disaster management and rehabilitation such as creating the atmosphere of preparedness, constant improvement of the quality of relief services and the model of addressing cross-sectoral management approaches. This could encourage quick relief for families and thus ensure constant labour supply in the production of food and survival from waterborne diseases.

In saying so, there is a strong demand for determined efforts from the country's government, its people and international organisations in order to overcome these problems. It is only then that, the food and water security of the Malagasy people can be enhanced.

Any opinions or views expressed in this paper are those of the individual author, unless stated to be those of Future Directions International.

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