

Strategic Analysis Paper

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The Future of Food and Water Security in New Egypt

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Key Points

- Fifteen million Egyptians do not earn a sufficient income to purchase an adequate level of nutrition. Income constraints limit the consumption choices of those most vulnerable to food insecurity.
- Economic, political and environmental challenges place restrictions on domestic food production. Increasing food imports, together with reclaiming land for greater food production, is imperative for ensuring the food security of Egypt's rapidly growing population.
- Egypt experiences an annual water shortfall of 7 billion cubic metres. Its traditional control over the Nile river, the predominate source of fresh water, is being increasingly challenged by neighbouring countries.
- As Egypt undergoes its democratic transition, it faces a moderate to high risk of developing food and water crises over the next decade.

Summary

With approximately 83 million people, Egypt is the most populous country in the Middle East. Its population density has roughly doubled over the last three decades, which has placed enormous pressure on its food and water security. The fertile land on either side of the Nile River and in the Nile Delta, has supported agricultural activity for thousands of years. These areas, however, are in decline, due to soil erosion, desertification and salinity. A

diminishing capacity to produce food is the result. Environmental and political factors also threaten Egypt's water supply. The actions of Egypt's new government will play a significant role in the future state of the country's food and water security.

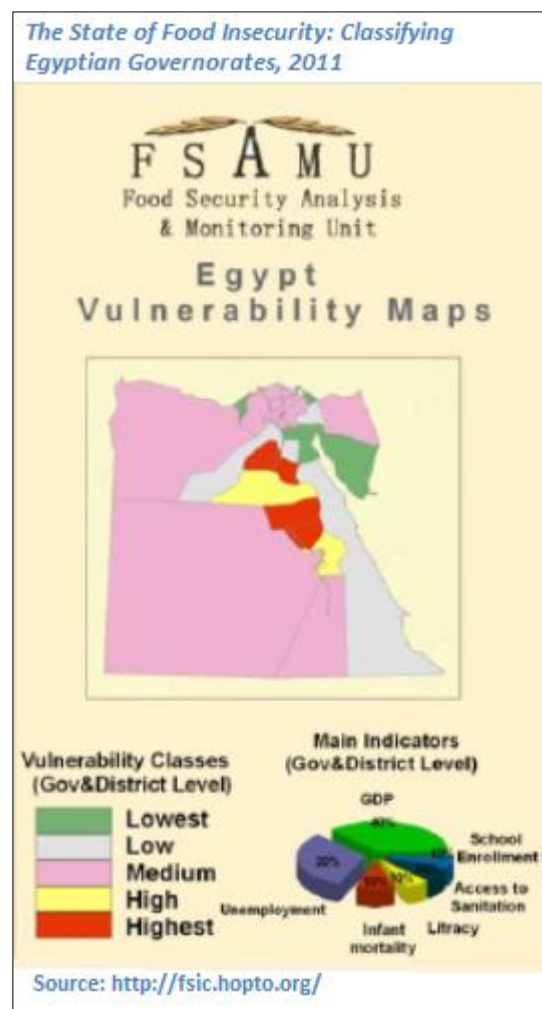
Analysis

Food Security

Food security in Egypt is threatened by limited water resources and shrinking arable land. Extreme land deterioration, due to the loss of vegetation and soil moisture, is reducing the area available for cropping. Desertification is taking place on either side of the Nile River, a major agricultural zone, as the Eastern and Western Deserts encroach inward. In addition, gradual increases in temperature and evaporation rates are presenting a number of challenges for food production. Environmental conditions throughout Egypt's agricultural areas appear to be altering, making the land less productive. The changing global climate, which exacerbates existing environmental variations, is predicted to have severe consequences for Egypt's food security.

In recent years, Egypt's food security has been threatened by both internal and external events. Beginning with an outbreak of the avian influenza epidemic in 2006, followed by a series of intermittent fuel crises, the most recent in September 2012, the availability of, and access to, food has been interrupted on several occasions. Food shortages were compounded by the global financial crisis of 2008/09 and political instability in 2011, particularly the stalled economic growth that accompanied Egypt's revolution. During this period, Egypt experienced frequent disruptions to its food supply.

As a consequence of recent events, together with general socio-economic conditions and food inflation, around 15 million Egyptians do not earn a sufficient income to purchase an adequate level of nutrition. These 15 million people are considered vulnerable to food insecurity, particularly if government food subsidies are removed. They are restricted in their consumption choices, tending to consume commodities such as legumes, onions, tomatoes, potatoes and subsidised baladi bread. People in this category rarely purchase meat, poultry or fish, with nutritional deficiency rates increasing as a



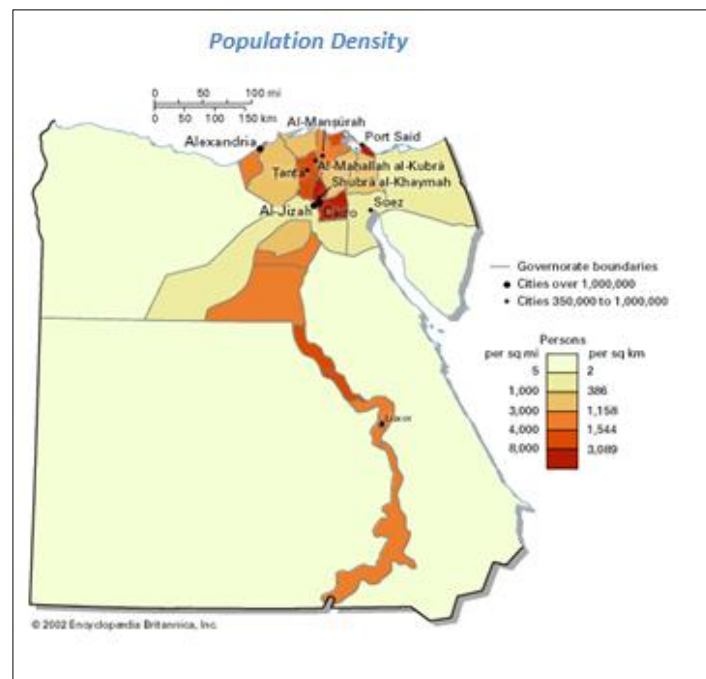
result. Vulnerable people are further restricted due to regional infrastructure disparities; their food access is limited by underdeveloped local markets and poor transport and storage facilities.

Egypt imports around 40 per cent of its food, which makes it quite vulnerable to international price and supply shocks. Regional factors, such as the flow of migration and threats to the free passage of commodities in the Gulf of Aden and the Red Sea, also impact the country's commodity trade. Therefore, food security in Egypt is as much a geopolitical issue as it is a humanitarian concern.

Egypt's present government heavily subsidises bread, sugar and cooking oil, operating a ration-card system to ensure food security at the household level. Food subsidies and land reclamation projects, combined with policies to restore economic growth, represent the primary tools of the government in safeguarding against food insecurity. The government also maintains a six-month strategic reserve of wheat, a key commodity, to assist in reducing prices and alleviating hunger during a crisis. Food insecurity in Egypt is characterised by regional disparity, with the rural areas of Upper Egypt generally suffering from lower socio-economic standards than those in Lower Egypt.

Water Security

The Nile River, which originates outside Egypt's borders, supplies 95 per cent of the country's total water usage. With little significant rainfall, Egypt is dependent on rain in other countries to support its rapidly growing population and development. The Nile services the country's industrial and agricultural demand and is the primary source of drinking water for the population. Egypt's total water budget is estimated to



be substantial, at around 58 billion cubic metres annually. The problem, however, is that rising populations and economic development in the countries of the Nile Basin are decreasing the amount of available fresh water. Pollution and environmental degradation are further diluting water availability, with Egypt suffering an annual water shortfall of around 7 billion cubic metres.

Secondary sources of water in Egypt are scarce. Ground and surface sources contribute a small percentage to the country's water use, while desalinated water supplements supply in some coastal areas, predominately servicing the tourism industry. Of Egypt's total water

resources, irrigation for agriculture consumes 80 per cent. The water sector is characterised by inefficiency and minimal progress over the last decade, and is ranked among the lowest 10 per cent of regional countries in irrigation efficiency. Egypt's Ministry of Water Resources and Irrigation states that the level of efficiency of the Nile system is 75 per cent. Compounding the inefficiency, the quality of water sourced from the Nile is deteriorating due to increasing industrial activity.

Water is a strategically significant resource in the region, and Egypt views its control over the Nile as a national priority. The river has long been a source of contention in international politics. The distribution of its water is governed by a 1959 treaty between Egypt and Sudan, which inequitably distributes water rights to the countries of the Nile Basin. Despite the fact that the Nile's source lies outside its borders, the treaty granted a disproportionately large share to Egypt. Its traditional control over the Nile, however, is being increasingly challenged by other countries in the Nile Basin

In 2011, the Cooperative Framework Agreement (CFA) was established to restore water rights to other Nile Basin countries. Six nations are signatories to the CFA, although Egypt has opted not to sign the agreement as it may reduce its share of water flowing from the Nile River. Over the past decade, damming has taken place in other countries, and this has moderately affected the flow of water into Egypt. Plans for new dam projects to assist the water and energy security of Nile Basin countries, particularly Ethiopia's Renaissance Dam, pose a threat to Egypt's water security. While it is not in Egypt's interest to become a signatory to the CFA, its democratic transition may force it to be more cooperative with its neighbours. Should diplomacy not produce a new water-sharing agreement accepted by all states, regional conflict may arise over future control of the Nile.

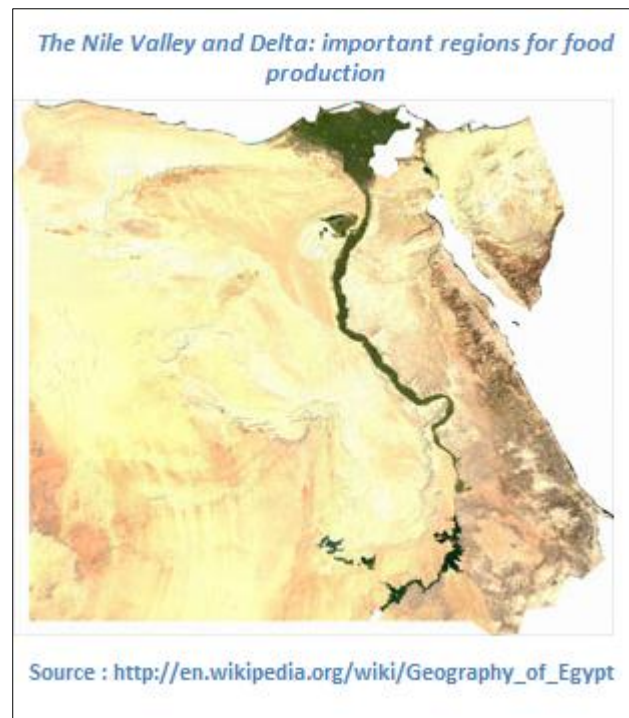
Potential for Future Crises?

The new democratic Egypt faces significant food and water challenges over the next decade. Restrictions on food production and declining access to water carry the likely prospect of future crises, which threaten to destabilise the north-east African region. Both the internal and external fallout from its political transition will continue for some time and will have a direct bearing on the severity of future shortages.

An important factor in determining the country's level of food and water security will be consistent economic growth, together with gaining control of inflation. Ensuring the availability of sufficient and affordable food for the population will require sound economic policies that build resilience in Egypt's agricultural sector to variable trends in international food markets.

In the lead up to, and during, the 2011 revolution, Egypt's economy stalled after successive years of strong growth. More than a year after Egypt's leadership change, the country's economic outlook is improving as its markets regain confidence. While this recovery is expected to continue in the years to come, economic and political challenges will make the task of achieving food security extremely difficult.

A growing economy will allow Egypt to increase food imports, which is necessary to satisfy its growing population. At the same time, increasing local food production will offset the economic burden the country faces. Augmenting the nation's food storage capacity, particularly for wheat, will further assist food availability. Expanding the production of food, however, is restricted by dwindling water supplies and a lack of suitable arable land. While agriculture is generally productive in Egypt, adopting technologies that can increase crop yields while using less water will provide a boost for total output. This is especially important



as environmental degradation poses a threat to current production methods, meaning that conserving Egypt's existing agricultural land is imperative. Generating new land through land reclamation projects will be vital in overcoming Egypt's production shortfall, though increasing the availability of agricultural land will place enormous pressure on the water supply.

As Egypt is almost entirely dependent on the Nile for its fresh water, securing the river is of extreme importance. The new political dynamics within Egypt, however, raise questions about its future water

access, specifically in how it will engage with other Nile Basin countries over the contentious issues of distribution and entitlement. With Egypt's decline in power, and other Nile states' increasingly assertive claims, Egypt's share of the Nile resource is very likely to diminish over the next decade. This outcome would be both disastrous and unacceptable to Egypt, and raises the possibility of future conflict-induced crises.

Should Egypt manage to reassert its hegemonic control over the river, it still faces a greatly reduced per capita water share, as domestic water demand is expected to increase 25 per cent by 2025. Therefore, in addition to securing the Nile, Egypt must find ways of better utilising its available water. An important part of this is to introduce more efficient irrigation systems in the agricultural sector. Better water management, changed cropping patterns and growing crops that consume less water would all assist in ensuring Egypt's future water security. Finding alternative water sources, such as recycled water, reservoirs, treated sewage and future desalination projects, will also be necessary. Completing the Jonglei Canal and accessing the Nubian Sandstone Aquifer System, will further assist in reducing the severity of future water shortages.

The changing global climate poses the greatest challenge to Egypt's food and water security. The UN's Environment Programme lists Egypt as highly vulnerable to its impending impacts.

Particularly at risk are the country's coastal zones, water resources and agriculture. Egypt will experience coastal damage from rising sea levels, together with land deterioration and soil salinity. As a consequence, food production in Southern Egypt is expected to decline by 30 per cent by 2050, according to the World Food Programme. The combination of environmental, economic and political challenges presents a difficult situation in Egypt as it undergoes democratic transition. Based on these challenges, there is a moderate to high risk that Egypt will develop both food and water crises in the next decade.

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