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Economic and Political Challenges Limit Progress on Food and Water Security in Pakistan

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Key Points

- Pakistan is a food surplus country but experiences high levels of food insecurity, mainly due to poor access. Most Pakistani households are unable to afford nutritious diets.
- Rates of malnutrition are alarmingly high. Close to half of Pakistani children are stunted, rates of wasting exceed emergency levels and micronutrient deficiencies are very common.
- Water sources are under significant strain as a result of an increasing population, water-intensive agriculture and poor management. Climate change is likely to create further difficulties over the next several decades.
- Water quality is also poor and the majority of the population does not have access to clean drinking water. As a result, water-related illnesses are one of the leading causes of disease and death.

Summary

Pakistan is one of the world's biggest producers of wheat and rice, as well as livestock and a number of other agricultural products. It is a food surplus country with stable food availability. Food security is poor, however, as access to food is limited by poverty and high levels of food inflation. As a result, Pakistan has alarmingly high rates of malnutrition, particularly among women and children. Nearly half of children experience stunting and most suffer from micronutrient deficiencies. Although the Pakistani Government has taken some steps to reduce food insecurity, such efforts are subject to political whims, economic realities or, in some cases, are simply ineffective.

Pakistan's water security is also under considerable pressure. Most water sources are over-exploited, due to an increasing population, agricultural practices and poor management. Pakistan's extensive irrigation system is also one of the least efficient in the world and loses up to 60 per cent of the water it transports. Climate change is also predicted to put pressure on water supplies. Although it is not projected to reduce inflow into water bodies, it is likely to increase variability, leading to more severe floods and droughts. Water quality is also poor and water supplies are often tainted with faecal contamination, pesticides or industrial runoff. As a result, water-borne illness is common and a leading cause of death.

Analysis

Pakistan is a lower-middle income country with a population of around 204 million, making it the sixth most populous country in the world. Its population is expected to increase, to 244 million, by 2030. Although it boasts significant natural resources, it is vulnerable to environmental, economic and political shocks that undermine its food security. The country is exposed to a number of environmental hazards, particularly earthquakes, floods and droughts. It is among the most affected countries by long-term climate risks.

Pakistan is among the world's largest producers of food in some categories. It is the eighth-largest wheat producer, the tenth-largest rice producer and its climate makes it a leading producer of a number of horticultural products. Rice accounts for 44 per cent of its agricultural export earnings, while wheat yields are comparable to those of other major wheat producing countries. The livestock sector is growing due to increased demand from an increasingly urban population. Consequently, Pakistan hosts the world's third-largest livestock herd and is the fifth-largest producer of milk.

Pakistan maintains a vast – though outdated and not well maintained – irrigation system that covers 80 per cent of its farmed land. As such, agriculture depends on water supplies that are not always guaranteed. Agricultural growth was subdued in the 2018-19 period, mostly due to insufficient water availability. As a result, the crop sector experienced negative growth during this time and the production of most major crops fell. Despite a fall in agricultural production, Pakistan is a food surplus country and food availability is stable.

Access to food is often hindered by high rates of poverty, however, and many of Pakistan's poorest are unable to afford an adequate diet. According to a survey by the World Food Programme, 67.6% of Pakistani households are unable to afford a staple adjusted nutritious diet (a nutritious diet that includes a daily serving of the country's main staple. In Pakistan, this is wheat). This figure varies by province, with Balochistan the province most unable to afford this diet (83.4% of households). The Food and Agriculture Organization (FAO) has also found that 18.3% of Pakistani households experience severe food insecurity. "Severe" hunger in this context is the highest rating on the FAO's Food Insecurity Experience Scale, where respondents report experiencing hunger on a chronic basis. Across Pakistan, households consume 13 per cent fewer calories than is officially recommended, while the poorest households consume 23 per cent fewer calories than recommended.

Almost a quarter of Pakistan's population lives below the poverty line of 3030.30 Pakistani rupees ($30.24) a month. It is even higher in rural areas, at 30.7% of the population. Low

incomes are strongly correlated with under-nutrition and under-five malnutrition rates significantly increase with lower incomes. High food prices worsen the problem and poorer households are especially sensitive to food price increases. Despite increasing household expenditure on food, calorie consumption declined by nearly ten per cent between 2000 and 2014, driven by declining consumption in rural households. Food price inflation has been high in recent months and was 19.5% higher in January 2019 than at the same time the year before. Inflation has been especially acute in rural areas.

Pakistan has one of the world's highest rates of malnutrition among women and children. In South Asia, only Afghanistan has performed more poorly than Pakistan at reducing its rate of under-nourishment. About 18 per cent of the population is undernourished and more than half of the country's children lack adequate nourishment. Across urban areas, 97 per cent of children displayed at least one indicator of malnutrition in a 2016 survey. While poor and rural Pakistanis bear the highest burden of malnutrition, rates of under-nutrition among affluent children is between 33-53 per cent, suggesting that the issue is widespread.

The rate of childhood stunting (low height for weight, caused by chronic malnutrition) is an especially serious concern, with 43.7% of children in Pakistan stunted. Additionally, 15.1% of children are wasted (low weight for age, often caused by acute food shortages), a rate that exceeds the emergency threshold set by the World Health Organization (WHO). Micronutrient deficiencies are also common, especially among women and children. Vitamin A deficiency among children is as high as 56 per cent, which is the leading cause of preventable blindness and increases the risk of infections and death. Zinc and iodine deficiencies are also fairly common in children, at a rate of 36.5% and 11.2%, respectively. Iron deficiency anaemia is also especially common in adult women (50.5%) and children (62.1%) although adult men also experience it at fairly high rates (21.2%). Iron deficiency anaemia in children can cause cognitive and developmental delays.

In addition to the public health problems caused by under-nutrition, poor food security has a number of economic consequences. Childhood stunting is associated with poorer attainment in school, which may ultimately lead to adult earnings losses of up to 19.8%. In manual workers, it has also been found that productivity and earnings increase with height. Furthermore, there is evidence that food insecurity may help drive political unrest in Pakistan. Between 2005 and 2015, Pakistan experienced 19 serious episodes of unrest (including riots, demonstrations or major protests) in which food prices were a major (but by no means only) contributing factor. Pakistan came second only to India in terms of such events. While this may not play a major role in Pakistan's security situation, food insecurity has been found to fuel senses of marginalisation and deprivation in Balochistan, reinforcing militant activity in that region.

The Pakistani Government has taken some steps to try and reduce rates of food insecurity. In 2018, the Pakistani Government released its National Food Security Policy, an ambitious document that provides a framework for eradicating hunger and malnutrition, while promoting sustainable and competitive food systems. The policy took years of drafting and involved consultation with a number of stakeholders and was approved towards the end of the previous government's time in power. Although the policy addresses urgent food

security issues, little appears to have been done with the policy since Imran Khan's government came to power. That is possibly because of its association with a past government, or because Pakistan's ongoing economic crises make implementation difficult. In the meantime, a swarm of locusts damaging crops, surging inflation, job losses, slow economic growth and food shortages all threaten Pakistan's food security and measures taken to mitigate these problems have so far been ineffective (for example, a subsidy of Rs2 billion ($19.7 million) for basic commodities amounted to Rs9 ($0.09) a person, each month).

There is limited data concerning Pakistan's total water resources, meaning only approximate estimates are available. What is known, however, is that the majority of its surface and ground water is concentrated in the Indus Basin (there are three hydrologic features in Pakistan: the Kharan Desert System, the Makran Coastal Drainage, as well as the Indus Basin). It is estimated that the country's total renewable resources are around 229 billion cubic metres, or 1,100 cubic metres per capita. Most of its water comes from precipitation and river flows from glacial and snow melt, and surface runoff. Water availability is highly variable: most rain falls between July and September, and 92 per cent of the country is classified as arid or semi-arid. Seasonal, annual and daily river flows are also highly variable, depending on rainfall and glacial or snow melt. Pakistan is considered to be both water scarce (low water availability per capita) and water stressed (high water withdrawals, relative to availability).

Many of Pakistan's water resources are under significant stress, due to an increasing population, the production of water-intensive crops, water wastage and pollution. Population growth and urbanisation pose a particular challenge – due to sustained population growth, relative water availability is less than a quarter of what it was 50 years ago and municipal and industrial water use is growing. Although population growth is slowing, demand is still rising and is projected to reach 337 billion cubic metres by 2025, while availability is projected to remain stagnant.

Groundwater supplies are also subject to pressure and withdrawals are high. The amount of groundwater used is often quoted as being 78 per cent of the resource each year, although the World Bank contends that this figure is probably much lower (closer to 59 per cent) due to a double counting error. Nevertheless, groundwater depletion is a serious issue in parts of Pakistan, particularly in parts of Punjab and Balochistan.

Agriculture has placed further stress on Pakistani water supplies. The country uses 93 per cent of its water for agriculture, compared to a global average of around 70 per cent. Four major crops represent 80 per cent of all water use (wheat, rice, sugarcane and cotton) but only contribute five per cent of GDP. Additionally, Pakistan's irrigation system is among the most inefficient in the world, losing over 60 per cent of the water it carries, mostly due to seepage, leaks and poor irrigation methods (most Pakistani farmers rely on flood irrigation, which is a highly inefficient way of irrigating crops).

The Pakistani water supply is particularly sensitive to the effects of climate change. Climate projections indicate that temperatures will continue to rise in the Indus Basin over the next few decades, over both summer and winter. Although it is difficult to know exactly how climate change will impact glacial melt in the region, higher summer temperatures are

correlated with increased glacial melt and predictions suggest increased glacial runoff of 16-50 per cent. Climate change is not predicted to lower the average amount of water Pakistan receives, but inflows are likely to become more variable, increasing Pakistan's vulnerability to floods and droughts.

Pakistan's water security issues are not just limited to issues of scarcity and stress; poor water quality and sanitation also pose issues. Water resources are heavily polluted and only 20 per cent of Pakistanis have access to safe drinking water. The remaining 80 per cent of the country must rely on water largely contaminated by sewage, as well as fertiliser, pesticides and industrial runoff. It has been estimated that 30 per cent of diseases and 40 per cent of deaths in Pakistan occur due to poor water quality, especially faecal contamination. Water-related diseases account for GDP losses of up to 1.44% annually. Waste management is almost non-existent in rural areas and for the urban poor. Similarly, there has been no investment in the management of faecal sludge or wastewater. Drainage infrastructure is also poor, allowing faecal waste to seep into ground and surface water. Only two cities have biological treatment facilities, which are reported to be only partly functional. Estimates suggest that if all treatment facilities were operated at full capacity, they would be able to treat just eight per cent of wastewater.

Furthermore, around 70 per cent of drinking water is sourced from aquifers, which are also prone to contamination by heavy metals at rates exceeding the maximum permissible concentrations defined by the WHO. These heavy metals include arsenic (which is found in especially high concentrations in Punjab and Sindh), mercury and lead, among others.

Food and water security remains weak in Pakistan, mainly due to the country's political and economic challenges, which are proving difficult to resolve. Without addressing the roots of Pakistan's problems, the country is likely to continue to face the same problems for the foreseeable future.

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