RSIS S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES
Nanyang Technological University, Singapore

RSIS COMMENTARY

www.rsis.edu.sg No. 047 – 11 April 2024

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Food Security Issues in Asia

By Paul Teng

SYNOPSIS

The Asian region faces an ever-present threat of food insecurity, partly caused by factors that disrupt food production but also due to increases and changes in the demand for food. Towards 2050, the ability to meet growing demands for rice, fish, vegetables and meat has to be met with innovations from increased investments, supportive government policies and technology transfer systems appropriate for the millions of small food producers. Additionally, Asia needs to maintain trade channels with other regions to ensure the sufficiency of agricultural inputs and raw commodities.

COMMENTARY

Asia has about 60 per cent of the world's population but only about a third of the world's arable land. This region additionally has some of the most economically active countries with increasing urbanisation and a growing middle class. Asia is also home to some of the countries most affected by climate change. For these and other reasons, food security in Asia affects global food security through many inter-links.

A new book, "Food Security Issues in Asia", edited by Paul Teng and with multiple authors, explicates many of the key issues continuing to cause food insecurity in Asia as well as discourses on exciting developments through its twenty-seven chapters. The book, published by World Scientific Publishers Singapore was launched on 27 March 2024 in Singapore by Ambassador Ong Keng Yong, former ASEAN Secretary General, and currently, Executive Deputy Chairman of S. Rajaratnam School of International Studies at the Nanyang Technological University, Singapore.

Foremost among the issues is the future availability of food items important for Asian food security, such as rice, fish, vegetables and animal protein. The growth in demand for rice and animal protein in particular is expected to put pressure on the environment through increased demands on water use and increases in greenhouse gas (GHG) emissions.

The International Rice Research Institute has estimated that an additional 60 million tons of rice will be needed by 2050. Wild fisheries are being decimated by factors such as over-fishing and illegal fishing which reduce the stock of caught fish.

The production of vegetables with high nutrient content will be further challenged by climate change and consumer demand for improved mineral nutrition while the demand for meat from livestock grown outdoors or in confined spaces will almost double by 2050.

Technology Provides Optimism

A “silver lining” is provided by the potential offered through new technologies such as digital agriculture, biotechnology, precision fermentation, urban agritechnology, novel food technologies, waste valorisation and alternative proteins.

Digital agriculture is being considered by many Asian governments as a pathway to improve productivity, especially increased yields and reduced costs of production. A noteworthy example is the ASEAN Guidelines on Promoting the Utilisation of Digital Technologies for the ASEAN Food and Agricultural Section endorsed by the ASEAN Ministers of Agriculture and Forestry.

With biotechnology, while large exporters like the United States, Canada, Argentina, etc., have adopted biotechnology crops, Asian countries have been slow in taking up this technology, often because of scientifically dubious reasons. But a sea change may be in the offing, as China has announced in 2023 its intention to lead the way in growing more genetically modified crops.

Controlled Environment Agriculture is expanding in use due to weather uncertainties and is best exemplified by indoor vegetable farms in urban areas grown under artificial lighting, and Indoor fish farms using high-tech Recirculating Aquaculture Systems (RAS). The 2000s have also seen a resurgence in the use of a biotechnology called precision fermentation to grow animal and plant cells in bioreactors for food or food extracts.

Investment and Innovation

Asia has seen the emergence of a vibrant agrifood startup ecosystem mainly fueled by private financing. Investments in novel food such as cultivated meat and plant-based or microbial protein reached billions of US dollars in the early 2020s. Regulatory systems although slow in becoming operational have gained traction since Singapore first approved cultivated chicken in 2020.

However, enabling innovations to take hold is requiring more to be done to proactively prepare consumers and regulators to deal with novel food products and novel technologies. Increasingly, many public institutions and companies have come to realise that it is not enough to generate new technologies without accompanying action on technology transfer systems like public extension, consumer acceptance and appropriate communication programmes such as those using risk communication.

Ensuring a Future

With the anticipated increases in food demand in Asia accompanied by increased environmental awareness, countries in the region will need to accelerate their move into harnessing technologies and implementing policies that support sustainable food systems, as has been done by the ASEAN group of countries. These food systems will need to conserve natural resources and concurrently provide livelihoods for millions of small farmers and affordable food to consumers.

How countries respond will be influenced by their state of agricultural transformation, their economic development status, as well as agrifood policies that balance farmer versus consumer needs. The performance of agriculture in the two Asian giants, China and India, can be expected to further affect food supply-demand dynamics in Asia and beyond.

India has become the world's largest exporter of rice and is an important exporter of pulses. China, although a large agricultural producer, is prone to severe unexpected weather events which could force it to buy from world markets to assure that its domestic demands are met. The amounts which India can export and China needs to import, greatly affect those countries which rely on food imported through trade.

But to ensure food security, governments should have in place policies that support a "preparedness paradigm" based on "futuring" scenarios of food supply and demand, each with its own response plan. A change towards an inter-sectoral "whole of food system" approach involving many relevant government agencies is needed. Too often, agriculture has been the sole responsible sector for food security and this has to change.

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