

Building a Sustainable Food Future: Addressing ASEAN's Food Security Challenges

By Mae Chow

ASEAN faces mounting food security threats from geopolitical disruptions and climate change, requiring coordinated implementation of comprehensive solutions. By enhancing local production, strengthening regional cooperation, and leveraging technological innovations, ASEAN can build resilience across its food systems while reducing external dependencies.

Food security remains a critical challenge for the ASEAN region, with approximately **22.1 million people** in Southeast Asia suffering from acute malnutrition. The rise of geopolitical disruptions from the Russia-Ukraine war and the outbreak of the coronavirus pandemic to socio-economic challenges such as trade tariffs and the re-shoring of global supply chains, has further complicated the accessibility and affordability of food. This puts a further strain on food security, which has already been impacted by growing global demand and climate impacts on food production. As the region strives to ensure food security, there is a pressing need to revitalise ongoing regional and national efforts as well as to develop innovative solutions that can enhance the resilience of agricultural systems. To address the growing challenges



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of food insecurity in Southeast Asia, ASEAN must adopt a holistic approach that combines enhanced agricultural practices, technological innovations, improved regional cooperation, and strategic global partnerships.

ASEAN has implemented various regional initiatives to enhance food security. Key efforts include the ASEAN Emergency Rice Reserve (AEER) under the **ASEAN Food Security Reserve (AFSR)** and the **ASEAN Food Security Information System (AFSIS)**, which manage rice stockpiles for emergencies and provide critical food security data. AFSIS also publishes the ASEAN Agricultural Commodity Outlook (ACO) and Early Warning Information (EWI) to monitor food security trends. In 2015, ASEAN adopted the **ASEAN Food Safety Policy** to ensure food safety and consumer protection. It has also collaborated with partners like the **ASEAN Plus Three Emergency Rice Reserve (APTERR)** for crop reserves and emergency

aid, and the Global Climate Fund for food security strategies. These initiatives have helped ASEAN countries to adopt a unified approach to food security, effectively reducing the percentage of undernourished people from **around 31 percent in the early 1990s to 7.8 percent in 2015 and 6.1 percent in 2023.**

Key Vulnerabilities: External Dependencies and Information Gaps

Nevertheless, **the success of APTERR**, from funding to donations of rice reserves, has been largely dependent on external regional actors. ASEAN's current production levels are **highly unsustainable** and remain **insufficient** to meet its own demands. This makes the ASEAN countries highly vulnerable to external disruptions, such as shifts in political will, economic downturns, or supply chain trade interruptions, which could hinder their ability to respond effectively to food security crises. As such, it is crucial that ASEAN strengthens its own capabilities to manage its food security interests.

Furthermore, effective food security policies rely on accurate, timely data. However, information gaps and reporting delays, especially in rural areas with poor infrastructure and low digital access, hinder decision-making and resource allocation. Impoverished smallholder farmers, **who form the majority of the agricultural workforce in Southeast Asia**, often lack the tools and knowledge to report data, weakening national and regional food security assessments. This exclusion also **limits their access** to essential

support, including financial aid, climate-resilient technologies, and market opportunities.

Considering the fundamental challenges that have continued to undermine ASEAN's food security policies, it is crucial that these gaps are addressed to strengthen data collection systems, improve rural infrastructure, and enhance digital access for smallholder farmers. These actions would ultimately bolster regional food security and resilience.

Strategic Solutions: Local Systems, Regional Integration, and Technology

Firstly, to strengthen local food systems, ASEAN should focus on improving food production, especially in agricultural countries. Enhancing the sustainability of farming practices is essential and requires greater support from both governments and the private sector to bridge the rural and digital divide. Efforts should also focus on bringing small-holder farmers together to pool resources and boost efficiency. Additionally, a significant amount of food waste occurs due to perishables being damaged during transport, storage, and retail. This can be addressed by modernising food storage facilities to extend shelf life and implementing education campaigns on proper food handling and sustainable dietary patterns to reduce waste.

To further support local food systems, ASEAN can foster regional trade and cooperation by advocating for policies that remove trade and non-trade barriers,

creating a more resilient food supply chain. Through initiatives like AEER and APTERR, ASEAN should increase and regularly review rice reserves to ensure they are sufficient to meet demands during emergencies.

Improving communication and decision-making can strengthen trust, enhance interoperability, and promote regional cooperation. To prevent major disruptions, ASEAN should diversify its global partnerships with regional powers, creating a more resilient and flexible food supply chain that can withstand external shocks.

Lastly, Artificial Intelligence (AI) offers a transformative opportunity to improve agricultural efficiency, optimise food supply chains, and enhance climate resilience. The [**International Food Policy Research Institute predicts**](#) that AI could increase global food productivity by up to 67 percent and reduce the price of food by nearly 50 percent by 2050. ASEAN can leverage AI to mitigate the effects of global disruptions and create a more sustainable, self-sufficient food system. In line with the [**ASEAN Digital Masterplan 2025**](#), AI can bridge knowledge gaps, provide timely advice and optimise conditions [**during the farming process**](#), and [**support post-harvest activities**](#), such as improving storage and delivery efficiency to reduce food waste. Beyond food production, AI can strengthen [**supply chain resilience**](#) by explaining legislation more comprehensively, optimising transport routes, improving storage management, and minimising food waste. Another way AI can enhance food security is through the [**digitalisation of agricultural finance**](#).

AI-powered systems can monitor real-time demand and can also be used to analyse supply fluctuations and assess regulatory changes to improve feedback for financing and investment. However, implementing AI is costly and involves a steep learning curve.

To overcome this, governments must collaborate with the private sector, international organisations, and local communities to build capacity, share knowledge, and ensure equitable access to AI technologies. ASEAN must work together towards a coordinated, region-wide approach that actively integrates AI-driven solutions into ASEAN's ongoing food security frameworks, strategic partnerships, and policy initiatives. Investing in AI literacy programs, advanced infrastructure, and research on optimising agricultural production is essential to fully harnessing AI's potential in strengthening food security across the region.

Looking Forward: Collaborative Action for Regional Resilience

Overall, food security is a quintessential aspect of national and regional security. It is the building block for the well-being and development of the ASEAN community. Yet, global supply chain disruptions stemming from a multitude of reasons threaten to undermine this. It is crucial for ASEAN to strengthen its defences and protect their food security interests. By modernising farming practices, addressing food waste, and leveraging technology, ASEAN can build a more resilient and efficient food system.

Additionally, enhancing regional trade, diversifying global partnerships, and increasing rice reserves will provide the flexibility needed to navigate external shocks. While there is much to be done, it is imperative that ASEAN works together to develop multi-faceted and future-ready strategies to attain long-term food security and sustainable development in the region.

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