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*World Agricultural Forum 2017*

## **Future of Agriculture and Implications for ASEAN**

*By Ong Keng Yong and Jose Montesclaros*

### **Synopsis**

*Agriculture and food production seem to be under constant threat from climate change, policy failure and new diseases in meeting the demand of an ever-increasing world population. Yet, innovative endeavours and technological advancements have given hope that adaptation, invention and international cooperation can overcome the looming challenges, with positive implications for ASEAN's approach to food security.*

### **Commentary**

THE WORLD Agricultural Forum (WAF) 2017, held in Singapore in July 2017, provided useful insights on the key issues faced globally in food and agriculture. There has been growing uncertainty on whether global efforts will succeed in slowing climate change.

Agricultural production may aggravate the situation, with deforestation and agricultural emissions from livestock, soil and nutrient management contributing as much as 24% of global greenhouse gas emissions in 2010, according to the latest comprehensive report by the Intergovernmental Panel on Climate Change in 2014. With the largest population among world continents, Asia's farming practices will play a major role in shaping future climate.

### **Integrated Solutions**

There is also a rising tide of protectionist measures, in the form of tariff and non-tariff barriers, as well as the threat of export restrictions on the part of major producers.

India banned export of non-Basmati rice in April 2008 triggering the food price crisis of 2007-08. These imperil food importing countries, and may pave the way to another crisis, especially when compounded with natural disasters such as droughts or floods.

In addition, food-borne diseases are fast evolving, and developing resistance to the very treatments intended to address them, a phenomenon known as anti-microbial resistance. ASEAN is all but immune to these developments.

Rather than feeling overwhelmed, WAF 2017 left participants inspired, as it offered a number of interesting integrated solutions that can allow ASEAN to adapt to the increasingly complex and inter-connected challenges.

### **Innovation and Technology**

The first insight is in innovative inventions that can make agriculture more sustainable and climate smart. This is relevant given that the ASEAN Ministers of Agriculture and Forestry (AMAF) Work Plan towards the ASEAN Economic Community 2025 includes objectives like increasing crop, livestock and fishery/aquaculture production (2016-19) and improving productivity, technology and product quality to support small producers (2017-19).

Digital agriculture offers a myriad of opportunities in realising the AMAF Work Plan. These include drones that spray fertilisers and pesticides over large areas of plants, as well as robotics and automation in the supply chain to spare individuals from more “dirty, dangerous and difficult” manual tasks. Further technologies, such as data sensors, can give farmers information on the optimal quantity of production inputs (e.g. seeds, nutrients) and the environment (e.g. temperature, humidity) to boost yields.

The next insight is in investments, which enable key technologies. The understanding is that investment promotion for the food sector can be improved by making it more technology-focused. Global venture capital investments in agricultural technologies (Agtech) grew from just US\$ 500 million in 2012 to approximately \$3 billion in 2015, according to a report by the Boston Consulting Group and AgFunder, an online Agtech investment platform. While many countries in Southeast Asia were already destinations for these investments, there seems to be a divide as Cambodia, Laos, Thailand and Myanmar have not yet availed themselves of these kinds of opportunity.

### **Integration As Way Forward**

Moreover, WAF 2017 has shown that ASEAN is not immune to food security threats faced globally, but neither is ASEAN alone in addressing them. Moving forward, there is need for better integration so that these developments reach smallholder farmers, to meet growing consumer demand.

Supportive infrastructure will be needed, such as allowing for more mobile telecommunications operators and expanding the wireless technology coverage.

Telecommunications services will enable farmers to track yields, and will also allow for the entry of digital technologies.

A further step is for farmers to share data with one another, to spread best practices that optimise the use of inputs. The private sector can also provide farmers with insurance mechanisms to shield them from financial shocks caused by bad harvests. Information dissemination campaigns will be required so that farmers will learn about funding opportunities as well as the benefits of insurance.

As regards anti-microbial resistance, Singapore is currently coordinating ASEAN's efforts in reducing use of anti-microbials in agricultural production, developing regional laboratory testing capabilities, and promoting exchange of information among member states. Linkages with countries such as Denmark and the Netherlands, through NTU's Food Science and Technology Programme and Food Technology Centre, allow for more information on better management systems which can supplant over-use of anti-biotics for boosting yields.

Lastly, job creation is a key policy imperative for developing countries, as well as the developed economies. An effective policy in bringing agriculture to the 21st century actually yields more employment, and not just in doing the manual jobs on the farms. There are innovative enterprises and emerging technologies to support food production and to package food exports.

It will be important to engage and encourage the youth to enter into agri-entrepreneurship, and to venture into jobs related to agriculture. Similar initiatives such as the Youth Engagement Event, which took place alongside WAF 2017 and engaged over a hundred Singaporean youth and students in Singapore, will be needed to secure the food production base for generations to come. This initiative is worth emulating in other ASEAN countries as well.

### **Beyond ASEAN Integrated Food Security (AIFS) Framework**

ASEAN created the AIFS framework in 2009, with primary objectives of ensuring long-term food security, and improving the livelihood of farmers, in the region. This is translated into a Strategic Plan of Action on Food Security (SPA-FS) in the ASEAN Region for 2015-2020, which is reviewed periodically to ensure objectives are achieved.

WAF 2017 provided comprehension of global developments in the field of food and agriculture that can aid in SPA-FS reviews, with the next one scheduled for 2018. Beyond this, WAF 2017 also showed that the food and agriculture sector alone is not sufficient to address emerging threats to food security.

In a similar vein, the AIFS alone is not enough. Strategies in other sectors/industries, including information technology, telecommunications, finance, insurance and education, will need to be calibrated accordingly to enable solutions that help secure the region's future food security and agriculture.

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