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*Future of Food*

## **Feeding Asia: How Should the Region Respond to Production Challenges?**

*By Paul Teng and Christopher Vas*

### **Synopsis**

*The FAO's latest sobering report warned of the need to significantly increase investments in agriculture to meet the anticipated 50% increase in food demand by 2050. Asia as a net food and animal feed deficit region needs to up its game.*

### **Commentary**

THE LATEST report by the Food and Agriculture Organisation (FAO) is sobering. Issued in February and titled "The Future of Food and Agriculture – Trends and Challenges", it warned of the need to significantly increase investments in agriculture to meet the anticipated 50% rise in food demand by 2050. This will be driven by population increases but more notably, by rising incomes, which in turn fosters diet changes towards higher consumption of protein and processed food.

All this is occurring on the back of the growing urbanisation of Asia, where by 2050, more than 50% of the region's people will live in cities. This is concurrently accompanied by a declining farmer population which is fast ageing and farming less land each year. Asia, where more than 60% of the world's people live, is particularly vulnerable to several of the challenges highlighted by the FAO report. As it will certainly not be "business as usual", new thinking is critically needed to improve supply of food.

### **Three-point Action Plan Needed**

*Increase crop yields and reduce yield gaps to raise total production:*

Currently crop yields may be reduced from 50% to much higher depending on seasonal weather, pests and diseases, weed infestation, water availability, fertiliser use and the farmer's crop management know-how. These reductions constitute a gap in productivity.

The adoption of scientifically-developed modern crop varieties with higher capacities to tolerate stresses has been attributed by experts to the yield advantage that is conferred to farmers in food exporting countries. Brazil, for example, invested heavily in breeding soybean varieties which could grow in semi tropical conditions and poor soils and resist pests and diseases; this has contributed to it being a major soybean exporter today.

Asian governments must not shy away from using modern science and technology to rapidly increase both the potential and on-farm yields of important food crops, and accompany this with effective technology transfer systems. The FAO report indicates that new multi-billion dollar investments will be needed. Reports from a food security assessment index called the Rice Bowl Index has further shown that consistently across Asia, farm level yields are an important factor in conferring food security robustness in agri-producing countries.

*Harnessing the potential of urban and peri-urban farming:*

The concept of space and not just land requires mindset changes on the part of urban planners. In most cities, there is much unused or under-utilised space which can be turned into productive food areas for farming vegetables. These are exemplified by rooftops, public space between buildings, underground space, and even the waters around small islands for aquaculture.

Consequently, an exciting area for substantive contributions to food supply is to harness unused space in urban environments to grow food, or space in the periphery of cities, i.e. peri-urban space, for agriculture. FAO estimates that currently urban peri-urban agriculture (UPA) contributes up to 20 percent to the world's food supply.

### **Growing Global Urban Farming Movement**

Clearly, with the emergence of new technologies, new ways of farming and new mindsets, there is now a fast growing urban farming movement across the globe. Asian countries like Korea, Japan, Singapore and even China have embraced this, but more could be done to make this sector an important complement to rural farming, especially with respect to fresh supplies of vegetables and dairy products.

City states like Singapore are developing the beginnings of a vibrant UPA sector, with commercial farms based on vertical vegetable farming and indoor artificial lighted farms. The range of food items which lend themselves to urban farming is potentially large due to proximity to market, but this needs to be made an explicit part of a country's food security strategy to secure the requisite amount of policy and investment support. This topic was sadly missing from the FAO report.

### *Reducing losses in the production and supply chain:*

Crop production incurs large losses up to the time the crop is harvested, and further losses and waste in the post farm transport and processing to meet modern supply chains. It has been estimated that these losses can reach up to 50 percent, and are often higher in developing than developed countries.

Beyond such losses, food is also wasted at the tail end of supply chains by Food and Beverage outlets, retailers and consumers due to excesses or compliance with quality standards which prize appearance over substance, such as the discarding of fruits and vegetables with blemishes which are still nutritionally and safety-wise, good food. Technology advancements and public education are two essential thrusts to reduce loss and it has been estimated that halving food losses will result in more than enough food to feed the world's growing population without other investments.

### **Five New Areas for Action**

In a recent keynote address at the International Conference on Food and Agriculture held 6-7 March 2017 in Los Banos, Philippines, the first author, in addition to the three-point plan, proposed five more areas for action, some of which require government intervention:

- Improving the domestic and regional food supply chains through improved logistics, infrastructure and policies;
- Improving 'Climate Smart Agriculture' with adaptation measures;
- Improving the participation of smallholder farmers in Asia's food supply chains, especially through private-public sector partnerships;
- Improving food safety;
- Increasing consumption of new types and sources of food, such as indigenous vegetables, insects and synthetic protein.

Some of the anticipated outcomes from taking action in the above eight areas will at the very least continue to sustain current food availability but may significantly add new supply sources. Pursuing these avenues is in no way a comprehensive approach that will address the food security challenge for Asia. It only forms one part of the solution as a necessary but not sufficient condition. In any case, the time for action is now if positive outcomes are desired by 2050 to help Asia avert the food crises of the 1960's.

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