

Perspectives from an importing country: Ensuring Singapore's Food Security

World Agriculture Forum 2017
6 July 2017

Ms Tan Poh Hong
Chief Executive Officer,
Agri-Food & Veterinary Authority, Singapore



There are increasing global pressures on our food security

Demand for food is increasing... but supply may not be able to keep up.

Longer, more complex supply chains introduce risks of **disruption**, **unsafe food**, **food fraud**

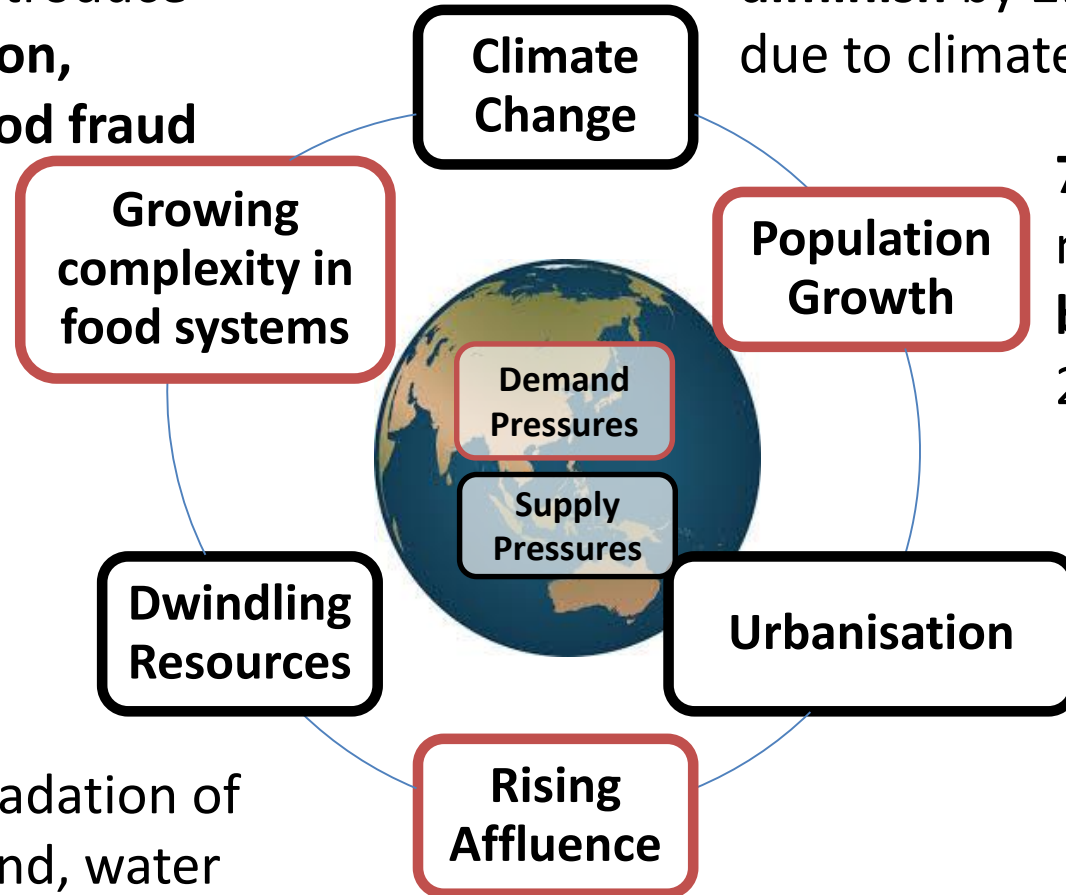
Rising trends in **transboundary animal & plant zoonoses**

Global **food yield** increases will **diminish** by 2.5% per decade due to climate change.

70% more food needed to feed **9+ billion people** by 2050

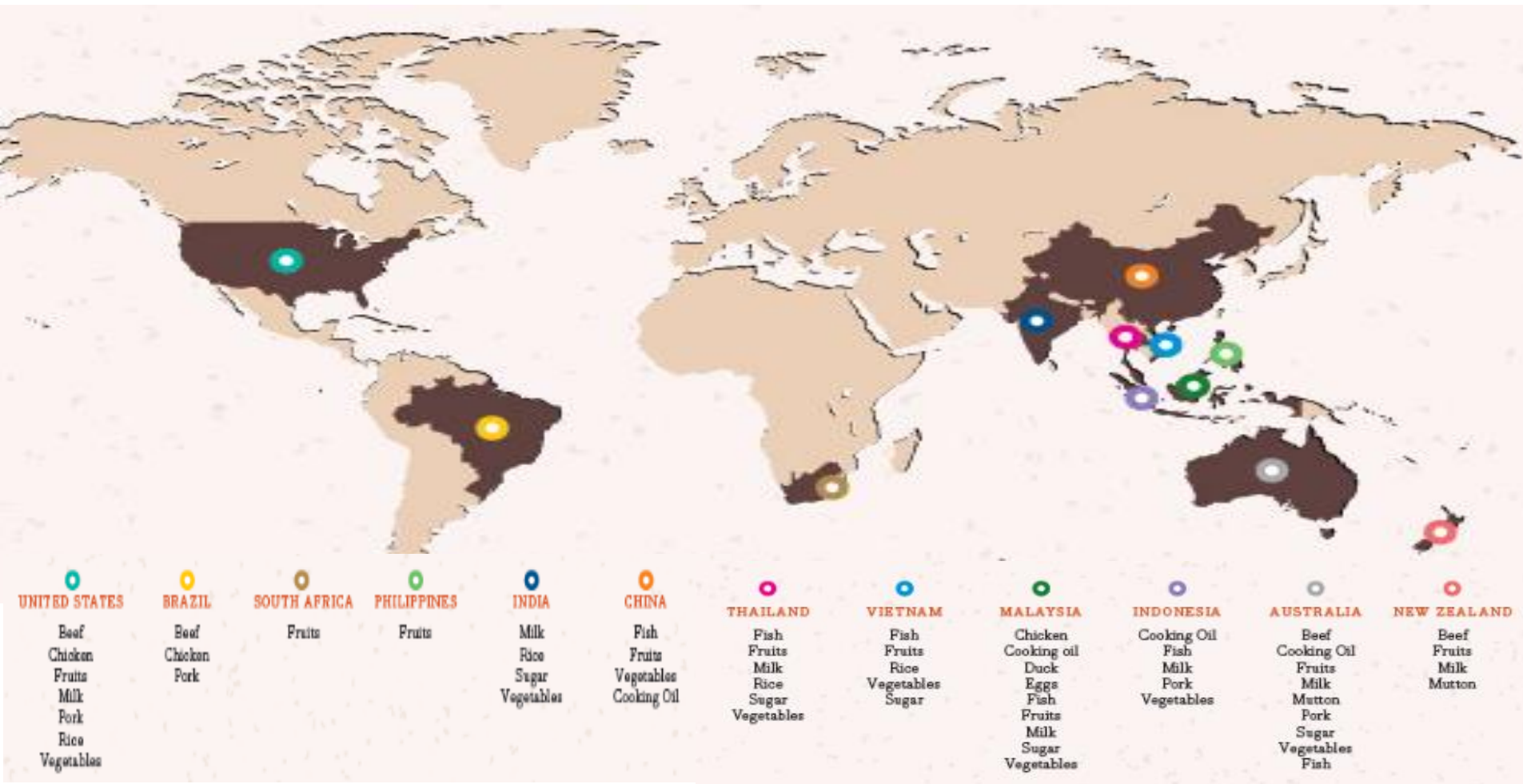
70% of population in **cities** by 2050

E.g. degradation of arable land, water scarcity, depletion of fish stock



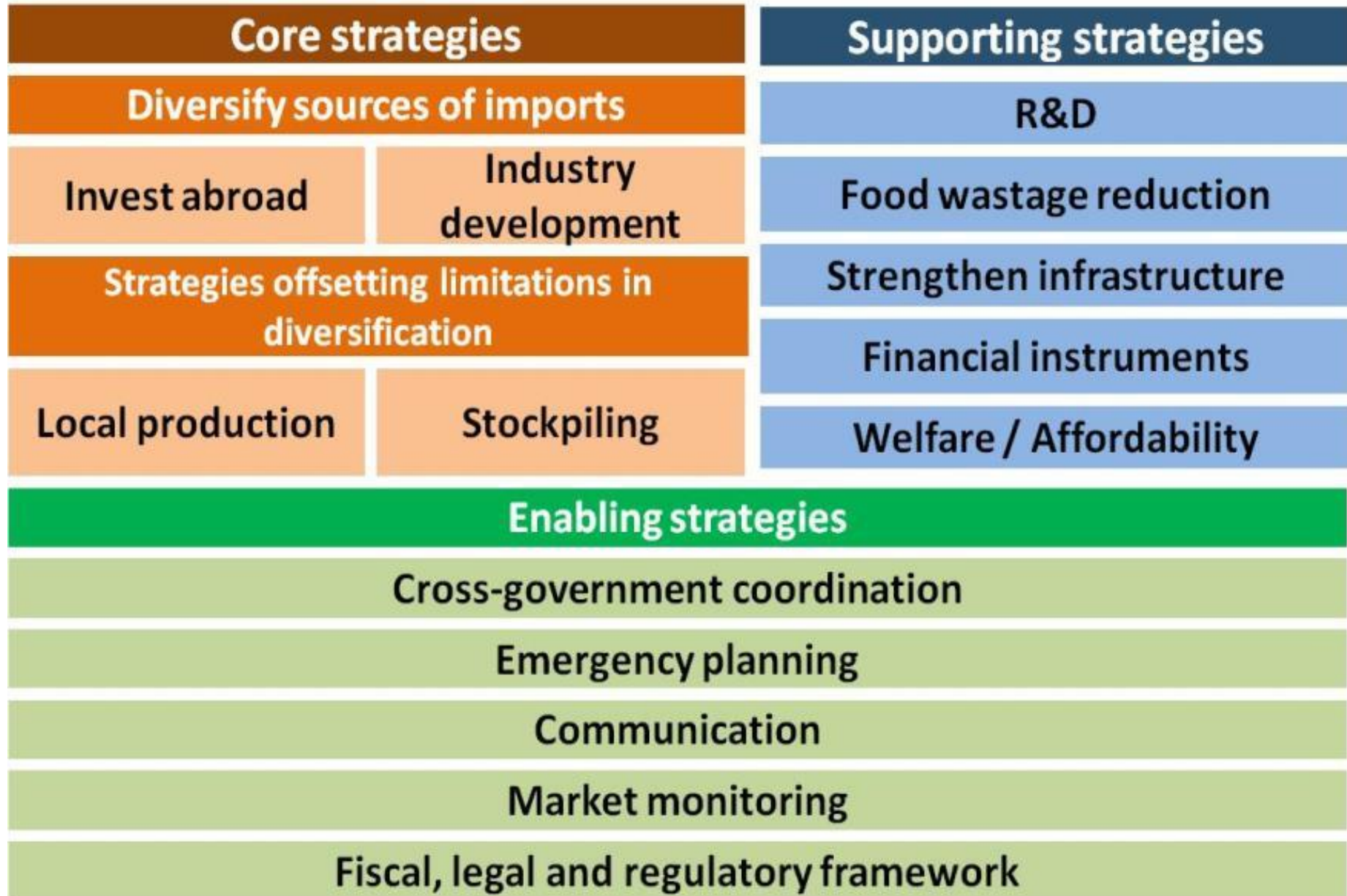
Greater food consumption & protein-rich diets that require more resources

SINGAPORE, A NETT IMPORTER



- Land and manpower constraints for local farming
- Import over 90% of our food
- Vulnerable to global food situation

SINGAPORE'S FOOD SECURITY ROADMAP



FOOD SECURITY FOR SINGAPORE

01

Availability

Is food available either from domestic production or on world markets?



02

Accessibility

Can Singapore's consumers access the food which is available? (i.e. are supply chains working?)



03

Affordability

Can all segments of society afford the food which is available?



04

Safe & nutritious

Is available, accessible, affordable food safe and nutritious?



“Access to safe and nutritious food, for all Singapore citizens and residents, at affordable prices in the short and long term”.

CORE STRATEGY: IMPORT SOURCE DIVERSIFICATION

Pro-active food sourcing through industry partnership & engagement



Australia (2016)



Thailand (2016)



South Africa (2015)



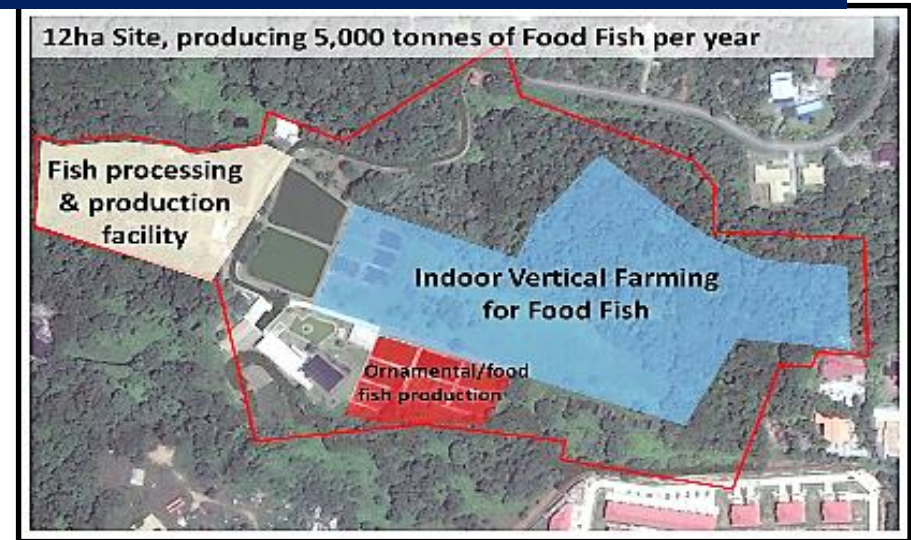
Risk-based accreditation



CORE STRATEGY:

INVESTING ABROAD- INTERNATIONALISATION

- **Overcome local constraints**
 - Limited land
 - High Capital Expenditure (CAPEX) and Operating Expenses (OPEX)
- **Open up new markets, forge stronger bilateral relationships, and expands food trade**
 - Foreign investments overseas
 - Share technological know-how
 - Increase food production in partnering country
 - Potential to re-export back to Singapore



KR Apollo site in Sungai Jambu



Sky Greens vertical farm project in Hainan, featuring 5.5m tall veg production towers

CORE STRATEGY: LOCAL PRODUCTION- BUFFER AGAINST SHOCKS



CURRENT PRODUCTION AS A % OF CONSUMPTION

EGGS

24%

LEAFY VEG

12%

FOOD FISH

10 %

Global developments in agri-technology



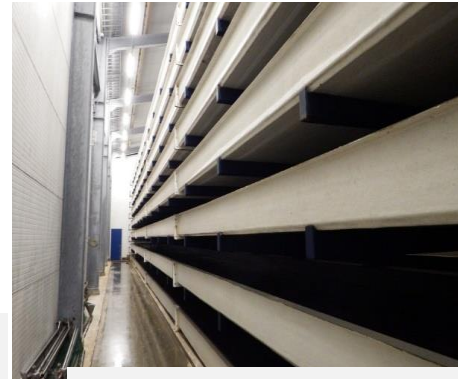
Robotics & Mechanisation



Delicious farm
(Netherlands)



Automated off-shore aquaculture
(Salmar, Norway)



Seafarm B.V. (Netherlands)



Indoor, vertical plant factories



Solar aquaponics system
(Arizona USA)



Spread (Japan)

Precision agriculture



Software, Sensors, IoT

Pushing Boundaries: Vertical & Indoor Farming

SKY GREENS



APOLLO AQUACULTURE



SUSTENIR



Integrated vertical and indoor systems, automation and robotics

- ✓ Highly intensive and productive
- ✓ Minimal manpower

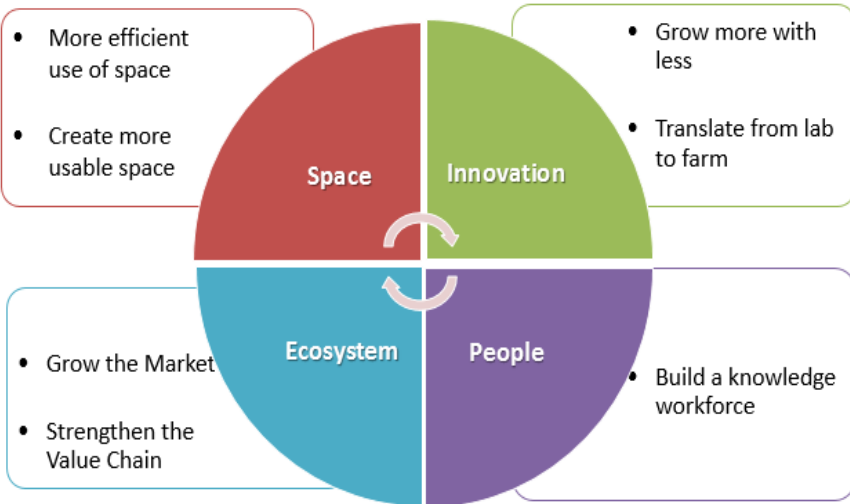
10m-high, three-storey fish farm

- ✓ Advanced water treatment systems
- ✓ ICT for control & monitoring
- ✓ Yield is 8-10x of conventional farming

- ✓ Modular & scalable
- ✓ Central control systems
- ✓ LED lighting and hydroponics

LOCAL FARM TRANSFORMATION

Farm Transformation Map



Agri-Food & Veterinary Authority of Singapore (AVA) shared Koh Poh Koon - 许宝琨's video.
March 9 · 🌐

"We formed an Industry Consultation Panel (ICP) in Jan this year, to work with farmers and academics to transform our farming sector under the Farm Transformation Map... We hope that together, we can co-create practical solutions for the progress of our farming industry." - Koh Poh Koon - 许宝琨

Read more about our Farm Transformation Map
[#SGBudget2017](#)



1,878

Parliament: More help given to farmers to boost productivity, manpower



Industry Consultation Panel

Singapore

Farmers to get up to 30% of approved Government funding upfront from April

The Agriculture Productivity Fund co-funds investments to help local farmers adopt technology, says Minister of State for National Development Koh Poh Koon.



Agriculture Productivity Fund



Technology sourcing trips; test-bedding; technology-matching

ENSURING FOOD SAFETY:

Risk-based food safety controls

- Accreditation of overseas sources, import requirements, inspection and surveillance
- Adopt international practices and standards
- Robust food safety and biosecurity programmes facilitates agri-trade



WORLD ORGANISATION FOR ANIMAL HEALTH

Protecting animals, preserving our future



FACILITATING AGRI-TRADE

SATS Coolport to provide meat transshipment services between NZ and EU

- Establishing Singapore as a hub for perishable food



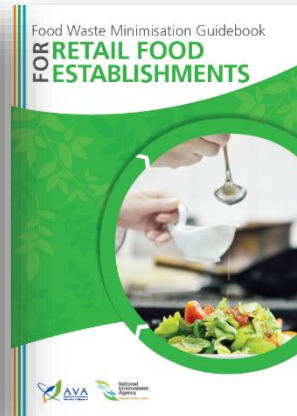
- Coordinating regional Anti-Microbial Resistance (AMR) efforts, enhancing AMR surveillance

STRATEGIES TO MANAGE FOOD DEMAND

Food Waste Reduction

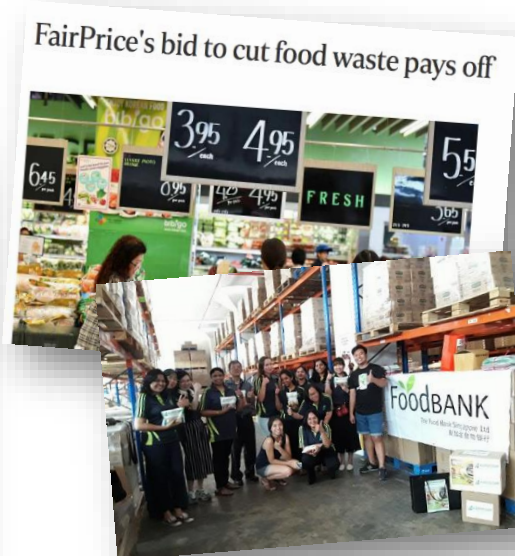
1. Prevent and reduce food waste at source

- Outreach to consumers to adopt smart food purchase, storage and preparation habits
- Good Practice Guides for industry



2. Re-distribute unsold/excess food

- Food industry encouraged to donate to food distribution organisations



3. Recycle food waste

- On-site food waste segregation and treatment
- Pilot trials in food centres and schools



b. Promotion of local produce to encourage demand

- Joint promotion activities with industry
- Love Home-Grown Produce movement
- Certification schemes for quality assurance
- Promotion of Local Produce Taskforce with industry



REGIONAL/ INTERNATIONAL ENGAGEMENT

- Participation in food security discussions at ASEAN, APEC, G20, FAO
- Push for free and open trade (against export bans)
- Call for agri-investments and R&D to raise production



G20 GERMANY 2017
HAMBURG



**Food and Agriculture
Organization of the
United Nations**



Ensuring food security
in a changing world
order is a challenging
issue that requires the
involvement and
collective efforts of
both local and global
communities.

Thank you