



The Safe Food Imperative for China's Agri-Food Systems

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Agri-food system involves food production and distribution, with impacts on human health and on the environment

Public health and well being

Agri-food system

Food production and distribution

Environmental impacts

Climate change and the presence of heavy metal contamination in seafood create major food safety concerns in the world

Foodborne illnesses cost low and middle-income economies US\$ 110 billion each year in lost productivity and medical expenses

GHG emissions from agriculture and food systems contribute to nearly fourth of total human-induced emissions

Food safety is a mainstream economic development issue

- Traditional Image of Food Safety



The lack of explicit attention to food safety in the SDGs stems from the low evidence base on the burden of foodborne disease and the overall low awareness of development practitioners about the economic significance of unsafe food.

- Food Safety critical to ACHIEVING the SDGs

- Food safety is integral to:



- Food safety (practice) contributes to:



Food safety is trapped in trade standards & other international market issues losing out on big opportunity to reset public health outcomes

Major market access concerns

- Standards as non-tariff barriers
- Private standards and smallholder exclusion
- Standards compliance costs
- Visible costs
- Organized stakeholders

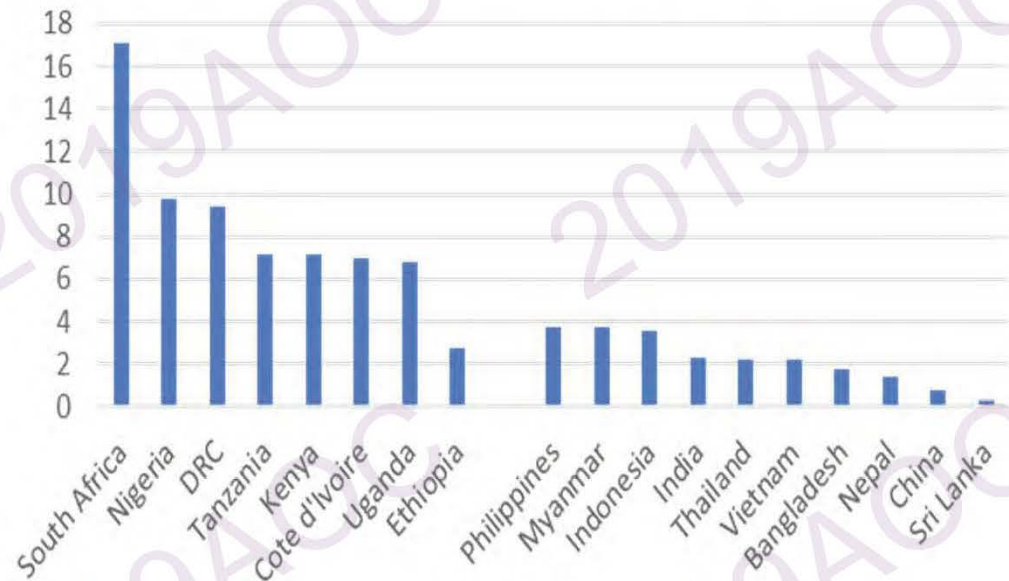


Relative neglect of domestic food safety

- Lack of data—impacts are invisible
- Lack of national leadership – dispersed responsibilities
- FBD burden falls heavily on the poor
- Competition for resources

Public health resource competition

DALYs Ratio:
'Big Three' Combined/ Foodborne Disease



The public health is lost economic opportunity which costs China close to US\$ 30 billion for allowing consumption of unsafe food by its citizens

Burden of Foodborne Disease

- An estimated 600 million (10% of global population) fall ill after eating contaminated food and 420 000 die every year, resulting in the loss of 33 million healthy life years (DALYs). (WHO)
- South Asia, SE Asia and SSA account for 41% of the global population, yet 53% of all foodborne illnesses and 75 % of FBD-related deaths
- China accounts nearly 50% of the total economic burden FBD in the whole of Asia.
- Children <5 most affected— 9% of global population but 38% of all cases of illness and 30% of deaths

Economic costs take many forms:

- Health: productivity loss; treating illness; malnutrition
- This cost is estimated at US\$ 110 billion for LICs and MICs
- Commercial: market disruptions; consumer avoidance; brand equity; trade consignment rejections and loss of market access

Developing country 'productivity loss' from FBD = \$95 billion in 2016; >\$500 million for 28 countries



Source: World Bank 2018

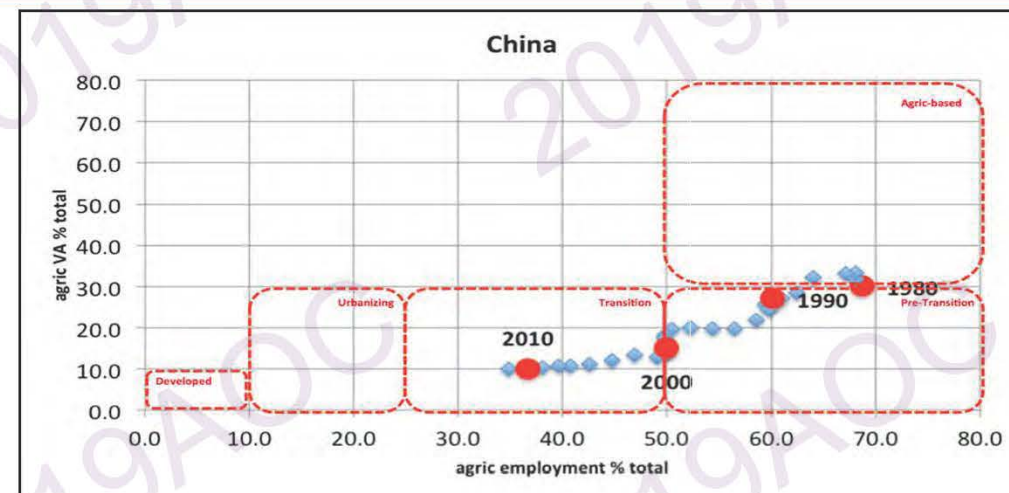
The agricultural and food sector in China

Sharpest rural-urban transition in large East Asian & the Pacific countries.

- Agriculture sector accounts for 9.2% of GDP, and approx. 15-20% of labor force according to various research estimates.
- Rural population is 43.9% of total in 2015 (down from 58% in 2004).
- Declining share of agriculture from rural incomes (reduced to 58% in 2014 from 64% in 2004).

Rural-Urban migration & urbanization will continue shaping China's food system.

- Out of 1.5-1.6 billion people by 2030, the urbanization rate is expected to reach 70% up from 55% today.
 - ✓ That translates to a decline in farm households by 44 percent (i.e., from 285 million farm households (600 million rural pop) today to 160 million (480 million rural pop) by 2030).
- Increasing trends of changing diet and aggregate demand
- Diminishing rural labor surpluses => increasing wage pressures
- The divergence between average urban and rural income continues to rise (although rural incomes are rising, non-rural incomes are increasing faster)



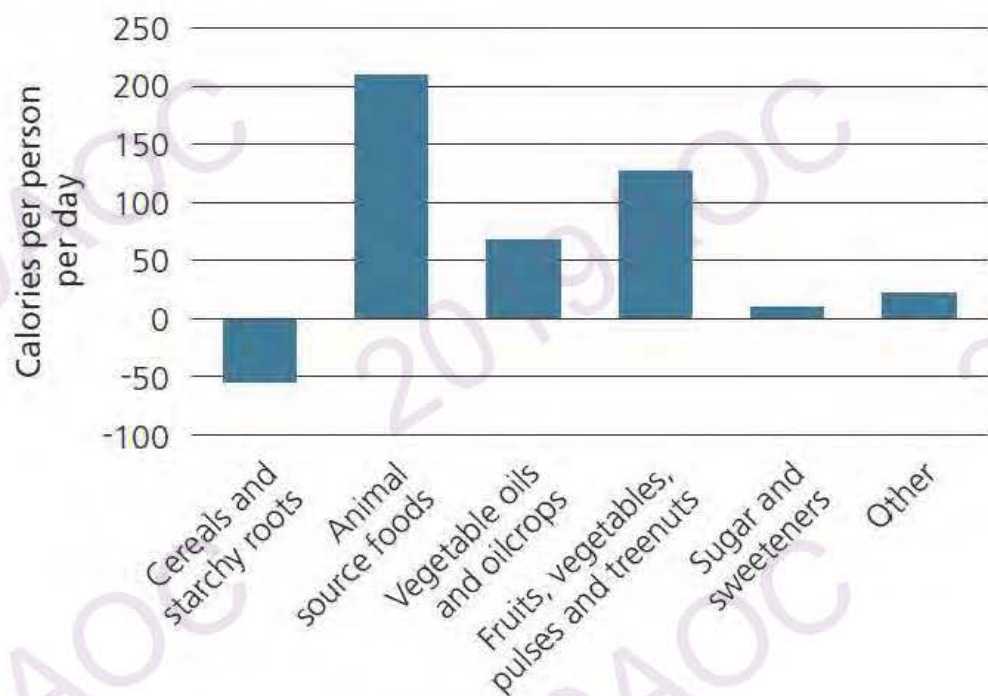
Rising rural-urban income inequality



Source: NBS (2010 and 2011).

Shifting dietary patterns leading to higher consumption of animal products plus out of home eating increase food safety risks

Change in contribution of various food groups to diets in Asia, 1990-2011



Source: FAO 2016

Growth in per capita consumption of processed foods in Asia, 1999-2017:

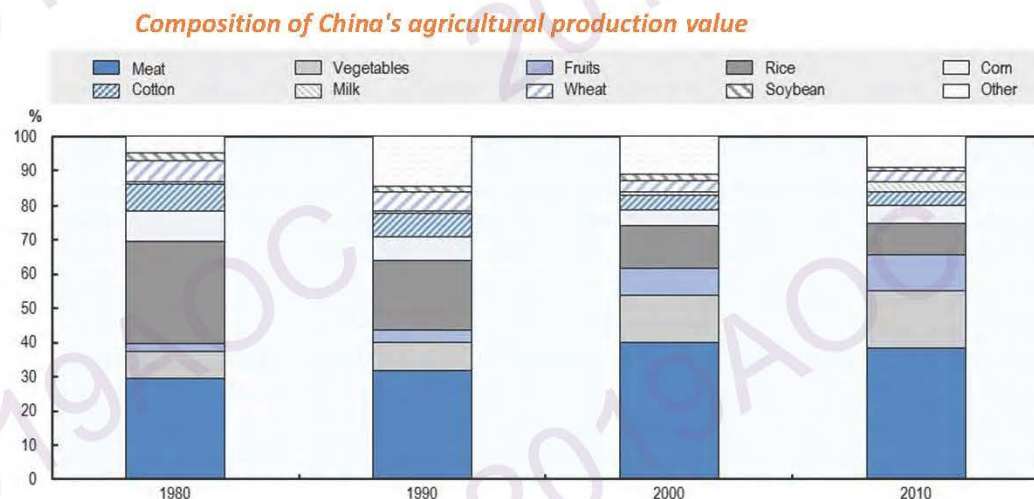
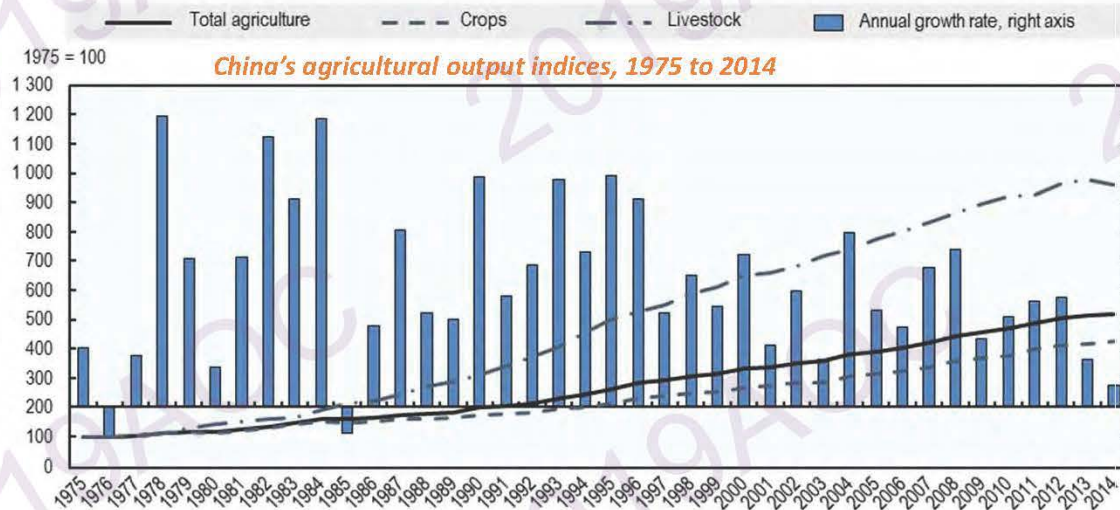
- Large increases in China (9.4%), Vietnam (7.8%), Indonesia (5.5%), India (5.5%), Thailand (4.4%) and Pakistan (4.2%)
- Slight decreases in Japan (-0.5%) and Philippines (-0.1%)

Consumption Growth Projections for 2030 (China)

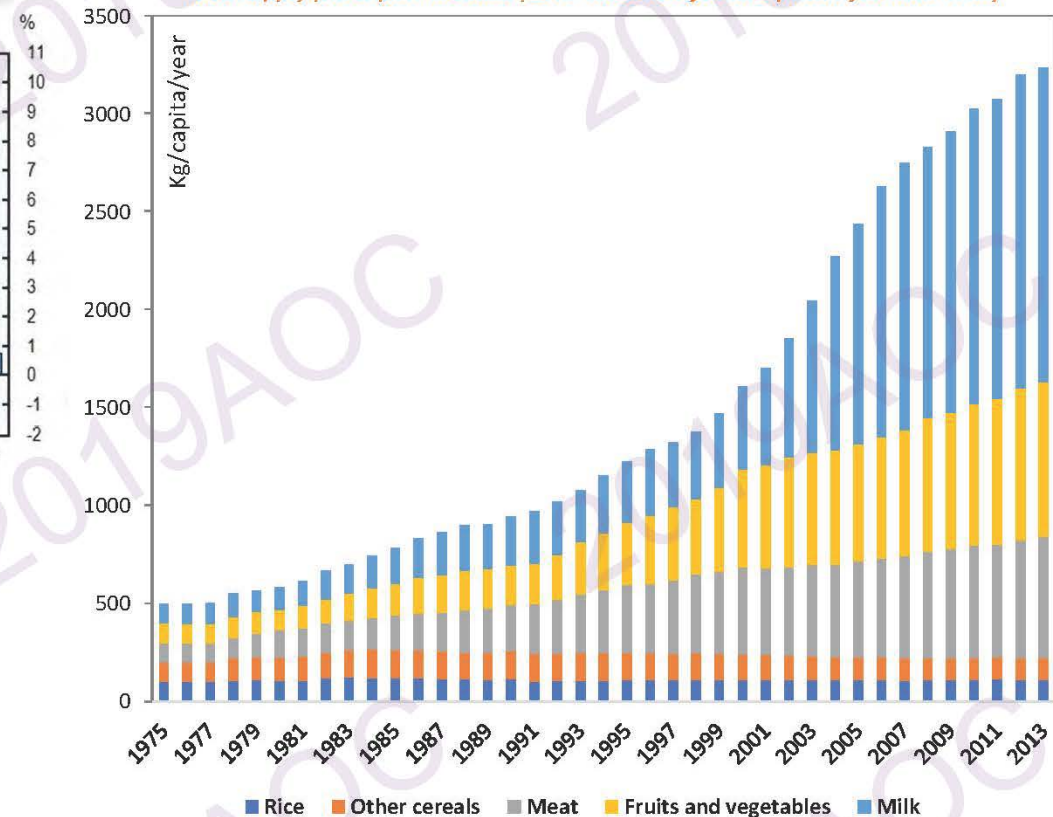
- Meat
 - Pork – 14%
 - Mutton – 87%
 - Beef – 82%
- Seafood – 43%
- Eggs - 17%
- Yogurt – 97% but Milk ~ 10%

Source: Study on demand for major Agro-food commodities in China, 2017

China's Agr-food expansion was associated with increasing shift towards Livestock products and Fruits and Vegetables



Food supply per capita in China (1975 used as reference period for each item)

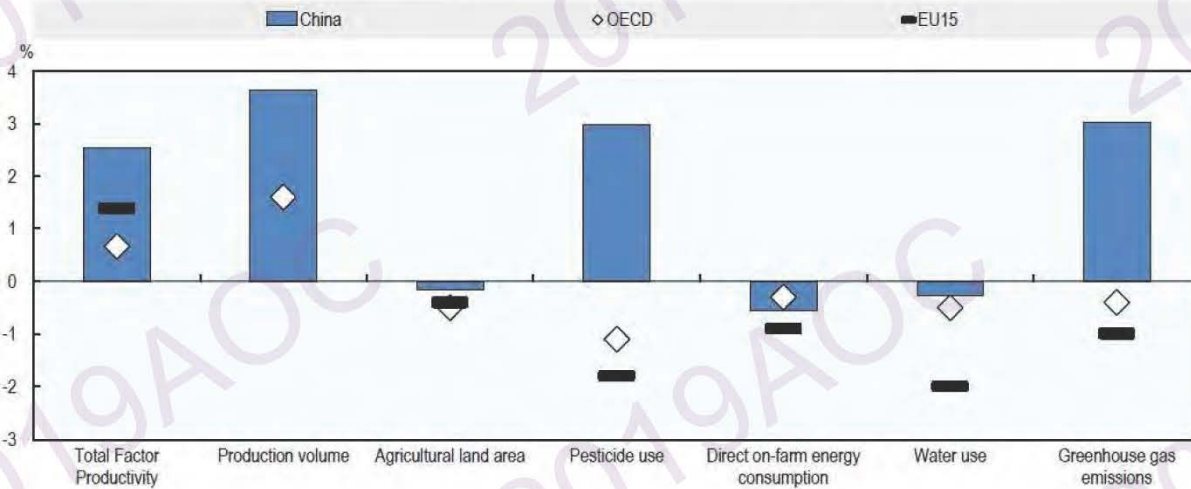


The share of meat in agricultural production increased from 29% to 39% in 1980-2010.

Source: OECD (2018) based on data from FAOSTAT

The agriculture success largely happened at the expense of (environmental) sustainability

Average annual percent change between 2000-02 and 2010-12*



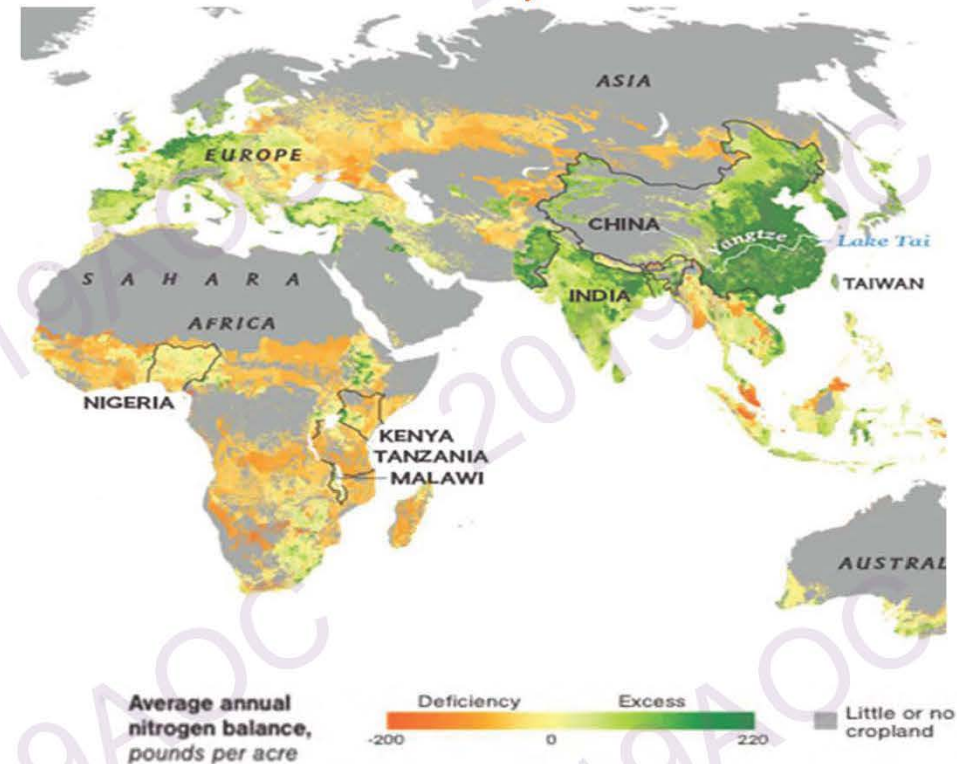
Source: Reproduced from OECD (2018)

FERTILIZER USE EXPANDED RAPIDLY TO AMONG THE HIGHEST IN THE WORLD



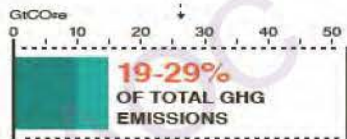
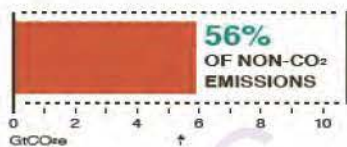
Source: China Statistical Yearbook 2010 and World Development Indicators 2011.

China overuses nitrogen fertilizer more than any other country



Climate Change and GHGs emissions in Agriculture Sector

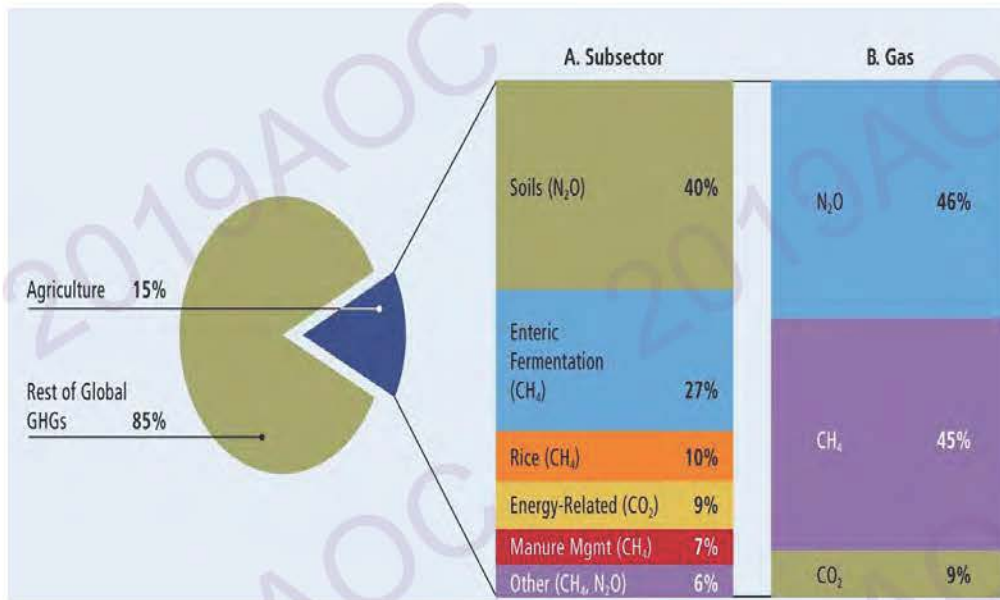
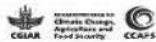
Agriculture is the largest contributor of non-CO₂ GHGs.



Food systems emissions contribute **19-29% OF TOTAL GHG EMISSIONS.**

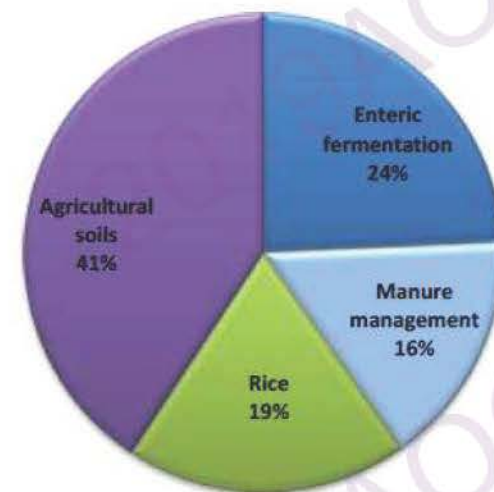
Source: US-EPA, 2011 // Vermeulen et al., 2012

Big Facts



WRI, 2005

Enteric fermentation and livestock manure management contribute to **40 percent of Agriculture related GHG emissions in China**



CAAS, 2017

Agriculture success also brought to the fore extreme environmental and food safety problems

- Agriculture is the biggest user of land and water resources, and intensive use of chemical inputs has led to soil degradation, water pollution, and damaged bio-diversity.
- China ranked first in a global assessment of water risks for global agriculture production (OECD, 2017).

1/6

of arable land

Suffers from Soil Pollution

13 million

tons of crop

**Contaminated with
Heavy metals each year**

22 million

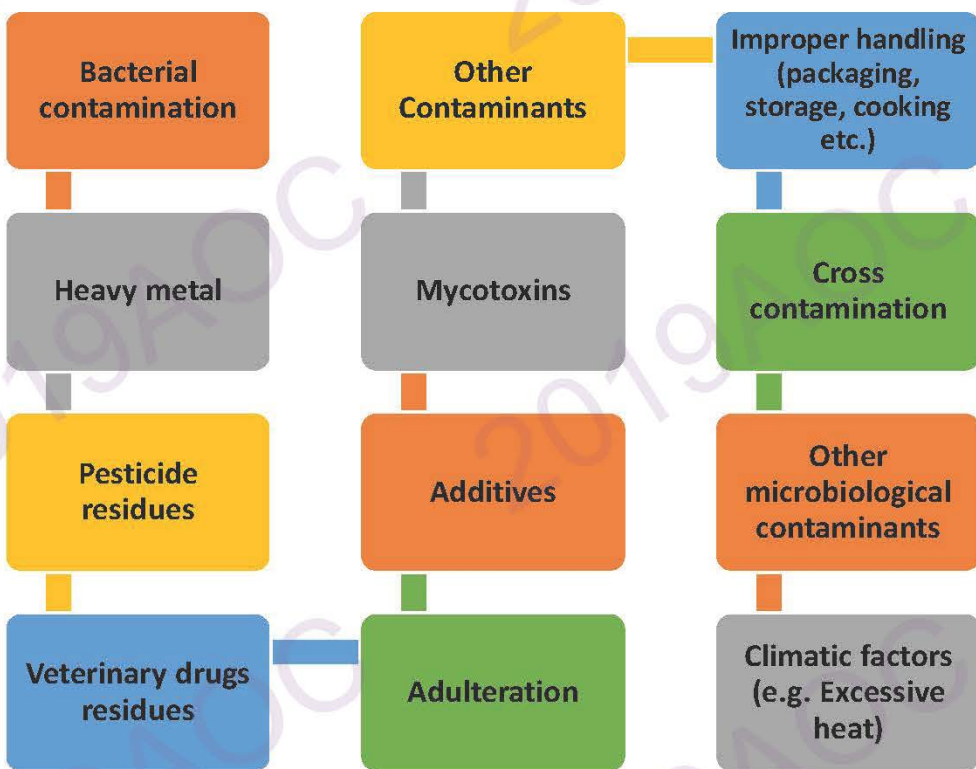
acres of farmland

Affected by Pesticides

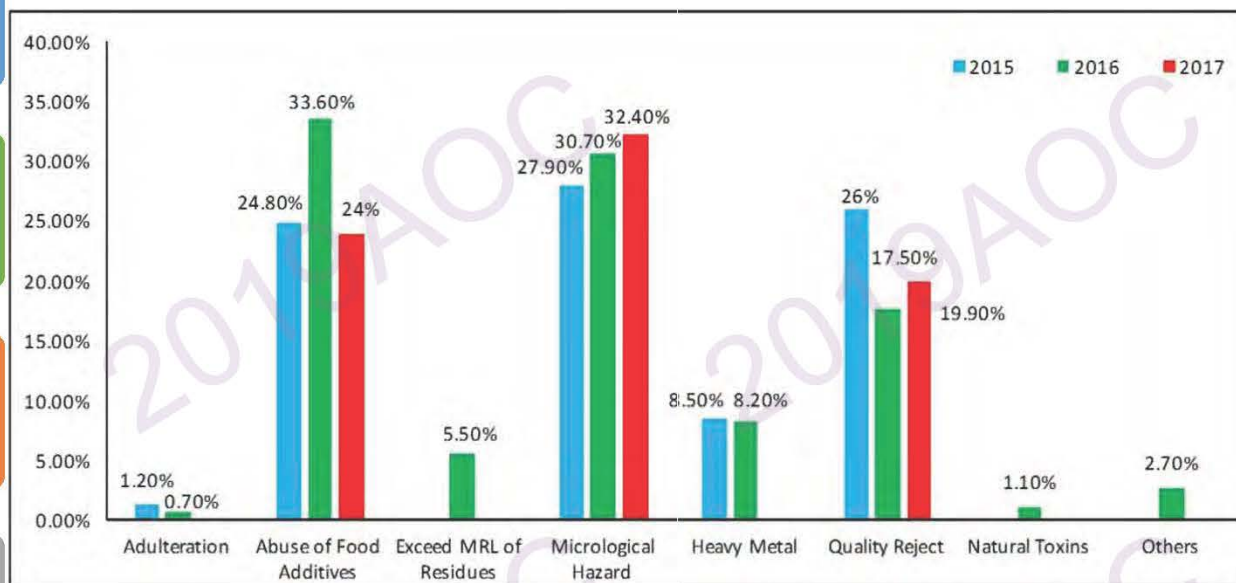
Source: Ministry of Environmental Protection, China

Major factors for food safety risks in China

Major food safety risks

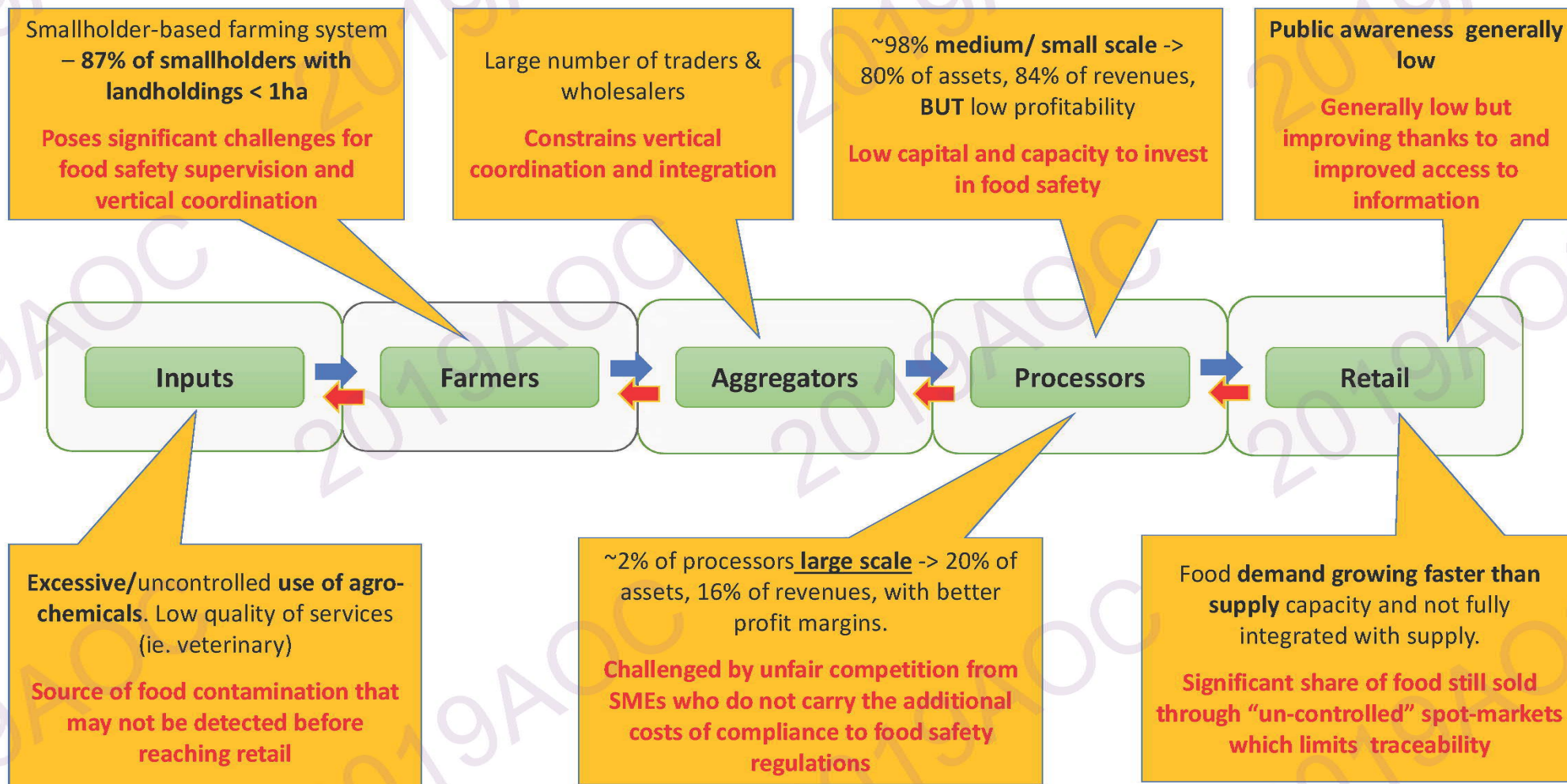


Main food risks identified from the monitoring results during 2015-2017



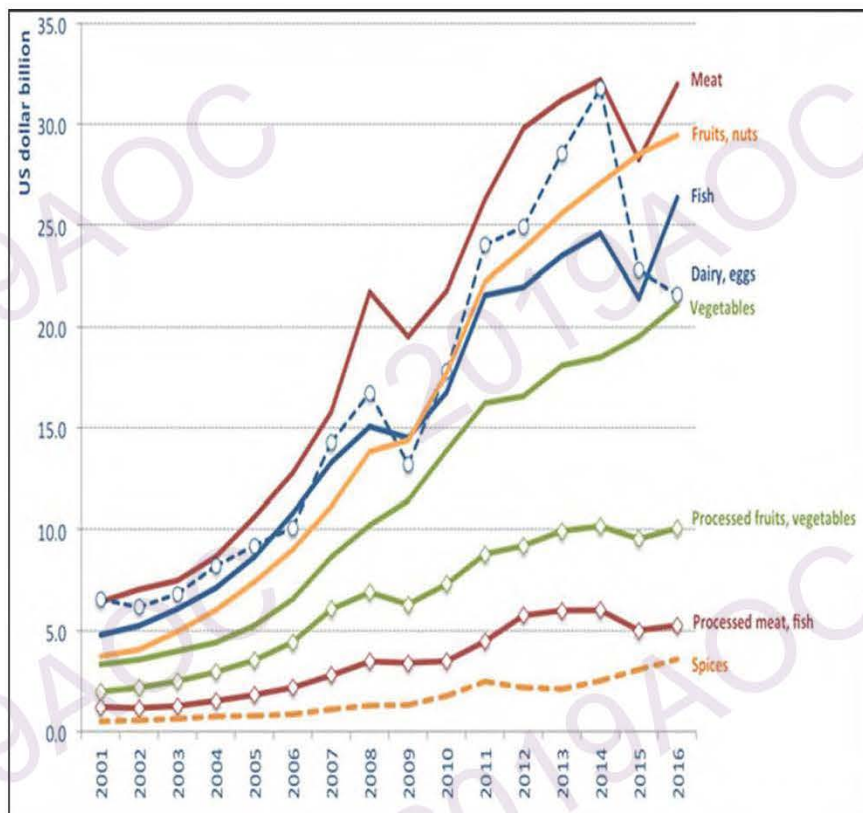
Source: Wu and Chen, 2018.

Food safety in the context of food systems in China



Global patterns of food trade are changing with significant implications for food safety policy

Surging low and middle income country High Value food imports

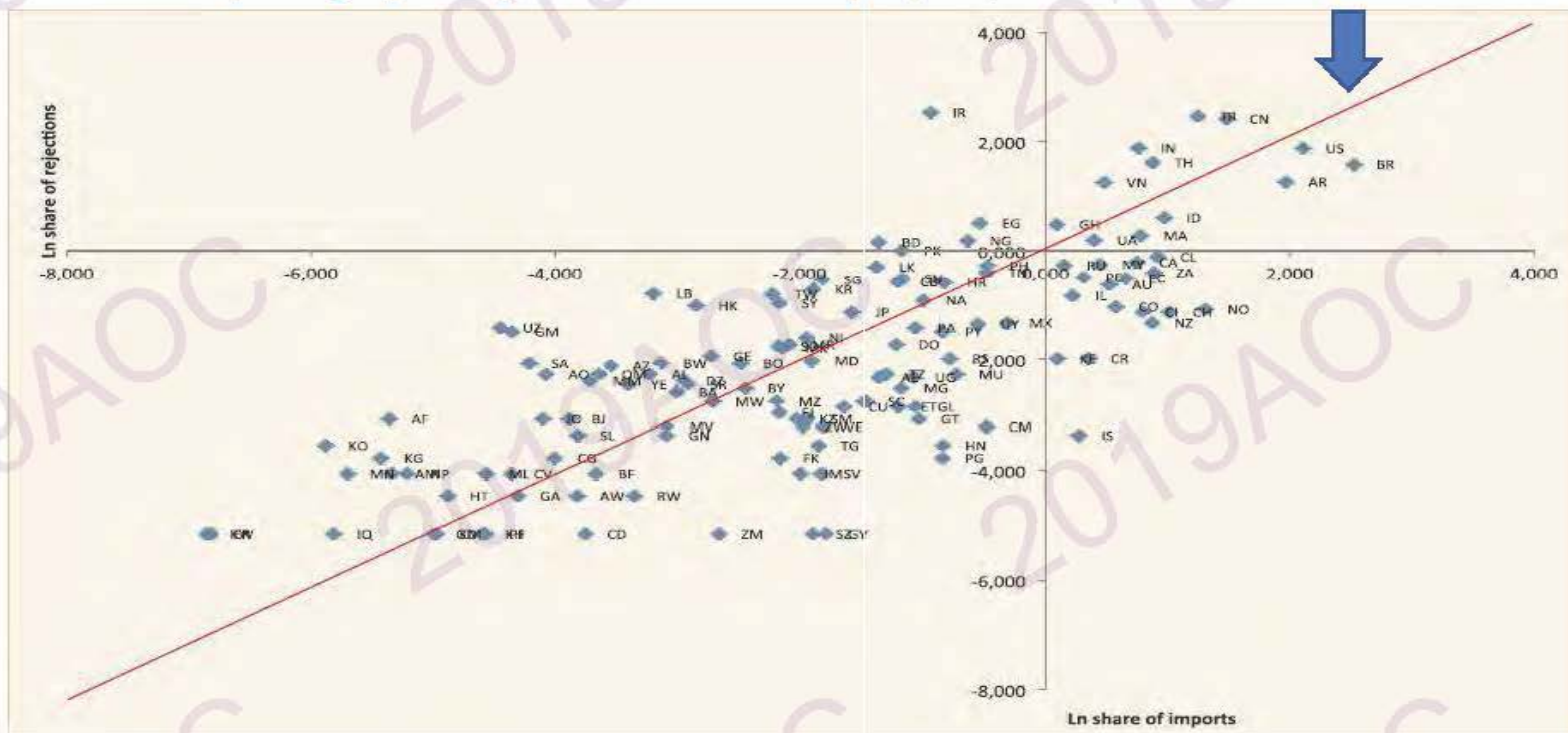


Some trends

- The share of high income countries as both suppliers & recipients of developing country high value foods is declining
- The most rapid growth is in South-South trade, especially for trade involving low and lower middle income countries

Food safety concerns contribute to increasing agro-food border rejections

Share of EU agro-food rejections versus share of imports, 2002-2010



Emerging Asia has a disproportionate share of OECD country food import rejections due to food safety regulatory violations

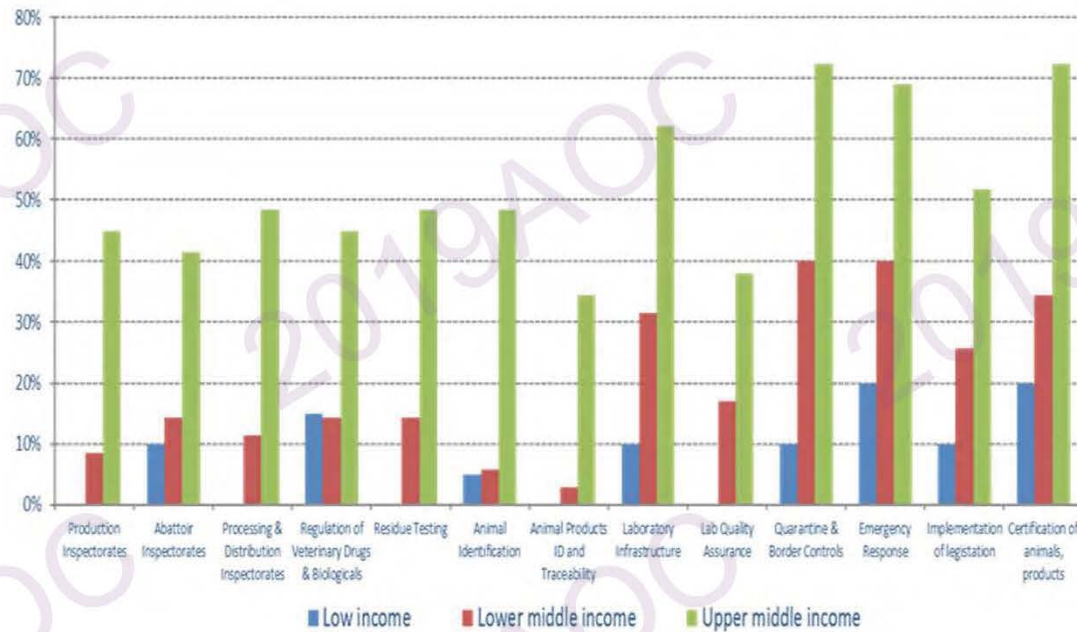
European Union	United States	Japan
<ol style="list-style-type: none"> 1. Mycotoxins 2. Veterinary Drug Residues 3. Food and Feed Additives 	<ol style="list-style-type: none"> 1. Labelling 2. Hygienic Conditions 3. Adulteration/Missing Documentation 	<ol style="list-style-type: none"> 1. Bacteria Contamination 2. Veterinary Drug Residues 3. Pesticide Residues

Reasons for rejections indicate multiple problems and different emphases in different end markets:

Source: International Trade Centre (ITC)

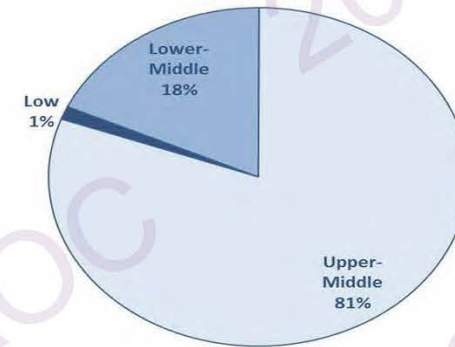
Many low and lower-middle income countries have isolated pockets rather than coherent systems of food safety capacity

Proportion of countries with adequate animal product food safety capacities

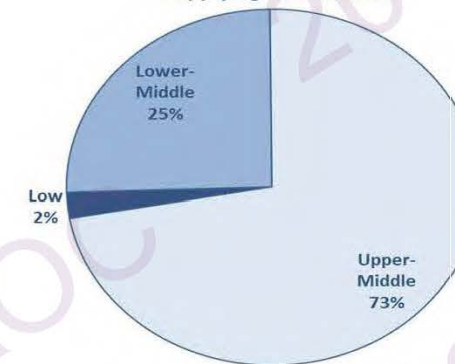


Source: OIE PVS Assessments

GlobalGAP Area of Coverage of Fruit & Vegetables, 2017



Valid Registrations with USFDA for Supplying the US, 2018



Dominant middle income importers of high value foods may not be applying consistent and transparent risk-based approaches to food import

10 countries account for 2/3 of developing country high value food imports

A Mixed Picture Reality

Level of Burden in Applying Rules and Practices to Govern Agri-food Imports

High Burden=1; Low Burden=5

Food Import Controls:

Elements of Good Practice

- Transparency in legislation & operating procedures.
- Institutional roles & responsibilities clearly defined.
- Consistency & impartiality in the application of controls.
- Harmonization with existing standards & guidelines
- Recognition of trading partner food control systems

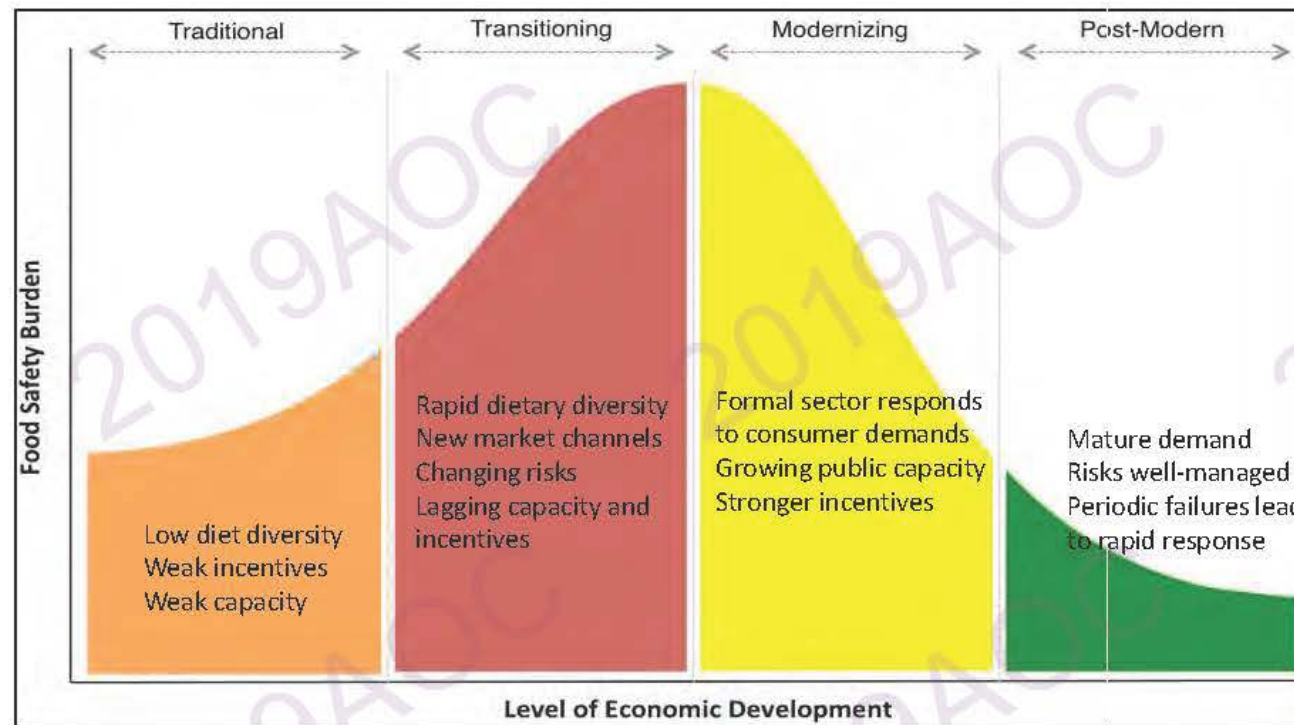


Country	TBT	SPS	Information	Administrative Burdens	Enforcement Consistency	Total
Middle-Income						
Peru	3	3	5	3	3	17
Mexico	4	3	4	2	2	15
Malaysia	2	2	4	3	3	14
Philippines	3	3	2	2	1	11
Vietnam	3	3	2	2	1	11
Thailand	2	2	3	2	1	10
Russia	2	2	2	1	3	10
Papua NG	3	2	2	1	2	10
China	2	2	3	1	1	9
Indonesia	1	1	1	1	1	5
Average	2.5	2.3	2.8	1.8	1.8	11.2
High-Income						
Singapore	5	5	5	5	5	25
New Zealand	5	4	5	5	5	24
Taiwan (ROC)	4	3	5	4	5	21
Japan	3	3	5	4	5	20
Australia	3	3	5	4	5	20
USA	3	3	5	4	4	19
Chile	4	4	3	3	5	19
Canada	3	3	4	4	4	18
S. Korea	3	2	3	3	3	14
Average	3.7	3.3	4.4	4.0	4.6	20.0

Source: APEC Business Council 2016

Today's lower middle income countries represent the world's food safety 'hotspot' both from a problem and opportunity perspective

The Food Safety Lifecycle



Reflects the relationship or gap between food safety needs and actual capabilities and incentives

Food safety is a shared responsibility among governments, businesses, and consumers

To avoid a rising public health and economic cost from unsafe food, countries need more coherent food safety policy frameworks, smarter investments and more effective regulatory and program delivery.

Policy

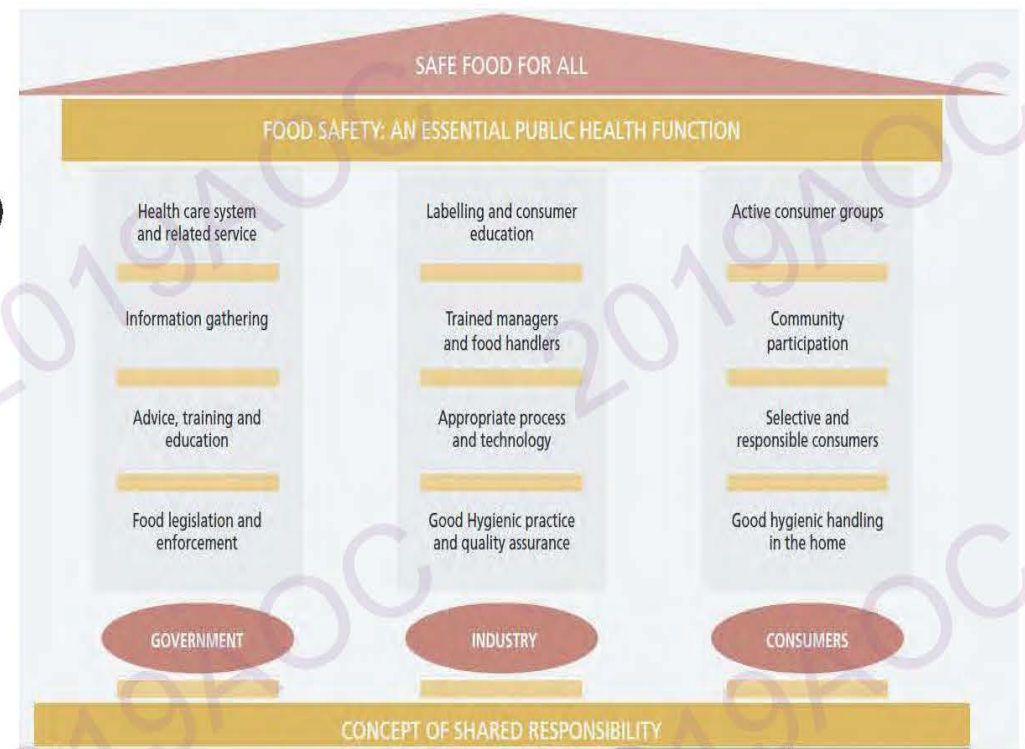
- Preventative (rather than fire-fighting) measures
- Focus on managing risks (not detecting hazards)
- Inclusion concept of food safety management
- Use of structured approach to prioritization
- Synergies with other public policies (e.g. nutrition/ environment)

Smarter Investment

- Sound science and awareness/knowledge platforms
- Human capital and infrastructure
- Leveraging private investment in infrastructure/services

Better Delivery

- Risk-based approach to inspection and compliance support
- Coordinated approaches to surveillance, testing, etc.
- Incentivizing GAP/GMP and safe food handling practices
- Engaging consumers/civil society in multiple ways



Practical actions for enhancing food product quality and safety compliance in trade



Ministries of Finance



Target public spending

- Calibrate to costs and benefits
- Preventive rather than reactive
- Balanced (hardware/software)

National Food Safety Agencies or Technical Ministries



Unify food strategies

- Evidence-based
- Support compliance
- Leverage private investment
- Empower consumers

Need for policy leadership!!!

Food Industry and Agricultural Associations



Organize collective action

- Build awareness and facilitate action
- Good practices (ag, manufacturing)
- Advocate for good policy and regulatory delivery

Academic and Research Institutions



Build evidence

- Fund scientific research
- Train professionals
- Carry out risk assessments
- Evaluate interventions

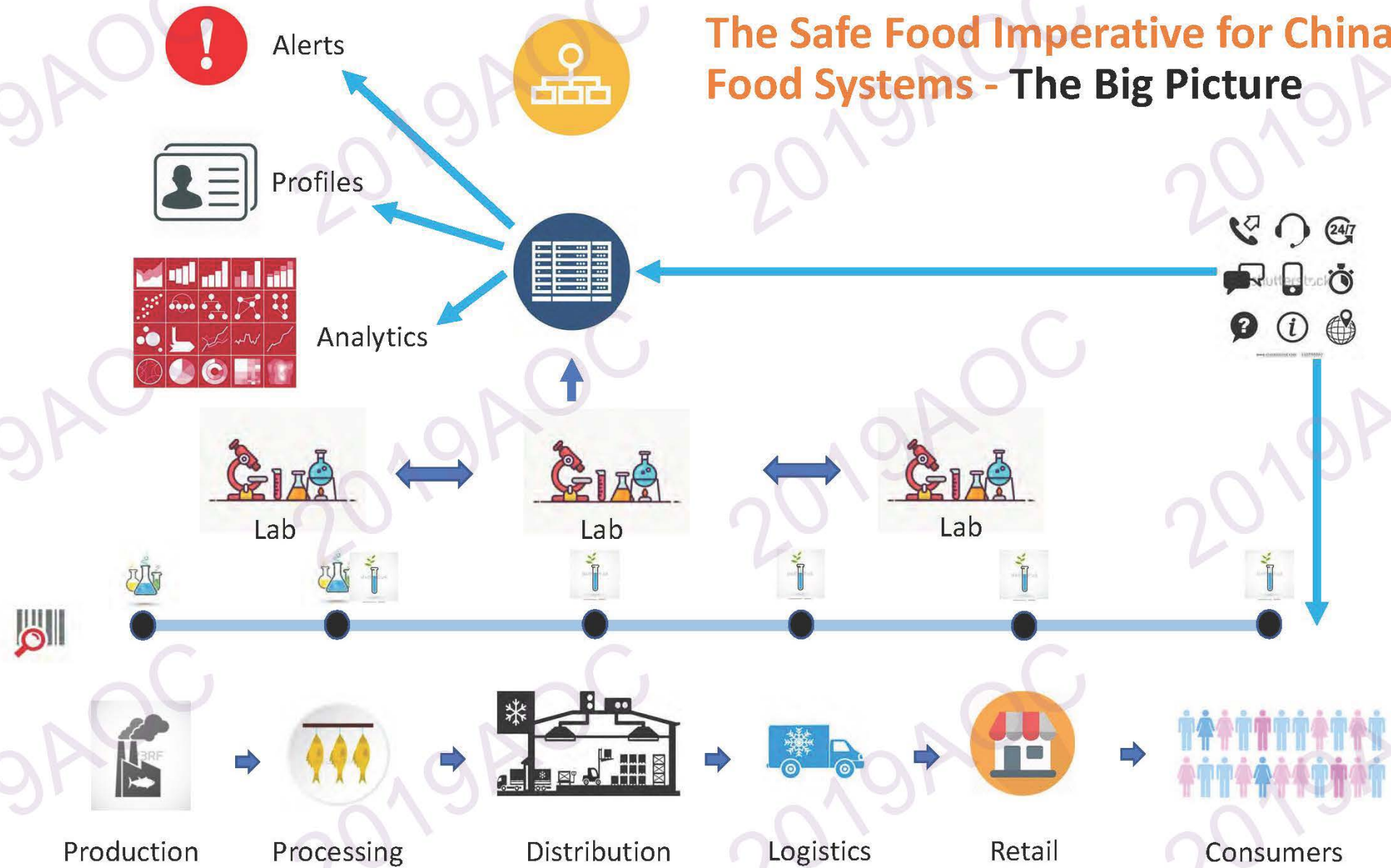
Development and International Technical Agencies



Focus more on food safety for domestic health

- Conduct economic analysis and M&E
- Facilitate resource priority processes
- Foster South-South learning
- Benchmark food safety systems
- Address export & import controls

The Safe Food Imperative for China's Agri-Food Systems - The Big Picture



World Bank's engagement in food safety issues in China

World Bank Support Modalities

- Jilin Agriculture Product Quality and Safety Project (2010-2017)
- Institutional Grant for CFDA Capacity Building (2014-2107)
- **China Food Safety Improvement Project (2021)**
- **Hubei Safe, Sustainable, Smart Agriculture Product Quality Project (2021)**

Entry Points

- **Strategic:** study alternative regulatory control models from OECD countries; China capacity needs assessment; SAMR strategic plan
- **Diagnostic:** food safety research; environmental hazard mapping; surveillance database development
- **Applying good regulatory practice:** central and provincial regulatory capacities, procedures and training
- **Infrastructure investment:** laboratories; cold chain infrastructure
- **Applying good food operator practice:** GAP/GMP demonstrations; value chain initiatives
- **Risk communications:** public awareness campaigns; consumer education

Recap Messages

- **Food safety is a mainstream economic development issue** but generally has not been recognized as such. Practitioners haven't communicated well to policy makers while social scientists have focused predominantly on international market access dimensions
- We commonly see a policy vacuum, leadership void, and pattern of underinvestment in domestic food safety capacity. Concerted public action is normally reactive: **crisis management is more common than risk management.**
- The weak foundations and gap between food safety capacity and need is especially problematic among rapidly urbanizing lower middle income countries. **'Business as usual' will result in enormous public health and economic costs in the future** in such countries.
-
- **Emerging Asia is the world's emerging 'hotspot'** for food-borne illness and market disruption. Food safety is the 'new' food insecurity for Asia as many consumers have low confidence in the safety and governance of food.
- There are appropriate food safety public policies and cost-effective investments for countries at all economic levels, with their efficacy depending upon the application of a **limited set of core principles.**

Thank you for your attention!!

Recently released policy paper that might interest you:

The Safe Food Imperative: Accelerating Progress in Low- and Middle-Income Countries

S. Jaffee, S. Henson, L. Unnevehr, Delia Grace and Emilie Cassou