

The  
Economist

Intelligence  
Unit

# A healthy future for all? Improving food quality for Asia

A report from The Economist Intelligence Unit

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# List of interviewees

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**Andreas Blüthner**

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**Ray Yip**

China director  
Bill & Melinda Gates Foundation

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Cargill Agricultural Supply Chain Worldwide  
  
Spokesperson  
China Mengniu Dairy Company

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**Bev Postma**

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**Marvin Yeo**

Founder and managing partner  
Frontier Investment and Development Partners

**Regina Moench-Pfanner**

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Global Alliance for Improved Nutrition

**Sivapuram Prabhakar**

Senior policy researcher  
Institute for Global Environmental Strategy

**Neeraj Gupta**

Senior investment officer, South Asia  
International Finance Corporation

**Shenggen Fan**

Director general  
International Food Policy Research Institute

**Peter Barnard**

General manager, trade and economic services  
Meat & Livestock Australia

**Di Xue Feng**

Vice-president of corporate quality management,  
Greater China  
Nestlé

## Executive summary

Discussions of food security in Asia have often centred on the issue of supply, but now the emphasis is shifting from quantity to quality. A succession of food safety crises has drawn the most attention but there are equal and growing concerns about rising obesity and the stubborn problem of under-nutrition. The ability to address the issue of food quality is complicated by the increasing complexity of the food supply chain in Asia. In an effort to secure sufficient quantities of affordable food and cater for a greater diversity of diets, countries have integrated themselves into global systems for agricultural production and food processing, leading to the creation of longer, sprawling food supply chains that could span numerous countries. This structural shift requires that food quality be viewed as an issue that extends beyond national boundaries. At the same time, the market for domestic production remains highly fragmented in many transition economies—China has some 200m smallholders raising poultry and fish stock, while India has an estimated 120m—making education and monitoring of producers on the virtues of clean, safe food extremely difficult.

Our research indicates that the need to address the quality, or safety and nutritional value, of food is not simply a public health priority, but one that is increasingly being driven by the

market. Hence, the response by the food industry and governments towards growing consumer concerns related to tainted food, and the changing dynamics underpinning the region's malnutrition story, are the major focuses of this report. It is based on extensive desk research and interviews with 18 industry executives, academics and policy makers.

Among the key findings:

- **Demand for safe and nutritious food will rise dramatically across Asia-Pacific in the next five years as purchasing power increases.**

The Economist Intelligence Unit projects a rise in consumer spending on food, beverages and tobacco from US\$2.8trn in 2012 to US\$3.7trn by 2016. As production and trade of food increases to meet this demand, improving food quality will be a challenge for producers and governments alike.

- **Rapidly growing cross-border trade in food and livestock is making monitoring of food quality difficult.** The demand for more and better food continues to rise in tandem with population growth and rising incomes. Food production systems are struggling to keep up with demand while maintaining profitability, leading to an increase in trade. Between 2003 and 2012, the value of food and livestock exports from Australia to the rest of the world rose by a Compound

Annual Growth Rate (CAGR) of 9%, reaching US\$26bn in 2012. Meanwhile, global food and livestock exports to China grew at CAGR of 19%, hitting US\$35.3bn in 2012. China is emerging as a critical supplier of food to Japan—the value of exports nearly doubled from US\$5.5bn in 2003 to US\$10.8bn in 2012.

- **Food companies will need to make investments to maintain the integrity of their supply chains, notably in China.** In some cases, this involves deeper vertical integration, and investments in processes and technology to bolster traceability. Co-operative and contract farming models have been used to good effect across both mature and developing countries.

- **Global food companies have a large role to play in improving food safety, yet in some markets they are discouraged from investing.** By importing their relatively stringent quality control standards, global food companies influence and incentivise local suppliers to meet their benchmarks, creating the potential to improve standards across local industry. Larger firms are able to invest in innovation and have brought new technologies and best practices in safe and efficient food transportation to Asian markets.

- **Market demand for safe food will be a major driver of corporate activity in the near future.** As respected foreign brands are discovering in China, there is huge demand for reliably safe food. This is not lost on local companies lacking in quality control know-how or brand credibility and they are seeking to team up with reputable foreign players to address these short-comings. Indeed, consumer demand for better food safety and quality will continue to be one of the drivers of corporate activity in the region and, increasingly, it will be a factor for companies when considering their regional strategy and the bottom line.

- **China's larger food companies are increasingly looking abroad to meet future demand for safe, high-quality food at home.**

From 2010 to September 2013, the value of major outbound M&A deals stands in excess of US\$9bn. This is a trend that is feeding into aggregate global M&A activity—in 2012, activity in the food and beverage sector was up 117% on the previous year.

- **Obesity is a rising concern in the region, and companies are likely to come under pressure to join governments in the battle against it.** The spike in obesity is particularly dramatic in China, where the World Health Organisation classified 45% of men as being overweight in 2010, up from 27.5% in 2002. Food companies selling processed food in the region are coming under growing public pressure to be more proactive in tackling the issue of obesity, as governments explore both public health campaigns and regulatory mechanisms to tackle the problem.

- **At the same time, demand for products perceived to be healthier is growing.** Greater consumer awareness of health and wellness is reflected in growing demand for “better-for-you” products. In Australia, the per capita consumption of carbonated drinks is projected to decline by 2.5% between 2012 and 2016, according to Mintel and The Economist Intelligence Unit. Though China will continue to see growth in this segment (13.3% between 2012 and 2016), growth in demand for beverages that are perceived to be healthier will surpass fizzy drinks significantly—consumption of juice per capita will jump by 42.5%, and bottled water by 59.3%.

- **The scourge of “hidden hunger”—or micronutrient malnutrition (MNM)—in Asia is focusing minds on the challenge of improving the nutritional value of staple foods.** The mainstreaming of fortification of staple foods with essential micronutrients has been a major success story for nutrition elsewhere in the world, and is an approach that some governments in the region are now seriously considering.

- **Addressing malnutrition at the bottom of the pyramid can make business sense.** BASF, a German conglomerate which is involved in

projects to improve uptake of vitamin-A fortified oil, and Britannia, an Indian food maker which sells iron-enriched biscuits, have shown that with the right partnerships companies can profitably address issues of malnutrition at the so-called bottom of the pyramid. But unless more private corporations make an effort to find a sustainable business model for such products, the impact will be limited.

- **A regional regulatory regime will be difficult to create, judging from Europe's experience.**

The capacity to enforce legislation and monitor

food safety varies greatly across Asia, both on a country and a corporate level. On regulation, the challenge remains to maintain a workable balance of regional co-operation and national autonomy on an issue that is highly politicised for many countries in the region. The increasingly regional nature of many food safety scares suggests that a continent-wide "rapid response" agency could complement national efforts to manage food crises, though this remains a distant prospect. Still, the numerous bodies being formed to address the issue of food safety on a regional level are reason for optimism. ■

# Introduction

***Discussion about food security in Asia is shifting in emphasis from quantity to quality. High-profile cases involving food safety have drawn the most attention but obesity and under-nutrition are of equal concern.***

Food quality has become a rising concern across Asia, not least because of events in China where food safety scandals have been a regular occurrence in recent years. Five years on from an incident in which six babies died and over 300,000 became ill from melamine-tainted infant formula, parents in mainland China remain distrustful of local milk powder brands. Their fear has created supply issues in many markets around the world, notably Hong Kong, where the government felt it necessary to limit outbound travellers to a quota of just two cans each. In March and April of 2013, more people were detained in Hong Kong for smuggling milk powder—all of it destined for mainland China—than were arrested for drug trafficking in the whole of 2012.

It is not just milk powder that is cause for concern. In 2013 alone, thousands of dead pigs were found floating through Shanghai's Huangpu River and 900 people were arrested in a major crackdown on "meat-related crimes", including selling rat meat in the guise of mutton. Though the most alarming scandals emanate from China,

safety is an issue in every market in the region. In India, reports of traders ripening fruits with "masala spice"—or calcium carbide, a known carcinogen—reflects the under-development of infrastructure for food storage and transport. A 2011 criminal investigation into the deaths of 143 people from boot-leg liquor laced with methanol in West Bengal is a stark reminder that around 90% of food production in the country remains informal and based in poor urban areas.

At the other end of the spectrum, detection of a post-harvest fungus halted exports of New Zealand apples to China in September, and the spotlight fell on the country's world-class dairy industry in August this year when its main exporter, Fonterra, reported the discovery of a strain of bacteria that can cause botulism in its supply chain. Following a global recall and a blanket ban on its products in China, further investigations proved the case to be a false alarm. Yet, the scare indicated that even the best systems are not immune to breaches and that effective crisis communications and risk management strategies are important aspects of managing food safety across increasingly complex global supply networks.

Food safety is but one aspect of the overall quality of food, an issue that is gaining increasing attention in Asia-Pacific. Though availability and access to food remain critical components of

food security, there is a growing recognition that the focus on quantity has been at the expense of quality. “In the 1970s and 1980s, we were facing a different issue; whether we had enough food to feed our population,” explains Shenggen Fan, director general at the International Food Policy Research Institute (IFPRI), a research-based think tank. “One challenge with this focus on high productivity and yield is that the nutrition side has been neglected.”

Malnutrition is usually used in reference to those who do not get enough to eat, or enough of the necessary nutrients. But malnutrition in this sense is only one concern about the quality of the food available in Asia. At the other end of the scale, obesity is becoming a major issue in many countries, one that is increasingly linked to the consumption of more processed foods that are high in salt, fat and sugar. More affluent nations such as Australia, New Zealand, Singapore, Hong Kong, Taiwan, South Korea and Japan are starting to think about obesity in terms of preventative healthcare, fearing the growing burden on national health systems. Even developing Asian countries such as India and the Philippines are experiencing an obesity epidemic, despite the fact that large swathes of their populations remain hungry. Rapid economic growth rates combined with high levels of income inequality have driven the emergence of a “double burden” of malnutrition, where excess intake of calories coexists with under-nutrition. Food companies selling processed food in the region are coming under growing public pressure to be more proactive in tackling these issues, as governments explore both public health campaigns and regulatory mechanisms to tackle the problem from both angles.

Recent initiatives have reflected a growing concern with nutrient deficiencies, or Micronutrient Malnutrition (MNM). Despite healthy economic growth rates and an overall decline in poverty in South and South-east Asia, MNM remains pervasive—and not just among

the poorest or most vulnerable. According to the United Nations, MNM persists in the general population in Mongolia, Cambodia, Indonesia, Laos, the Philippines and Thailand<sup>1</sup>, forcing an examination of the nutritional value of what is being generated from “mainstream” agricultural and food production systems.

### Integration, for better and worse

The issue of food quality and what to do about it is complicated by the growing complexity of the food supply chain in Asia. In an effort to secure sufficient quantities of affordable food, countries have integrated themselves into global systems for the production of agriculture and food, driving the growth of longer, food supply chains that traverse countries. A recent deal between China’s Xinjiang Production and Construction Corp and Ukrainian agricultural firm KSG Agro is a case in point. This 50-year arrangement, where 3m hectares of land will eventually be farmed to provide grain and meat for Chinese consumers, is just one of several by domestic companies seeking to meet voracious domestic demand.<sup>2</sup> This structural shift requires that food quality be viewed as an issue that extends beyond national borders, despite huge variance in the socioeconomic dynamics of Asian countries.

To assess potential approaches to improving food quality across the region, The Economist Intelligence Unit conducted 18 in-depth interviews with a range of stakeholders in the issue. We have given particular attention to the response of the food industry to growing consumer concerns related to tainted food and the changing dynamics underpinning the region’s malnutrition story. Our findings indicate that the need to address the quality of food is not simply a public health priority, but one that is also being driven by the market. This has resulted in some innovative thinking around new business models, production processes, product development and programme design.

<sup>1</sup>United Nations. “The Millennium Development Goals Report,” 2011.

<sup>2</sup>“Ukraine to become China’s largest overseas farmer in 3m hectare deal,” *South China Morning Post*, September 22nd, 2013.

## 1

## Safe food is glorious—but how to get it?

*Globalisation means that the food supply chains of Asian countries are more complex and interdependent than ever. At the same time, many countries in Asia continue to have highly fragmented domestic supply chains with huge numbers of smallholders. Improving food safety, and managing the response when crises do occur, is about creating the right incentives for suppliers and consumers to act responsibly.*

The rapid pace of industrialisation has changed the landscape for food safety across much of emerging Asia. Industrial clusters are getting closer to farms, raising the risk of contamination of agricultural land and the water supply. Driven by population growth and rising incomes, the demand for more and better food continues to rise, and food production systems struggle to keep up with demand while maintaining profitability.

The plethora of high-profile food safety scandals in China reflects the enormous pressure to cut corners as the country undergoes rapid change and growth, observes Ray Yip, China director at the Bill and Melinda Gates Foundation. “As China moves towards a capitalist environment, the margins are very low and ethics in the industry have not kept up,” he says. This transition echoes that in the United States in the early 20th century when food safety crises drove the government to establish the Food and Drug Administration (FDA). One hundred years on, China has consolidated public responsibility for non-agricultural food and drug safety under the umbrella of the China Food and Drug Administration (CFDA), which was established in March this year as part of a major restructuring to improve oversight and enforcement (see box;

*Raising the game? The evolution of China’s food safety mechanisms).*

The move reflects government recognition of the economic and social cost of unsafe food, as copper-sulfate tainted preserved duck eggs, pesticide-laced ginger, recycled cooking oil and cadmium-coated rice continue to make the headlines. The 2013 rice scandal, where eight of 18 samples in the city of Guangzhou tested positive for cadmium, is particularly concerning for Mr Fan of IFPRI given that China is the world’s largest producer and consumer. “The loss of trust among consumers could significantly drive up demand for rice imports,” he says. “A shift in demand from domestic to foreign-produced rice could have a significant impact on the international rice market.”<sup>3</sup>

### Recipes for disaster

Though the most high-profile cases have emerged in mainland China, food safety scares are common the world over, and across all markets in Asia, regardless of the stage of development. In 2008, thousands of Japanese bureaucrats came under investigation for possible involvement in a toxic rice scandal that had prompted a recall of alcoholic beverages, causing damage to the country’s reputation

<sup>3</sup>“Road ahead for China’s food safety.” Fan, Shenggen. *China Daily*, June 2013.

for food safety. In 2011, Taiwan was rocked by the discovery of a carcinogenic plasticiser in food additives that had been widely distributed to food manufacturers across the region. With relatively well-developed regulatory and monitoring systems in place, how can these incidents happen?

One of the major factors at play is commoditisation within agricultural production and the patterns of global trade that now characterise the modern food industry. Between 2003 and 2012, the value of exports from Australia to the rest of the world rose by a Compound Annual Growth Rate (CAGR) of 9%, reaching US\$26bn in 2012; while the CAGR for global food and livestock exports to China grew by 19%, peaking at US\$35.3bn in 2012, according to the United Nations Commodity Trade Statistics Database (UN Comtrade).

“Currently, about 16% of the world’s calories cross international borders—expect this number to increase as populations and incomes continue to grow in Asia,” says Stan Ryan, corporate vice-president at Cargill Agricultural Supply Chain Worldwide. “For countries dependent on imported supplies, this share can be a lifeline.” China is emerging as a critical supplier of food to Japan—the value of exports rose from US\$5.5bn in 2003 to US\$10.8bn in 2012. In the same period, Australia and Vietnam became significant exporters to China, with the value of food and livestock trade rising exponentially in the past decade, despite a lull during the global financial crisis of 2008–09. The value of imports from Australia rose from US\$0.3bn in 2003 to US\$2.4bn in 2012. Meanwhile, exports of food and livestock from Vietnam to China rose from US\$0.1bn in 2003 to US\$2bn in 2012.

Whereas community farmers previously took a role in “testing” produce—their livelihoods were dependent on maintaining the trust of local consumers after all—today the behaviour of players across various parts of the supply chain is changing. The problem is compounded

Figure 1

Growth in value of food and livestock trade, 2003-12

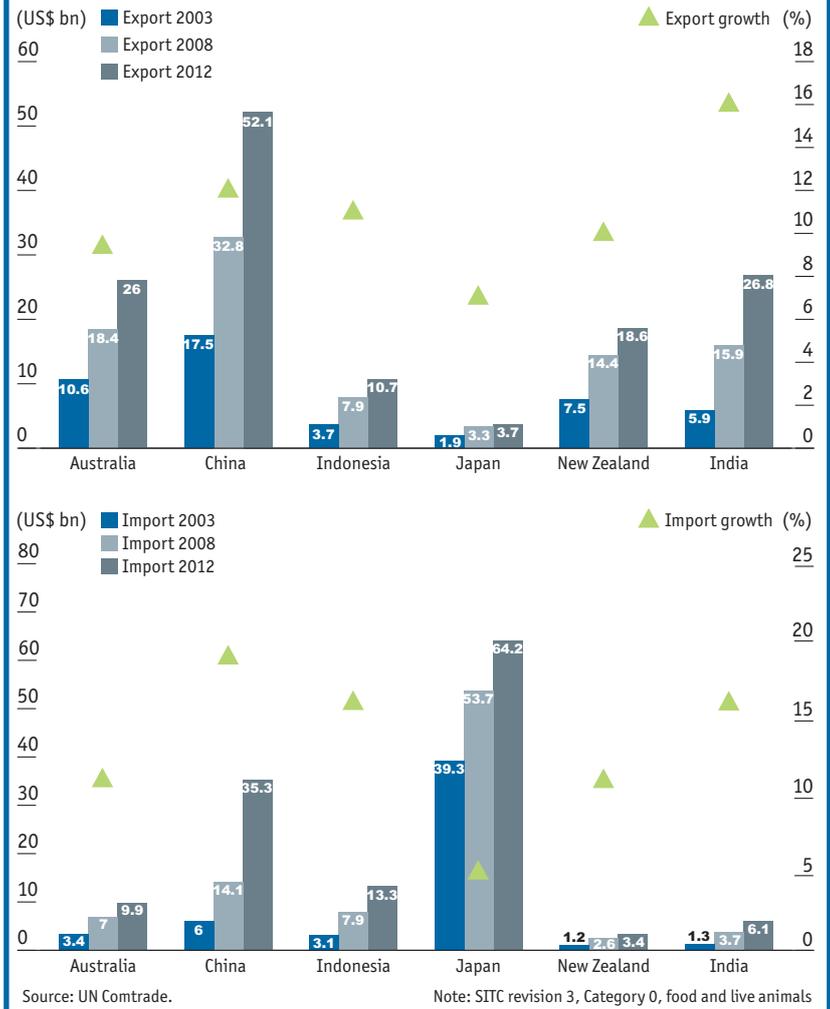


Figure 2a

Food and livestock exports from China to other Asian countries

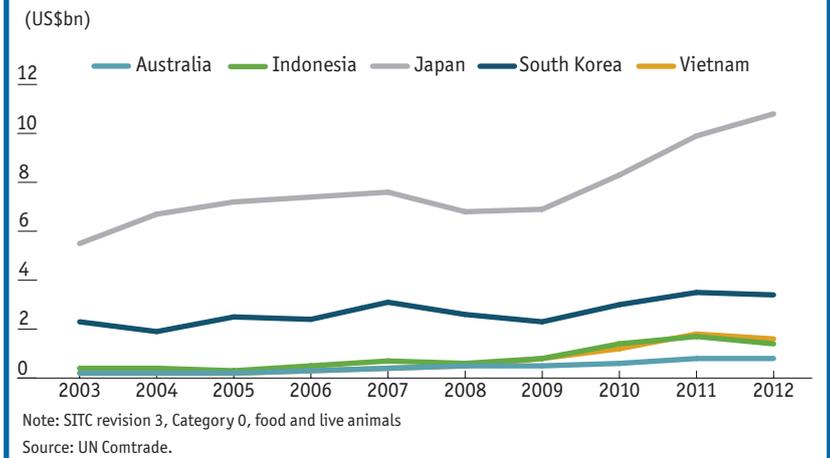
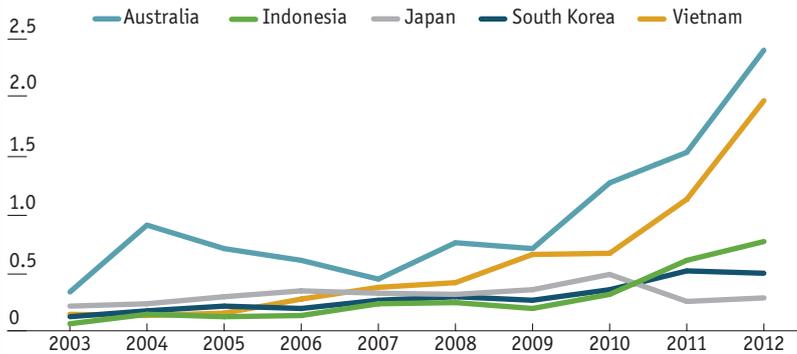


Figure 2b

## Food and livestock imports from other Asian countries to China

(US\$bn)



Note: SITC revision 3, Category 0, food and live animals

Source: UN Comtrade.

in large emerging markets such as China, India, the Philippines and Indonesia, where the agricultural and food sectors are modernising and becoming more chemical-intensive but are still dominated by smallholders and SMEs. “On

the production side, the biggest problem is related to pesticide and its untimely application to fruits and vegetables primarily,” says Sivapuram Prabhakar, senior policy researcher of the Japan-based Institute for Global Environmental Strategies (IGES). “Re-harvest interval guidelines are not typically followed for pesticide applications in the field, nor are post-harvest treatments to increase shelf life. This is largely down to a lack of knowledge and capacity of farmers.”

### Chain reactions

The enforcement of food quality and safety standards is a major issue for the region’s developing markets due to limited capacity and highly fragmented domestic agriculture sectors. Lack of awareness of good standard practices, infrastructure bottlenecks and poor storage and processing of food products raise

## Raising the game? The evolution of China’s food safety mechanisms

“Good food is made by production, not regulation,” according to Dr Chen Junshi of the Chinese government’s Food Safety Risk Evaluation Committee.<sup>4</sup> But China has at least half-a-million food companies and most are small and micro-enterprises. Thus the task of changing mindsets and improving the standards of workers in the food industry is immense. Yet, food safety is a priority for many in China—a Pew Research Centre survey in 2012 indicated that 41% of Chinese consumers thought of food safety as a very big problem, up by three times from 12% in 2008.<sup>5</sup>

In response to public outrage, the government has been highly proactive in efforts to clean up the industry. The 2009 Food Safety Law seeks to enhance monitoring and supervision, improve safety standards, authorise recalls and severely punish offenders. The law is set to be updated this year, with even stricter penalties to be outlined. Most significant of late (March 2013)

has been the development of a state-level “super ministry” dedicated to ensuring the quality of food and drugs by setting standards and monitoring the supply chain. In June of 2013, the government consolidated a tranche of existing national standards on food safety from 5,000 down to a much more wieldy 300. These will be clarified and incorporated into a unified food safety framework by the end of 2015 according to the China National Centre for Food Safety Risk Assessment.<sup>6</sup>

Widespread institutional and regulatory reform, and visible crackdowns on “food crimes” indicate the extent of the government’s concern, as do efforts to restructure the food and agricultural sectors. Indeed, the highly fragmented nature of domestic production poses an immense challenge—one that the government is investing significant effort to address by restructuring the agricultural sector, and clarifying farmers’ land rights.

<sup>4</sup> Food safety newsletter, No 2. EU-China Civil Society Dialogue, August 2012.

<sup>5</sup> “What Chinese are worried about”, Wikes, Richard, Pew Research Global Attitudes Project, March 2013.

<sup>6</sup> “China consolidates food safety standards”, Chinadaily.com, 21st June 2013.

Figure 3

## Lifecycle stages of food production and related food safety issues

## Lifecycle stages



## Food safety risks

Source: Adapted from IGES (2010)

the likelihood of contamination or adulteration. Responsiveness to food safety scares when they do happen is hampered by an inherent lack of traceability within the system. As a result, multinationals operating in these markets find they must expend huge resources to audit and manage suppliers to ensure the integrity of their value chains.

Nestlé's Greater China operations, for example, rely on 2,000 vendors to support local production. "There is a need for us to manage the entire supply chain," says Di Xue Feng, vice-president of corporate quality management for the Greater China Region. "We spend a lot of effort on supplier audit, where we have a dedicated team and a very stringent process to select and approve suppliers." For international food and beverage companies playing in Asia's emerging markets, a reputation for food safety is an immeasurable aspect of brand equity. "Consumers expect the big multinationals to be perfect on this. That is why Chinese parents are very cautious when selecting infant formula product for their children, and even willing to pay a high price" says Mr Di. "It is quite difficult to build that trust, but it can be very easy to lose it." Yum Brands, owner of KFC restaurants, the largest chain in China by sales, found this to be true following allegations in late 2012 that the chicken served at its restaurants was unsafe. Among other efforts to restore its reputation,

the company announced a thorough review of its supply chain, including the elimination of 1,000 small producers under its 25 main chicken suppliers<sup>7</sup>. It also announced its intention to explore the possibility of setting up its own chicken farms.

## Return to farms

In addressing the issue of food quality it is critical to acknowledge the extent to which small-scale farming remains the key source of food for the majority of people living in the region. "Given the disparities and differences in countries, freeing the market from ineffective farmer income support is crucial," notes Mr Ryan of Cargill. In the region's least-developed countries, one of the biggest challenges to food safety is the misuse of chemical pesticides and fertilisers. "Whether from the private sector, or by government, smallholder farmers need access to good agriculture practices and knowledge on how to more efficiently use fertilisers and pesticides to increase yields and subsequently incomes," says Mr Ryan. The task of improving communication and education on food safety is enormous in its scale in Asia-Pacific, with the vast majority—some estimates put this at 87%<sup>8</sup>—of the world's 500m small farms (holdings with land under two hectares) based in the region.

On the surface, consolidation into larger farms may seem to be the answer—and it is certainly

<sup>7</sup> "Yum Brands tightens Chinese supply chain", *Financial Times*, Feb 25th 2013.

<sup>8</sup> "Smallholder Farming in Asia and the Pacific: Challenges and Opportunities", International Fund for Agricultural Development, January 2011.

## From collective to co-operative: Lessons from Australia's vertically integrated supply chains

Following the 2003 discovery of Bovine Spongiform Encephalopathy (BSE) in North American cattle, the Australian livestock sector took out what David Foote, chief executive of meat producer Australian Country Choice (ACC), refers to as an insurance policy for its future. "The industry recognised that 'clean and green' was going to be a point of difference for its international competitors," he says. Investments were made by the Australian beef industry into a National Livestock Identification System (NLIS) where each animal is tagged with a unique Radio-Frequency Identification (RFID) chip, feeding into a national database that allows traceability of each animal through its lifecycle.

A growing taste for red meat and consumer demand for food safety and supply chain integrity has sparked a spike in demand for Australian meat from China and Singapore in recent years. Increasingly, demand is rising from the likes of Indonesia and the Philippines in addition to the existing markets of Taiwan, South Korea and Japan

From 2011, there has been a surge of enquiries from Chinese producers wishing to learn more about ACC's vertically-integrated supply chain in a bid to improve security of supply and gain greater control over food safety. In a region where food supply chains are complex and often the sum of too many parts, ACC's model is an outlier. The company is 50% self-sufficient in the supply of livestock, with a trusted club of dedicated producers supplying the balance of finished animals for slaughter. "This model is becoming more common, but not every company will have all the components or expertise," says Mr Foote. Though producers in China work within a much more challenging environment, lessons can be derived from vertically integrated models as the country charts its own path to restructuring and consolidating the livestock industry. China had already closed 26% of its pig slaughterhouses by 2012—dropping from 21,000 facilities in 2010, with ambitions to reduce facilities to 3,000 by 2020, according to the China Commerce Department.

Figure 4

### Exports of bovine meat from Australia to key Asian markets, by weight

(Net weight, kg m)



Note: SITC revision 3, Category 0, food and live animals  
Source: UN Comtrade.

For Meat and Livestock Australia (MLA), a research and marketing organisation that supports its members from the industry, a reputation for reliability is the result of a decade spent working to build best practice across the supply chain,, and co-operating with government to maintain quality assurance and food safety systems of the highest order. This has piqued the interest of the primary meat industry in China where producers continue to face food safety challenges related to the slaughter, storage and movement of meat.

Larger "parent" producers could dedicate resources to the development of a producer's club to supplement their own production and processing capacity. This will require communication up and down the supply chain, the alignment of mutual objectives and ensuring that the club is rewarded for good performance. Relationships built on trust are an important component in ensuring safety from "paddock to plate", says Mr Foote. This approach makes sense when considering community level economics, and the focus on quality in such interactions between farmers and corporations, says Sivapuram Prabhakar of the IGES. Futures contracts for suppliers are often negotiated with a focus on quality, where such arrangements can help smaller suppliers benefit from the collective bargaining power of the parent.

These models can also foster accountability among smallholding producers, and have the potential to improve overall traceability in the food system. Producer clubs linking farmers to corporate producers have already been introduced in China's poultry sector in the wake of the 2004 avian flu outbreak with some success—companies such as Dachan Food, the largest processor of chicken meat in China, utilises a vertically integrated business model to source a sizeable portion of poultry from self-owned or contract farms, contributing to a seismic shift for the industry. In 2005, two-thirds of poultry production came from backyard farms, and these are now projected to make up just 2% in 2020, according to the Ministry of Agriculture.

one part of the solution for many countries, as can be surmised from government efforts to restructure the agricultural industry in China. The government is seeking to reduce the proportion of “backyard” poultry farms (those with less than 2,000 birds) down from an estimated 14% in 2010 to 7% in 2015, and just 2% in 2020, according to forecasts from the Ministry of Agriculture. But in China alone, there are still around 200m smallholders raising the country’s poultry and fish stock, tending an average plot of 1.5 (0.7ha) acres each. Although industrialisation of agriculture in China hurtles ahead, smallholders will continue to form the backbone of food production in the country for years to come.

Aside from the obvious questions of how to sustain the livelihood of farmers moved off the land, a major obstacle in the way of further farm consolidation is the lack of clarity over the land rights of smallholders. Many claim land rights based on their inhabitation, and when compensation offers are made by consolidators numerous individuals may step forward. China is now making a concerted effort to resolve this problem. The country’s annual rural policy plan for 2013 called for farmland titles to be defined within the next five years. Satellite positioning technology is being piloted in Anhui province as a potential means of replacing titles with information to be compiled in searchable registries.<sup>9</sup> The hope is that such a system will give smallholders confidence in their land rights, driving consolidation with larger farms and investments into improving productivity—and quality.

If anything, quality problems related to the predominance of smallholders with inadequate education have the potential to get worse before they get better. “With Myanmar and Cambodia opening up again, they will catch up with the leaders Thailand and Vietnam, and eventually produce more rice for export,” says Marvin Yeo, co-founder and managing partner

**Figure 5**  
**Distribution of smallholdings in Asia-Pacific**

| Country     | Total holdings with land, under 2 ha, m | Total area, ha | Average size, ha |
|-------------|---|----------------|------------------|
| China       | 193.4                                   | 130.0          | 0.7              |
| India       | 119.9                                   | 159.4          | 1.3              |
| Vietnam     | 10.2                                    | Not available  | Not available    |
| Pakistan    | 6.6                                     | 20.4           | 3.1              |
| Philippines | 4.8                                     | 9.6            | 2.0              |
| Myanmar     | 3.5                                     | 8.7            | 2.5              |
| Sri Lanka   | 3.3                                     | 1.5            | 0.5              |
| Laos        | 0.6                                     | 1.0            | 1.6              |
| Nepal       | 0.3                                     | 2.7            | 0.8              |
| Australia   | 0.1                                     | 45.6           | 3243.2           |
| New Zealand | 0.1                                     | 15.6           | 223.4            |

Source: FAO estimates. “Characterisation of Small Farmers in Asia and the Pacific.” April 2010.

of Frontier Investment Development Partners, a social impact investor based in the region. Their growth potential is currently restrained by poor logistics and infrastructure, lack of fertilisers and dated farming methods—and as trade barriers across South-east Asia are dismantled, the ability of producers to meet regional and international standards of quality remains a concern, says Mr Yeo.

Contract farming may be a solution for incentivising smallholders to grow safer food. In 2001, Cambodian rice wholesaler Angkor Kasekam Roongroeung introduced large-scale contract farming arrangements for the production of non-certified organic rice in the country, with an estimated 32,000 farmer households having joined the programme by 2008. Results of a survey by the ADB Institute indicated that the arrangement improved farmers’ profitability overall, and has the potential to drive the growth of independent, commercial farms by encouraging participants to intensify their own farming systems on leaving the scheme.<sup>10</sup>

The concept of collective action to drive food safety has traction in more developed agricultural settings too. Japan’s farming

<sup>9</sup> “Satellites Put Small Farms on China’s Map”, *The New York Times*, 6th February 2013.

<sup>10</sup> “Rice contract farming in Cambodia: Empowering farmers to move beyond the contract toward independence”, ADBI discussion paper 109. ADB Institute, June 2008.

co-operatives are structured so that produce is delivered and tested at centralised packaging centres, with the entire area penalised if one of the farms is found to be using unsanctioned pesticides, meaning that risk is borne by the community.<sup>11</sup> But for Mr Fan of IFPRI, the challenge lies not just in improving incentives for smallholders to produce safer food, but also in cultivating behaviour that is conducive to good practice and reporting of issues. As part of this, providing a safety net for smallholders in the case of losses due to pandemics or valid outbreaks of disease is a potential way of encouraging transparency.

There is strong momentum for rural insurance schemes, as initiatives continue to roll out in Vietnam<sup>12</sup>, the Philippines, India and Indonesia, among other countries. This presents an opportune moment for the private sector to bring their expertise in the design and implementation of insurance instruments to bear, and participate in the development of a rural insurance market, as exemplified by industry-led activity in India. First launched in 2003 as a private initiative, ICICI Lombard General Insurance and IFFCO Tokio General Insurance Company (ITGI) have been two of the major industry players developing weather products for farmers. These have been distributed through multiple channels, such as direct selling through rural cooperative banks, via input suppliers and in collaboration with contract farming companies. In the first five years of private-sector activity, such schemes provided insurance coverage to over 400,000 Indian farmers.<sup>13</sup>

### Handle with care

Food safety scandals in Asia tend to focus on the production and processing component of the food value chain. And while there has been limited empirical research on this, Mr Prabhakar of IGES suspects that it is actually the storage and movement of food and its preparation by

consumers that are likely to be significant causes of food safety issues in the region. David Foote, chief executive of meat producer Australian Country Choice (ACC), agrees that the handling of food after it has left the point of distribution is a weak link in the supply chain. "You have all of the internationally aligned food protocols for exports, but very poor standards when it comes to the local treatment of meat after it has passed through customs," he says. "The greatest risk is likely to come from internal systems." This happens even in the region's more developed economies—Hong Kong social media sites are regularly alight with misdemeanours by local retailers, who have been known to leave chilled and frozen produce outside of coolers hours after delivery to stores. For the meat industry in particular, poor cold chain transport systems remain a concern across the region, particularly with regard to cross-contamination of produce and storage at the point of sale, notes Mr Foote.

Of particular interest then are the processes that can help strengthen internal systems in the transport and handling of food. Faced with the challenge of long distances—both domestically and to key export markets—viable transport systems for perishable goods are critical for Australia's meat and dairy sectors. As a result, the country's transport and logistics firms have focused on developing the infrastructure required to maintain world-class cold chains—among which real-time location systems, warehouse management systems (WMS), track-and-trace and Radio-Frequency Identification (RFID) technologies have been employed to enhance product visibility and monitoring through the supply chain.

Larger, more integrated firms are able to invest in innovation, and to this end, have brought new technologies and best practices in safe and efficient food transportation to Asian markets. One example is Australian transport management firm Linfox, which manages 3.8m sq metres of warehousing and nearly

<sup>11</sup> "Collective responsibility key to pesticide control in Japan", *The Hindu*, December 18th, 2010.

<sup>12</sup> "Update on Experiment in Agricultural Insurance in Vietnam: August 2013." *Vietnamica*, accessed September 19th, 2013. <http://www.vietnamica.net/update-on-experiment-in-agricultural-insurance-in-vietnam-aug-2013>

<sup>13</sup> "The potential for scale and sustainability in weather index insurance for agriculture and rural livelihoods", WFP and IFAD, 2010.

## Going with the grain: Public-Private Partnerships (PPP) to improve food storage in India

In the wake of the agricultural Green Revolution, India made strides towards achieving food security, with productivity gains today resulting in surpluses of such staples as rice and other grains. Yet the country's inability to properly store and manage this bounty has led to post-harvest loss—with implications for both availability and food quality.

A public-private partnership (PPP) model developed in Punjab state offers hope that the state-run storage and distribution system can be fixed with the help of private sector investment and expertise. In a landmark deal, LT Foods Limited, an Indian processor and distributor of rice and grain, was awarded a 30-year concession to build and manage a modern 50,000 metric tonne grain facility in Punjab. "There was significant interest from large Indian and multinational companies in this concession," says Neeraj Gupta, senior investment officer, South Asia, for the International Finance Corporation (IFC), which provided advisory services to the Punjab government. "For the private sector, this was a good

opportunity to get involved in something that is a strategic area for the government. In doing this deal, the Punjab government has shown willingness to outsource an important part of the food value chain."

Silos are an expensive solution relative to traditional warehouse storage; they require higher levels of capital expenditure to build and operate. However, such systems have the potential to significantly reduce spoilage and improve food quality by maintaining the nutritional value of the grain. The project has attracted national-level attention in India, where it is now being rolled out across ten states. The successful commissioning of the Punjab PPP has also sparked an interest in applying this model to other parts of the food value chain. There are ongoing discussions about using it to upgrade the storage systems for the bulk movement of grain by rail—another area where private-sector technology and knowhow could improve the efficient and safe movement of food.

5,000 vehicles across ten countries. Following Bangkok's devastating floods in 2011, the company was tasked with bolstering food distribution systems for Thailand's Minor Food Group, franchise owner for a number of major fast food brands. To help mitigate the risks of future natural disasters and improve the efficiency and safe transport of food, Linfox designed an advanced WMS that allows for real-time visibility and tracking of chilled and frozen products from the warehouse to the kitchen.<sup>14</sup>

Developing countries require more frugal innovation. In Pakistan, for example, food and beverage manufacturer Nestlé has invested in district-level cooling stations and motorbikes equipped with storage systems for perishable produce, enlisting and enabling small-scale dairy farmers to deliver milk to collection points in 2,000 villages. This has resulted in the development of a rural cold-chain network, with more than 135,000 producers providing 500,000 tonnes of milk annually to two of the company's factories.<sup>15</sup>

### Brand and deliver

Consumers are holding companies to task on food safety—to the extent that it remains a topic for public debate in many countries and increasingly a major driver of purchasing behaviour. Consumer demand for safe and clean food has been a catalyst for corporate activity in the region's food sector, most significantly in China where a number of joint ventures and major outbound M&A deals in the food industry have shaped recent headlines. Chinese meat processing company Shuanghui International agreed to pay US\$4.7bn to acquire US pork producer Smithfield Foods, marking the largest Chinese investment into a US asset to date.

Though the vast majority of outbound M&A from China has been in other sectors—consumer staples comprised only 4% of deal value between 2003-12, according to Thomson Reuters—the volume and size of recent deals suggest that China's larger food companies are increasingly looking abroad to meet future demand for

<sup>14</sup> *Solutions Asia-Pacific Magazine*. Linfox Logistics, March 2013.

<sup>15</sup> Nestlé website. Accessed September 2013. <http://www.nestle.com/brands/dairy/dairycsv>

**Figure 6**  
Key outbound M&A food deals for China, 2010-13, by value of investment

| Acquirer name                   | Target company       | Target country           | Target segment   | Investment value, US\$m | Status  |
|---------------------------------|----------------------|--------------------------|------------------|-------------------------|---|
| Shuanghui International         | Smithfield Foods     | United States            | Pork producer    | 4700                    | 100% acquisition, Shareholder approval September 2013.      |
| Bright Food                     | Weetabix             | United Kingdom           | Breakfast cereal | 1940                    | Acquired majority stake in 2012 (60%).                      |
| Mengniu Dairy                   | Yashili              | Hong Kong/ United States | Baby formula     | 1600                    | Majority stake, pending completion as of September 2013.    |
| Bright Food                     | Manassen Foods       | Australia                | Processed food   | 382                     | Acquired majority stake in 2011.                            |
| Inner Mongolia Industrial Group | Oceania Dairy        | New Zealand              | Dairy            | 170                     | Acquisition announced in December 2012, cleared March 2013. |
| COFCO                           | Tully Sugar          | Australia                | Sugar            | 145                     | Acquired majority stake in 2011.                            |
| Bright Food                     | Synlait Milk         | New Zealand              | Dairy            | 58                      | Acquired majority stake in 2010.                            |
| Biostime                        | Isigny               | France                   | Baby formula     | 27                      | Minority stake (20%) in 2013.                               |
| Kweichow Moutai Company         | Château Loudenne     | France                   | Wine             | 26.5                    | Purchase of winery property. Acquired 2013.                 |
| COFCO                           | Biscottes            | Chile                    | Wine             | 18                      | Acquired 2010.  |
| COFCO                           | Château de Viaud Sas | France                   | Wine             | 13.5                    | Acquired in 2011.   |

Sources: Various, Zephyr, China Daily

safe, high-quality food at home. From 2010 to September 2013, the value of major outbound M&A deals was in excess of US\$9bn (see chart, Key outbound M&A food deals for China, 2010-13, by value of investment). This is a trend that is feeding into aggregate global M&A activity—in 2012, activity in the food and beverage sector was up 117% on the previous year.<sup>16</sup>

A recent joint venture between French food manufacturer Danone and Chinese dairy company Mengniu also reflects this new order—the companies are co-operating in a bid to dominate China's yoghurt market. Food quality and safety incidents have diminished consumer confidence and sales for Mengniu, one of the domestic companies implicated in the 2008 melamine scandal as well as a 2011 scare where excessive toxin levels were found in milk as a result of mouldy cattle feed. According to the company, it has since made substantive investments in product quality and the incorporation of international standards and technology. Measures include the co-founding of the China-Denmark Milk Technical and Co-operation Centre with Arla Foods of Denmark.

Further technology transfer and “brand equity” is likely to be bolstered by Mengniu's new affiliation with Danone.

### A private matter

Consumer demand for better food safety and quality will continue to be a major factor for companies when considering their regional strategy and the bottom line. But to what extent can the expertise and energy of the private sector be optimised to solve some of the weaknesses in the food safety regime? How can companies better supplement public-sector efforts, particularly in the least developed markets where profits are less alluring? “A lot of this will come down to making investments in this space more appealing to the private sector,” says Lourdes Adriano, practice leader for agriculture, food security and rural development in the Regional and Sustainable Development Department of the ADB.

Just one example is the immense potential for further private-sector investment in South Asia's dairy systems to help smallholders integrate into the value chain. According to Professor

<sup>16</sup> National Australia Bank analysis of data from Dealogic and CapitalIQ.

Prabhu Pingali, director of the Tata-Cornell Agriculture and Nutrition Initiative, this is currently being stymied by perverse incentives. He cites the case of India's Bihar State Milk Co-operative Federation. Private companies require a "no-objection" certificate from the federation to operate in Bihar's dairy sector. Yet, since the federation is the market leader for milk production, it has little reason to allow private-sector competition to flourish. "There has not been a balanced, level playing field to date, so the opportunity for growth through private-sector investment has been hampered," says Mr Pingali.

### Culture vs regulation

The public outcry over food safety scandals has driven the development of a fairly comprehensive regulatory framework in the region, where most countries already have relevant laws in place. The problem for the Asia-Pacific region is the varying levels of political will to implement these regulations, and the lack of technical capacity to do so, notes Mr Prabhakar of the IGES. A country's commitment to implementation is often a reflection of its national economic development priorities. Vietnam has focused on improving safety in its burgeoning food manufacturing and services sectors, while Malaysia's and Indonesia's designs on the halal meat export market have resulted in concerted efforts to improve standards in the primary meat production sector. Australia and New Zealand's meat and dairy sectors exemplify the gains to be made from investing in technology and infrastructure, as do the Thai seafood and poultry industries, which have reconfigured their supply chains in a successful bid to drive export growth.

The enforcement of national food safety standards is difficult in even the most developed countries, and is complicated by the variety of stakeholders involved. From a policy standpoint, the issue spans a range of ministries including agriculture, health, economic development, trade and industry. "Governments in many of

these countries are not at the stage where they can break down these silos," says Ms Adriano of the ADB. There have been attempts to overcome issues of accountability by developing high-level organisations with responsibility for co-ordinating and driving the government's food safety agenda, such as the previously mentioned ministry-level CFDA in China. It remains to be seen whether the new organisation can channel government efforts effectively. Given the resource limitations associated with enforcement, the role of the government in developing a culture of food safety in business becomes critical. "An enforcement mechanism is a small part of the practice—there is no way you can build out capacity that is large enough in itself," says Mr Yip of the Gates Foundation. "In addition, you need to establish regulations and standards, and companies must be able to meet these to proceed and be successful in these markets." To this end, a culture of trust, where businesses are rewarded for good practices and compliance to standards needs to be cultivated.

Beyond domestic markets, the intra-regional nature of modern supply chains suggests that governments need to be concerned with food safety standards in neighbouring and supplier countries. There have already been several regional scandals. For example, in 2008 at least ten people in Japan suffered food poisoning after consuming imported meat and vegetable dumplings from China that contained pesticide. The issue of how to deal with cross-border safety problems will become more acute as trade continues to rise on the back of upcoming regional trade agreements. Indrani Thuraisingham, head of the Asia-Pacific and Middle East office of the consumer advocacy group Consumers International, says: "The least-developed markets rarely have the mechanisms in place to prevent hazardous food from entering the country's food ecosystem." The organisation's research on intra-regional movement of produce reveals highly porous

borders for South and South-east Asia's least-developed markets, where there is insufficient capacity to check the safety and quality of food at the borders. Vegetables moving in and out of countries such as Myanmar, Laos and Bangladesh are often soaked in carcinogenic formaldehyde to maintain an appearance of freshness,

meaning that there is a high volume of unsafe produce coming in and out of markets where healthcare resources are already constrained. Strikingly, these countries tend to have developed fairly good regulations governing the export of food, but lack the infrastructure and human capital needed to enforce them.

## 2

## Obesity: Fat lands, fat profits

*It is clear how private food companies can help solve food safety problems. But their role in stemming the rising tide of obesity in Asia is much less apparent.*

Asia-Pacific is on the brink of an obesity epidemic. In developed countries in the region, rising affluence and more sedentary lifestyles spell an alarming outlook for governments concerned with the cost of care for non-communicable diseases. This concern is illustrated by a recent case in New Zealand, where a 130kg South African chef's application to renew a work visa was refused on the grounds of an unacceptable standard of health. Officials maintained that "severe obesity" places him at risk for diabetes, high blood pressure and heart disease, which could translate into hefty future costs for the country's health system. Their concerns are grounded in worrying trends—73.9% of New Zealand men were classified as overweight or obese in 2010, up from 65.2% in 2002, according to the latest data from the WHO (which defines this as those having a body mass of more than 25kg/m<sup>2</sup>). The spike is more dramatic in China, where 45% of men were overweight in 2010, up from 27.5% in 2002. One notable exception is Japan, where women have been getting slimmer – 16.2% of females were overweight in 2010, down from 18.6% in 2002 (though Japanese males continued to gain weight—29.8% were overweight, compared to 25.3% in 2002).

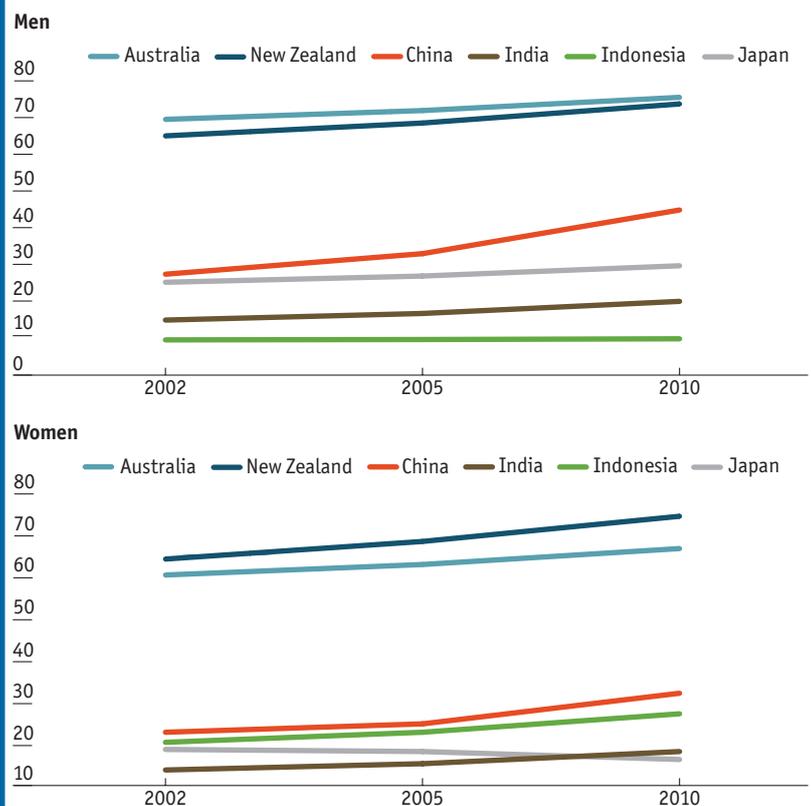
In the region's fast-growing markets, there is a first-time obesity epidemic, characterised by the alarming phenomenon of growing numbers of obese children, who are overfed yet

undernourished. Chinese children born into families with higher incomes and more advanced education levels today are more likely to become obese, with the traditional preference for boys

Figure 7

## Obesity on the rise in Asian countries

Overweight men and women as percent of the population (%)



Note: Data captures percent of population with Body Mass Index of over 25kg/m<sup>2</sup>  
Source: World Health Organisation.

translating into a generation of plump young princelings<sup>17</sup> The prevalence of obesity in Chinese children rose from 0.2% in 1985 to 8.1% in 2010, with the pace of change faster among boys (11% in 2010) than girls (5.2%).<sup>18</sup> In developed countries obesity tends to afflict the poor, who consume large amounts of processed food that is high in salt, fat and sugar because it is cheaper than fresh produce. In transitional economies it is the affluent who are getting fat. The most striking example of this is in India, where chubbiness is traditionally linked to good health. In a country with the world's highest incidence of child malnutrition, some middle-class children are consuming up to four times the recommended quantity of food, according to a study by the Diabetes Foundation. The study reports that one in every three children in Delhi's private-school system is now obese.

<sup>17</sup> "Childhood obesity: What is happening in China?" *China Express*, Issue 4. Li, Mu, China Studies Centre Academic Group, University of Sydney.

<sup>18</sup> "Secular Trends of Obesity Prevalence in Urban Chinese Children from 1985 to 2010: Gender Disparity", Song Y, Wang HJ, Ma J, Wang Z *PLoS*, 2013. Authors of this study defined children and adolescents with observed Body Mass Index (BMI) greater than the 95th age and gender-specific percentile value as obese. For males and females at 18 years of age, those with BMI greater than 28 kg/m were considered as obese.

<sup>19</sup> "Taiwan wages nationwide battle with the bulge", *BBC News*, 15th February 2013.

<sup>20</sup> "Breaking the law, one sushi roll at a time", *AFP*, 31st August 2013.

<sup>21</sup> "Food companies play an ambivalent part in the fight against flab", *The Economist* 15th December 2012.

## Getting the skinny

In an attempt to stem the tide, governments in developed Asia are employing a number of techniques to drive behavioural change. Already feeling the strain of an obesity epidemic where 10% of healthcare spending is directed to related illness, the Taiwanese government has instituted a national anti-obesity campaign, positioning the need to lose weight as an issue of national importance. In 2011-12, around 1.5m of the island's 23.3m people enrolled in the weight loss scheme, receiving advice and support on diet and exercise from local public health departments, hospitals, schools, communities and businesses. The programme was considered by the government to be an unmitigated success—the population has lost a combined 2.2m kg, well in excess of the target set.<sup>19</sup>

Japan and South Korea have some of the lowest rates of obesity among all OECD countries. Still, Japan's policy makers worry about the future, consequently passing the "metabo law" in 2008. Businesses were mandated to reduce the number of overweight workers by 10% in 2012, and by 25% by 2015, with waist measurement of

employees serving as the key metric. Companies risk fines for not meeting targets.<sup>20</sup> Meanwhile, Japan's school lunch programme has been designed by nutritionists specifically to provide healthy meals to children, with policies also in place to ensure that students walk or cycle to their local schools.

## Fat profits

Despite the paternalistic approaches taken by some countries, at the end of the day consumers—or those who can afford the choice—are responsible for what they eat. What, then, should be the role of food businesses in addressing the obesity epidemic in the region? Ms Thuraisingham of Consumers International asserts that companies have an obligation to make healthier products, and to reformulate recipes to eliminate trans fats and reduce levels of sugar and salt according to targets set by government.

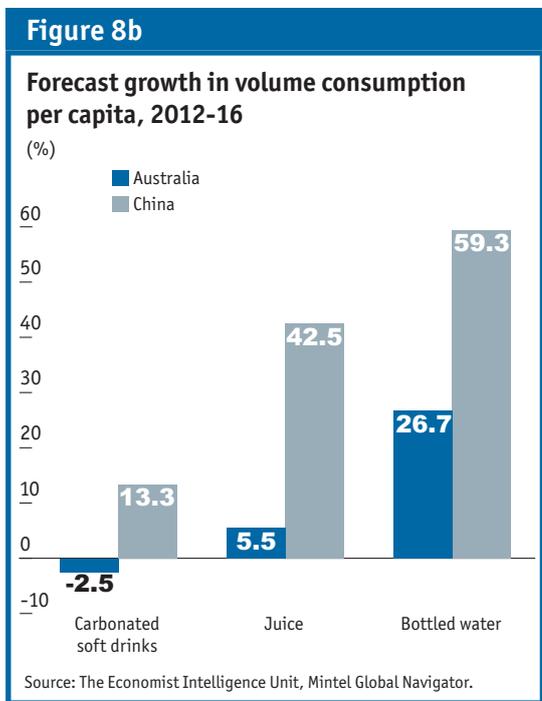
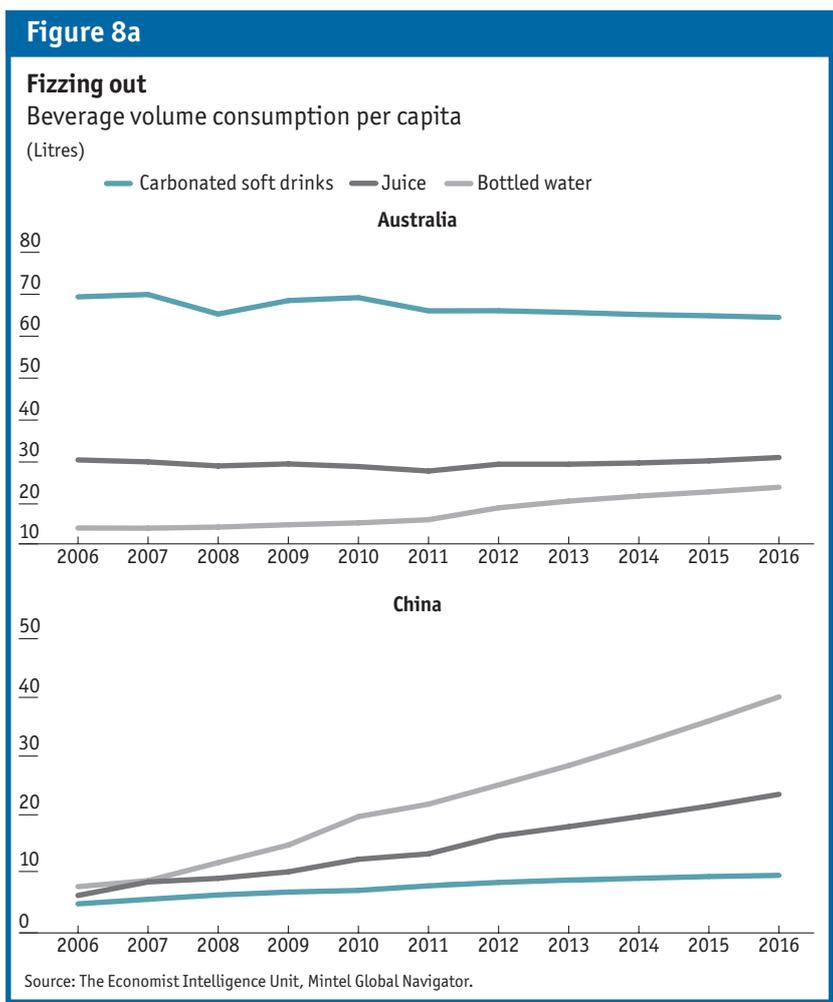
Food companies, however, are in a conflicted position. On the one hand, they do not wish to be seen to be making people fat. Yet on the other, high-sugar, high-fat foods are popular and profitable, with huge potential for growth in Asia's emerging markets. Moreover, judging from PepsiCo's experience, shareholders are not always supportive of attempts to make products healthier.<sup>21</sup> Bold targets set by the company in 2010 to reduce salt, saturated fat and sugar in its products were slapped down when shareholders demanded that the company focus on maximising profits regardless. The industry's emphasis on taste versus nutrition is one that is deeply ingrained. But at the same time, companies are keen to demonstrate their seriousness in fighting obesity. For example, the International Food and Beverage Alliance (IFBA), a trade group of ten food giants including Coca-Cola, Mondelez and Nestlé, has given global promises to make healthier products, advertise food responsibly and promote exercise. But for the most part, efforts in emerging Asia are far less visible than they are in the developed countries, says Ms

Thuraisingham. “Companies just want to run business as usual. Multinational companies who practice good standards in the EU and the United States where they have strict regulations do so less in the least-developed economies,” she says. “For the sake of foreign direct investment inflows and job opportunities, governments in these least developing countries tend to turn a blind eye.”

The most visible of government attempts to regulate the food industry in Asia have been around advertising, with the region’s more advanced economies proactively establishing guidelines for the marketing of food and beverages. The Singapore government has put guidelines in place governing the advertising of food and beverages to children, where 14 of the biggest food and drinks companies have pledged not to promote their products in primary schools and to only advertise products that meet agreed nutritional criteria to children under 12 years of age. South Korea has also passed laws restricting advertising of foods high in fat, salt and sugar. The industry has followed suit, notes Bev Postma, executive director of Food Industry Asia (FIA), an industry association which works with members on reformulating existing products and developing innovations. “In Singapore and Malaysia, leading industry groups have recently adopted marketing to children pledges that seek to shift the nature and balance of food advertising to children.” For Ms Thuraisingham, there is more that can be done, particularly in the region’s emerging economies. “Children are still being bombarded with junk food advertising, despite the promises of corporations to meet with World Health Organisation (WHO) guidelines and self-regulate their activities.”

**A matter of choice**

Greater consumer awareness of health and wellness is exemplified by a distinctive shift that is taking place in some markets away from carbonated drinks, towards bottled water,



<sup>22</sup> "The big story: Coke takes anti-obesity campaign global", AP, 8th May 2013.

juices and other drinks that are perceived to be healthier. In mature markets such as Australia, the per capita consumption of carbonated drinks is anticipated to decline by 2.5% between 2012-16, according to forecasts by The Economist Intelligence Unit and Mintel Global Navigator. Though China will continue to see growth in this segment, expansion of demand for "better-for-you" beverages will surpass that of fizzy drinks—consumption of juice per capita will grow by

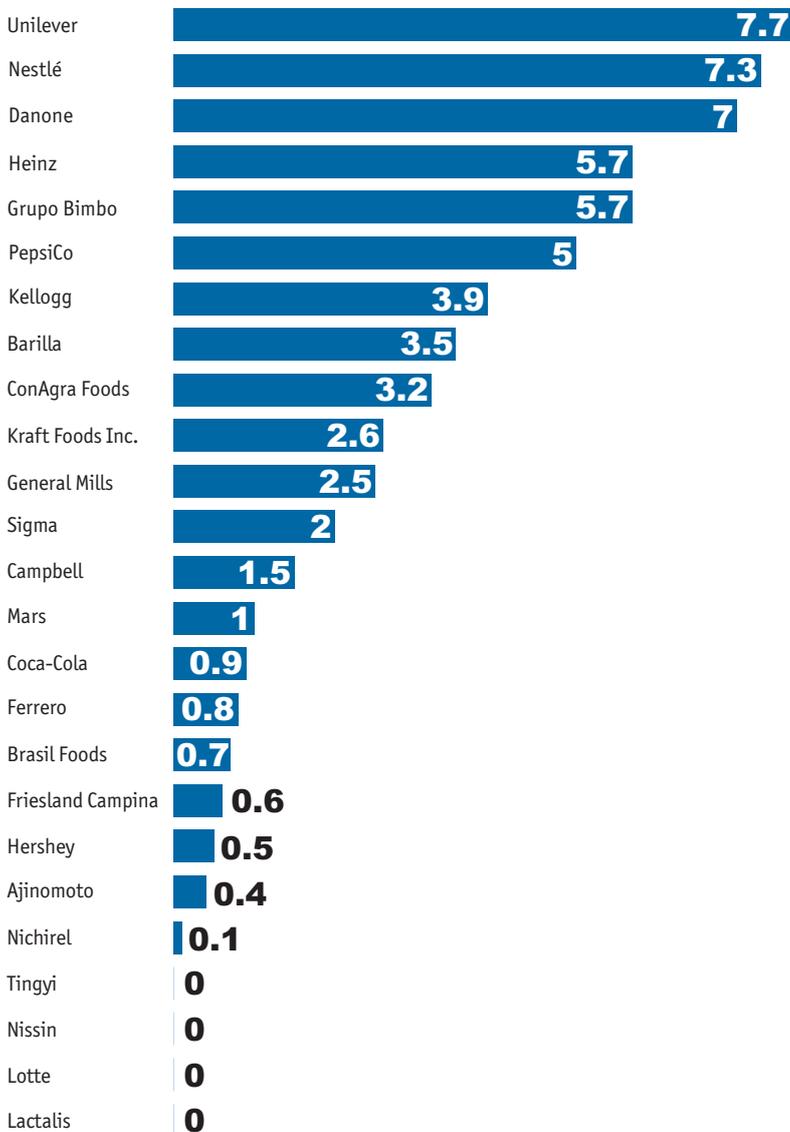
42.5%, and bottled water by 59.3% during the same period.

In response to this shift, companies are expanding their product ranges to offer consumers healthier choices. Coca-Cola recently pledged to take its anti-obesity campaign global by making low-calorie options available wherever regular versions of its products are sold. Though the company's diet drinks have been hugely successful in the US, accounting for 41% of soda sales, in Asia they are less popular. The market share of low-calorie options languishes in the single digits in major Chinese cities, Coca-Cola chief executive Muhtar Kent admitted on a call with reporters,<sup>22</sup> though this could be improved over time by greater availability.

Initiatives such as the Global Alliance for Improved Nutrition's (GAIN) Global Access to Nutrition Index, sponsored by the Wellcome Trust and the Gates Foundation, could be helpful in structuring the dialogue. The index studies the role of major food companies fighting over- and under-nutrition in both rich and poor countries, and acts as an interesting tool in tracking company performance over time. Of the 22 companies analysed in 2013, Danone, Unilever and Nestlé stand out as companies that are doing the most to improve nutrition and fight obesity. The index systematically benchmarks large food companies by evaluating activity around new product formulations and reformulation of existing products. It also assesses the quality of the nutrient profiling system that a company may use to guide such efforts.

Labelling is one area in which consumer groups are pushing for more transparency, with the likes of Consumers International advocating a traffic light system of labelling over the current Guided Daily Amounts (GDA) system. "The multinationals know that tomorrow's consumers are now in developing countries—consumers will stop buying items if they have this information, which is why the industry is resisting providing

**Figure 9**  
Scores from the Access to Nutrition Index for "Product" category, 2013



Source: GAIN 2013.

more,” says Ms Thuraisingham. But the lack of a consensus around what is “healthy” is a major stumbling block.

The science around the best approaches to combating obesity is not yet fully understood, though there is emerging evidence of the

contribution of early-life influences to the risk of obesity in adolescence and adulthood<sup>23</sup>.

The importance of early childhood nutrition to a person’s well-being presents a compelling lens through which approaches to tackling the “double burden” can be examined.



<sup>23</sup> “Losing The War Against Obesity: The Need for a Developmental Perspective”, Gluckman P.D, Hanson, M., Zimmet, P and Forrester, T. *Science Translational Medicine*, 27th July 2011 Vol 3 Issue 93

# 3 Malnutrition: From quantity to quality

*The scourge of “hidden hunger” in Asia is focusing minds on the challenge of improving the nutritional value of food. Companies are bringing bio- and food fortification to the battle.*

The economic and social costs of malnutrition continue to be unbearably high in Asia—particularly in South Asia and South-east Asia, where child undernourishment and malnutrition indicators remain the worst in the region (see chart, Key indicators related to child malnutrition for select countries). The projected cost of scaling up global nutrition programmes is US\$11.8bn, of which South Asia alone accounts for half, or US\$5.9bn. An additional US\$1.1bn is required for East Asia and the Pacific.<sup>24</sup> In addition, the scourge of malnutrition can end up costing low-income countries an estimated 2–3% of total GDP per year.<sup>25</sup> This prompts the question—which types of interventions have been the most effective to date, and how can they be best deployed in Asia given the changing face of malnutrition across the region?

Decades of research and programme experience have informed a general consensus on the key components of a

successful response to malnutrition.<sup>26</sup> A focus on nutrition for pregnant women and infants is critical. There is a growing recognition that nutrient quality, as well as food quantity, matters. Also known as the “hidden hunger”, Micronutrient Malnutrition (MNM) can occur even when calorie intake is sufficient, and even in excess. Nutrition is now widely recognised to be an important component of food security, especially in the 1,000 days between conception and two years of age,<sup>27</sup> during which poor nutrition can be harmful to cognitive development.

<sup>24</sup> “Scaling Up Nutrition: What Will It Cost?” Horton, Susan, Meera Shekar, Christine MacDonald, Ajay Mahal, and Jana Krystene Brooks, World Bank, 2010. Comprises cumulative unit costs of nutrition-specific interventions, and the costs associated with ensuring that development is nutrition-sensitive.

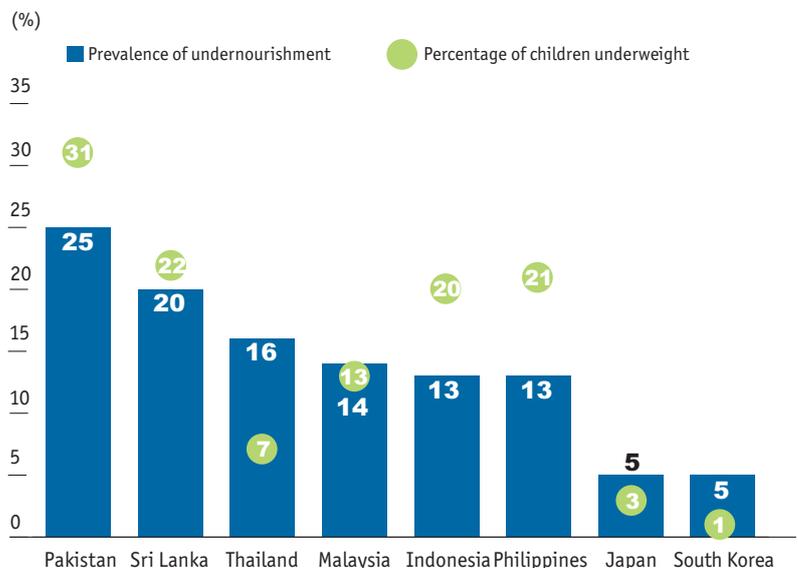
<sup>25</sup> “Repositioning Nutrition As Central to Development”, International Bank for Reconstruction and Development (IBRD), World Bank, 2006.

<sup>26</sup> “Never an Empty Bowl: Sustaining Food Security in Asia.” Asia Society and International Rice Research Institute Task Force Report, September 2010.

<sup>27</sup> Series on Maternal and Child Undernutrition, The Lancet, January 16th 2008.

Figure 10

Key indicators related to child malnutrition for select countries



Source: The Economist Intelligence Unit, Global Food Security Index 2012. Derived from various.

In this context, innovations in the fortification of food present an exciting new channel for delivering micronutrients to populations in need. According to Regina Moench-Pfanner, director for GAIN Singapore, there is huge potential for food fortification in South-east Asia, where a nutritious diet remains very costly for the lowest segment of the population. High levels of MNM in the Philippines prompted the government there to institute the 2000 Food Fortification Act, mandating the enrichment of flour and other key staples with essential micronutrients. "In general, there has been a good response by food companies, and several staple products (including rice, wheat flour and cooking oil) have been widely fortified," says Dr Mario Capanzana, director of the Food and Nutrition Research Institute at the Department of Science and Technology.

### Fortify me

As part of its comprehensive food security scheme, the Indian government has dedicated US\$40m to pilot projects for the development of nutrient-enriched crops, among which protein-rich maize, zinc-rich wheat and iron-rich pearl millet—or bajra as it is known in Hindi—show particular promise.<sup>28</sup> The potential of high-iron bajra, developed by the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) in collaboration with the HarvestPlus programme, has piqued private sector interest, with companies such as India's Nirmal Seeds promoting the variety on farms.

Scaling up bio-fortified crops requires increasing acceptance among farmers but Mr Yip of the Gates Foundation is undeterred. "I am a big believer in the extent to which this can be addressed by the markets. Poor farmers can make decisions based on productivity gains," he says. The challenge is also one of integrating

bio-fortified staples into the diet of rural households, says Mr Pingali of the Tata-Cornell Agriculture and Nutrition Initiative. To this end, the consumption of bio-fortified staples among the urban middle class can have a direct influence on the tastes of the poor, and help to drive uptake. According to Mr Pingali, this process could be similar to the "mainstreaming" of fortified breakfast cereals or vitamin-enriched snack foods into modern middle-class diets. "The rural poor aspire to a modern life, and one needs to work with their changing tastes and diet preferences."

### Let them eat biscuits

What role can the private sector play in overcoming malnutrition? As BASF's efforts to fortify cooking oil show (see box), there is plenty it can do. But unless private corporations can find a sustainable business model for such products, it makes little financial sense for them to get involved. BASF clearly takes a broader view. "It is a matter of 'shared value'," says Andreas Blüthner of BASF. "The benefit is not just in the returns, but there are indirect, immeasurable benefits related to talent acquisition and branding."

India's Britannica has also shown that with the right partners there are opportunities to profit at the bottom of the pyramid. The company began fortifying biscuits, which are consumed by more than 90% of households in India, in 2007, when it developed a 5mg iron-fortified product. Through NGOs such as the Naandi Foundation and GAIN, the biscuits are used to supplement the government's School Feeding Programme. A low-cost variant of the iron-fortified biscuit, Tiger Banana, was launched for children, resulting in the widespread distribution of the company's Tiger Glucose biscuit—of which a staggering 3bn packets are sold annually.<sup>29</sup>

<sup>28</sup> "India to improve nutrition with biofortified crops." SciDevNet, March 18th 2013.

<sup>29</sup> Britannia Nutrition Foundation website, accessed September 2013. <http://www.britannia.co.in/bnf>

## Bringing your vitamin-A game: Scaling up the fortification of cooking oil

In 2008, BASF initiated the Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO) in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), a German government development agency. The initiative was established with the aim of ensuring sufficient vitamin A intake by 100m people in developing countries—a goal that was surpassed in early 2012.

Among the markets selected for rollout were Bangladesh and Indonesia, both of which had pre-existing GIZ infrastructure (a precondition for the programme), support from local stakeholders for the concept and the presence of a sizeable edible-oil production industry. Still, SAFO was faced with a number of challenges in establishing operations, including some resistance from local producers to investing in fortificants, a lack of technical knowledge among producers about implementation and poor consumer knowledge about under-nutrition.

According to Andreas Blüthner, global team leader for the BASF Food Fortification team, the social and financial motives behind this initiative were clear. “The majority of people in the world are filling their stomachs with staple food, so we needed to go to rural areas and reach the poorest of the poor,” he says. At the same time, such efforts have the potential to drive returns for companies, who benefit from the visibility and first-mover advantage of operating in new markets. “If you can introduce fortification at a nominal price point and save lives, this can drive customer recognition,” he says. “People remember this as a differentiator.”

The end goal for Mr Blüthner is for the programme to become mainstream and a part of national health programmes and domestic food distribution networks. “If you can get affordable equipment into the hands of the local authorities to conduct testing, it then becomes sustainable” he notes. “This is critical to allowing the programme to be delivered at a suitable scale—and to reaching the last 100m.”

# Outlook

*The demand for better food quality is growing. Companies and governments have much work to do to deliver it.*

Demand for safe and nutritious food will spike across Asia-Pacific in the next five years as purchasing power rises, along with household spending on food. For the region as a whole, The Economist Intelligence Unit projects consumer spending on food, beverages and tobacco will rise from US\$2.8trn in 2012 to US\$3.7trn by 2016. As production and trade of food rises to meet this demand, improving food quality will be a pervasive challenge for producers and governments alike.

## What can governments do?

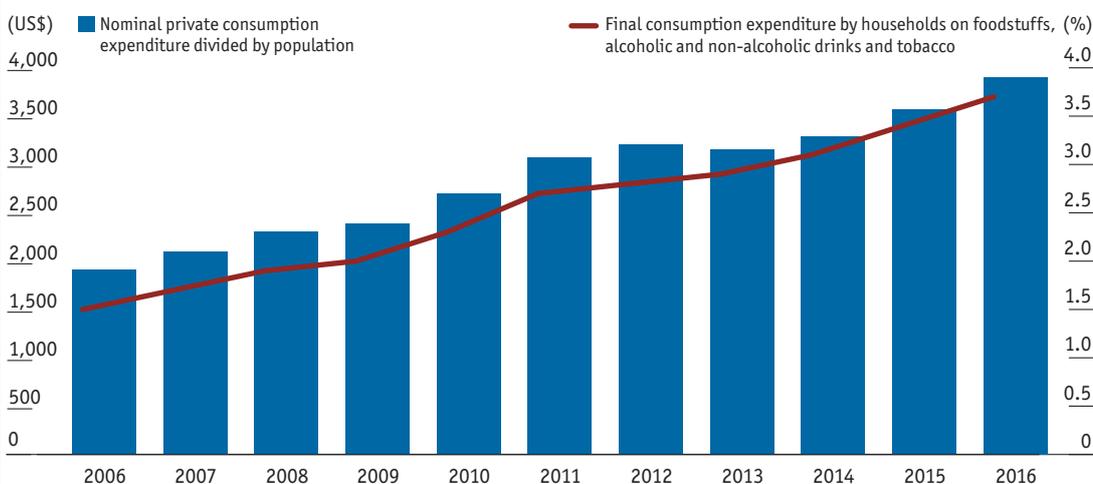
One issue that will be difficult to manage is the increasing complexity of the regional food supply chain, and the growing number of suppliers within

it. Not only is it a major cause of concern for food safety but it also limits the ability of governments to trace the source of crises when they occur.

A unified code of standards would seem to be one way to help alleviate problems, but this looks a long way off. At the moment there are differing standards of food safety across production, processing and preparation in nearly all countries, though Australia and New Zealand share a common code. The challenge is to maintain a workable balance of regional co-operation and national autonomy on an issue that is highly politicised for many countries. "There is benefit in having harmonisation. But

Figure 11

Consumption expenditure in food and private consumption expenditure projected to rise, 2006-16



Source: The Economist Intelligence Unit.

even across the European Union you will see that countries want to maintain some control over this issue," says Neil McDonald, technical director at Coca-Cola Pacific. "What we do need to have is better harmonisation of issues, but still recognise that countries will want to retain some independence."

Another issue is a common system for co-ordination when crises do arise. A continent-wide "early warning" system could complement national efforts to manage food crises and be an effective mechanism for co-ordinating cross-border efforts.

Despite the obvious challenges, recent, multiple attempts to provide structure and develop strategy around the broader issue of food safety on a regional basis are reason for hope. Organisations actively driving this agenda include: the APEC Food Safety Cooperation Forum; the Global Food Safety Partnership (a platform facilitated by the World Bank to address gaps in food-safety capacity building at a global and regional level); Food Industry Asia (led by companies from the industry); and the more recently-established ASEAN Food and Beverage Alliance (AFBA), which comprises food and beverage groups from the ten member states of ASEAN.

The paths to progress on malnutrition and obesity also have their challenges. The one point that all stakeholders can agree on is that early childhood is a critical window for life-long nutrition. There is an opportunity to address obesity as well as malnutrition in maternal-child healthcare programmes and pre-schools.

Making the fortification of staple foods with micronutrients a mainstream practice has been a major success story for MNM, and one that governments in Asia may be expected to expand upon. "Iodising salt has been highly successful where consumption is high and manufacturing locations are few," notes Mr Yip of the Gates

Foundation. The Chinese government's efforts to consolidate the salt industry and improve quality through iodisation have paid off in preventing the brain damage associated with iodine-deficiency.

### Transferring know-how: What can companies do?

Multinational companies have often driven the most significant changes related to food safety in new markets, and their role in the future is important. By importing their own quality control standards and demanding local suppliers adhere to them, global food companies can influence and incentivise local companies to raise their quality—the benefits of which can percolate throughout the local industry.

In some cases, notably China's dairy industry, this doesn't seem possible at the moment. Producers see no choice but to opt for vertical integration. Fonterra, the New Zealand dairy giant, owned a minority stake in Sanlu, which played a central role in the China melamine-tainted milk scandal. It is now investing in its own farms (an experiment it began just before the melamine scandal broke), with two already in operation and three more planned. China Modern Dairy, in which private equity firms KKR and CDH have had sizeable investments, not only invested in developing its own milking operations but also bought more than 6,000 hectares of land on which to grow animal feed. It has subsequently decided that buying land to feed 185,000 cattle is not practical and it has opted instead to develop longer-term contracts and to supervise farmers more closely.<sup>30</sup> But even foreign-owned farms can serve as learning centres for local industry.

Fonterra's handling of a recent false alarm, when it was initially thought that botulism-causing bacteria had entered the supply chain, illustrates the impact international food companies can have. Though initially critical of the company, the media in mainland China has since applauded

<sup>30</sup> "Safety first: Investing in China's food supply chain", *Asia Venture Capital Journal*, June 13, 2013

Fonterra for voluntarily warning customers of the potential threat, offering up the case as a lesson for domestic producers on the ethics of transparency.<sup>31</sup>

BASF's fortification programme (see Chapter 3; *Malnutrition: From quantity to quality*) shows how resources invested in one area of food quality have the potential to drive solutions across the board. The local edible-oil producers seeking to take part in its fortification programme are also forced to meet food-safety requirements. In addition, they must consider methods for driving uptake among the poor, such as packaging oil in smaller, more affordable containers—which also minimises storage time and the opportunity for deterioration.

In the near term, companies in many markets are resorting to their own devices when it comes to monitoring and enforcement of food safety, and looking for nimble solutions to address this massive task. The deployment of Walmart's Mobile Food Inspection Lab programme is one such solution. Vans customised with inspection technology and expert staff monitor food safety in 70 stores in Guangdong province. The use of credible third parties in the testing

process is also a viable option, and one used by Chinese dairy firm Mengniu, which has hired a New Zealand-based certification company AsureQuality for the task.

## An issue for all?

Though the quality and sufficiency of the food supply have been traditionally under the purview of the public sector, there are obvious limits to what can be achieved without private sector participation. The private sector's role ranges from the importation of higher quality standards by international food companies to innovation aimed at making nutritious food affordable to those at the so-called bottom of the pyramid. "There is a growing realisation from multinationals that they have to be part of the solution," says Ms Adriano of the ADB. The recent formation of industry groups aimed at addressing the problem, and examples such as BASF, with its fortification programme, and Nestle, which is working to overcome supply chain safety issues in numerous markets such as China and Pakistan, would support this assertion. The challenge now is to learn from innovative models for public-private partnering in the area of food quality and to adopt them more widely.



<sup>31</sup> "Fonterra and New Zealand applauded for transparency". *South China Morning Post*, September 1st 2013.



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