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Policy pointers

Rapid growth, urbanisation and denser rural-urban linkages in China have led to the emergence of multiple and diverse food supply chains, which present different challenges for the various dimensions of food security.

China has dramatically reduced food insecurity over the past three decades. While malnourishment remains a problem in some poor areas, health problems related to richer diets and obesity, including diabetes, are now the more serious challenge.

Urbanisation and industrialisation have generated new food safety risks, particularly from water and soil pollution, from veterinary drugs, and from the inappropriate use of additives.

Policy needs to address tensions between the various dimensions of food security, including ensuring affordable prices for low-income consumers, nutritional value and balance, safety and cultural significance. In so doing, it will need to consider the distinct needs of different regions and populations.

A recipe for trade-offs: the evolving landscape of food security in China

Rapid growth and urbanisation are affecting diets in China, creating tension among competing food-related policy goals. Between 1980 and 2010, the country's urban population grew from 191 million to 636 million. Stronger links between rural and urban areas have also led to multiple and diverse food supply chains. Although hunger is now rare, two new food-related challenges are emerging: the rise of health problems from richer diets; and safety concerns caused by pollution, agricultural practices, the inappropriate use of additives and the adulteration of food. Policymakers must reconcile multi-faceted components of food security such as quality, cost and safety, while at the same time targeting the distinct needs of rural and urban areas.

Food security is complex at the best of times. Increasing food quantity, for example, may compromise nutritional quality, while improving safety standards may increase food prices. Policy choices, then, can have long-term consequences for public health.

These issues are particularly complex in China. Drawing on an IIED working paper,¹ this briefing explores food consumption trends in China through the lens of urbanisation, rural transformations and changing rural-urban linkages.

Industrial reforms spur growth

From 1978 until the global economic slowdown in 2008, China experienced rapid economic growth accompanied by rising living standards. During this period, it became the second largest economy in the world, and moved into middle-income status.

As part of agricultural reforms, the state retained land ownership and production quotas for certain key products, but otherwise farmers became free to produce for themselves or for the market. Grain productivity doubled from 1980 to 2010, and production of higher value livestock, aquaculture products and horticultural produce also increased. As a result, the volume and variety of food expanded enormously.²

With the phasing out of restrictions on private enterprise, food processing and distribution systems were also transformed. By 2010, food processing contributed 8.8 per cent of gross domestic product and the sector now has its own five-year plan to promote large-scale enterprises, improve their spatial distribution, and encourage coordination between agricultural production, processing and marketing.³

Food retailing has also seen significant change. Although traditional wet markets still exist, Chinese families increasingly also shop in

supermarkets, hypermarkets and convenience stores. International retailers, including Carrefour and Walmart, have a presence in most major cities.

How, where and what people eat is also evolving. Between 1978 and 2008, food consumed outside the home in restaurants, fast food outlets and street stalls grew by a factor of 159 and international fast food companies such as McDonald's and KFC became a familiar sight in major cities.⁴ In rural townships and villages, small food stores and general stores supplement outdoor markets, and trucks circulate to sell grains, vegetables, fruit, meats and soy products.

Rural-urban linkages

Industrialisation and urbanisation have together changed the character of urban and rural areas, as well as their relationship with each other. Thanks to new roads, high-speed railways and information networks, distinctions between rural and urban areas are no longer clear-cut. This, too, is affecting patterns of food consumption, creating diverse and multiple food supply chains.

Between 1979 and 2011, the urbanisation rate in China jumped from 19 per cent to 51 per cent,⁵ and it is projected to reach 70 per cent by 2030.⁶ The total number of cities in China grew from 193 to 655 between 1978 and 2008, while the number of cities with more than one million inhabitants grew from 13 to 58.

Over the last 35 years, taking advantage of loosening controls on movement, millions of rural workers have flocked to urban areas in search of better pay and opportunities in the growing manufacturing, construction and service sectors. In 2014, official statistics reported that 168 million out of 274 million 'farmer workers' were employed away from their homes.⁷ As a result, up to 40 per cent of the population in many cities is composed of people who continue to have rural residence status, blurring the distinction between rural and urban areas.⁶

Rising life expectancy, combined with lower fertility and changes in the population structure, is leading to a rapidly ageing population. As young people of working age migrate to the cities, they leave a higher share of elderly and young children in rural areas. Even if they remain in the countryside, many young people have already left agriculture, or only work in the sector on a part-time basis.

Impacts on food security

These interrelated changes in rural and urban areas and in the linkages between them have implications for all dimensions of food security.

The physical growth of cities and towns has swallowed up vast tracts of land formerly used for agriculture. This puts greater pressure on the remaining arable land, leading to over-intensive farming methods that are detrimental to the environment over the long term. At the same time, the sector must cope with fewer workers, with some land being left idle.

The transfer of millions of farmers out of agriculture has stimulated new food-related industries, including commercial production, processing, transportation and retail, both in rural and urban areas. Higher rural incomes, as well as better transportation and communications, have also changed rural purchasing and eating patterns. Consequently, diets in rural areas are more similar to those in cities than was previously the case.

These changes also affect demand for certain food products and ability to pay. For example, migrants with low incomes, long working hours and poor housing conditions may buy cheap and unsafe food from street vendors, whereas others may eat in workers' canteens or with the families who employ them. Although the expansion and diversification of food markets increases supply and diversity, the implications for quality and safety are more complex and not well understood.

What have you eaten?

For much of its history, China was a land of famine where "Have you eaten?" was the standard greeting. Given the deep poverty that existed in China at the time of the Revolution, ensuring adequate supplies of food has always been a policy priority for the government. Today, with increased production and modernisation, few people go hungry.

Pockets of the country — mostly rural, mountainous areas in southwest China — still suffer from deficiencies in calcium, iron and vitamins A and D. Increasingly, however, the more serious health issues relate to overconsumption and food safety. "What have you eaten?" has become the more pressing question.

With more availability and variety of food, people are eating fewer grains and more protein and fat. They are also consuming more meat, eggs, milk and dairy products, as well as fish and aquaculture products. Consumption of sugar and processed foods has also increased. Between 1989 and 2012, for example, partly due to the popularity of sweet drinks, sugar consumption rose from minimal levels to 40 grams per person per day.⁸

Recent research on nutrition focuses on rising calories in relation to activity levels and

consumption of fat and sugar as drivers of obesity, diabetes, hypertension and other diet-related illnesses.⁹ Between 2002 and 2012, according to the same study, the number of overweight Chinese adults rose from 7.3 to 30 per cent, while obesity rates jumped from 4.8 to 11.9 per cent. During the same period, the number of overweight children aged between 6 and 17 rose from 5.1 to 9.6 per cent, and obesity rates climbed from 4.3 to 6.4 per cent. Cancer is the leading cause of death in China,¹⁰ but an estimated 11 per cent of the population suffers from diabetes, and a further 50 per cent show some pre-diabetic symptoms.¹¹

Although diet-related diseases are generally associated with poverty, there are also regional differences in risk factors in China that transcend income levels. For reasons likely associated with diet and climate-related activity levels, people in northern regions are more likely to be overweight.¹² In addition, childhood obesity is particularly acute in the northern metropolitan areas of the country.¹³

Food safety in question

Urbanisation and industrialisation have also generated an array of food safety problems. Safety risks vary from product to product, and may include bacteria, viruses and parasites, chemicals, growth hormones and veterinary drugs. They stem from the intensification of agricultural production, the rapid expansion of certain product sectors, longer supply chains and more consumption of processed food. Data on the severity of these problems are sketchy, but certain trends have become apparent.

Heavy metals. Contamination of agricultural land from heavy metals stands out as a serious problem. Such pollution is caused by mining, metal smelting and industrial processes, but also by certain pesticides and, through manure, by animal feeds. Cadmium poses the greatest risk since it accumulates in staple foods, including rice and leafy vegetables, and seriously harms bones and kidneys. Those who live near mines and industries, or where related products are sold, are most at risk. Provinces where rice production and extractive industries coexist are particularly vulnerable.

Pesticides. Chemical pesticides are another source of concern for food safety. As the world's largest user of pesticides, China's consumption more than doubled between 1990 and 2010.¹⁴ Studies have also found that insecticide has been applied in the country at up to three times the recommended dosage.¹⁵

Use of pesticides has grown due to several factors, including efforts to increase agricultural

Box 1. Unpacking the components of food security in China

In China, interactions between the different dimensions of food security have certain particular characteristics.

Natural resources. With only 7 per cent of the world's arable land, China must feed one fifth of the world's population, encouraging intensive agriculture amid strong competition for land and limited water resources.

Rural-urban linkages. Urbanisation and industrialisation — combined with an ageing population, declining fertility rates and higher life expectancy — are changing the landscape of food security.

Trade-offs. The twin trends of urbanisation and industrialisation have generated trade-offs. On the one hand, they have created jobs for former agricultural workers, raised incomes and increased government revenue. On the other, they have generated serious environmental pollution, with implications for crop yields, nutritional quality and food safety.

Strong state. Although market forces are playing a larger role in the economy, the government still has a large hand in directing economic policy, as well as in shaping attitudes and behaviour towards food.

Diversity. The country's sheer size results in vast differences in prosperity, as well as in food produced and consumed, even within regions.

production, heavy fertiliser use, lack of information about effective and safe levels, cheap prices and promotion by extension workers. Data on the impact of pesticides on health are limited, although one recent government study across 31 provinces gave a passing grade to 94.3 per cent of vegetables.¹⁵ National-level studies, however, can obscure unsafe levels of pesticides in specific regions and foods.

Additives. Greater consumption of processed foods has led to more problems with additives, which can increase a product's aesthetic appeal, extend its shelf life and increase its weight. Aside from the overuse of approved substances, illegal or non-sanctioned chemicals in food have caused several highly publicised scandals in China. In addition to melamine in milk, noodles have been found to contain ink, industrial dyes and paraffin wax, while sodium borate has been used to make cheap pork resemble beef.¹⁶ Although the impact of food additives on health is not well researched, the major risk factors most likely include consumption of processed foods, income level and local dietary patterns.¹⁷

Policy implications

Since the 16th National Congress of the Chinese Communist Party in 2002, policymakers have identified the need to strengthen rural-urban integration and reduce poverty in rural areas. China has identified three overarching principles to achieve these goals: modernising agriculture, reducing disparities (in income, benefits, services,

education, land-use rights, social protection and credit) and expanding rights of migrant workers in urban areas.

Urbanisation, industrialisation and changing rural-urban linkages are transforming every dimension of food security in China. More detailed investigation of regional and demographic patterns of production and consumption could identify specific risks facing particular regions and populations. Generally, policy needs to balance various tensions and trade-offs outlined below.

Quantity versus quality. Policy needs to ensure adequate food supplies and nutrition, especially for low-income groups, while at the same time avoiding excessive consumption and unhealthy diets. Increasing agricultural production and expanding the food processing sector must be balanced with nutrition and food safety concerns.

Quantity versus safety. Enhanced agricultural production should not compromise safety. Some high-yield rice hybrids, for example, have a higher propensity to accumulate heavy metals.¹⁸ Intensive use of fertiliser to increase yields can also degrade soil, which increases the risk from heavy metals.¹⁹

Nutrition versus safety. New, higher nutrition and quality standards can sometimes lead producers to use illegal additives to meet the standards, putting safety at risk. For example, melamine was added to milk to give the impression of a higher protein content. New guidelines can also stimulate demand for products before the relevant safety measures are in place.

Safety and nutrition versus cost. The safety and nutritional content of food must be balanced with affordability for low-income consumers and sustainability for small producers. Existing studies, conducted mostly on relatively well-off

urbanites, may overestimate how much Chinese consumers are willing to pay for certified products.

Formal versus traditional. The merits of more easily regulated supply chains must be set against traditional or informal mechanisms for their cost, convenience and diversity, as well as for the livelihoods of both the rural and urban poor.

A systems approach. To understand and balance the trade-offs around food security, policy needs to analyse interactions between different physical and social systems, and policy streams.

Public trust and better information. Food safety scandals have severely damaged public trust in food producers and the government. Media reporting that lacks context about the prevalence and severity of different risks exacerbates the problem. There is an urgent need for more reliable public information.

China's food culture. Despite the trend towards richer diets, China has cultural resources to draw on in promoting healthy eating; Chinese medicine advises a diet rich in vegetables and staples; and Buddhism advocates vegetarianism and moderate consumption. The format of Chinese meals also makes it easier to reduce the proportion of meat to healthy levels, while traditional soy products offer inexpensive and familiar alternatives to meat and dairy.

Given the rapidly evolving landscape, the tensions and trade-offs for policy and the needs of particular populations, there can be no 'one size fits all' approach to food security in China.

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