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INDEPENDENT STRATEGIC ANALYSIS OF AUSTRALIA'S GLOBAL INTERESTS

FDI Feature Interview

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Peter Batt: The State of Food and Agriculture, Part 1

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Key Points

- The impact of climate change will be a key factor in global food production.
- Future food production must incorporate a wide variety of edible and nutritious grains, roots and tubers, that can easily be cultivated in degraded and dry soils.
- In developed countries, rising living standards are causing a change in dietary habits where the consumption of unhealthy and fattening 'fast foods' feature almost daily. This is leading to significant numbers of obese, unhealthy people and the consequential increase in the demand for medical interventions and health care.
- People who have reached adult age and have experienced a lifetime of hunger, are unlikely to be able to escape poverty as malnutrition severely limits their mental and physical development. Further, they are unlikely to have had any rudimentary formal education and they remain highly vulnerable to chronic disease.

Introduction

FDI recently spoke with Peter Batt, an independent contractor to the UN Food and Agriculture Organization. In this two-part interview, we were interested to understand and learn about current issues impacting on the global food situation and the future of food.

In Part 1 of this Feature Interview, Peter outlines the wide range of factors influencing the global food situation and how countries, governments and societies need to change policies and planning in a strategic sense, to ensure a better future. This will include addressing the impacts of climate change and adopting better farming and food production practices. Aligned with increased food production will be the need to improve the efficiency of supply chains to enable its distribution in the volumes that will be required.

Interview

FDI – How would you describe the global food situation and what challenges do governments and society face?

Peter Batt – Humanity is facing its greatest challenge: how to feed an estimated population of 9.8 billion by 2050 in a manner that is both sustainable and that delivers safe, healthy and nutritious food. To date, through what is often referred to agro-industrialisation, agriculture, at least in the developed world, has performed admirably in producing sufficient food. By 2050 however, if we continue to consume (and waste) food in the manner that we do today, food production will need to increase by at least 50 percent.

It is important to recognise that the environmental impact of our current food production systems is immense; agriculture occupies 40 percent of the available land area, uses 70 percent of the world's water and is responsible for 80 percent of deforestation. Through deforestation and the indiscriminate application of synthetic chemicals such as fertilisers, agriculture is also the primary reason for the loss of biodiversity, water pollution and soil degradation. Less known is that agriculture, as an industry, is the second largest emitter of greenhouse gases; methane (which has 28-36 times the global warming potential of carbon dioxide) and nitrous oxide (which has a global warming potential 265-298 times greater than carbon dioxide). To date, while agriculture has been successful in providing a sufficient quantity of food, mankind is pushing the planetary boundaries.

Figure 1: A wide variety of new grains, roots and tubers will feature in future food production. *Source:* Split Shire.

Agriculture not only contributes to climate change, but perhaps more than any other industry, it is also impacted by the effects of climate change. Climate change will affect future food production through gradual changes in temperature, rainfall, saltwater intrusion (from rising sea levels) and by triggering more extreme weather events such as droughts, floods and cyclones. While higher levels of carbon dioxide may promote agricultural yields - if plant growth is not constrained by other factors - the combined effects of climate change are more likely to result in yield reductions. Much of the reason is attributed to our reliance on only a few plant species: of the 14,000 edible plant species, mankind consumes only 150-200, with only three plants (wheat, maize and rice) providing 60 percent of the calories consumed. Other environmental factors are anticipated to constrain future food production, for as much as one quarter of soils are degraded; the loss of habitat and excessive application of chemicals has reduced populations of plant pollinators and insect predators; and eutrophication, from the excessive application of nitrogenous fertilisers, has negatively impacted water quality.

Agricultural productivity is declining with climate change. Climate change, however, is not the only explanatory variable. In the world's more developed economies, the availability of sufficient quantities of food has seen its production fall from the political agenda. In the public sector, agricultural R&D investment has declined, with a commensurate reduction in agricultural extension and training activities. While much of the R&D investment has shifted to the private sector, investment tends to be both short-sighted and commodity focussed. Legislation that creates and protects intellectual property rights in plant and animal species have been a major factor influencing the increasing investment by the private sector. Furthermore, in what economists describe as 'cost price squeeze', input prices are increasing at a faster rate than output prices and, as a result, the profitability of farms are declining. This is particularly apparent amongst smallholder farmers who have no capacity to negotiate lower input prices or, for that matter, to negotiate with downstream customers for improved output prices. In global terms, it is important to note that smallholder farmers produce 70 percent of the world's food and that the majority of farms (85 percent) are smaller than two hectares.

Over 820 million people remain hungry in the world and more than two billion are micro-nutrient deficient. The manifestations of malnutrition are profound, with malnutrition in the first 1,000 days dramatically increasing the risk of morbidity and limiting a child's mental and physical development. Children who experience malnutrition are less likely to stay at school, they are less likely to escape poverty as adults and they are more vulnerable to chronic disease.

Of greater consequence is the growing proportion of the population that is overweight and obese (2.1 billion). Today, malnutrition and unhealthy diets pose a greater risk to morbidity and mortality than unsafe sex, alcohol, drug and tobacco use combined. Tragically, the 2013 Global Burden of Disease study showed that six of the top 11 risk factors are diet related. Notwithstanding the large and growing inequality in wealth, the global population is becoming and will continue to become richer. With rising living standards, lifestyle changes brought about by urbanisation, significant dietary changes are occurring worldwide. With the increase in consumer purchasing power, and the time needed to prepare food, the

demand for high value ready-to-eat and ready-to-heat food products is expanding. In parallel, the consumption of coarse grains, roots and tubers are decreasing with a commensurate increase in the consumption of higher value food products, including meat, dairy products, fats and oils, and, in most markets, fresh fruit. Regrettably, the increasing production of these food commodities is more resource demanding. The growth in the consumption of more convenient, highly processed food is of greatest concern, for increases in the consumption of sugar, saturated fat and salt is known to contribute to health problems like obesity, Type 2 diabetes, hypertension and other diet-related, non-communicable diseases.

Figure 2: Poor dietry habits, featuring 'fast foods', are leading to obese and unhealthy people. *Source:* Chris Saulit.

For the first time in history, the majority of mankind now reside in an urban environment. That figure is expected to reach two thirds by 2050. Increasing rates of urbanisation are putting more pressure on water and land resources; influencing what foods we eat and where and when we eat them; the way our food is grown, processed and delivered to consumers; and impacting on our health and nutrition. Cities occupy only three percent of the land area and yet they are responsible for 70 percent of global GDP, 60 percent of the energy consumed, 70 percent of greenhouse gas emissions and 70 percent of global waste. With the demand for food generally exceeding the capacity of the adjacent agricultural region, cities are largely dependent on external food sources. Accordingly though, with increasing imports and the commensurate diversity and range of food available to consumers, food chains become longer and with that, cities become more susceptible to climate induced food shortages, food price hikes, breakdowns in logistics and failures in food safety management systems. Furthermore, with increasing urbanisation, both as a result of

urban migration and natural population increase, poverty, food insecurity and malnutrition are shifting from a rural problem to an urban problem. Today, more than one billion people reside in informal, low income settlements. Here, diets are often deficient in terms of calories, diversity and nutrients. As poor households spend scarce resources to buy more affordable, calorie-dense, micronutrient-poor food with high levels of fat, sugar and salt, the incidence of malnutrition and obesity is increasing, often within the same household.

Food is fundamental for our survival. When it becomes scarce, people fight for it, yet when it is abundant, we waste it. Today, approximately one third of all the food produced for human consumption is never eaten. Food loss and waste occurs along the entire food supply chain - from production and processing to transport and distribution, retail and consumption. While most food loss and waste in lower-income countries occurs at the production and post-harvest levels, in the middle and high-income countries, the higher proportion of food loss and waste occurs during distribution and consumption. In Australia, Europe, New Zealand and North America, more than 60 percent of food loss and waste occurs in retail, the food service sector and in the household. Regrettably, much of the food is wasted because it fails to meet the high aesthetic quality standards established by many of the world's major food retailers, whereas at the consumer level, poor purchase planning and expiring 'best-before-dates' can result in large amounts of food waste. While some of the reject product is sold to food processors or as animal feed, much of waste product is simply dumped as landfill. Across the world, food waste represents between 23 - 67 percent of municipal solid waste.

Every day, on average, unsafe food makes two million people sick. Low and middle-income countries in South Asia, Southeast Asia and sub-Saharan Africa are particularly vulnerable to foodborne illness and related deaths. The safety of food is vital for the growth and transformation of agriculture, for the modernization of national food systems, and the efficient integration of food producers into regional and international markets. The safety of food is the result of the actions (or inactions) of many stakeholders operating under diverse environmental, infrastructure and socio-political conditions. These stakeholders include farmers, food handlers and distributors, food processors and manufacturers, food service operators, consumers, regulators, scientists, educators, and the media. In turn, their behaviour is shaped by their awareness of food safety hazards, their technical and financial capabilities to apply effective risk mitigation practices, and prevailing rules, incentives and other motivators. Typically, food safety only appears on the political agenda during a crisis: a major outbreak of foodborne disease-causing deaths, scandals involving deliberate food adulteration, trade bans, or the widespread rejection of food because of noncompliance with standards. Regrettably, most of the world's lesser developed countries have weak food safety systems in terms of scientific evidence, necessary infrastructure, trained human resources, food safety culture and enforceable regulations. Not unexpectedly, the economic costs of unsafe food are significant and take multiple forms including public health costs, the loss of productivity, disruptions to food markets, impediments to agri-food exports, and the costs of complying with food safety regulations and standards in foreign markets.

In Part 2, Peter Batt highlights and discusses food security in the world's strategic future and how governments and all levels of society and community will need to encourage and

provide support to farmers and food producers in order that the world's population is able to access safe, healthy and nutritious food.

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About the Interviewee:

Peter Batt is principal of Peter J Batt and Associates, an international agribusiness marketing and rural development consulting group. Clients to date include the Food and Agricultural Organization of the United Nations, World Bank, the Technical Centre for Agricultural and Rural Cooperation, the Australian Centre for International Agricultural Research and the Australian Export Grain Innovation Centre. With over thirty years of experience, primarily in Asia, we link smallholder farmers to markets, facilitate the establishment of collaborative marketing groups, implement quality management systems and identify market opportunities for a broad range of agribusiness products in high value markets. With a solid foundation in value chain research and specialist skills in building enduring long-term relationships, we seek outcomes that are sustainable, equitable and profitable.

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