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THE GEOPOLITICS OF FOOD

Food as a global issue sits amidst the interconnecting strands of population growth, world trade, climate change and the inequity of world development, in that 20% of the world population who live in MEDCs control over 80% of world trade, investment and technology. In contrast, the 80% of the world population living in LEDCs control about 1% of the world's wealth.

World population growth – demand for food

In the simplest sense, food is an international issue, due to the growth in demand. The world population has more than tripled since 1927, and was 6.8 billion in 2009 (Figure 1). The projected growth by a further 34% to 9.15 bilion by 2050 equates to an increase of 79.5 million people per year, or 218,030 people a day.

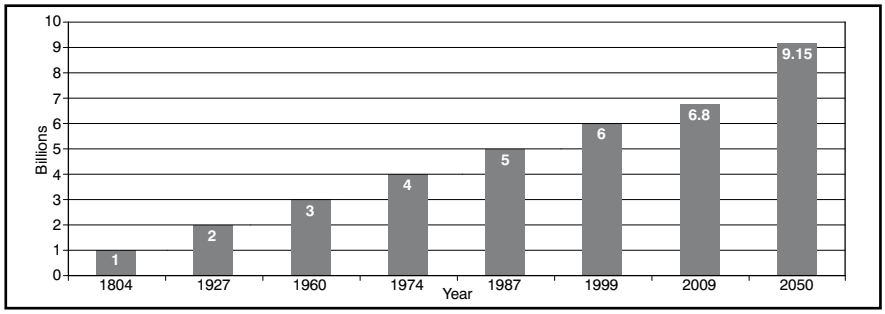
Food supply

So far, supply has grown to meet demand. The UN Food and Agriculture Organisation (FAO) recorded growth in global production of cereals from 0.94 billion tonnes in the mid-1960s, to 1.89 billion tonnes in 1989 and 2.35 billion tonnes in 2007. This is supported by figures from the US Department for Agriculture (Figure 2).

The FAO estimate that, compared to 2005–07 levels, global food production needs to increase by more than 40% by 2030, and by 70% by 2050, to meet the increased demand. The growth in production required is over double the estimated growth in population due to the changes in patterns of food consumption associated with increased wealth. As countries get more prosperous they become more wasteful in their food production. Poorer diets are mainly plant-based, whilst the wealthy eat far more animal protein. In the USA individuals consume over four times as much meat per year as people in developing countries. Producing 1kg of beef takes 10kg of grass or soya-based feed.

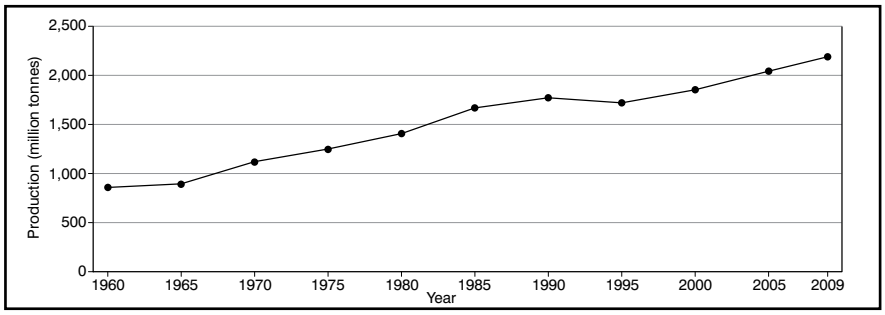
There is no clear estimate of the total population that the earth could feed, and the challenge to be faced is not merely one of total production. The overall growth in per capita

Figure 1: World population growth



Source: World Resources Institute

Figure 2: World grain production 1960–2009



Source: US Department of Agriculture, Production Supply and Distribution

food production has not been equal across the developing world (Figure 3). The uneven distribution of good agricultural resources, good soils, favourable climates, rainfall and fresh water, does not match with the areas of population growth. Many developing countries are over-exploiting their soils and having to utilise land that is poorly suited to agricultural production.

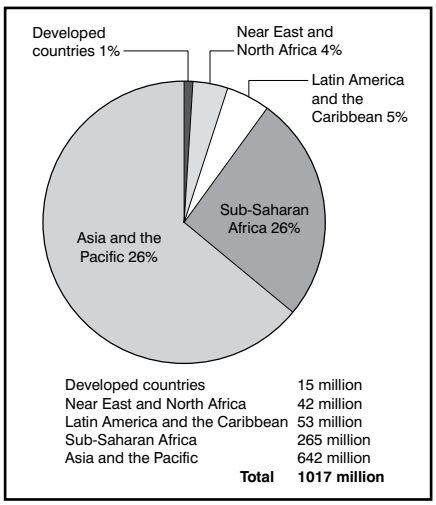
Figure 3: Changes in per capita food production since 1960 (FAO)

	As of 1981, %	As of 2001, %
Africa	-6	-10
Asia	14	73
South America	15	44
World	12	26

The maldistribution of access to resources is brought into to focus by comparing the World Health Organisation figure for obesity, of over 1 billion adults globally, with the FAO figure of 1.02 billion people as undernourished (Figure 4).

The world has responded to the situation. In September 2000, after lengthy negotiations, the UN agreed eight Millennium Development Goals (MDGs). MDG 1, 'Eradicate extreme

Figure 4: Undernourishment by region in 2009 (FAO)



poverty and hunger', calls for the world to:

'Halve, between 1990 and 2015,

- The proportion of people who suffer from hunger
- The prevalence of underweight children under-five years of age
- The proportion of population below minimum level of dietary energy consumption.'

Despite the MDGs, the number of malnourished people in the world

Figure 5 (a): World's top 10 agrochemical firms, by sales

Company	Sales 2007 (US$ m)
1. Bayer (Germany)	$7,458m
2. Syngenta (Switzerland)	$7,285m
3. BASF (Germany)	$4,297m
4. Dow AgroSciences (USA)	$3,779m
5. Monsanto (USA)	$3,599m
6. DuPont (USA)	$2,369m
7. Makhteshim Agan (Israel)	$1,895m
8. Nufarm (Australia)	$1,470m
9. Sumitomo Chemical (Japan)	$1,209m
10. Arysta Lifescience (Japan)	$1,035m
Total	$34,396m

Source: Agrow World Crop Protection News, August 2008 (www.agrow.com)

5(b): by market share

Market Share %
19%
19%
11%
10%
9%
6%
5%
4%
3%
3%
89%

Source: Author's figures

has continued to grow, from 825m in the mid-1990s to 1017m in 2009. Tackling the MDGs has not been helped by economic crisis. This has cut into families' food budgets and held back improvements. Food costs were on average 24% higher in real terms by the end of 2008 compared to 2006. The price rises heightened concerns over food security (Box 1). For poor consumers, who spend up to 60% of their incomes on staple foods, this means a strong reduction in their effective purchasing power. For some countries the situation is desperate, with more than 40% of children underweight in India, Yemen, and Bangladesh.

Confronting the demand for food due to population growth inevitably leads to calls for population control in developing countries. This also brings into international discussion differences in attitudes to family planning and contraception and the question of funding for such policies.

Box 1: Food security/insecurity

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Food insecurity exists when people do not have adequate physical, social or economic access to food as defined above.

Source: FAO

The concerns over global food production and national food security have also stimulated reaction in the UK. Faced with projected growth of the UK population from 61.4 million to 71.6 million by 2033, the government responded with a new policy on food and agriculture in January 2010. 'Food 2030' aims to integrate the issues connected to food, including action on the UK's heavy dependence on food imports:

- Increase UK food production to make its food supply more resilient.
- Greenhouse gas emissions from our high meat consumption.
- Liberalisation of agricultural markets globally.
- Removal of Europe's market-distorting common agriculture policy.

The policy acknowledges our reliance on agricultural imports and our positive desire to allow free trade, yet strikes a cautionary tone on ensuring our food security.

Control of the means of production – the agricultural-food industrial process

As the world seeks to increase food supply and nations seek to ensure food security, control of the means of production has become essential. Various approaches are being taken.

1. Farmland in other countries
Both companies and governments are now purchasing or leasing farmland overseas. In Sudan, South Korea has signed deals for 690,000 hectares, the United Arab Emirates (UAE) for 400,000. Sudan states it will set aside a fifth of its cultivated land for Arab governments .

The Ethiopian agriculture ministry has advertised 1.68 million hectares of land for lease. By 2013, 3m hectares of idle land is expected to have been allotted. The aim is to introduce large-scale commercial farming. The greatest interest has come from India and Saudi Arabia. Karuturi Global, an Indian horticulture company, has leased 300,000 hectares and will use 1,000 new tractors to work the land to produce maize, rice, palm oil and sugar. Firms from other Arab countries, China, Japan and the US have also expressed an interest.

The International Food Policy Research Institute (IFPRI) calculates that between 15m and 20m hectares of farmland in LEDCs have been subject to transactions or talks since 2006, in deals worth between $20 and $30 billion.

2. Water
From 1950 to 2000 world water use tripled, with 70% of this used for irrigation. An increasing number of countries are reaching alarming levels of water scarcity and 1.4 billion people live in areas with sinking ground water levels. Water scarcity is particularly pronounced in North Africa and South Asia and is likely to worsen as a result of climate change. Water supplies in some LEDCs have been taken over by privatised companies increasing the cost of supply for farmers. It has also been claimed that many of the land deals by national governments have their roots in access to water.

3. Agrochemicals and seeds
The top 10 agrochemical companies, largely based in MEDCs, control 89% of the global agrochemical market (Figure 5). Bayer, the world's biggest agrochemical company, is also the world's seventh biggest seed company. Monsanto is not only the world's biggest seed company, producing 60% of the world's seed; it is also the world's fifth largest agrochemical company. Similarly, the world's fertiliser market is dominated by two US companies.

This dominance of supply raises concern over the power and actions of multinational companies. When their product is a genetically modified (GM) one, they can have control of the source of seeds and the required supporting chemicals. Reliance on GM seeds is undermining the diversity of seeds used in developing countries and threatening biodiversity. These factors are reducing countries' independence and their resilience to natural crop disasters.

Figure 6: Top 10 food retailers 2009

Company	Headquarters	Sales $ million 2009
1.Wal- Mart	USA	$405,000
2. Carrefour	France	$115,240
3. Tesco	UK	$86,012
4. Metro	Germany	$78,460
5. Schwarz Group	Germany	$80,600
6. Kroger	USA	$76,700
7. Rewe	Germany	$70,800
8. Costco	USA	$69,900
9. Aldi	Germany	$68,700
10. Target	USA	$63,500

Production and retail

Ten food producers and ten global retailers control one quarter of the global food market (Figure 6). Nestlé of Switzerland is the world's largest food and beverage company. Unilever is an Anglo-Dutch company that owns many of the world's consumer product brands in foods and beverages.

The producers and retailers take control of the agricultural production system and override many national food systems to meet the yearlong food demands of MEDC consumers. Their financial power allows them to dictate food policy, as they search for production in a 'permanent global summertime' to allow them to maximise profits.

Food and world trade

Free world trade is seen by many as the key mechanism to bring about economic development and to close the wealth gap. Free trade should benefit all, if countries specialise in the production and export of those products in which they have a relative cost advantage. For many developing countries their advantage is in the agricultural production.

Yet world trade has not and does not operate freely, due to protectionist measures, such as tariffs, quotas and subsidies. Thus, the international community needs a discussion forum, a set of rules and a means of resolving disputes. In 1947 the General Agreement on Tariffs and Trade (GATT) was created, succeeded in 1995 by the World Trade Organisation (WTO). Currently 153 countries are members.

Agriculture first took a key role within world trade discussions in the protracted GATT Uruguay Round 1986–94. The agreements made, including commitments to improve market access and reduce trade-distorting subsidies, were referred to as 'a significant first step towards fairer competition and a less distorted sector'. The latest negotiations, the 2001 Doha Development Agenda, are still ongoing, with agricultural trade remaining a significant item on the agenda. In the discussions, coalitions of agricultural countries from across the development divide (Box 2) are set against the countries providing the largest sums of support to agriculture – the EU, USA and Japan, whose protectionist policies include restrictions on market access, subsidies guaranteeing farmers' incomes and export subsidies to make exports artificially competitive. Support to agricultural producers in the EU averaged US$151 billion per annum between 2005 and 2007, the United States US$102 billion and Japan US$49 billion. The World Bank estimates that global income could increase by $290 billion by 2015 if the trade distorting policies in merchandise trade including agriculture were eliminated. Today, agriculture remains the most protected and consequently the most trade-distorted sector of the global economy.

In response to the Uruguay round, the EU amended the common agricultural policy (CAP) to move from direct support for farm production to Single Farm payments, where 'subsidies have been decoupled from production'. However, agriculture in the EU remains largely unchanged, with farmers still receiving sums similar to their previous payments, on condition that they keep their land and animals in good agricultural and environmental condition. There remains an active lobby in parts of the EU for continued support for production to maintain food security. Policy reform has been far less forthcoming in the USA.

Box 2: Selected groups in the WTO Agriculture negotiations.

G20: a coalition of 23 developing countries pressing for ambitious reforms of agriculture in developed countries.
Members: Argentina, Bolivia, Brazil, Chile, China, Cuba, Ecuador, Egypt, Guatemala, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Peru, Philippines, South Africa, Tanzania, Thailand, Uruguay, Venezuela, Zimbabwe.

Cairns Group: a coalition of 19 agricultural exporting nations, accounting for 25% of world agricultural exports. They believe that agricultural markets free of distorting subsidies and open to global trade are key drivers of international economic growth and development.
Members: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Pakistan, Paraguay, Peru, Philippines, South Africa, Thailand, Uruguay.

Least-developed countries (LDCs): Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Democratic Republic of the Congo, Djibouti, Gambia, Guinea, Guinea Bissau, Haiti, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Solomon Islands, Tanzania, Togo, Uganda, Zambia.

Source: http://www.wto.org/english/tratop_e/agric_e/negs_bkgrnd04_groups_e.htm

Food's role in climate change

According to the Intergovernmental Panel on Climate Change (IPCC), agriculture accounts for some 13.5% of total anthropogenic greenhouse gas emissions, through:

- energy intensive production of agro-fertilisers (uses 3% of world's energy)
- methane emitted in rice production and livestock digestion (47% of global anthropogenic emissions)
- 58% of global nitrous oxide emissions
- deforestation to provide agricultural land (removes a carbon sink).

Agricultural production will feel the impacts of climate change as:

- productive land is lost due to drought, increased rainfall or temperature change
- diseases and pests spread into temperate regions such as the UK, eg blue tongue, aphids and the viruses they carry will arrive earlier due to warmer temperatures with crops in early spring being more susceptible to damage
- loss of food production as land is switched to biofuel production.

However, agriculture can also contribute to slowing climate change, through:

- carbon sequestration by improved crop and grazing land management
- reducing methane emissions through improved livestock, manure and rice management
- reducing nitrous oxide emissions by improved fertiliser use and manure management
- use of biofuel as a renewable energy.

Climate change: impact on agriculture

Climate change will create agricultural winners and losers. Warmer temperatures in northern latitudes may lead to an increase in wheat production in Canada and Europe. However, the IPCC predict that a half a degree temperature increase will reduce the yield of India's wheat crop by 20% (India is currently the world's second largest producer of wheat). Forecasts in the US show that agricultural profits could rise by up to $1.3 billion, or 4 per cent, per annum although some states, including California, may see substantial declines. Not all MEDCs will benefit, as evidenced by the devastation of the Australian wheat harvest in 2008 due to drought. Sub-Saharan Africa could lose $2 billion per annum as the viability of maize production declines. Countries in southern Africa could see a 50% drop in the production of all cereal by 2080.

The FAO suggest that whilst the global impact of climate change on food production may be small, at least until 2050, the changes will affect LEDCs more than MEDCs. Developing countries are predicted to experience a decline of between 9% and 21% in overall agricultural productivity as a result of global warming.

The 2009 Copenhagen accord did little to satisfy the concerns of the developing world in terms of either measures to limit climate change to 2^{o}C or in providing a global fund that will help them meet the increased challenges they will face.

In seeking to find solutions to climate change, the use of biofuels derived from corn has grown significantly in the USA. Subsidies in the US have encouraged farmers to put a quarter of their corn production into biofuel. As the world's leading grain exporter this has helped drive up food prices across the world. This is not occurring in the US alone, China has secured the right to grow palm oil for biofuel on 2.8m hectares of land in Congo. It is also negotiating to grow biofuels on 2m hectares in Zambia. If productive land is used to produce biofuels, it is not producing food.

Conclusion

Food will continue to play a central role in development discussions and negotiations through out the first half of the 21st century, as the world comes to terms with the changing landscape of further population growth and ongoing economic success of LEDCs. Providing equitable solutions will prove more difficult as prosperity increases in China and India and demand for food rises towards existing MEDC levels. Countries are being forced to look again at the security of their food supplies and to develop policy, as with the UK's food strategy, to protect both domestic and international supplies. This will heighten division in world trade negotiations and may stimulate land deals in LEDCs that take the means of food production away from those who need it most.

Further reading

Agrow World Crop Protection News, August 2008
Anderson (2004) *Agricultural trade reform and poverty reduction in developing countries*, World Bank, Washington DC
Peter Dicken (2007) *Global Shift* 5th edn, Sage
Food and Agriculture Organization, International Fund for Agricultural Development (2002) *World Food Program*
D. Graham and D. Southgate (2007) *The World Food Economy*, Blackwell

Websites:

Population:
http://esa.un.org/unpp/index.asp
http://www.un.org/esa/population/publications/sixbillion/sixbilpart1.pdf
Climate change:
http://www.ifpri.org/sites/default/files/publications/pr21.pdf
Food security:
http://www.fao.org/docrep/u8480e/U8480E0E.HTM
http://www.fao.org/docrep/012/i0876e/i0876e00.htm
http://www.ifpri.org/publication/2009-global-hunger-index-key-facts-and-findings
http://www.defra.gov.uk/foodfarm/policy/capreform/documents/vision-for-cap.pdf
http://ictsd.org/downloads/2009/07/ipcpolicybrief527final.pdf
http://www.guardian.co.uk/lifeandstyle/2009/oct/11/how-will-the-world-feed-itself
http://www.oxfam.org.uk/resources/policy/climate_change/downloads/bp130_suffering_science.pdf
http://www.who.int/dietphysicalactivity/publications/facts/obesity/en/
http://www.economist.com/world/international/displayStory.cfm?story_id=13692889&source=login_payBarrier
http://www.defra.gov.uk/foodfarm/food/strategy/
http://www.guardian.co.uk/environment/cif-green/2010/jan/05/defra-food-strategy
http://www.guardian.co.uk/environment/2009/oct/21/gm-research-food
http://www.guardian.co.uk/world/2010/jan/15/ethiopia-sells-land-farming-giants

US Department of Agriculture, *Production Supply and Distribution*, electronic database at www.fas.usda.gov/psdonline.

Focus Questions

1. In what ways do MEDCs' concerns over food security, undermine current world trade talks?

2. How could China's continuing economic development place further pressure on world food supplies and agricultural resources?