Food production, circulation and consumption

New A Level Subject Content Overview

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Introduction

The new A-level core content[1] introduces the topic of food production, circulation and consumption, including food's relationship to core concepts such as globalization and sustainability. Food is relevant to both of human geography's core themes, Changing Places and Global Systems, and is discussed at various points in the core content, spanning both human and physical geography. This provides an opportunity to demonstrate the power of geographical thinking in linking social and environmental systems. But without an appropriate conceptual map, the geographical study of food can deteriorate into a series of piecemeal lessons, lacking coherence and academic rigour. Rather than starting empirically, then, with specific examples such as the rise of food banks, the obesity 'epidemic' or the growing popularity of farmers' markets (interesting though each of these issues may be), we begin by presenting an integrated framework for the geographical analysis of food into which a range of specific topics can be fitted, emphasising the interconnections between different parts of the *agri-food system*.

An integrated framework for the geographical study of food

Geographers often talk about studying food 'from source to sales-point', 'from plough to plate' or 'from farm to fork', sometimes extending the analysis further to incorporate food waste ('from farm to flush'). While somewhat trite and overly linear, these metaphors highlight the extent to which food is part of a complex system whose interconnections are not always immediately apparent. Before food arrives on the table, it goes through many stages, including farming or fishing, manufacture and processing, transportation and retail. This *supply chain* is often complex and geographically extended, spanning international borders and involving numerous intermediaries (traders and sub-contractors) some of whom may not actually come into physical contact with the products they are buying and selling. This was highlighted by the 2013 horsemeat 'incident' where it was revealed that a UK supermarket chain had ordered a supply of beef from a food processor in North-East France (Comigel) and their subsidiary (Tavola), who contacted a French meat processor

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[1] Geography: GCE AS and A Level subject content. Department for Education (2014)

(Spanghero), who liaised with their subcontractors in Cyprus, who supplied the meat via a Dutch trader, who then ordered the meat from a Romanian abattoir. The BBC News website produced an interactive map that attempted to trace these complex trading routes and connections (see Figure 1).
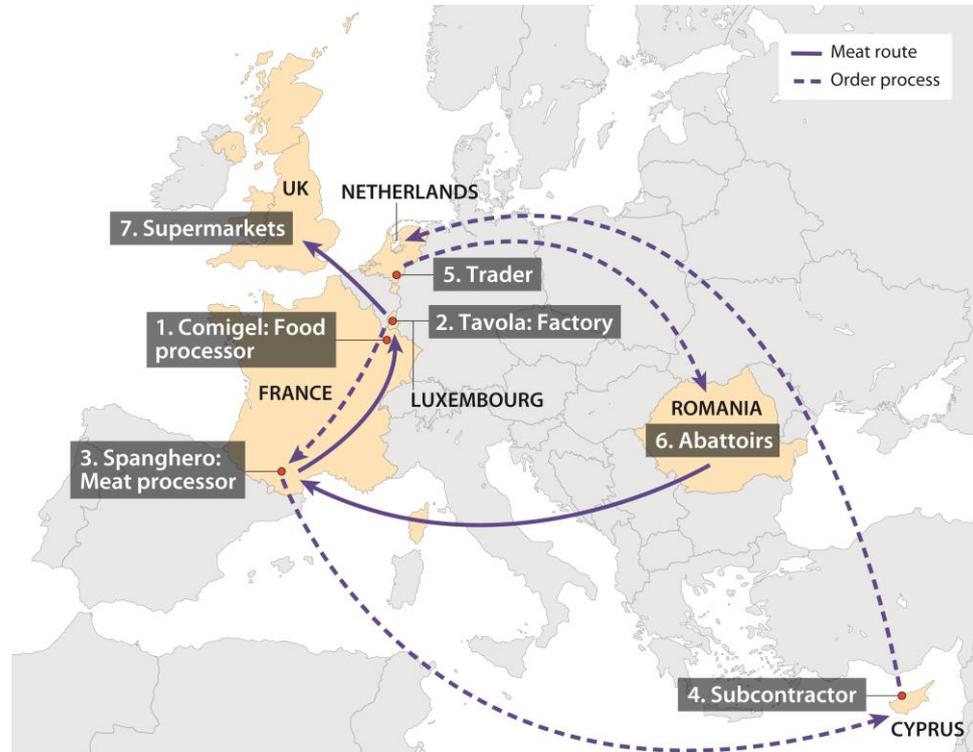

Figure 1: 'How horsemeat entered the UK food chain'. Source: redrawn from BBC News website, 14 February 2013.

To understand such complex supply chains, it is helpful to stand back from the particulars of this specific case and to outline the processes involved in more abstract terms. An interdisciplinary team of researchers at the University of Sheffield has recently produced a conceptual map of the *agri-food system* (a concept that reminds us that most of our food originates in the land, as a result of agricultural labour, or from the sea, through fishing or aquaculture). The conceptual map (see Figure 2) moves from the land (or sea) and crop production (or fishing) through food processing and distribution to consumption, via restaurants, retailers and other food outlets. At each stage, environmental penalties are incurred and food is wasted. Dietary intake also impacts significantly on public health, imposing further costs and benefits. Figure 2 also illustrates the range of stakeholders involved in contemporary agri-food systems and the impact of external factors such as government policy, international trade agreements, business decision makers, NGOs and charities, advertising and the media. The research and teaching challenges are to *make connections* between different parts of the system which are too often approached as separate academic silos. Geographers are well placed for this kind of work, thinking in systems terms and making connections between environmental and social systems. How, for example, does soil health impact on agricultural yields, and how does climate change affect global food prices? How do international conflicts (which often reflect environmental

pressures) create food scarcity and contribute to malnutrition? And how do patterns of 'over-consumption' in some parts of the world (mainly in the Global North) relate to patterns of 'under-consumption' in other areas (predominantly in the Global South)? Thinking geographically about food also invites further reflection on the ethical, legal and political issues that arise both in terms of the institutionalisation of agri-food systems and the way these systems impact on our everyday lives as consumers.
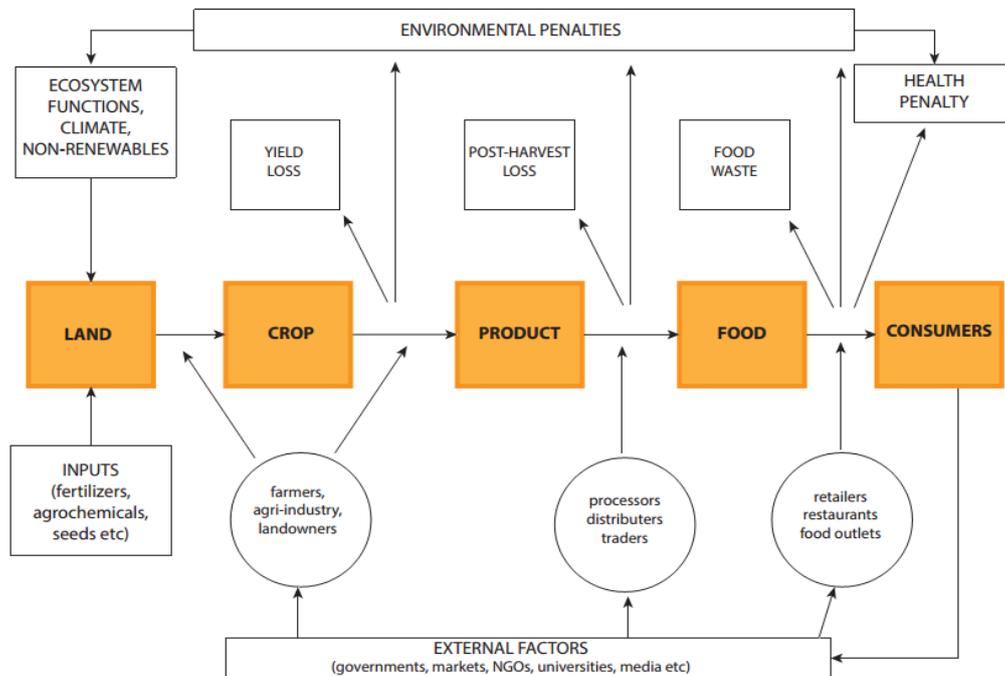

Figure 2: *The agri-food system.* Source: simplified from Horton *et al.* (2015)

Global food security

The other key context for geographical teaching about food is the 'grand challenge' of global food security where increased pressure on resources can be anticipated as the world's population is set to rise to around 9 billion by 2050 from its current level of just over 7 billion. Food security is defined by the Food and Agriculture Organization (FAO) as existing '*when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life*' (FAO 2009: 8). While critics have suggested other framings of these issues in terms of food justice or food sovereignty rather than food security, the issue of an increasing imbalance between supply and demand is inescapable, recalling the Malthusian debate about the relationship between population and resources.[2] The causes of food insecurity are complex and include population growth (and increased demand for energy-dense foods from countries like China and India that are undergoing a *nutrition transition* with increased

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[2] In his *Essay on the Principle of Population* (1798) Malthus argued that, if unchecked by famine, war and disease, population would grow geometrically while resources would only grow arithmetically. Malthus's ideas continue to resonate today and are reflected in the second of the newly-accepted Sustainable Development Goals (September 2015): 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture.'

consumption of meat and dairy products); increased energy costs with the approach of 'peak oil' (linked to the price of fertilisers, pesticides and other agricultural inputs); volatile world markets that are subject to periodic price spikes as occurred in 2007-8 (leading the UN Secretary General to claim that *'The world is facing its worst food crisis in a generation'*); the conversion of agricultural land to the production of biofuels rather than food for human consumption; recurrent droughts and poor harvests in producer countries (which are ever more likely as a result of climate change); and increasing speculation, stock-piling, hoarding and land-grabs as responses to these trends.

The proposed solutions to increased food insecurity are equally diverse. They include technologically-based solutions, such as *precision agriculture* (the targeted application of pesticides, fertiliser and other inputs) and the introduction of new crops and farming methods such as genetic modification and nanoscience (the public acceptability of which is still in question). These approaches are often described in terms of *sustainable intensification* where increased yields are extracted from finite resources. But other solutions focus on the need to reduce demand and to redress the current inequalities in global patterns of food consumption. Food waste is another pressing issue with recent reports suggesting that one-third or more of global food production is wasted, with waste occurring at every stage in the food supply chain (IME 2013; see also Stuart 2009).

Key concepts: globalization, sustainability, inequality and place-making

Food is a very tangible way of approaching challenging concepts such as globalization and sustainability, social and spatial inequalities, and issues concerned with place-making and marketing. For example, the increasingly global nature of the UK's food supply chains is demonstrated by the fact that most of the prawns in shop-bought sandwiches and much of the chicken in supermarket ready-meals is imported from Brazil and Thailand. British consumers regularly eat apples that have been imported from France or New Zealand rather than the many varieties grown closer to home in Kent and other parts of the UK. The *globalization* of food also prompts a discussion of how decisions taken in one place affect producers and consumers in other parts of the world. Good examples of this process include Susanne Freidberg's (2004) study of how the livelihoods of French bean (mange tout) farmers in Burkina Faso and Zambia are subject to changing consumer tastes in Paris and London; Pamela Richardson-Ngwenya's (2010) work on Barbados which shows how changes in European trade policy impact on Caribbean sugar producers; and Ian Cook's (2004) research on papaya which traces the global ramifications of the trade in this particular exotic fruit.

Sustainability and related concepts such as resilience are highly elusive terms. Recent work by the Consumers' Association and the Government Office for Science (Which? 2015) suggests that when consumers think about food, they are most concerned about quality and price. While many were able to make the connection between food and health, far fewer were knowledgeable about the environmental consequences of intensive food production, its impacts on climate change or the unsustainable nature of current levels of food waste. This presents a challenge in developing students' understanding beyond simplistic notions of *'food miles'* (a metric of the distance food travels from farm to fork), encouraging them to think about the trade-offs between the energy consumed at different points in the agri-food system, where, for example, imported tomatoes, grown under natural sunlight in Spain, may have a lower *carbon footprint* than tomatoes grown in artificially-heated poly-tunnels in the

UK (Jackson & Russell 2004). A similar argument can be made about the resources required to grow different kinds of food, including the concept of *virtual water* (Lane 2014) with estimates that the production of a single slice of bread consumes as much as 40 litres of water.

The juxtaposition of two maps showing the geographical prevalence of undernourishment and the global incidence of obesity (see Figures 3 and 4) is a graphic way of introducing the question of global *inequalities in diet and health*. But students will also be aware of the growing number of food banks in the UK and the dramatic rise of other kinds of food aid, suggesting that food poverty is not confined to the Global South. These and other maps, including Danny Dorling's Worldmapper series (www.worldmapper.org), provide a good introduction to the causes and consequences of a world which is, in Raj Patel's graphic phrase, simultaneously 'stuffed and starved' (Patel 2007).
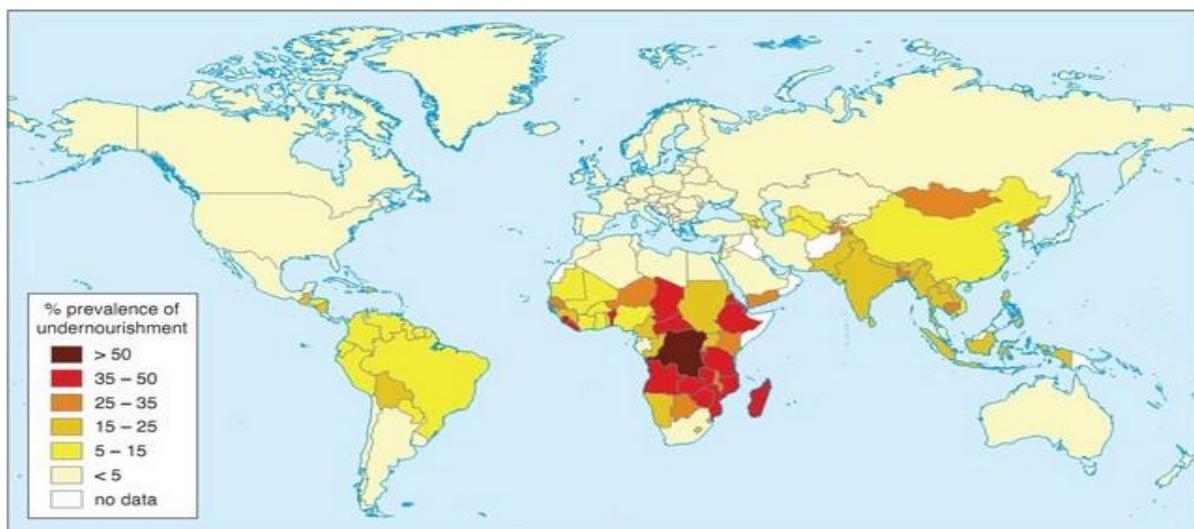

Figure 3: *Global prevalence of undernourishment*. Source: Young (2010) with permission from the Geographical Association: www.geography.org.uk
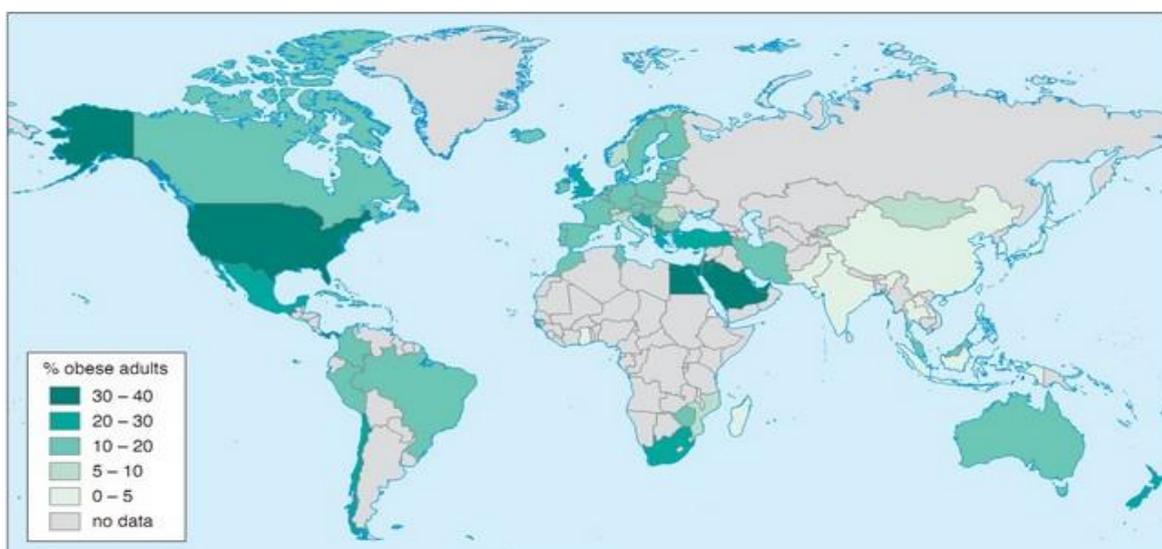

Figure 4: Global rates of obesity. Source: Young (2010) with permission from the Geographical Association: www.geography.org.uk

Finally, food provides some good examples of the social and cultural dimensions of *place-making and marketing*. Think, for example, of the various attempts to restrict the production of certain foods to particular places (such as French champagne or Stilton cheese) or the association of pork pies with Melton Mowbray (Rippon 2014). Think, too, of the way producers have mobilised the idea of *terroir* to make associations between climate, geology and soils in wine-producing regions – or the extension of these ideas to the embodied skills and artisanal traditions of people in those localities. Think, also, of place-based systems of territorial governance such as *appellation d'origine contrôllée* – or more recent innovations such as the EU's various Protected Designations of Origin (PDOs) and Protected Geographical Indications (PGIs). In increasingly industrialised and globalised agri-food markets, a premium is being attached to 'local' production (variously defined) and to notions of authenticity, heritage and tradition. Consider, for example, the rise of farmers' markets and the premium attached to organic food. When faced with questions of authenticity and tradition, it is often wise to ask who is making such claims, on what basis and to what effect, tracing the process of *authentication* rather than seeking to arbitrate what is real or genuine and what is false or fake. Similarly, food is often associated with notions of ethnic difference and exoticism without sufficient attention to the relational nature of such claims ('exotic' from whose point of view?). Lisa Heldke (2003) subjects such arguments to critical scrutiny, suggesting that 'ethnic' foods are imbued with different degrees of Otherness, depending on the perspective of the consumer. She outlines a complex map of ethnic difference whose contours might be significantly redrawn if the vantage point changed:

> From the perspective of a hegemonic northern-European-American culture, certain foods are ethnic by nature, and some are more 'ethnic' than others. German food is ethnic, but Italian food is more ethnic and Greek food more ethnic still. Foods from any part of Asia are yet more ethnic, and African foods are the most ethnic of all (Heldke 2003: 51).

Closer to home, Jon May's work on changing food tastes in a gentrifying area of North London is also instructive, examining consumers' preference for 'A little taste of something more exotic' (May 1996).

The new A-level core content

Looking more closely at the new A-level core content and at the draft subject specifications,[3] it is clear that food can serve as a good illustration of geography's ability to integrate social and environmental issues and of the power of geographical thinking to make connections between places and across scales. For example, the draft AQA specifications introduce the concepts of *food chains and food webs* (in its discussion of ecosystems and processes) but they also refer to *food commodities* under international trade and markets. Edexcel includes food under globalization, exploring the emergence of a 'global culture' based on Western levels of consumption. Food also features in terms of the health consequences of water insecurity; in the discussion of soil health and carbon cycles; energy supplies and biofuel production; land-use changes resulting from the growing demand for food and fuel; oceans and their role in human well-being; the global economy (in terms of global cultural influences on food); and resource demands and global environmental concerns. The WJEC Eduqas specification includes food as an example of rural rebranding processes (via food festivals

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[3] Taken from the four draft specifications all cited in October 2015.

and farm shops); as a sustainable development issue in India and China; and as an example of the challenges of global governance. OCR has the most detailed discussion of food including an option on the Future of Food. It also includes food as an example of place-making and rebranding; access to food and clean water (as a link between economic development and disease); and food chains and food webs in relation to the biodiversity of the oceans. The OCR option begins with the following statement:

> Food is both a celebrated and contested issue. It is predicted that 805 million people go to bed hungry each night, while others consume and waste far more than their fair share. Across the planet food security varies both within and between countries at all levels of the development spectrum. This topic explores the spatial patterns and complex causes of food security, from the physical influences on food systems and how humans create and exacerbate food security issues. Learners will investigate the impacts of food systems on people and the environment before considering management strategies at a range of scales including an in-depth case study of one country's efforts to improve food security (OCR 2015).

The specification then asks a series of provocative questions (with some suggested content and key issues in each case): What is food security and why is it of global significance? What are the causes of inequality in global food security? What are the threats to global food security? How do food production and security issues impact people and the physical environment? Is there hope for the future of food? (OCR 2015).

Case studies

The previous discussion has already suggested several case studies that could be developed further in the classroom. A few more suggestions are outlined here, including some useful resources with which to address them. As well as teaching about *globalization* in terms of the intensification of agricultural production and the lengthening of supply chains, various counter examples could also be considered, often described as *alternative food networks* (AFNs). The case of Fairtrade and other forms of self-consciously *ethical consumption* are also popular topics. Lessons might begin by examining the growth of the Fairtrade market (and the widespread recognition of the Fairtrade logo among consumers). But attention might also be given to the operation of Fairtrade systems (guaranteeing minimum prices to protect producers from market fluctuations; paying a small premium to Fairtrade cooperatives to invest in community-based initiatives). The discussion might encompass criticisms of Fairtrade from those who favour free-market competition. It might include an analysis of the *geographies of responsibility* (Massey 2004) comparing the claims of 'distant strangers' with injunctions to 'buy British' and to support local producers); it might explore the complex ethical trade-offs that consumers face (such as between imported organic versus intensively-reared domestic produce); and examine the ethical and other arguments for adopting a vegetarian or vegan diet.

Discussing *food marketing and place-making* also lends itself to a range of possible case studies, particularly in terms of constructions of authenticity and the exotic. I have previously used newspaper and billboard advertisements for coffee ('From the heart of Colombia and the soul of Nescafe') and I have contrasted two different advertising campaigns for ready-made curry sauces: 'Share Patak's passion for India' and 'It's half the world; it's Sharwoods' (Jackson 2002). But there are many other possible examples to explore such as

Boddington's connections with Manchester or the shifting geographies of Newcastle Brown Ale (Pike 2011). There are also many opportunities for food-based fieldwork including the comparison of different food markets (such as farmers' markets, street markets and supermarkets) contrasting different ideas of provenance and authenticity, measuring and critiquing the concept of 'food miles', and observing place-based constructions of quality and taste (see also Coles & Crang 2010, Coles 2014). The Edible Geography website offers a range of possible opportunities for Thinking through Food (www.ediblegeography.com); Ian Cook's invitation to Follow the Things includes numerous food-related examples (www.followthethings.com); and the Mission Explore geography collective have produced some imaginative suggestions for exploring the sensual world of food: (https://thegeographycollective.wordpress.com/missionexplore/missionexplorefood/).

Resources

Besides the References (listed below) and the websites (listed above), the following resources may also be useful:

- The Food Stories website, hosted by the British Library, includes a series of short extracts from life-history interviews with food producers and campaigners, organised into three sections covering food, nation and cultural identity; shopping for food; and production and technology: http://www.bl.uk/learning/citizenship/foodstories/ (see Jackson 2008 for further details).
- The Fairtrade Foundation hosts a range of resources and campaigning material: http://www.fairtrade.org.uk/ For a critique of their approach see the work of the Adam Smith Institute: http://www.adamsmith.org/news/fair-trade-is-unfair/
- The Waste Resources and Action Programme produce a lot of valuable resources on food waste (including their 'Love Food, Hate Waste' campaign material): http://www.wrap.org.uk/
- Other useful material, reports and statistics are available from the following organizations: Action Against Hunger, Food First, Oxfam, the Food and Agricultural Organization, the World Food Programme and the World Health Organization.

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