

Bird flu across Asia

23 Feb 2004



Deadly avian flu spread through Asia killing at least 22 people in China and Vietnam and millions of livestock have been destroyed. The spread of the virus has been a disaster for the region's livestock industries, according to the United Nations food agency.

Avian flu is a disease found in bird populations – especially chickens – that can spread to other animals and to human beings. A recent outbreak that has now spread across 10 Asian countries has rapidly become a cause of great concern for the [World Health Organization](#) (WHO), who fears that this particular strain of avian flu, known as H5N1, could soon pass to human populations in large numbers. It might potentially become a bigger problem for the region than

SARS.

Since the current outbreak began, at least 22 lives have been claimed across Asia. Vietnam has been particularly badly hit. Over 9 million chickens and ducks have subsequently been slaughtered in an attempt to stop the further spread of infection. Although neighbouring Singapore is currently unaffected by the disease, its recent mass slaughter of crows is an extreme reaction that demonstrates just how worried officials in the region now are that avian flu may spread there.

What are the origins of the epidemic?

A combination of modern farming methods and mass transportation of chicken carcasses to distant markets has meant that potential for the rapid spread of such viruses amongst bird populations is now greater than ever before. Massive demand for chicken has led to factory (battery) farming which provides ideal conditions for viruses to spread orally and via excreta which inevitably contaminates food in the cramped conditions that most birds are kept in (the BSE crisis in British cattle was similarly related to practices associated with intensive farming methods). With millions of chickens slaughtered worldwide everyday, infected birds or carcasses are often unlikely to be spotted before they are transported to distant markets. Recent reports from the US suggest that farmers are worried avian flu may already be present in some American chickens, although it appears to be a lesser strain.

Serious global outbreaks of avian flu have occurred three times before in the past century, most seriously in 1918-19 when over 40 million people died. The risk to humans arises when avian flu combines with pre-existing human viruses, through a process called *antigenic shift*, to create a new form of flu for which our immune systems have no defence. Luckily, experts say that there is no evidence yet that human-to-human transmission has occurred in any of the recently recorded cases. Health officials have attributed all of the H5N1 infections in Vietnam to direct contact with the faeces of sick birds (*Reuters*). Cases of human infection with this particular avian flu strain were previously identified in 1997 in Hong Kong. On that occasion, the virus infected 18 people and caused 6 deaths. The immediate slaughter of around 1.5 million poultry in Hong Kong is thought to have averted a larger outbreak in humans at the time.



Isolated other cases of avian flu have since been reported in Hong Kong and (intriguingly) the Netherlands.

What are the economic impacts?

Close MEDC neighbour Japan has experienced two outbreaks of H5N1. The cases were recorded in Yamaguchi and Oita prefectures and led to a ban on eggs and chickens leaving an area within a 30-km radius. As a continuing precaution, Japan has halted fresh poultry imports from Thailand, China and the United States, three of its top four foreign suppliers, which together accounted for about 19.5 percent of the fresh poultry consumed in the country in the year to March 2003. The wholesale price of domestic chicken has fallen by 15 percent in the past month to about 530 yen (\$5) per kg (*Reuters*).

Meanwhile, The European Union has reacted by banning all poultry imports from Thailand, meaning that the consequences of this crisis will spread beyond immediate health concerns to impact upon economic systems. Farmers in LEDCs lack the subsidies and benefits that their MEDC contemporaries have access to in times of difficulty. Loss of markets, and in many cases the forced destruction of their chickens, will almost certainly result in devastating poverty for many. Local economies will also experience a negative multiplier effect as supply services (transportation and haulage firms) are hit in turn. Local services can suffer, as incomes dwindle and consumer spending falls in communities that have been dependent upon poultry farming.

The avian flu outbreak may also impact upon other areas of the economy. Bali - Indonesia's popular tourist destination - has already experienced an outbreak of avian flu that will certainly deter visitors (just as English tourist destinations were badly hit by the Foot and Mouth outbreak in 2001). However, there may be those that benefit. As British supermarkets restrict their sources, European poultry farmers are faced with rising demand and possibly rising prices for their own supplies of meat. One supermarket chain's entire range of 'Asian' (Indian, Thai and Chinese) 'ready-meals' now carries a hastily-added sticker that reads 'made with British or European chicken'!

When do geographers study the spread of diseases?

There are many opportunities for discussing the alarming spread of avian flu or other epidemics within a GCSE or AS/A-level geography course:

- **The spread of disease can be a consequence of migration** As flows of people (and their favoured animals and plants) move across the globe, so too do the diseases and viruses that they carry with them.
- **The spread of disease has often been a direct consequence of globalisation.** Europeans decimated indigenous populations in South America with diseases such as measles when they arrived in the fifteenth century. More recently, the spread of AIDS has been linked with the movement of migrants both between MEDC destinations, such as New York and London, and also between rural and urban areas in LEDCs. Demand for cheap chicken by supermarkets and fast-food outlets in Europe have given rise to a global supply chain, with much meat sourced from Thailand. This supply chain is assisting the rapid spread of avian flu.
- **The spread of disease constitutes a biological hazard** Hazards are an area of synoptic geography. Environmental (temperature, humidity) and human factors (migration, settlement, vaccination programmes, availability of clean water) result in different levels of risk for people in different regions or countries (See '[Global changes bring biological hazards to Britain](#)'). It should be noted that attempts to control biological hazards have often met with great levels of success (compared with geophysical hazards such as earthquakes), notably with the world-wide eradication of smallpox in 1980.
- **The spread of diseases may be a product of intensive farming systems** Modern farming practices often result in animals living in cramped and unhygienic conditions. Battery chicken farming is the most notorious example of this, as farmers attempt to maximise outputs per unit area of land.
- **The spread of disease can be a negative consequence of development processes** When indigenous populations in wilderness areas of the world are first contacted by outside forces, the hope is to bring the benefits of modern healthcare and science to them in an attempt to improve their quality of life. Unfortunately, such attempts to improve levels of social development have sometimes resulted in tragedy. According to John Hemming, speaking at the RGS-IBG recently,

the worst cases of first contact with indigenous peoples in the Brazilian rainforest resulted in 85% mortality. Common illnesses were spread to people whose immune systems were unprepared.

What are geographies of diffusion?

Geographers refer to the spread of a phenomenon through space and time as *diffusion*. Associated particularly with Hägerstrand's (1953) work on the spread of innovations, diffusion can be represented by a series of maps of an area at successive points of time, displaying those people who have adopted the innovation. Such distributional changes are also well-suited to the spread of disease.

Hägerstrand recognised that there is always an element of chance in distributional changes and developed a technique known as 'Monte Carlo simulation' to assist his studies. His ideas are still applied by geographers interested in epidemiological modelling (most recently in relation to AIDS). Historical studies have often focused upon the great avian flu outbreak of 1918-19, the roots of which lie in the end of the First World War. The huge military training and hospital camp of Etaples, in northern France, may well have been the source of a deadly flu virus derived from avian flu. Men, chickens and pigs were crowded together, providing the ideal circumstances for viral cross-species infection through antigenic shift. The disease spread globally following the armistice, when troops started returning to their homes (See [The Guardian, 10 February 2004](#)). A spread of disease occurring on this scale is termed a *pandemic*.