

Business threats and opportunities from the health challenge

“To protect human, plant and animal health from diseases, pests and hazards in a changing environment.”

Issues:

Environmental changes affect human, animal and plant health in a variety of ways^{1,2}:

Direct impacts of environmental change:

- The 2003 heat-wave in Europe caused an additional 50,000 deaths.
- Rising rates of malignant melanoma from ozone depletion.
- Unusually severe floods and droughts have caused major loss of harvests – eg 25% of Russia’s wheat harvest for 2010 was lost in a heat-wave, and Pakistan’s harvest for 2011 is threatened by the loss of half a million tonnes of seed wheat in the floods.

Indirectly through additional stress to systems:

- Respiratory diseases in cities where there is atmospheric pollution.
- Cholera outbreaks in flooded areas.
- Impacts of natural disasters have tripled since the 1960’s because of increased vulnerability of populations, particularly in high-risk areas such as coasts.
- Drought impaired resistance to disease in crops and livestock.
- Algal blooms in warmer reservoirs overcome capacity of treatment plants.
- Increase in food borne disease due to loss of control of chilled distribution systems.

Indirectly through changes in patterns of disease vectors:

- Rapid global spread of diseases such as HIV/Aids, SARS, Swine-Flu etc, caused by changes in population, migration and communication.
- Spread of disease vectors such as biting insects to new areas leading to spread of malaria, Lyme disease, dengue and yellow fever.

Indirectly through increased transmission of animal diseases to humans

- Close interaction between domestic animals and humans on an increasingly crowded planet is leading to both increased transmission of animal diseases to humans and more pathogens jumping the species barrier to produce new diseases.

Although many of these threats seem more relevant to other parts of the world, the analysis by the Department of Health shows that there are real impacts in the UK⁹.

Business Threats:

- Threats to business continuity through loss of access to foodstuff through extreme weather events and climate change.

¹ “Climate Change and Human Health – Risks and Responses”, 2003, WHO

² “Health Effects of Climate Change in the UK 2008”, 2008, Department of Health

- Threats to business continuity from epidemics in the workforce and global supply chain.
- Loss of hygiene control in the food supply chain.
- Spread of disease and pests to new areas threatening humans, livestock or crops. Limiting economic activity.
- Consumers reject certain foodstuffs, or food from some geographies because of concern about disease.
- Damage to business continuity from knock on effects of flooding.

Business Opportunities:

- Novel pest and disease control systems – including biological control.
- Combination prophylaxis and therapy to avoid resistance.
- Rapid vaccine development.
- Emergency water purification systems for disaster relief.
- Refrigeration systems for use off-grid or where energy supplies are restricted.
- Ultra-rapid detection and identification of infectious agents.
- Global disease monitoring and reporting systems.
- Improved long-life food treatments.

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