



Environmental Health and Climate Change

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Overview



- Core knowledge: the effects of climate change on current responsibilities of Environmental Health
 - air, water, food, pest control, home health
- Areas for development: Environmental Health Practitioners as agents for carbon reduction and adaptation.
 - air, carbon, water, food, housing

Climate change affects the current responsibilities of Environmental Health



- Air quality
- Water safety
- Food safety
- Pest control
- Housing

Air quality

Climate change impacts



- Increasing temperatures combine with air pollution to increase ground level ozone, causing morbidity from respiratory disease.
- Tighter controls on pollution to air may be needed just to maintain current air quality.
- Surveillance and early warning systems for vulnerable groups.

Water safety

Climate change impacts



- Water shortages and standpipe use can lead to increased infections as hygiene more difficult to maintain.
- Risks from increased consumption of bottled water in warm weather are contamination, multiplication during storage and re-use of containers.

Water supply safety

Climate change impacts



- Upland sources in peat-covered catchments would contain higher levels of dissolved organic carbon, risking trihalomethane formation on disinfection with chlorine
- Severe flooding has the potential to significantly affect drinking water supplies through contamination of the mains supply.
- At risk are poorly treated private water supplies, unfiltered surface water and groundwater

Food safety

Climate change impacts



- A strong correlation exists between notified food poisoning, *Salmonella* infections and temperature in the UK.
- Higher temperatures increase the rate of infection in animals and multiply bacteria in animal feed.
- They increase risk from food prepared and cooked at home, whether through inappropriate food storage and temperature control or increased outdoor cooking and eating (barbecues).
- Climate change could cause about 10,000 extra cases of food poisoning a year in the UK¹.
- Greater public awareness and food safety training is required.

Food safety

Climate change impacts



- Environmental health practitioners have responsibility for ensuring the safe production of food and hygiene in food premises.
- Legislation requires food business operators to have in place, implement and maintain a permanent procedure based on the principles of hazard analysis critical control points (HACCP)
- Climate change could impact the critical control points at the step or steps at which control is essential to prevent or eliminate a hazard or to reduce it to acceptable levels

Pest management and vector control

Climate change impacts



- Climate change will have an effect on pest and vector ecology
- It will lead to changes in the natural environment, and also in the built environment as a result of land use changes
- Flooding leads to more surface rat infestations
- Standing water provide mosquito breeding sites
- West Nile Virus the greatest concern of disease from mosquitoes at this time so long as *Plasmodium* not present in Europe

Housing

Climate change impacts



- The Housing Health and Safety Rating System (HHSRS) focuses on the greatest risks to health and safety in the home.
- The hazard assessment considers the likelihood of an occurrence that could cause harm to a member of the vulnerable age group over the following 12 months.
- The likelihood could increase as a result of the effects of climate change.

**Which hazards
could be affected?**

HHSRS: 29 Hazards



A. Physiological Requirements

Damp and mould growth etc
Excessive cold
Excessive heat
Asbestos (and MMF)
Biocides
CO & Fuel combustion products
Lead
Radiation
Uncombusted fuel gas
VOCs

B. Psychological Requirements

Crowding and Space
Entry by intruders
Lighting
Noise

C. Protection Against Infection

Domestic hygiene, Pests & Refuse
Food Safety
Personal hygiene Sanitation & Drainage
Water supply

D. Protection Against Accidents

Falls associated with baths etc
Falling on the level etc
Falling on stairs etc
Falling between levels (e.g from windows),
Electrical Hazards
Fire
Flames, hot surfaces etc
Collision and entrapment
Explosions
Position and operability of amenities etc
Structural collapse and falling elements

Housing

Climate change impacts



- HHSRS hazards affected by climate change
 - Excess cold
 - Excess heat
 - Damp and mould
 - Crowding and space
 - Domestic hygiene, pests and refuse
 - Food safety
 - Personal hygiene sanitation and drainage
 - Water supply

HHSRS

Climate change impacts



- **Excess cold**
 - Improved energy efficiency reduces energy needs and emissions (mitigation) (& addresses fuel poverty)
 - Energy efficiency measures can reduce ventilation and therefore indoor air quality (and increase radon exposure)
 - Increased prevalence of extremes – wind, rain and cold – changes to sea currents such as the gulf stream
- **Excess heat**
 - Higher summer temperatures and droughts
 - Very old & young, chronically ill and poor are most susceptible
 - Heat wave plan
 - Adapting housing to reduce over heating (ventilation and reduce solar gain)

HHSRS

Climate change impacts



- Damp and mould
 - Increased risk of elevated water tables, higher relative humidity, flooding and prolonged periods of rainfall
- Crowding and space
 - Loss of land in UK as sea levels rise, lack of water in UK and elsewhere leading to migration and pressure on accommodation
 - Flooding increases risks from pests e.g. rats and biting insects, problems of refuse storage (emerging diseases)
- Domestic hygiene, pests and refuse
 - Flooding increases risks from pests e.g. rats and biting insects, problems of refuse storage

HHSRS

Climate change impacts

- Food safety
- Personal hygiene, sanitation and drainage
- Water supply



Tackling climate change



- **Mitigation** - to reduce the level of greenhouse gases and reduce the future climate change.
- **Adaptation** - to deal with the impacts of climate change already being experienced, and those which we cannot avoid in the future due to the inertia of the climate system.

Tackling climate change



- Environmental Health Practitioners as agents for mitigation and adaptation...
 - Air quality & carbon co-management
 - Regulation of carbon emissions
 - Sustainable water management
 - Food sustainability
 - Housing

Tackling climate change

Co-management of air quality and carbon emissions



- Some air quality measures have trade-offs with carbon emissions
 - Re-routing traffic to a bypass will displace pollution but may increase it.
- Some carbon reduction measures do not benefit air quality
 - Biofuels
- However, synergies can be found when air quality and carbon are managed together
 - Encouraging modal shifts to walking and cycling
 - Renewable energy

Tackling climate change

Pollution control: regulating carbon emissions



- Under the Environmental Permitting (England and Wales) Regulations 2007, environmental health practitioners apply integrated pollution prevention and control to certain installations (A2)(LA-IPPC), and regulate emissions to air from Part B installations (LAPPC).
- The LAPPC and LA-IPPC regimes require operating permits to include “all measures necessary to achieve a high level of protection of the environment by taking all appropriate preventative measures against pollution, in particular through use of best available techniques (BAT)”

Tackling climate change

Pollution control: regulating carbon emissions



- Local authorities (LAs) decide “best available techniques” for the individual installation, taking into account any guidance issued to them by the Secretary of State as well as environmental quality standards.
- Some installations regulated by LAs fall within the Climate Change Levy (CCL) and Climate Change Agreements (CCAs) regimes and the UK Emissions Trading Scheme.
- For A2 installations, energy has to be used efficiently in order for a permit to be issued. A2 installations participating in a CCA should be required as part of their permit conditions to meet baseline standards of energy efficiency.

Tackling climate change

Sustainable water management



- The Private Water Supplies Regulations 2008 require local authorities to monitor water supplies for domestic use or commercial food production.
- The procedural requirements and the role of EHPs in water safety provide an opportunity for encouraging sustainable use of water resources and discourage the purchase of bottled water.
- Requires knowledge of:
 - Water saving technologies
 - Sustainable drainage systems (to reduce flood risk)

Tackling climate change

Sustainable food systems



- Role of Environmental Health in food safety provides opportunities to promote food *sustainability* – in catering and retail sectors.
- Ideas?
 - Guidance on carbon impact of food types (e.g. carbon intensity of meat & processed foods)
 - Sustainable food awards / certification
 - Training

The Food Standards Agency is currently introducing a sustainability policy – EHPs important in implementation.

Tackling climate change

Sustainable, healthy housing



1. Energy efficiency / affordable warmth
2. Household carbon emissions
3. Heat resilience

Environmental health has the opportunity to address these issues *together* in housing/HHSRS programmes to improve home health and reduce inequalities.

What sort of interventions might an integrated sustainable, healthy housing programme offer?

Tackling climate change

Sustainable, healthy housing



Physical interventions

- Insulation
- Renewable microgeneration
- Passive ventilation
- Community heating systems
- Solar shading; planting trees

Lifestyle interventions

- Energy saving advice
 - Heating / hot water
 - Electricity
- Heat resilience advice (opening windows, shading)
- Other lifestyle advice? (diet, travel etc)

Summary



- Climate change affects current responsibilities of Environmental Health
 - air, water, food, pest control, home health
- Areas for development: Environmental Health Practitioners could be important agents for carbon reduction and adaptation.
 - air, carbon, water, food, housing

References



- CIEH (2007) *Commission on Housing Renewal and Public Health – Final Report*
- CIEH (2008) *Climate Change, Public Health and Health Inequalities (A resources for EHPs)* London
- ODPM (now CLG) (2006) *Housing Health and Safety Rating System Operating Guidance*
- WHO (2008) *Public Health Significance of Urban Pests*, Bonn

The Climate Connection is a partnership for public health action on climate change



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