Healthy environment – healthy people

Environment and Human Health Programme

Mauro Fermariello/Science Photo Library

Building capacity

A key aim of the Environment & Human Health Programme is to enhance scientist's capacity to answer complex research questions that span a range of disciplines. This programme will bring together scientists from many disciplines including environmental science, medical, biomedical, socio-economic and public health research. There will also be close interaction with government departments and agencies. Working together to share knowledge, ideas and resources is vital for a holistic view of how the natural environment influences human health.

Partners

Core funding:
The Natural Environment Research Council, the Department for Environment, Food and Rural Affairs, the Environment Agency and the Ministry of Defence.

Additional funding and support:
The Economic and Social Research Council, the Medical Research Council, the Biotechnology and Biological Sciences Research Council, the Wellcome Trust, the Engineering, Physical Sciences Research Council and the Health Protection Agency.

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NATURAL ENVIRONMENT RESEARCH COUNCIL

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Human health and the natural world

Our health is closely linked to the natural environment. Ecosystems are the planet's life-support system but they are becoming degraded by climate change, pollution, agricultural practices and urban development. As a result, our water, air and food supplies are under pressure. This can have an adverse impact on our health and contribute to the cycle of poverty and disease. The relationships between human health, ecosystems and socio-economic factors are complex, often subtle, and may go undetected until serious ecological and health consequences emerge that are difficult to reverse or even halt.

E. coli bacteria.
David Mack/Science Photo Library

What do we need to know?

We need to know more about the way pathogens and pollutants spread through the environment and how people become exposed to them, particularly as our climate changes. For example, we could see changes in the distribution of diseases such as malaria. New diseases could emerge as a result of changes in agricultural practices and the way we use the land. The overall impact on our health will depend on the nature of exposure and on factors specific to individuals such as their socio-economic status, their level of nutrition, age, genes, gender and behaviour. We need to understand how all these things influence one another.

> *'Worldwide, and probably also in Europe, one quarter to one third of the burden of disease appears to be attributable to environmental factors.'*
>
> *European Environment Agency*

Environment & Human Health Programme

This £4.8 million programme runs from 2006 to 2009 and explores how both man-made and natural changes to the environment can influence human health. Scientists will tackle the complicated mix of environmental, social and economic factors that influence health, particularly focusing on naturally occurring toxins, man-made pollutants, nanoparticles and pathogens to see:

- how they spread within the environment
- how their properties change as they interact with other substances or organisms
- how we become exposed to them
- the impact on human health

Examples of specific projects

- Certain algae produce dangerous toxins which can lead to serious food poisoning in humans. We become exposed to these toxins by eating contaminated shellfish that have fed on the algae. Experts will share information to improve our understanding of algal blooms in UK marine waters; how shellfish pass toxins to humans and how to reduce the impact on human health.
- Around two-thirds of the world's population are affected by deficiencies in iron, vitamin A and iodine, according to a report in the Journal of Nutrition. Scientists will study how soil quality, food production, behavioural and cultural attitudes relate to the health of women and children in Malawi.

Longer-term benefits

This research will be used by policy makers in both the UK and across the globe. It will improve our ability to identify and predict potential risks to health and could also be used to produce early warning systems for potential hazards.