

# **Climate change, human health and biodiversity: how a socio-ecological conceptualisation provides for integrated solutions.**

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# The climate change health challenge

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Living With Environmental Change

## Biodiversity Climate Change Impacts

Report Card 2015

This publication summarises the impacts that climate change is having on land-based and freshwater species, habitats and ecosystems in the UK. It also presents the best available scientific evidence of the mechanisms causing change and what may happen in future.

This is one of a series of Report Cards published by the Living With Environmental Change Network. This summary is underpinned by a series of technical papers written by experts in the field, with the project overseen by a working group of senior scientists. Both the summary and technical papers have been peer-reviewed. In total, over 40 scientists from more than 20 different research and conservation organisations have contributed to this publication.

This Report Card updates and extends the previous version produced in 2013. The key messages remain similar, but the rapid pace of research has improved understanding in several areas. There is also new material on freshwater ecology and soil organisms.



The Report Card covers the following topics:

- Changes in UK climate
- Emerging patterns
- Plant communities and habitats
- Species
- Ecological processes and interactions

Environmental Change

## Health Climate Change Impacts

Report Card 2015

This LWEC Report Card is aimed at those responsible for the health of communities across the UK and anyone else interested in how climate change may affect our health.

Climate change is likely to have a wide range of impacts on health – some harmful, others potentially beneficial. This card is designed to make it easier to understand the nature of possible change and to help inform decisions that will protect our wellbeing. Specifically, it looks at the effects of climate change on people's health in terms of physical and mental illness and disease, and on the resilience of the UK's health services. Many of these impacts are likely to result from changes in the frequency of extreme weather events such as floods and heatwaves.

Focusing on human health and health systems<sup>1</sup>, the card synthesises findings from 10 detailed Technical Papers prepared by leading scientific experts and academics, and based on the best available science from peer-reviewed academic literature.

It complements the Report Card on Infrastructure, which assesses the impact of climate change on the built structures that provide services important for our safety, health and economic development. Previous publications also include the LWEC Biodiversity and Water Climate Change Impacts Report Cards and the Marine Report Card produced by the Marine Climate Change Impacts Partnership (MCCIP). Together, all of these publications help build a more extensive and comprehensive picture of existing and future changes resulting from climate change in the UK.

The report card covers the following topics:

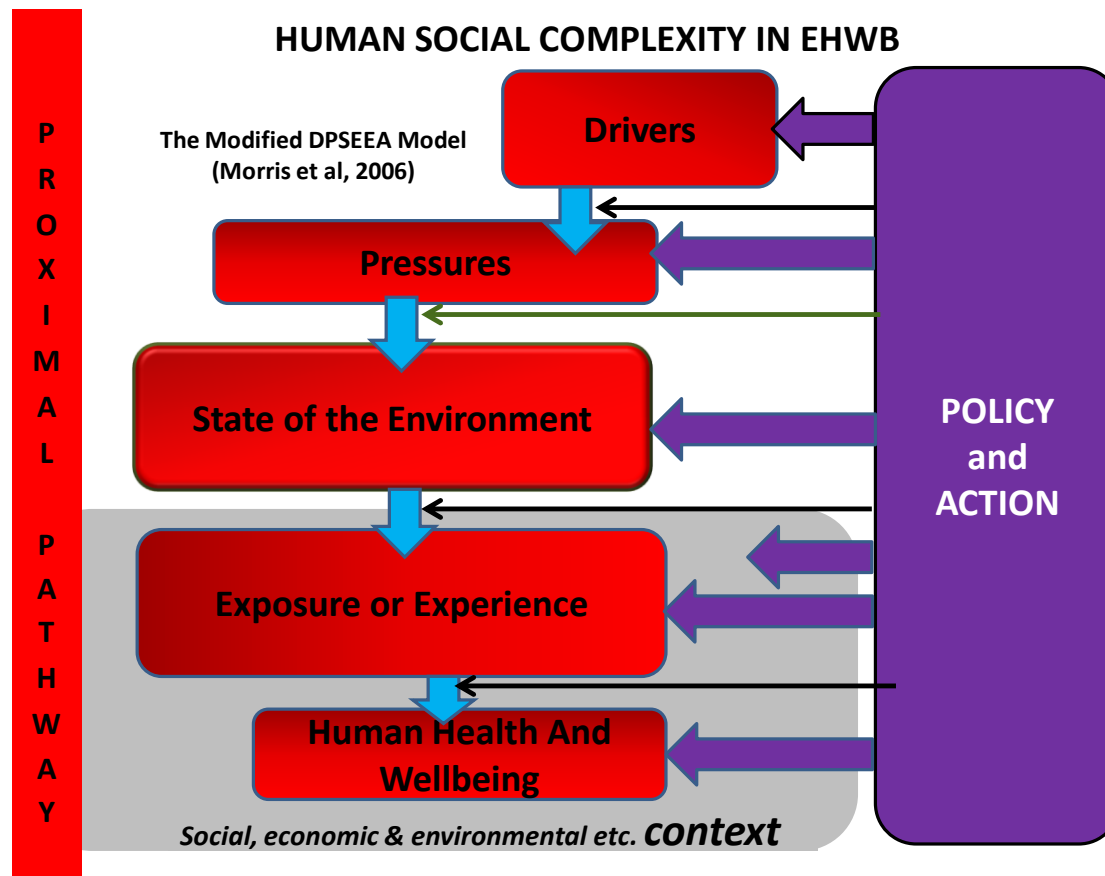
- Health effects of heat and heatwaves
- Health effects of milder winters
- Flooding and health
- Impacts of extreme events on health services and social care
- Outdoor air quality
- Pollens and other allergens
- Food-borne disease and contamination
- Emerging zoonoses

Source: LWEC Report Cards (2015)

<http://www.nerc.ac.uk/research/partnerships/ride/lwec/report-cards/>

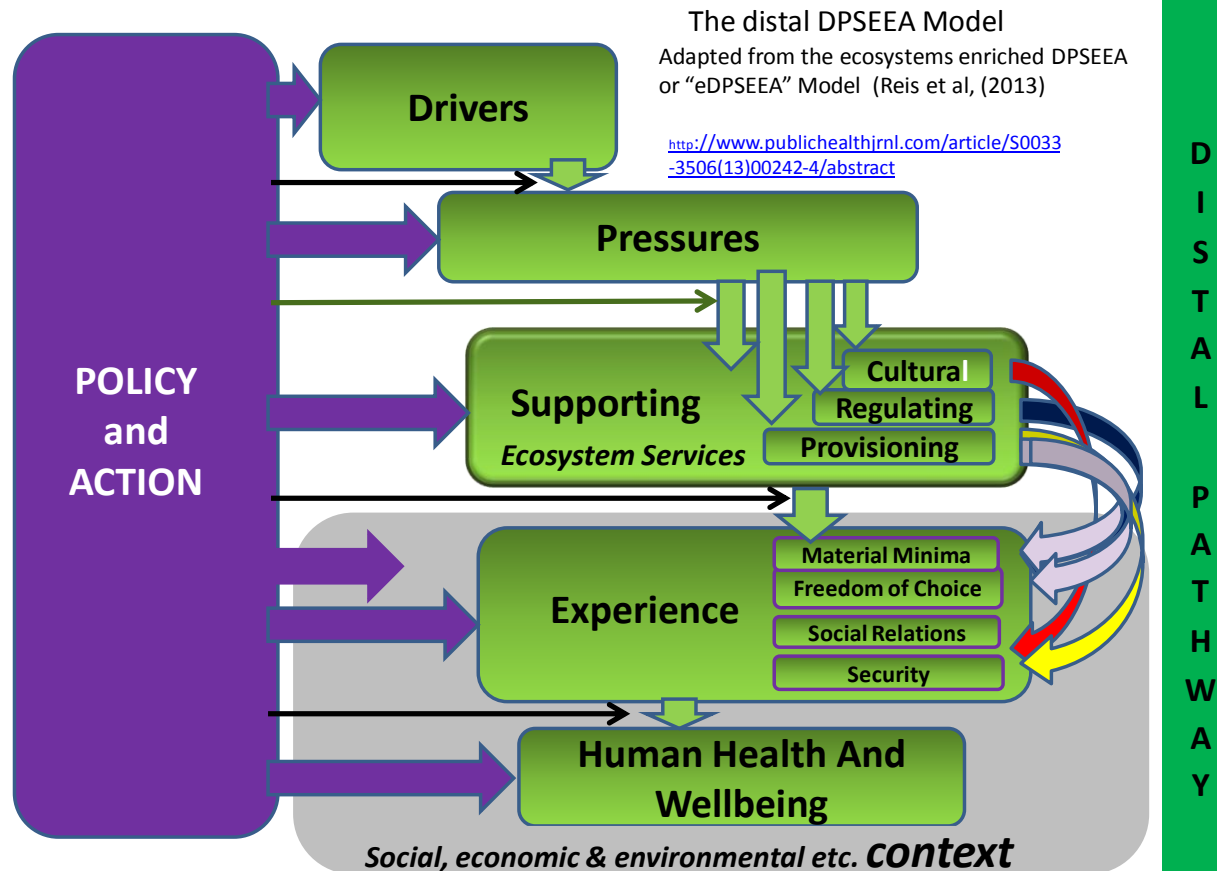
# The modified DPSEEA (mDPSEEA) model

Source: after Morris et al, 2006

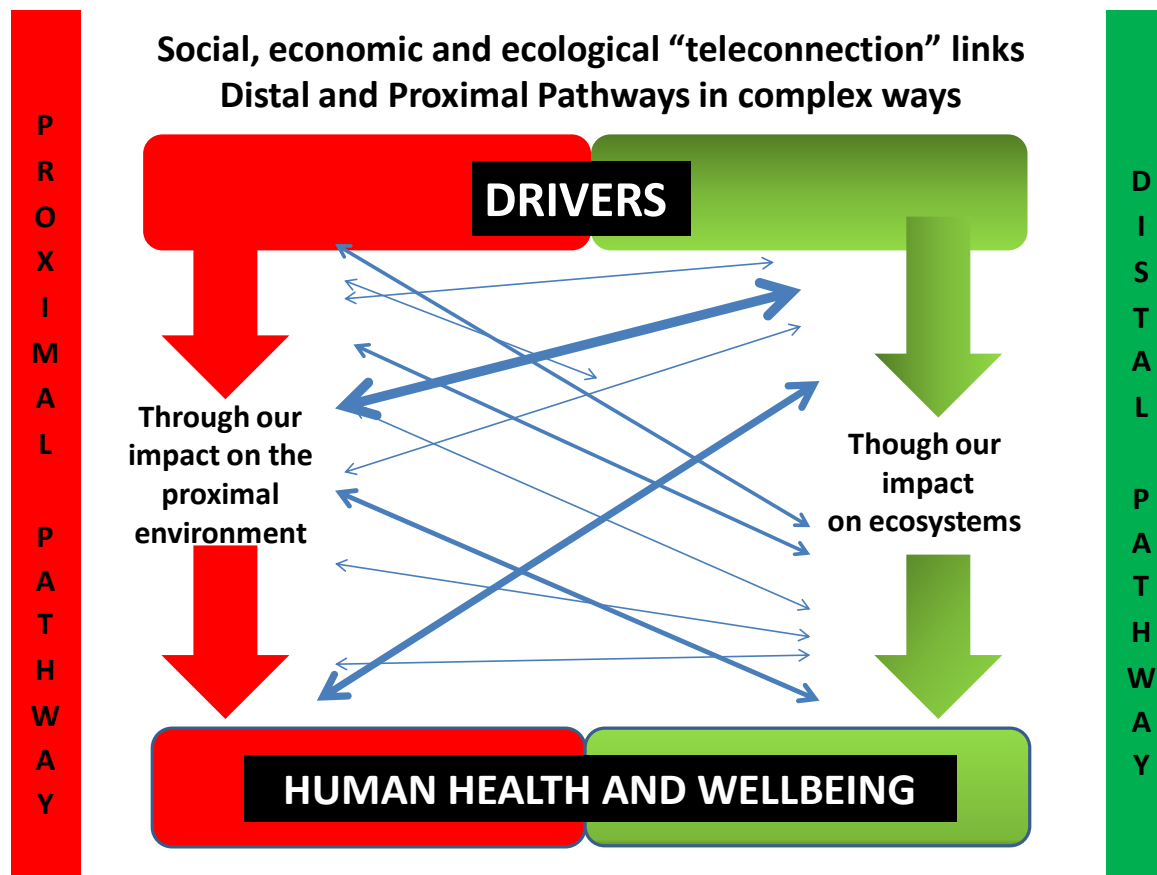


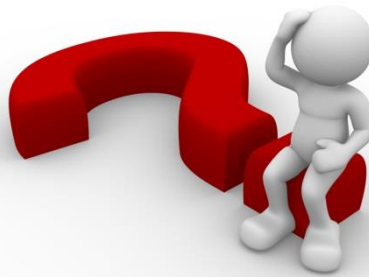
# The 'distal DPSEEA Model (dDPSEEA)

## ECOLOGICAL COMPLEXITY IN EHWP

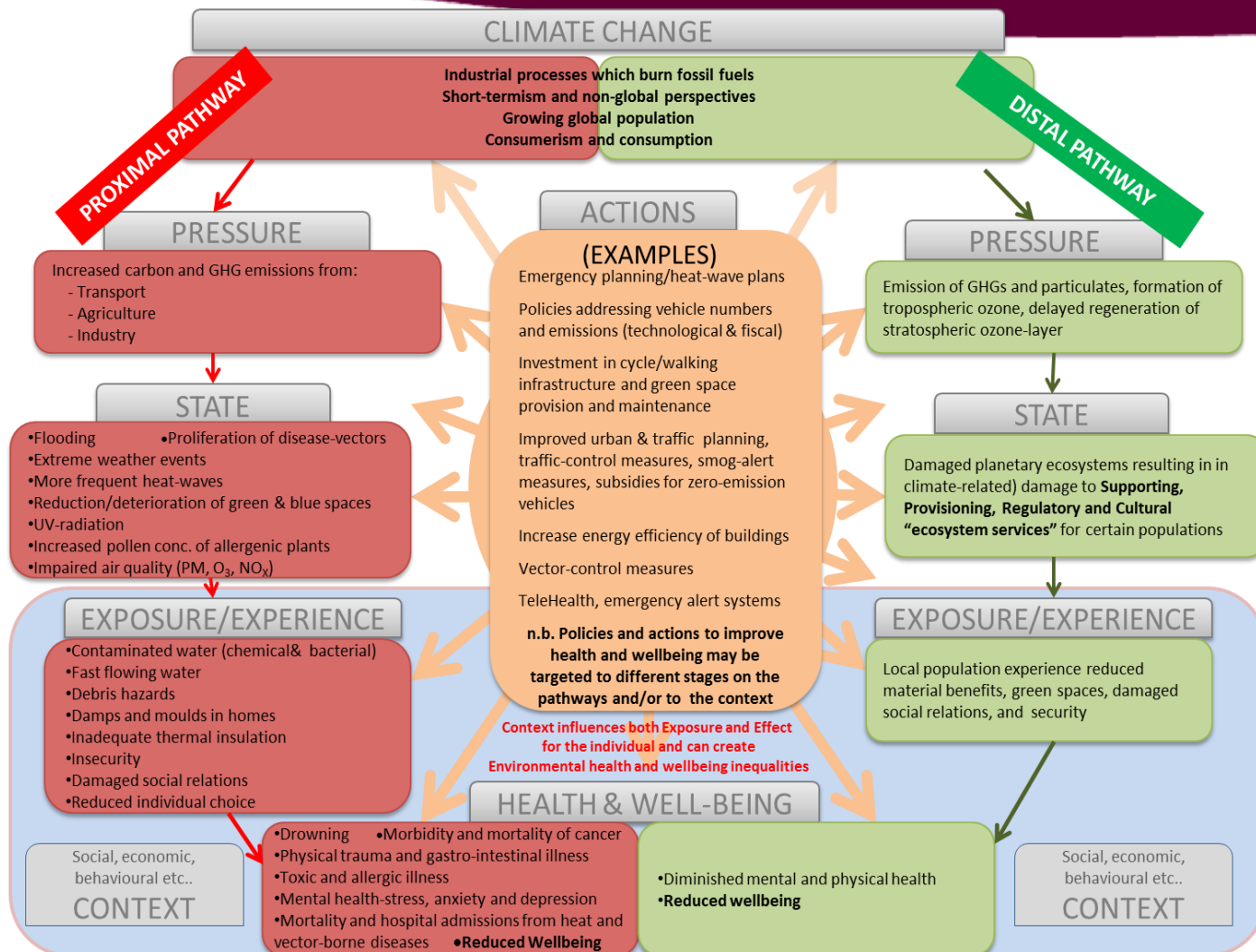


Social, economic and ecological “teleconnection” links  
Distal and Proximal Pathways in complex ways





# Climate change and human health in urban areas



n.b. Global economic social and ecosystem connectivity means the distal pathway can impact on the proximal pathway in health relevant ways and vice versa

Now imagine you're a frog!

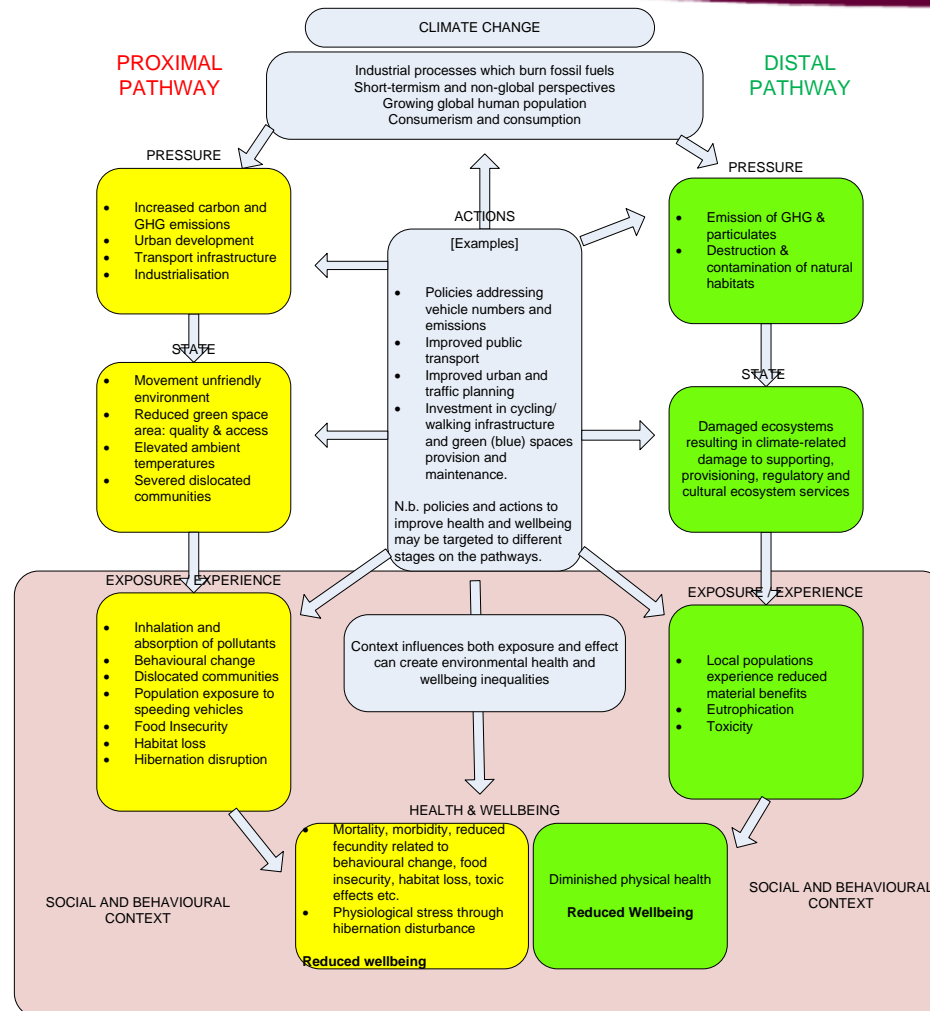
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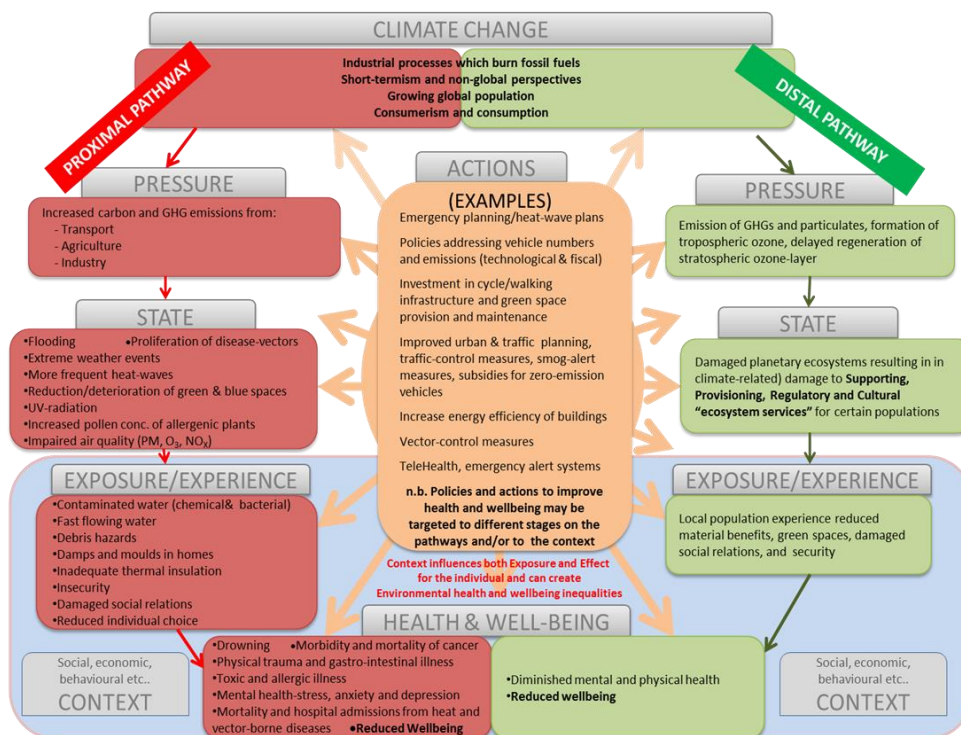


Source: Natural England Image Library  
<https://www.flickr.com/photos/naturalengland>

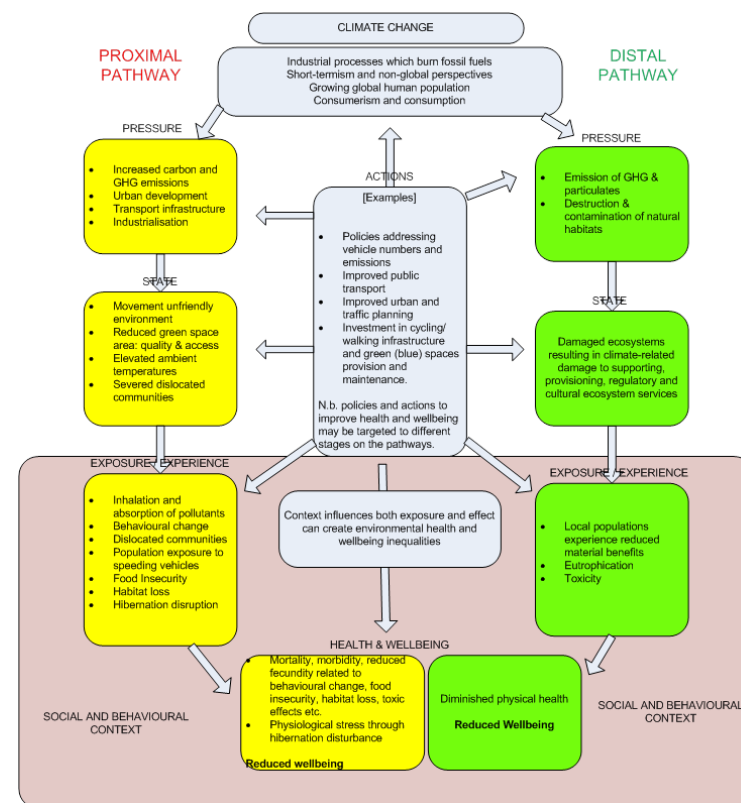


# Climate change and frog health in urban areas





n.b. Global economic social and ecosystem connectivity means the distal pathway can impact on the proximal pathway in health relevant ways and vice versa



Carefully planned green / blue spaces and urban connected spaces.

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Co-benefits: good for people, good for frogs

- Through socio-ecological conceptualisation drivers of poor health outcomes can be explored from a human and biodiversity perspective.
- Common interventions delivering **co-benefits** for health of all species emerge.
- It shifts public health policy away from a purely anthropocentric view
- It shifts biodiversity policy away from a purely wildlife perspective
- Promotes **integrated solutions** to complex system challenges and enhances ability to identify unintended consequences.

# Acknowledgements

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Foresighted Reasoning on Environmental Stressors and Health (FRESH)

**European Environment Agency**



Thank You For Listening

