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Healthy Indoor Environments: Challenges for policy makers

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Our health is determined by:

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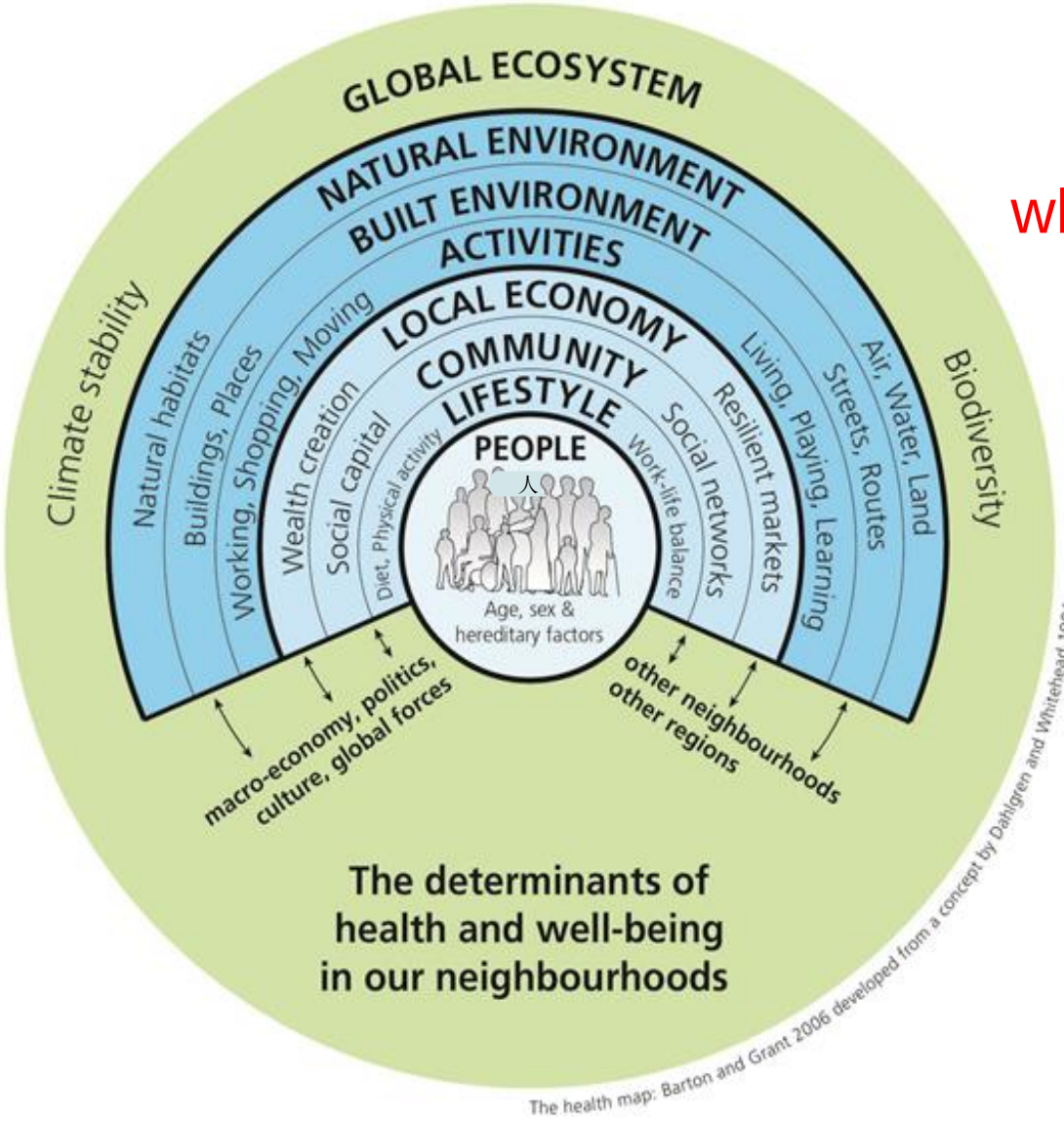
what we do

where we live

who we are



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Buildings and Health

- Provide shelter and enhance wellbeing
- Be associated with a range of health hazards:
  - Building overheating
  - Cold weather
  - Indoor air pollution
  - Pests and infestations
  - Noise
  - Airborne infectious diseases
  - Water or mould contamination
  - Domestic injuries and poisoning
  - Mental health effects.

MORE ACTION NEEDED: Risks to health, wellbeing and productivity from high temperatures

Current magnitude:	HIGH	Future magnitude:	HIGH	In the 2050s, under a medium emissions scenario, assuming a continuation of current policies and plans.
Confidence:	HIGH	Confidence:	MEDIUM	

‘At present, there are **no comprehensive policies in place to adapt existing homes and other buildings** to high temperatures, manage urban heat islands, nor safeguard new homes. The level of **risk from overheating across the UK is unknown** for hospitals, care homes, schools, prisons, and places of work.’

‘There is evidence that **people lack a basic understanding of the risk**s to health from indoor high temperatures, and are therefore less likely to take measures to safeguard their and their dependents’ wellbeing. Insulating homes to improve thermal efficiency needs to be undertaken carefully to avoid increasing the risk of overheating.’

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UK health-related climate priorities

Adaptation priorities	Is there a plan?	Are actions taking place?	Is progress being made in managing vulnerability?
1. Public understanding of climate change risks	Red	Green	Amber
2. Heat-related health impacts	Amber	Green	Red
3. Cold-related health impacts	Green	Green	[illegible]
4. Pathogens, air pollution and UV radiation	Amber	[illegible]	Grey
5. Capability of the health and [illegible] care system	Amber	[illegible]	Grey
6. Capability of the emergency planning system	[illegible]	Green	Grey
7. Capacity of people and communities to recover from flooding	Amber	Green	Grey

Source: Committee on Climate Change (2015)

Main issues

- Heat
  - Indoor overheating
  - Urban greenspace
- Cold
- Flooding
- Air quality
- Health and social care assets (& staff)
- Capability to respond to emergencies
- Public understanding of CC risk

The indoor environment relevant for all!

Indoor Air Quality is not explicitly mentioned!

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RCP recommendation:

Quantify the relationship between indoor air pollution and health

"We must strengthen our understanding of the relationship between indoor air pollution and health, including the key risk factors and effects of poor air quality in our homes, schools and workplaces.

A coordinated effort amongst policymaking bodies will be required to develop and apply any necessary policy changes."

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Factors affecting IAQ

External factors

- Outdoor sources of pollutants: *Anthropogenic or natural:* PM, NO_2, SO_2, ground-level ozone, radon, landfill gases
- *Dispersion characteristics of the area*

Internal factors

- *Physical and chemical properties of pollutants*
- *Building characteristics:* infiltration and ventilation;
- *Indoor sources:* combustion products from gas cooking and heating malfunctioning appliances and flues, building and furnishing materials, consumer products;
- *Occupant activities:* window opening, cooking, tobacco smoking, use of consumer products.

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Energy efficiency and indoor air quality

UK

- large-scale installation of MVHR systems
- very high degree of airtightness in dwellings

→ concern

if the systems are not properly, installed, maintained or used.

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Unintended consequences of energy saving

- Indoor Air Quality (IAQ) problems associated with reduced ventilation: particulate matter, radon, VOCs, moisture (resulting in mites and mould) and environmental tobacco smoke in domestic buildings
- Changes to the hydrothermal properties of building fabric resulting from improvements in thermal properties, causing condensation, mould growth and decay.
- Increased penetration of outdoor air pollutants with higher ventilation rates in dwellings fitted with mechanical ventilation systems, unless there is control of outdoor air pollution levels or effective filtering of incoming air.

IAQ and its impact on health and wellbeing needs to be considered in any future policy relating to development of the built environment.

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The issue of control - Standards can be in place

- Indoor air guidelines
- Emission standards
- Ventilation standards
- Buildings standards
- Manufacturing standards
- Product/appliance standards

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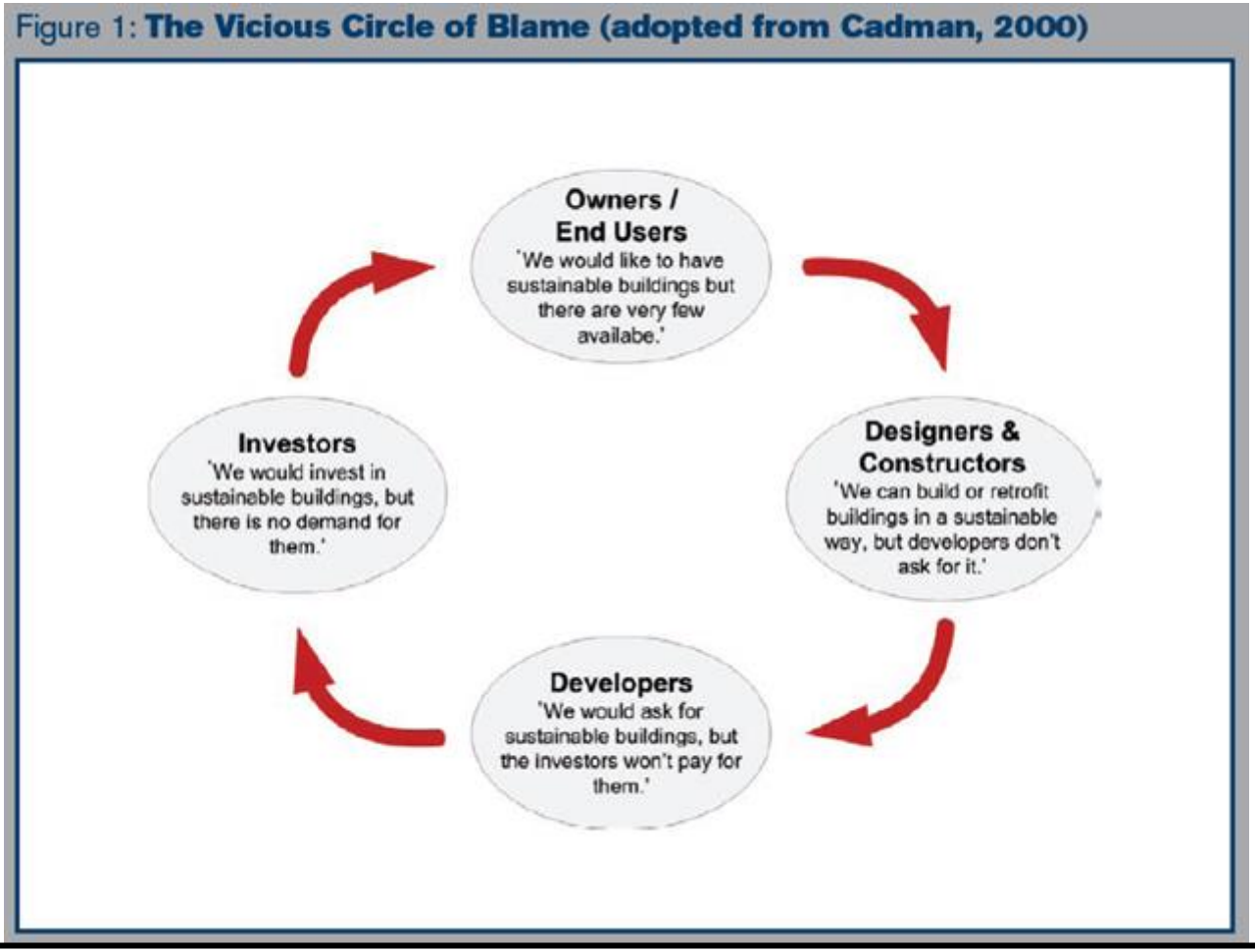
Regulatory Framework:

Central government and agencies (Defra, DH, DfE, BEIS, HSE, PHE, OFGEM, DCLG etc)
Local authorities

Figure 1: **The Vicious Circle of Blame (adopted from Cadman, 2000)**



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Indoor Environment work at PHE

Cross-government / Stakeholder / PHE-initiated activities - IAQ

- Cross Government Group On Gas Safety And Carbon Monoxide Awareness
- All Fuels Action Forum
- Department for Education – Guidance on ventilation, thermal comfort and indoor air quality in schools
- NICE guidelines on indoor air pollution
- Zero Carbon Hub (ZCH) – Ventilation project
- Partners / Stakeholders at academic projects (NIHR/HPRU)
- Environmental Public Health Tracking (EPHT)
- Environmental Public Health Surveillance System (EPHSS)

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Indoor Environment work at PHE

Cross-government / Stakeholder / PHE-initiated activities - Overheating

- Fuel poverty and health officials working group
- Health Impacts of Domestic Energy Efficiency Steering group
- Age Action Allowance – Safe Warm Home working group
- Zero Carbon Hub - Overheating project
- NICE guidance and quality standards on cold homes and the built environment
- Policy Innovation Research Unit
- Cross-government overheating strategy
- National Adaptation Programme Health Steering group
- Cold Weather Plan / Heatwave Plan

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UKIEG - Aims

- Set up in 2003, to co-ordinate and provide a focus for UK activity concerned with improving indoor environments for people.

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UKIEG Objectives

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- To promote the health and well being of people in indoor environments;
- To promote research and research collaboration in all aspects of the indoor environment;
- To increase awareness of current activity and knowledge gaps in areas concerned with indoor environments and people;
- To disseminate knowledge concerned with indoor environments and people;
- To promote the effective and efficient design and operation of indoor environments;
- To communicate, integrate and network activity concerned with indoor environments and people;
- To communicate and liaise with other relevant groups within the UK and abroad;
- To promote good practice.

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UKIEG Updated Mission Statement

UK IEG Indoor Environments Group

- We are a unique, independent and impartial multidisciplinary network of professionals working in the indoor environment field.

- We are committed to promoting the development, synthesis, dissemination and application of evidence relating to policy and practice in the UK indoor built environment, with the ultimate aim of improving health and wellbeing.

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UKIEG Committee

UK IEG Indoor Environments Group

- **Marcella Ucci**, UCL – *Chair*
- **Derrick Crump,** Indoor Air Quality (IAQ) Consulting / IEH Consulting – *Vice-Chair*
- **Sani Dimitroulopoulou**, PHE - *Secretary*
- **Isabella Myers**, IIndependent Consultant on Health, Policy and the Environment
- **Paul Harrison**, PTCH Consultancy / IEH Consulting
- **Cath Noakes**, University of Leeds
- **Paul Wilkinson**, LSHTM
- **Derek Clements-Croome**, Reading University
- **Clive Shrubsole**, UCL
- **Chuck Yu**, ISBE
- **Jon Bootland**, Sustainable Development Foundation
- **Azadeh Montazami**, Coventry University

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UKIEG Highlights

- Around 237 Members (+ 32 since last year)
- 13 Annual Conferences (2003-2016)
- Newsletters and Email Updates
- Website, LinkedIn and Twitter
- Interfacing with policy
- UKIEG Ambassadors

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UKIEG Policy engagement update

- Statement to COMEAP (May 2015)
- Committee submitted evidence to APPG Design & Innovation on behaviour and built environment (July 2015). Dr Ucci and Prof Clements-Croome invited for oral evidence. Report due Nov 2016.
- Committee submitted evidence to Select Committee on National Policy for the Built Environment Policy. Our point about need for better policy coordination in this field was referred to in published report (Feb 2016).
- Policy workshop, funded by Gas Safety Trust (July 2016) and supported by PHE

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Policy Workshop

Department of Health, 14TH July 2016

Supported by Baroness Finlay of Llandaff

Emphasis on indoor built environment on health and wellbeing:

- Cross departmental area, with different government departments developing policies to achieve their strategic objectives.
- Need for a coordinated approach to built environment policy; highlighted by report of Lords Select Committee “National Policy for the Built Environment”

Launch of the report by end of 2016.

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Thank you!

www.gov.uk/phe

www.ukieg.org/