

Indoor air quality, *a regulatory “no man’s land”*— how to change this?

**World Health
Organization**

**Collaborating
Centre for
Air Pollution
and
Health**



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Management of outdoor air quality

WHO develops air quality health guidelines



They serve as the basis for national standards



National air quality standards are enacted based on the **health effects** of pollutants and the **economic impacts** of controlling them.



Most countries have outdoor air quality regulations

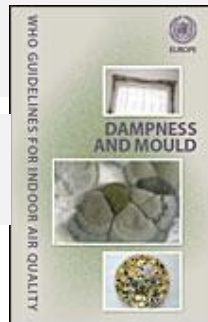
Management of indoor air quality: WHO

Many different documents

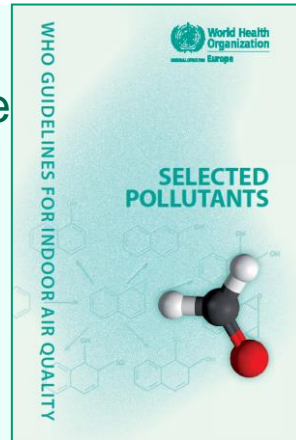
1. Selected pollutants (2010):

2. Dampness and Mould (2009)

Only qualitative



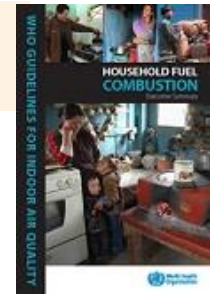
- Benzene
- Carbon monoxide
- **Formaldehyde**
- Naphthalene
- **Nitrogen dioxide**
- PAHs
- Radon
- Trichloroethylene
- Tetrachloroethylene



3. Household Fuel Combustion (2014)

What about particulate matter?

The same as in WHO AQ guidelines



Management of indoor air quality: national standards

Most countries do not have any IAQ standards!

There is no directive guideline or standard at the EU level

Less than 20 countries have national IAQ standards or guidelines or plans for them

Only several European and Asian countries have promulgated national IAQ standards or health guidelines

None include airborne pathogens

In many cases the threshold values are higher than the current WHO guideline levels.

In most countries that have IAQ standards, there are no enforcement procedures

Factors contributing to limited progress in managing IAQ: 1

Globally

Very complex political, social and legislative situation regarding IAQ; lack of an open, systematic and harmonised approach

Example: Australia

- There is no single national government authority with responsibility for air quality;
- Environmental legislation as well as health legislation are at the discretion of individual States, not the Commonwealth
- In individual States there are no bodies directly responsible for IAQ; responsibilities are spread between different organizations
- **There are no performance standards for indoor environment only design and operational standards**



Morawska, L. Indoor Air policies and programs in Australia. *Proceeding of the Healthy Buildings Conference*, Espoo, Finland, 6-10 August 2000

Factors contributing to limiting progress in managing IAQ: 2

- Occupational and residential environments are treated differently
- There is a lack of funding for IAE evaluations
- Information on assessment of IE is often available only to building owners and treated as confidential
- Interdisciplinary professional bodies that have a focus on indoor air (and a more general approach) struggle in competition with professional bodies that are more narrowly oriented

Nothing has
changed over
20 years!

Performance versus design or operational standards

Outdoor air legislation is based on performance standards

This means, concentration levels of pollutants are considered

- **Indoor environment legislation** has its roots in design and maintenance standards
- Factors considered are eg: air exchange rate, filter specification, or material emission rates
- Each of them is directly related to IAQ but is not the only one responsible for it.

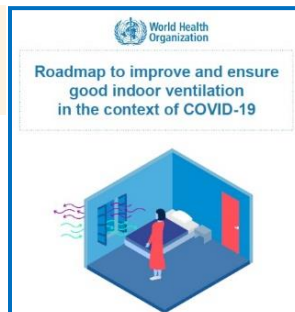
Ventilation: standards

Organizations such as the ASHRAE and REHVA have ventilation standards

However, none of them explicitly considers **health** and **infection control** in **their statements of purpose and definitions, which is essential**

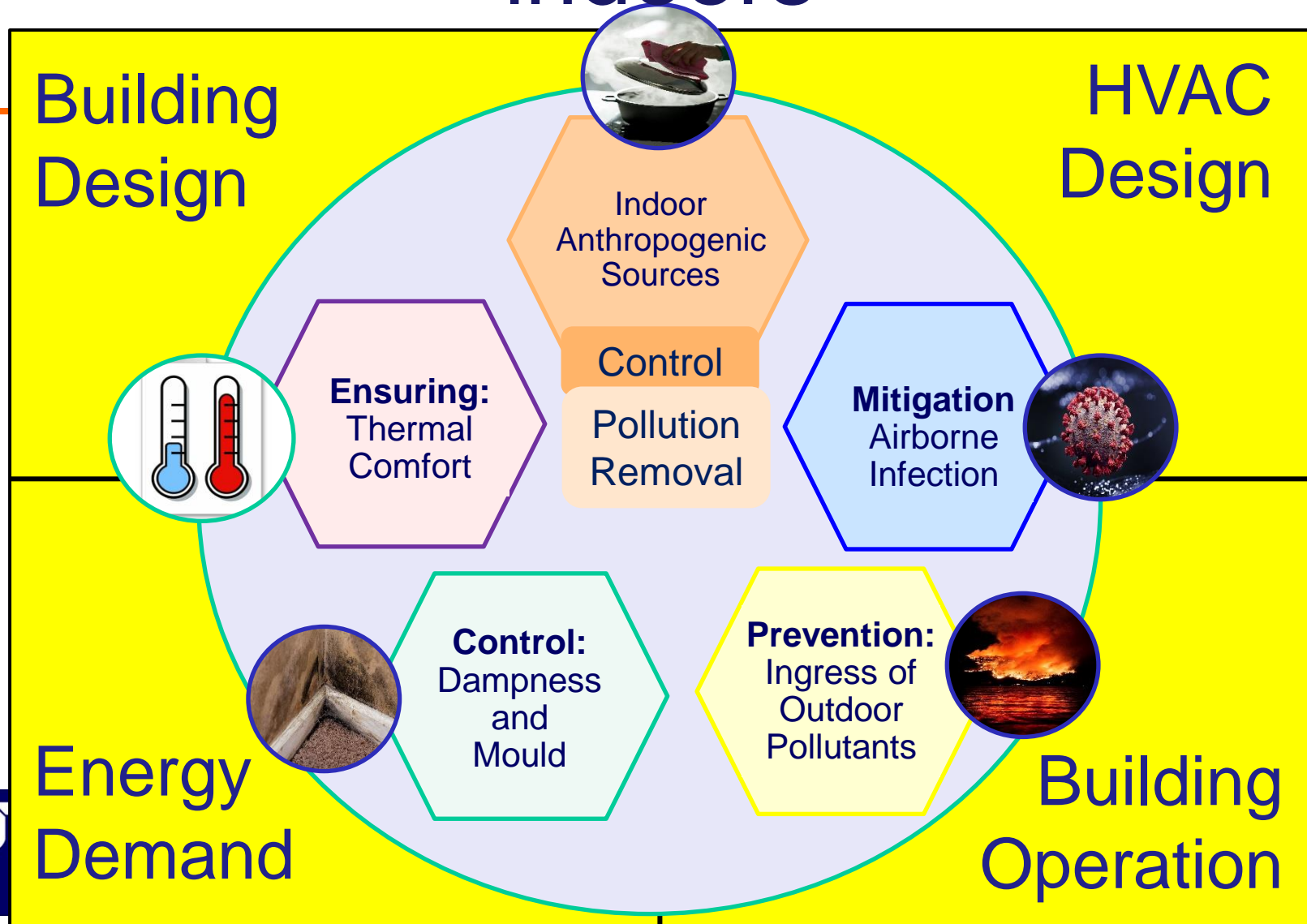
Morawska, L., et al., 2021. A paradigm shift to combat indoor respiratory infection. *Science*, M372(6543): 689-691

WHO developed



but it does not directly address airborne transmission

Mitigation of all *Air Hazards* indoors



Future

At the moment there is no one whose role is to oversee management and control of indoor air quality to protect human health and the environment.



How to change this: **Start from the very top!**



Thank you!

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