

**THADE INDOOR AIR PROJECT**

**Health Effects and**

**Evidenced based Recommendations**

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# THADE PROJECT

## Towards a New European Programme for Healthy Indoor Air

- Project promoted by EFA



**European Federation of Allergy and Airways Diseases Patients' Associations**

- Financial support from the European Commission

# THADE PROJECT

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## THADE Scientific Committee

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- J. Roca, European Respiratory Society, ERS
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# AIMS OF THE THADE PROJECT

- Produce maps of pollutants in European dwellings
- Review the data and evidence-based information related to exposure and to the health effects of air pollution in dwellings particularly as regards allergies, asthma and other respiratory diseases
- Review cost-effective measures and technology to improve air quality in dwellings
- Review legislation and guidelines on air pollution and air quality in dwellings
- Recommend an integrated strategy that defines appropriate indoor air quality policies for implementation in Europe

# METHODS

## 1. Data collection

- a. Review of scientific literature
- b. A Questionnaire

## 2. Three multidisciplinary workshops

3. **Final Report** [www.efanet.org](http://www.efanet.org)  
Summary in writing

# **Main Health Determinants related to Indoor Air**

- **Environmental Tobacco Smoke**
- **Carbon monoxide**
- **Nitrogen oxides**
- **Particulate matter**
- **VOCs**
- **Formaldehyde**
- **Radon**
- **Infectious agents**
- **Mould**
- **Dust mites**
- **Cockroaches**
- **Allergens from pets**
- **Pollen**

# **Main Indoor Air Pollutant Sources - 1**

- **Tobacco smoking indoors**
- **Emissions from building materials and furnishings supplies (solvents, toners, ammonia)**
- **Household activities (cooking, cleaning chemicals and procedures, use of deodorisers and fragrances, sweeping; vacuuming)**
- **Redecorating/remodelling/repair activities (paint, caulk, adhesives, and other products)**
- **Individuals (body odour, cosmetic odours)**
- **Pests (cockroaches e.a.)**

# **Main Indoor Air Pollutant Sources - 2**

- **Water and moisture damage**
- **Heating, ventilation and air conditioning (HVAC): dust or dirt in ductwork or other components; microbiological growth in drip pans, humidifiers, ductwork and coils; improper use of biocides, sealants and/or cleaning products**
- **Unsanitary conditions**
- **Accidental events**
- **Soil gas (radon, contaminants from previous uses of the site, pesticides)**
- **Outdoor air (pollen, dust, fungal spores, industrial pollutants, general vehicle exhaust)**

# **Main Respiratory Effects Related to Indoor Air**

- **Lung function reduction**
- **Increased respiratory symptoms**
- **Acute respiratory illnesses**
- **Asthma**
- **Bronchial hyper-responsiveness**
- **Chronic bronchitis**
- **Lung cancer**

# **Main control and remedial measures to prevent the adverse effects of poor indoor air quality**

- 1. Control the sources of pollution  
e.g. tobacco smoke and emissions from equipments and from building and consumer products**
- 2. Moisture control to prevent accumulation of mould**
- 3. Avoid wall-to-wall carpeting**
- 4. Improve cleaning methods and housing hygiene**
- 5. Improve ventilation**

# **Actions recommended to implement the measures to prevent the adverse effects of poor indoor air quality**

- **Complete avoidance of smoking indoors**
- **Labelling systems to control harmful emissions from equipments and from building and consumer products**
- **Better building codes and guidelines for ventilation and moisture control (construction, operation, maintenance phase)**
- **Education and information campaigns**

# Guidelines and Actions on Indoor Air Quality in Dwellings at International level

	Guidelines			Actions
	General	Specific	Target Values	
<b>WHO</b>	*		(*)	*
<b>NORTH ATLANTIC TREATY ORGANIZATION COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY (NATO/CCMS)</b>	*			
<b>EUROPEAN UNION</b>	*			*
<b>INTERNATIONAL SOCIETY OF INDOOR AIR QUALITY (ISIAQ)</b>	*	*	*	*

(\*) Air Quality Guidelines, WHO, 2000

# Guidelines and Actions on Indoor Air Quality in Dwellings in European Countries - 1

	Laws/Guidelines			Actions
	General	Specific	Target Values	
<b>AUSTRIA</b>	*	*		*
<b>BELGIUM</b>		*		
<b>BULGARIA</b>	*			*
<b>CZECH REPUBLIC</b>	*			*
<b>DENMARK</b>	*			*
<b>FINLAND</b>	*	*	*	*
<b>FRANCE</b>	*			*
<b>GERMANY</b>	*		*	*

# Guidelines and Actions on Indoor Air Quality in Dwellings in European Countries - 2

	Laws/Guidelines			Actions
	General	Specific	Target Values	
<b>ITALY</b>	*	*		*
<b>THE NETHERLANDS</b>	*			*
<b>NORWAY</b>	*	*	*	*
<b>PORTUGAL</b>	*			*
<b>SPAIN</b>				*
<b>SWEDEN</b>	*	*	*	*
<b>UNITED KINGDOM</b>	*			*

# Research needed

**More research is needed about:**

- **Health effects of short- and long-term exposure in the indoor environments**
- **prevalence of health determinants and the number of people sensitive to each specific health determinant**
- **new technology to improve ventilation and to clean the indoor and outdoor air used for ventilation**
- **effectiveness and costs of prevention and remedial measures related to indoor air quality**

# Conclusions

- **Indoor air pollution may cause or aggravate health effects, particularly in more susceptible people (i.e. people with allergies, asthma and COPD, the very young and the elderly)**
- **Indoor air quality is not taken in due consideration by either policy decision makers or the public-at-large**
- **Prevention and remedial measures related to indoor air quality are already available**
- **Actions has to be taken at:**
  - . **political international and national level**
  - . **industrial level**
  - . **individual (family) level**