

**EnVIE Workshop, 5-6 March 2008**  
**Impact of 'indoor air quality' on health**

**SEARCH project, 2006-2009**



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REGIONAL ENVIRONMENTAL CENTER

# REC and E&H in Europe

- EEHC member:
  - active involvement in Budapest E&H conference, 2004
  - shaping the policy documents
  - Healthy Planet Forum in 2004
  - preparation for the E&H Ministerial Conference, Rome, 2009
- Member of the CEHAPE Task Force, implementation of Regional Priority goals in Europe, 2004/2009
- EEHC Regional meeting in REC, 27-28 November 2006



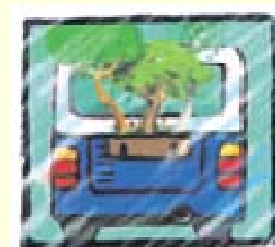
# E&H Topic Area focuses on

- Supporting cooperation between environmental / health sector by policy integration on international and national level in all REC countries (17)
- Strengthening the role of the precautionary principle in public health and environment protection, with special focus on the future of our children
- Implementation of the EU E&H Strategy, Action Plan and the CEHAPE by active involvement in the European processes / by multi-stakeholder cooperation
- Regional participation in implementation of the CEHAPE Programme Goal 3: Prevention and reducing respiratory disease



# REC Programs, projects

- E&H:
  - Indoor air quality in schools, reducing respiratory diseases of children (8 countries, 4 years, research)
  - Involvement of civil society in CEHAPE implementation, awareness raising
- Sustainable Transport:
  - Sustainable transport in cities in CEE
  - Urban Transport Benchmarking
  - Transport and health projects



**SEARCH**  
**School Environment And Respiratory**  
**health of CHildren**  
an international research project

within the

**“Indoor Air Quality in European Schools.  
Preventing and reducing respiratory  
diseases”**

*programme*



# Indoor air quality in schools Program

- Pilot project in 2004: Clean environment, better future for our children (It-Hu)
  - Indoor air quality in schools project in 8 countries in 2006-2009
  - reporting in E&H Ministerial conference in 2009
- Awareness raising for improvement of indoor air quality in the schools

Sponsor: Ministry for Environment (It) and MoH (Hu)



# European cooperation on indoor air quality in schools

- Indoor air quality project in 8 countries in 2006-2009
- Austria, Italy, Norway-Hungary, Slovakia
- Albania, Bosnia and Herzegovina, Serbia
- >> reporting: E&H Ministerial conference in 2009



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# Why we need to improve the indoor air quality in schools?

- respiratory diseases: 15-20%, in age 11-13
- time spent in the school and its effect on the health condition of the children
  - 6-8 hours, O<sub>2</sub> <>CO<sub>2</sub> concentration, NO<sub>2</sub> from heating, dust, organic chemicals, PM x
- the school environment – outdoor air quality





# 1. Scientific evidence on respiratory diseases

(researchers from Hungary and Italy in 2004)

- Home>>social and physical environment, family conditions, housing, life style>> effect health

AND

- School>> indoor air quality
- Outdoor air quality

>>>>>multiplication



## 2. Indoor air quality in schools

- Need>> investigation of the „legal frame” of indoor air quality in schools
- Need>> complex research>>indoor air quality in schools, in homes and living conditions in homes >> respiratory diseases
- Need>>Training of the selected school staff



# SEARCH: INTERNATIONAL RESEARCH COLLABORATION

Experts: Dr. Peter Rudnai and Dr. Eva Vaskovi,  
E&H Research Institute, Hungary  
Margeherita Neri, Italy

## ADVANTAGES

- Combination of experience
- Combination of resources
- Bigger datasets, stronger associations

## DISADVANTAGES

- Different possibilities
- Quality assurance/ quality control needed



## SEARCH: OBJECTIVES

- to assess the associations between the school environment and the children's (respiratory) health
- to make recommendations for improving the quality of school environment



## SEARCH STUDY DESIGN: cross-sectional

### **Exposure assessment**

- measurement of the IAQ in the school (NO<sub>2</sub>, BTX, HCHO, CO/CO<sub>2</sub>, PM<sub>10</sub>)
- questionnaire on the class-room and time spent
- questionnaire on the school building and its maintenance
- questionnaire on the home environment

### **Health assessment**

- symptom questionnaire (cough, wheeze, asthma dg, allergy) with questions on factors
- lung function measurement



## SEARCH: STUDY DESIGN: cross-sectional

### **Advantages:**

- Cheap (relatively)
- Quick and can be easily performed (relatively)
- Reasonable number of participants (6000)

### **Disadvantages:**

- Time-link between exposure and health outcome can not be determined
- Causal relationship can not be established (only hypothesis can be set up, confirmed by statistical analysis)



# SEARCH: DATA EVALUATION

**1. Determination of prevalences** (frequency of children with various respiratory symptoms or impaired lung function)

**2. Associations between**

- the presence and quantity of various pollutants and the prevalences (look for dose-response relationships!)
  - by multivariate logistic regression (Odds Ratios, OR and their 95% confidence intervals)
  - or linear regression



## SEARCH: SCHOOL SELECTION

- Number of schools per country: 10
- Number of children per school: 100
- Age of the children: 8-11 years
- Selection criteria (symptom prevalence)
  - polluted vs, clean environment
  - building characteristics (new/old or light/traditional construction)





# SEARCH: Project implementation schedule

- Preparation 2007
- Exposure assessment 2007-2008
- Data collection Nov 2007- April 2008
- Data analysis May 2008- September
- Reporting-international workshop October 2008 (in Sk)
- Final evaluation December 2008
- Presentation in the E&H Ministerial meeting, Nov 2009



# **Indoor Air Quality in European Schools. Preventing and reducing respiratory diseases” *programme- need training***

The content of the training program:

- the types of damages and harms in the air of enclosed places
- legal frame, in-door air quality standards
- dilemmas about the air quality in old houses and in modern houses – preventive future concepts and practices
- cleaning methods in schools, prevention



# Perspectives

- E&H Research outcome for policy recommendation
- Project implementation with partners in Europe
- Strategic Environmental Assessment
- E&H Impact Assessment
- Facilitating E&H sector policy integration in the CEE region



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# Thank you for your attention!



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