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**Field study contents**

The general field studies will be carried out between September 2011 and March 2012 and will comprise the following elements:

**Environmental monitoring:**

- Measurement of physical characteristics, chemical pollutants and biological agents in the indoor air in three classrooms in the selected schools (and in the outdoor air in the immediate vicinity). This includes 18 physical and chemical parameters (such as formaldehyde, CO<sub>2</sub>, ventilation rates) in indoor and outdoor air in parallel, measured by environmental experts using special, non-intrusive instruments.
- Environmental sampling for the determination of microbes and allergens (indoor dust etc.). Specific fungal and bacterial markers will be measured in settled dust.

**Health assessment:**

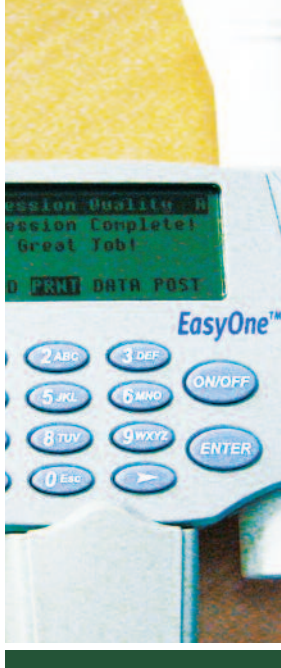
- Questionnaires on the health status of children and teachers in the selected schools. The questionnaires for parents will contain additional questions related to family medical history and the home environment.
- Spirometry tests will be carried out by health experts on all children in the selected classes. The tests will take place only with the permission of the ethical committee and with parental approval.
- Attention/concentration tests will be carried out in the classroom by teachers and health experts over 15 to 20 minutes. The tests will take place only with the permission of the ethical committee and with parental approval.

The results of the studies carried out in the schools will be made available to the children, parents and school staff in the form of a report by December 2012.

**Role of school staff**

The smooth and effective implementation of the study-related activities is dependent on good cooperation between the staff of the selected schools and the environment and health experts. The participation of school staff will be a valuable contribution to this unique European research project.

Clean air  
healthy children  
brighter future



## The environment and health challenge

The relationship between the state of the environment and its impact on health and wellbeing has received increasing attention in Europe since the 1980s, when European countries initiated a process to eliminate the most significant environmental threats to human health. The process is driven by ministerial conferences, which are held every five years and organised by the World Health Organization's Regional Office for Europe (WHO Europe). A milestone in the process was the signing of the Parma Declaration on Environment and Health by WHO European member states in 2010. The WHO also cooperates with the European Commission, which adopted a six-year European Union Environment and Health Action Plan in 2004.

## Focus on schools

On average, people in Europe spend over 90 percent of their time indoors. Bearing in mind that indoor air quality (IAQ) is generally worse than the quality of the outdoor environment, IAQ has an enormous impact on quality of life and health.

Children and school staff spend much of the day inside the school building. A healthy school environment can therefore directly improve children's health and promote effective learning, contributing to the development of healthy and skilled adults. Poor IAQ in schools can result in serious health problems among children, who are far more vulnerable than adults to the effects of air pollution, but also among teachers and other school staff.

More than one in three European children now suffer from bronchial asthma or allergies, and the incidence of respiratory disease is rising annually, particularly in Central and South Eastern Europe. In this context, there is clearly an urgent need to address indoor air pollution in schools.

## How does SINPHONIE meet the challenge?

SINPHONIE (Schools Indoor Pollution and Health: Observatory Network in Europe) is a complex research project encompassing health, environment, transportation and climate change issues with the ultimate goal of improving air quality in schools and kindergartens. The project is being implemented under a service contract for the European Commission's Directorate General for Health and Consumer Affairs (SANCO).

A total of 38 environment and health institutes from 25 countries are participating in the SINPHONIE research project, working to reduce and prevent respiratory diseases caused by outdoor and indoor air pollution.

With its special focus on schools and childcare facilities, the SINPHONIE project will define policy recommendations for remedial measures in the school environment. SINPHONIE is based on the understanding that the right to breathe clean air in schools is fundamental to the right to health.

## SINPHONIE in action

Within the SINPHONIE project, a wide range of environment and health field studies will be undertaken and the results will be analysed while integrating existing available information on the topic. This will lead to a comprehensive risk assessment regarding the impact of IAQ in classrooms on children's health and performance.

The school environment can be affected by a range of factors, including traffic volumes in the immediate vicinity, heating method and type of ventilation (i.e. natural or mechanical). All these factors need to be taken into account when deciding the place, time and method of pollution measurement. Since a building's surroundings have a major impact on IAQ, location is a particularly important criterion when identifying schools for the field studies. The selection should therefore include schools in both urban and rural settings, as well as schools in green zones, areas with heavy traffic and industrial zones to allow for comparison.

The field studies will be carried out during winter, since heating has a significant impact on levels of indoor air pollution.

On completion of the studies, recommendations will be developed for policy makers, architects, building managers, schoolchildren and staff on how to improve IAQ in European schools.

