

## JRC's Activities on Emerging Environmental Health Issues: Indoor Air Quality

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### **SUMMARY**

The focus of the JRC strategy for the E&H area is on how to optimally integrate environment and health information on a common platform (the European Environment and Health Information System) and to develop methodologies to analyse and unveil causal relationships between environmental risk factors and human health outcomes. This includes the development and validation of methods and methodologies for monitoring, for exposure assessment and for evaluation and quantification of health effects due to environmental stressors. The JRC will cooperate with the EEA, WHO and other international and national organisations to provide the best support to the building of the platform for integrating the information on environmental quality, health and research to support the E&H policy-making process. In order to cover the whole chain from pollutant to disease, the JRC activities in E&H will be organized within three interrelated areas covering information integration, exposure assessment and health effects.

In the area of indoor air quality, JRC on the basis of competencies developed over the last two decades and on existing collaborations with known European experts is carrying out research providing support to Commission services for the implementation of health related Directives and regulations.

In line with the Commission's Environment and Health Strategy and Action Plan, launched in June 2004, JRC has provided support for the formulation and execution of projects on indoor air quality (INDEX project), which are dealing with the assessment of existing knowledge worldwide on:

- Type and levels of chemicals in indoor air and
- Available toxicological information to allow the assessment of risk to health and comfort.

The main outcome of the INDEX project was the prioritization of chemical compounds and suggestions for the establishment of indoor exposure limits in the EU. Following the recommendations of the Workshop on "Urban Air, Indoor Environment and Human Exposure" in Thessaloniki/Greece in April 2000 (The Thessaloniki statement), "that future clean air policies should take into account the total human air exposure of European citizens, which will necessarily include exposures to pollutants from both outdoor and indoor sources", in order to fill in the existing gaps in information on levels and distribution of air pollutants indoors, JRC is carrying out with the support of partners from the Member States field studies at European level, to

evaluate indoor/outdoor relationships and personal exposure concentrations for priority air pollutants and for different confined environments (AIRMEX project). Preliminary evidence indicates that:

- In reference to the EU ambient air limit value for benzene of  $5 \mu\text{g}/\text{m}^3$  (annual mean) to be introduced by the year 2010, about 28% of the measured outdoor concentrations, 30% of the indoor concentrations, and 40.5% of the personal exposure concentrations exceeded this limit value.
- In Southern European cities indoor/outdoor as well as personal exposure concentrations are higher than in cities of Central Europe. In Athens and Catania in buildings located in the city centre there is almost no difference between indoor and outdoor pollutant levels.
- Concentrations in schools and kindergartens are generally lower than in public buildings and offices with public access.
- True personal exposures cannot be determined directly from measurements pertaining from fixed ambient background monitoring stations. In order to evaluate possible health effects associated with the presence of pollutants indoors and outdoors the best way for this will be to carry out measurements of personal exposure concentrations taking into account micro-environmental activity patterns and personal behaviour.