



### Particulate Matter: Contradiction between Science and EU policy

In the light of several new findings regarding the health effects of airborne particulate matters (PM), the Environment and Health Committee of the European Respiratory Society has recently published their concerns on the mismatch between the best scientific evidence and EU policy. The authors call for stringent caps on PM concentrations, and more ambitious targets and enforcement of actual and upcoming air quality directives.

Particulates, alternatively referred to as particulate matter (PM), aerosols or fine particles, are tiny particles of solid or liquid suspended in a gas. PM is usually defined by the size of the particles, for instance PM<sub>10</sub> are particles with a 50% cut-off diameter of 10 micrometers and PM<sub>2.5</sub> have a 2.5 micrometer cut-off. PM is of significant importance as clear scientific evidence of its impact on health has been accumulated over the last decade. While PM<sub>10</sub> are already covered by the Air Quality Directive 1999/30/EC, the EU is facing a transition regarding PM legislation with the update to the directive and its extension to PM<sub>2.5</sub>. In a recent publication, a team of scientists from The European Respiratory Society (ERS), the largest non-profit making international medical organisation, reviewed the latest findings on PM and emphasized the mismatch between scientific knowledge and the EU political agenda. Their main findings are outlined below.

Long term exposure to PM<sub>2.5</sub> is strongly associated with increased mortality and reduced life expectancy. Worldwide studies have shown that a 10µg/m<sup>3</sup> elevation in PM<sub>2.5</sub> is associated with a 7% and 14%-17% increased risk of all-cause cardiopulmonary and lung cancer mortality respectively. At the same time there are clear signs of the health effects of short term exposure to PM. Projects conducted jointly by the United States and Europe have reported consistent links between daily mortality and ambient concentrations of PM during the same or previous few days. Exposure to PM is associated with increased risk of strokes and pulmonary affections. While some mechanisms still need to be elucidated, the latest findings clearly suggest that sudden cardiac death and infarction could be triggered by PM pollution in the general population and among people who already suffered from cardiovascular diseases.

There is strong evidence that reducing exposure to PM would provide significant health benefits. A reduction in the yearly average of PM<sub>2.5</sub> to 15µg/m<sup>3</sup> would result in life expectancy gains, at age 30, of between 1 month and more than 2 years. Although implementing stringent air pollution legislation would require major resources, detailed cost and benefits studies have shown that the benefits would clearly outweigh the costs. The ERS is therefore calling for ambitious air quality strategies and reduction programs in Europe.

The European Parliament proposes a target value of 20 µg/m<sup>3</sup> for 2010 and a limit value of 20 µg/m<sup>3</sup> in 2015. Nevertheless, even at 20 µg/m<sup>3</sup>, significant adverse effects have been reported in recent studies, and therefore, it might not be sufficient to efficiently protect public health. According to the authors, plans to reduce exposure in the proposed Air Quality Directive have to be legally binding in order to reach their true potential and to stimulate ambitious policies within member states. In addition, natural PM has to be considered from a compliance viewpoint. Existing limit values for PM<sub>10</sub> are based on scientific findings that include natural background concentrations. Allowing member states to exclude natural sources of PM, as the Commission proposed, will no longer reflect the true exposure to particles. Lastly, the ERS feels concerned by derogations on PM<sub>10</sub> reduction objectives, stating that delaying the enforcement of ambient air quality limit values would weaken EU credibility.

**Source:** Annesi-Maesano I., Forastiere F., Kunzli N., Brunekref B. (2007), "Particulate matter, science and EU policy", European Respiratory Journal, 29:428-431

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