

Reviewer's report

Title: Health impact assessment of particulate pollution in Tallinn using fine spatial resolution and modelling techniques

Version: 1 **Date:** 1 June 2008

Reviewer: Michal Krzyzanowski

Reviewer's report:

Major compulsory revisions:

- 1) The estimation of the PM_{2.5} is not clear. How the authors included the background (regional) levels? The description of differences between the model and monitoring results should be better illustrated (with a figure?) than it is done on page 5/6 now.
- 2) The selection of PM reference level (i.e. the level above which the impacts were calculated) is not clearly stated.
- 3) The authors calculate the impacts of long term exposure for small administrative areas but use the RR from the ACS study (Pope et al 2002) which were based on mean pollution levels for large agglomerations. The authors should discuss in more detail the possible impact of this different approach. For example, they could calculate the impacts based on the (pop. weighted PM_{2.5} mean for the entire city). N.B. I have an impression that the number of premature deaths in the row "total" is just a sum of the numbers estimated for individual districts.

Minor essential revisions:

The Background section contains a number of sentences which should be corrected:

page 2, para. 5: References 11 and 12 quote the same analysis performed for CAFE. Also references 13 and 14 are referring to the same WHO analysis, but the estimate of 800,000 deaths refers to impacts of outdoor air pollution, and 3 million - to the sum of indoor and outdoor air pollution.

Page 2, para 6: The reduction of life expectancy loss will result from implementation of the currently agreed policies related to the emission reductions - NOT from compliance with the air quality directive quoted.

Page 2, para 7, last sentence - the HIA does NOT confirm that air pollution has an important role in causing premature mortality; in fact it is the ASSUMPTION of HIA.

Page 11, top paragraph - it should be made clear that the authors refer to a reference level used for HIA and not the "threshold" for effects of the pollution

(which is not established - see WHO Air Quality Guidelines, WHO 2006, conclusions). The reference value is a matter of choice of the HIA authors, should be well justified and be in agreement with the HIA purpose.

Page 14, last para, sentence "The existence of a threshold value is still unclear..." should be deleted or the formulation from AQG should be used.

Discretionary revisions

Table 1 - should include the number of premature deaths /1000 and the loss of life expectancy in each district.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.