Reviewer's report

Title: Health impact assessment of waste management facilities in three European countries

Version: 2 Date: 27 December 2010

Reviewer: Ferran Ballester

Reviewer's report:

This manuscript presents the results of a comprehensive health impact assessment (HIA) of waste management facilities in three European countries: Italy, Slovakia and England. Authors assess the health effects attributable to population exposure to incinerators and landfills in two ways: in terms of excess cases of cancer, congenital anomalies or low birth weight related to proximity to the waste plants; and in terms of years of life lost related to air pollution from the plants.

Few studies on HIA of waste management have been carried out up to now. Novelty in this manuscript is comprehensiveness of the method and its application at a multinational level. The manuscript is relevant since it could help to take decisions on waste management taking health as an important issue, and it may also serve as an orientation for other HIA studies. In order to help to improve it, I have some comments:

Major comments:

1. Definition of exposed population is a key issue in HIA processes. Authors define it as the population living in a 3 or 2 km radius from the centre of the incinerator or landfill. This is defined as the formal address of the plant (page 9). Two questions arise to me. First, how the formal address fits with the real emission area; and, second, what about wider areas, i.e., landfills landing extended surfaces. Both of the above questions point out to misclassification on exposure, being the most important the second one, which could lead to some underestimation of the exposed population. This problem should be discussed in the manuscript.

Authors recognise some pitfalls on information on waste plants in the three countries (page 6, 7, 8, etc), including missing data on operating landfills or location of the declared ones. Some information should be included in Table 1 in reference to the studied plants in comparison with those estimated operating in the three countries

On the other hand, as authors say, the distribution of the census block not always fits with the exposure circles. Some explanation on how the authors dealt with this problem should be required.

2. Estimation of attributable cancer incidence around incinerators
This is another key issue, especially that related to the decrease of the exposure levels over time. Authors say that they made their decision on measured data but that (limited) information is only provided in the appendix. Considering its relevance for the obtained results, it would be convenient to include some explanations on the main text, results from sensitivity analysis, as well as their implications for the conclusions.

3. Table 7 is missing

Minor comments:

Page 1: Correspondent author should be indicated

Page 4: reference number at the end of the conclusions must be deleted

Pages 13 and 15: the basic formula for attributable cases estimation could be explained once, avoiding duplicating it.

Page 18: some mistakes regarding coherence with England figures in table 4. Please check it

Table 5. Try to improve its edition. Indicate that they are annual cases. Allow some space below “Totals”.

Table 6: Indicate that it is “additional” air pollution exposure from incinerators

References’ edition must be checked (i.e. ref #3)

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests