Reviewer's report

Title: Reducing our environmental impact and increasing our health: greenhouse gas emission and land use of usual diet and mortality in the EPIC-NL cohort

Version: 2
Date: 11 January 2014

Reviewer: Nick Wilson

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Major Revisions

1. This is an important study - but it could still be improved. The study needs to make it clearer in the Abstract and Conclusions etc, the context of the Dutch diet - ie, a Western diet which is relatively high in meat and diary products and refined carbohydrates and is relatively low in vegetables (from a health perspective). Then within this dietary range of the studied cohort – there was no significant association between diet and GHGE and land use. That is, the finding of no association probably largely reflects the lack of heterogeneity of dietary intakes in this cohort. With such context and interpretation – it will avoid a potential misinterpretation by readers who could initially interpret the findings as there being no value in dietary change as a way to reduce environmental impacts.

2. This study is both a study of a cohort, but also includes a modelling study component (regarding the meat substitution). So to make the latter aspect much clearer – the word “modelling” should be used in various places (so that it is very clear to readers that it is hypothetical exercise).

Minor Revisions

1. Abstract – it would be good to add more context for the 35g meat substitution (ie, that this is a one third reduction relative to the usual 105g/d intake).

2. Explain if the LCA included food wastage in the home (and if not then add this to the study limitations). This wastage can be quite substantial for many foods as shown in this UK study: WRAP. (2009) Household food and drink waste in the UK Banbury: The Waste & Resources Action Programme (WRAP). http://www.wrap.org.uk/downloads/Household_Food_and_Drink_Waste_in_the_UK_Nov_2011.pdf.

3. It is not clear why the modelled substitutions were just by food weight – rather than dietary energy. This should be explained (it is mentioned as a limitation, but more is needed).

4. Line 202 “while responsible for 3.6% of daily intake weight, total meat …” – a more relevant comparison is the daily dietary energy contribution – as people eat for energy more than “food weight”. There is also the issue of eating meat for protein – perhaps this could be discussed – though probably this cohort has
protein intakes considerably in excess of nutritional requirements.

5. Line 207 – make it clearer – that this is “higher” activity level

6. Line 289 – what does “(data BC)” mean? Need to be clearer?

7. Lines 290-291 – explain why, eg, concerns about the lack of sustainability of ocean fishing practices.

8. Line 325 “empathize” – should this be “emphasise”?

9. References – improved re appropriate capitalisation of journal names etc

Discretionary Revisions

10. The Introduction – potentially could cover more literature eg,

11. The 35g substitution is a fairly modest level (a one third reduction in daily meat intake). The ideal would be to include scenario analyses around 50% and 100% reduction in meat. Also given that the hazard to health from processed meat seems to be much greater than non-processed meat – then just eliminating just the former would be another a worthwhile scenario analysis. This is a bit of extra work – but would add quite a lot of useful information to the paper.

12. The paper could be a bit stronger if the Discussion had more context – eg, would the various substitutions for 35g of meat typically be cost saving or not in the current Dutch context (eg, maybe the fish substitution would increase the cost?). Considering the food security issue might be relevant to low-income Dutch citizens – so the cost aspect could be mentioned as being desirable in future research work.

13. The Discussion could be stronger if it indicated that governments wanting to promote population health (and save healthcare costs), and lower the environmental impact of food production could consider various options:
- Food labelling requirements that indicate GHGE levels per 100g of food (perhaps a colour coded / traffic light or star system).
- Food taxes where the tax level considers not only the health hazard (levels of sugar, salt, saturated fat etc), but also the environmental impact.
- Media campaigns to inform consumers of the environment impact of various foods

**Level of interest:** An article of outstanding merit and interest 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.

**Declaration of competing interests:**

I declare that I have no competing interests.