Reviewer's report

Title: New tools for dengue vector management: Insecticide treated materials and targeted interventions on productive breeding-sites in Guatemala

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Reviewer: Roberto Romi

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This paper reports a good example of a well-planned, extensive field trial on dengue vector management. The trial was carried out throughout a period of 18 months, that encompasses two dry seasons alternate to a wet one. It was aimed to evaluate the impact of two different kind of approaches (one with and one without use of larvicides), aimed to reduce vector density. Although the results of the study indicate one time more that use of the insecticides for an effective control of dengue vectors in urban environment is essential, the study is original and worthy of publication in BMC Public Health ". Nevertheless, despite the great effort carried out by the Authors, the text is often written in a confusing manner, resulting in a paper of difficult reading.

However, it is my opinion that the MS need a careful (major) revision before publication .

I hope that the notes reported above may help the Authors in that “not easy” revision, giving also them some more starting point for discussion.

-Vector breeding-sites baseline. Data are no clear (example: 1.6% 0or 52% were those positive?). I think that these data should be reported as a table. I suggest to use the same table for displaying the variation in number, rate f positivity of the breeding sites and PPI by cluster and by season.

-Avoid to cite more than an index (PPI) in order to avoid confusion-

-Temephos. Operative p.a. concentrations, kind of formulate s, method and number of treatments should be reported.

- Although very interesting, bioassays carried out by two different Institutions on PermaNet curtains obtained with different procedures gave dissimilar data that cannot be compared.

Because unfortunately the good data from the CRISP, Mexico, obtained with the “operative” method (3 min exp) are limited to the 9th month, I suggest to report only the results of the HPLC analysis carried out in Liverpool (which cover all the study period, showing the persistence of the p.a), without the results o the bioassays carried out with the WHO method (1 h exp.) in order to avoid confusion.

The number and localization of dengue case occurred in the study period in the whole tdy ara should be reported and discussed.
The different results of the two kind of intervention (no difference whit the control for the first and 1/3 of reduction of the breeding sites for the second) and their meaning in terms of of risk assessment should be stressed in the discussion.

References -
Trop Med Int Health 15:619-631 and 13:56-57 are reported twice in the list. The paper submitted to PLOS-NTD cannot be cited.
A reference (by the Health Authority of Poptun) reporting the cases of dengue cited in the discussion should be added to the list

Tables and figures
Table 4 become useless. (HPLC values may be reported in the text only)
Fig 1 should be completed with a scale and with a more derailed legend.
Fig 2 should be reported as a table, the present form being typical of a technical report rather than of a scientific publication..
Figure 4 is redundant. data are sufficiently reported in the text