Reviewer's report

**Title:** Improving sustainable methods for small-scale salt iodation in low-income countries

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**Reviewer:** Frits van der Haar

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Vincent D Assey et al

Improving sustainable methods for small-scale salt iodation in low-income countries

**General**

Since the World Summit of Children in 1990, the production and use of iodized salt in the world has seen a tremendous increase to approx. 70% of human consumption. The major part of this increase was achieved by an initial strategic focus on technology introduction in large salt producing industries. Addressing the remaining 30% is likely more difficult and mainly thought to be due to the need to mobilize much larger numbers of small salt producers.

The submission by Assey et al is innovative because it departs from the methods and techniques that the workers in small salt enterprises of Tanzania themselves have embraced during the past 10 or more years of the national IDD program. The research (a) observed and analyzed existing methods and outcomes of iodizing salt in (mainly) small salt enterprises; and (b) devised procedural improvements to achieve a higher iodine content and better consistency of the end product.

**Aim/objective**

1. The research question is described adequately
2. The description of the background would benefit from a statement why it is important to ensure that all salt used in a population is (adequately) iodized. In many countries (US and Europe, for example) the perception still lingers that iodizing only part of the total salt supply for human consumption would suffice

**Introduction**

3. References throughout the manuscript need being made more specific. The global USI achievement based on national surveys was most authoritatively reported in the Report Card on Nutrition, http://www.unicef.org/progressforchildren/2006n4/ and the USI strategy was first described with ICCIDD included in a publication named Salt iodization for the elimination of Iodine Deficiency by MG Venkatesh Mannar & JT Dunn, Wageningen, MI, ICCIDD, UNICEF and WHO, 1995 (Reference 25 in the...
4. Reference number 15 is quoted to substantiate that 20-40% of the national salt production in Tanzania originates from small producers, but the printed report http://iodinenetwork.net/documents/idd___ESARO_final.pdf) does not offer these data.

5. Reference number 16 does not offer data of the salt quality in Tanzania.

Methods

6. What was the justification for selecting the salt enterprises in Bagamoyo (as opposed to the other areas mentioned in ref 17)?


Results

8. It is reported that knapsack-sprayers gave more homogeneity than hand-sprayers. Are there any data to substantiate this?

9. Fatigue is mentioned as probable cause of higher iodine content due to hand-spraying. This doesn’t seem logical since fatigue would more likely result in less frequent spraying than required.

Discussion

10. “Supervision” of the iodization procedure (as opposed to “quality control” of the end product) is mentioned several times in the manuscript, but its role and effectiveness in sustaining the improved spraying and mixing procedure remains unclear. Please add a paragraph describing what is precisely meant by this, whose responsibility it is, and make suggestions about how to improve and maintain it.

11. Did the team collect information why titration was not performed in the enterprises said to have it available (Table 1)? How does this finding impact on the statement on page 11 that large/medium producers should use quantitative salt iodine measurements?

12. The “mini-laboratories” for quantitative salt iodine measurements are best described in the USI Monitoring Manual (reference 20)

13. The concept “sustained” appears frequently in the manuscript. However, the report is about a new and improved procedure of iodizing salt in low-resource communities. It does not follow up on the question whether the new procedure is still being applied while time has been ongoing. It is recommended to remove this word from the Title.

Compulsory: Revise the references, add a paragraph on what supervision is required of the improved procedure and adjust the description(s) of “sustained”

Essential: Add information why titration was not being used in the enterprises that had it available and adjust the recommendation to introduce it accordingly.
Level of interest: An article whose findings are important to those with closely related research interests

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