Author’s response to reviews

Title: One Health/EcoHealth Capacity Building Programs in South and South East Asia: A Mixed Method Rapid Systematic Review

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Author’s response to reviews:

Reviewer Comments

Reviewer #1 Comments

Author Responses

1. Although one can find articles and other sources documenting the existence of a EH or OH project, programme, or centre (as in the case of Gadja Madha and Chiang Mai) this doesn't actually confirm that the activity meets any particular criteria or standards. It may virtually on exist in name only.

Author Response: We appreciate the difficult reality in which this observation is grounded in and agree that just because documentation of a program is extensive, it does not compulsorily mean that the program is as active as is indicated in the documents. We have tried to indicate this issue throughout the articles, specifically in the following excerpts:

Although several adaptations to accommodate the OH principles in existing capacity building initiatives have been undertaken, there has been limited success in converging the concepts of OH with the traditional training courses pursued by medical doctors, veterinarians, and other stakeholders in the OH movement [10].

Except for some country-to-country variations, the agenda has essentially been moved by international donor agencies, with ownership by national governments still emerging. In both the regions, the relative absence of buy-in from the local research and funding agencies, including universities, raises questions about the sustainability of the efforts.
2. In this regard, it is not apparent from any material or programme that I am aware of that explicit criteria and standards exist for assessing whether an activity called EH or OH is really so.

Author Response: We appreciate the insights of the reviewer and based on the findings of the review, we have added the following section:

In addition, the review findings also indicate limited commitment to the use of systematically developed criteria or standards to assess whether the framed curricula actually address the One Health competencies that they intend to develop capacity in. This is further complicated by the fact that aside from the SEAOHUN, there have been very limited efforts in SA or SEA to develop an evidence-based competency matrix on which to frame the scaffolding of OHEHCB programs. A recent publication on the operational criteria for ecosystem approaches in health proposes the sequential integration of skills related to transdisciplinarity, systems thinking and adaptive management (18). However, none of the programs we identified used such a framework, a priori, to establish a structured OHEH approach to capacity building in key stakeholders.

3. By and large, from my experience and discussions with others it appears that in very few projects did the participants have or gain much depth concerning the core ideas and their implementation, of the key elements of both EH and OH: transdisplinarity, systems approach, and participatory engagement (particular involving the presumed beneficiaries among the public; i.e., villagers)

Author Response: We have highlighted this concern in the discussion section. To further emphasize this, we have added the following:

This remains a concern, especially in the light of the lack of structured framework to address the capacity gaps. Given the ad hocism noted in several programs of OHEHCB in both the regions, especially in SA, the challenge remains to build programs with evidence-driven identification of core competencies, structured curricula developed to develop these competencies, and involving a wider cadre of beneficiaries, including stakeholders who may be affected by OHEH policies. In addition, there is a dire need to assess the extent to which OHEHCB programs are actually leading to capacity enhancement in target groups; for this, there may be a need to develop new standards or adapt existing ones to fit the local context (18).
Reviewer #2 Comments

Author Responses

1. I believe some bias has been introduced in the interpretation of the OH nature of the programs reviewed in the paper as a result of variability in the detail available in the documentation that was reviewed for this paper. … However, I think this could also be acknowledged at the point where results are presented.

Author Response: We appreciate the reviewer’s comments about the possibility of bias in the review. Since this was a mixed methods review, which included grey literature as well, we were unable to apply bias-identification/elimination tools like Cochrane’s risk-of-bias assessment.

We appreciate the reviewer’s suggestions about adding the possible gaps in the data in the results section and we have added the following sections to clarify the same:

Although we defined the extent of adherence to the principles of OH and EH to identify documents for the focused review, given the qualitative nature of the enquiry, and the potential gap between documented protocols and the way they were deployed in the challenge of real-world settings, there is a possibility that we may have over-estimated the number of programs in this section of the review.

Since the data for the thematic review was sourced from multiple types of documents, which were not screened for quality, we anticipate that there might be some over-estimation of the potential of the identified OHEHCB efforts to adhere to the tenets of OH and EH.

1.1. Two relevant references have not been included and addressed in the paper. … I recommend that aspects of the manuscript are revised after reading this paper to include reference to building research capacity in a OH framework in South Asia as described in this paper.

Author Response: References have been added. Appropriate changes have been made in the areas noted in the reviewer comments. Details of these changes are provided in the following rows. In addition, data was re-assessed following the addition of the papers suggested by the reviewer. Although some additional insights were obtained, this did not significantly affect the conclusions we had drawn in the previous iteration of this manuscript. Again, details of these edits are provided in subsequent rows, against the respective comments.

2. Line 58: replace the word "done" with "undertaken".
Author Response: Replaced.

3. Line 60 - correct the typo "program,s"

Author Response: Corrected.

4. Lines 62-64. Update this after inclusion of the Vink et al (2013) paper which describes collaborative investigation projects as the basis for strengthening research capacity in a OH framework.

Author Response: Although we did not cite this paper in the previous draft, the programs outlined in the paper have already been included in the data. Consequently, this has not triggered a change in the numbers of the programs. We had not accounted for one of the Massey University programs, which we had assessed to have extensive OH engagement, in the section on the focused review. We have made the amendments necessary for accommodating the missed program. In addition, we have cited the paper by Vink et al against the relevant parts in the discussion section.

5. Line 73 include reference to OH or transdisciplinary approaches.

Author Response: Sentence modified to:

In order to effectively address the disease emergence hotspots in these regions, there needs to be strategic funding decisions targeting capacity building in the core OH/EH competencies, especially related to transdisciplinarity, systems thinking and adaptive management.

6. Line 84 - delete "the".

Author Response: Deleted.

7. Line 101 - a 1995 reference is cited in support of the statement in this sentence which refers to the current/recent situation. A more recent reference should be cited to support that this is still the case. Alternatively this sentence could be rewritten to state that while there have been a number of programs implemented in the past 25 years, there "has been a reticence about what needs to be done organisationally and policy-wise, in order to break out of sectoral interests and develop truly trans-sectoral training programs".
Author Response: We think that this reference highlights the need to translate the theoretical appreciation of breaking sectoral barriers into the real world settings. The fact that this has been an issue that has been recognized for over 25 years with minimal practical implementation further augments the argument of the current manuscript. We have modified the sentence to read:

Though there have been multiple calls for capacity building in OH/EH competencies, and a slew of programs have been implemented over the last three decades, there has been a reticence about what needs to be done organisationally and policy-wise, in order to break out of sectoral interests and develop truly trans-sectoral training programs (7).

8. Line 116 - the word "interaction" could be removed to simplify this sentence.

Author Response: Removed.

9. Lack of distinction between objectives and methods in the Background and Methods sections of the paper.

The objective of the review is appropriately described in the last sentence of the Background (lines 125-127). However, the preceding sentences in this paragraph summarise the Methods used to achieve this objective. I recommend that these are moved from the Background to the Methods section.

It is unclear whether the first sentence of the Methods (lines 129 - 130) i.e. "building an informed, multi-stakeholder platform to enhance OHEHCB in the region." describes an objective or a part of the review process. Recommended action:

9.1. Move description of the methods (lines 122-124) from the Background to the Methods section.

9.2. Clarify how the "multi-stakeholder platform to enhance OHEHCB in the region" (lines 129-130) fits into the review process i.e. whether it is an objective of the review or a part of the Methods or both.

Author Response:

9.1 Removed

9.2 The multi-stakeholder platform was engaged to discuss the identified lacunae and devise planning and advocacy activities to ensure buy-in from government and non-government funding agencies in addressing the key gaps in OHEHCB. We have modified the first paragraph of the methods section significantly to bring clarity to this point. The section now reads as follows:
A rapid systematic review was undertaken to conduct a situation analysis of the OHEHCB programs, with a focused analysis of those programs which have extensive OH engagement. This approach was preferred in order to streamline the process of building an informed, multi-stakeholder platform to enhance OHEHCB in the region. This review was conducted in order to facilitate the discussions of the platform, and to help the members develop a roadmap for addressing the identified lacunae through concerted advocacy and planning.

10. Line 127 – regions

Author Response: Corrected.

11. Line 133 - remove the word "support" as this is reflected in the subsequent term, "supporting agencies"

Author Response: Removed.

12. Line 136 - provide some description about how the OH/EH projects or initiatives were identified and the timeframe over which projects were considered.

Author Response: Extensively edited to clarify the non-structured and expert-oriented process of identifying OHEH projects and initiatives in the region. The section now reads as below:

The beginning point of the rapid review was a list of OH/EH projects or initiatives that were functional in the SA or SEA regions. To begin with, the mapping of these projects were done without a preference for a time bracket. A literature search was conducted using PubMed to identify papers which mentioned “One Health” or “EcoHealth” or “Ecosystems approaches to health” or “transdisciplinarity” in the title or abstract (limit [tiab]). Using the output, a list of projects was curated. Based on the results of this non-structured search, we then looked up the websites of the major funding agencies to identify further projects that qualified for inclusion in the review. This list was then iteratively screened by experts led by MK, to curate a final list of operational or concluded OH/EH projects in the SA and SEA regions.

Following this, a systematic search was conducted to identify documents related to the identified projects/initiatives to isolate information on capacity building functions included therein.

13. Line 145 - replace "hand" with "manual".

Author Response: Replaced.
14. Line 147 - replace "width" with "breadth".
Author Response: Replaced.

15. Line 155 - move "initially" to come before "included" i.e. "initially included".
Author Response: Corrected.

16. Line 155 - insert "the" before the word "case".
Author Response: Inserted.

17. Line 157 - replace "deduplication" with "duplicates were removed using reference management software".
Author Response: Corrected.

18. Line 160 - describe the type of people included in the stakeholder meeting.
Author Response: Added the details of the experts in the stakeholder meeting as Technical Appendix 3 in the accompanying supplementary information file.

Added the following sentence indicating the transdisciplinary nature of the stakeholder group:

This meeting had a wide variety of sectoral expertise, with experts hailing from medical sciences, veterinary sciences, public health, health policy, social sciences, and communication. Details of the experts are provided in the Technical Appendix 3.

19. Line 167 - it would be more informative if a short description of how (e.g. what criteria were used) to assess "the extent of OH engagement"

Author Response: Added the definitions for the three categories:

Initially, we wanted to evaluate whether the identified programs adequately addressed the seven core competencies outlined by the South East Asia One Health University Network (SEAOHUN). These competencies include: Collaboration and partnership; Communication and
Informatics; Culture, Beliefs, Values and Ethics; Leadership; Management; Policy, Advocacy and Regulation; and Systems Thinking. However, early on in the process, we realized that most programs did not have adequate documentation allow such an evaluation. So, programs which embraced the following elements were adjudicated by the reviewers (PC, ASC) to have extensive OH engagement: transdisciplinarity, systems thinking and culture/value/beliefs/ethics (including socio-economic determinants of health). Programs which addressed at least transdisciplinarity and/or concepts of cross-sectoral collaboration, and were adopted to meet the local needs (e.g. COHEART – the Center for One Health Education, Advocacy, Research and Training), were considered to have locally adapted OH engagement. Those which failed to endorse any of these criteria and were oriented to training in a narrower skill zone were considered to have minimal OH engagement (e.g. the Joint Orientation Workshop on Zoonotic Diseases, India). When there was a conflict in decisions between the two reviewers, a third expert reviewer (MK) was consulted to break the tie. The categorization of the programs based on these limited criteria is likely to over-estimate the number of programs with extensive OH engagement.

20. Line 175 - replace "in identifying" with "identify".

Author Response: Replaced.

21. Line 179 - remove "also".

Author Response: Removed.

22. Line 179 - replace "show" with "compare".

Author Response: Replaced.

23. Line 183 - add "the" as follows: "in the course of which …".

Author Response: Added.

24. Lines 182 - 185 - update figures after including the Vink et al reference described above.

Author Response: We have updated the number of articles included in the review after inclusion of the two references we had missed. We have also updated the process summary given in figure 1 to reflect these changes.
25. Line 189 - the number of Massey programs in SA is 3 not 4 (see annotated Additional file), which may change these figures.

Author Response: The annotated document is not available on the manuscript central site. The number of programs may potentially change if the file can be accessed.

26. Line 194 - Suggest replacing the term "field-centric" with "had a field-level focus"

Author Response: Replaced, as suggested.

27. Line 201 - provide a reference for the OHCCs.

Author Response: Provided rationale for the OHCCs in preceding section. Reference added to this section as well.

28. Line 202 - replace "of" with "or".

Author Response: Replaced.

29. Lines 203-205. Suggest splitting this sentence into two separate sentences. It currently reads as if OH engagement is related to addressing OHCC. However, I think the two parts of this sentence aren't related and are describing the particular focus of the programs in each of the regions.

Author Response: Sentences modified to make meaning clearer.

30. Line 206 - do the figures for SA reflect that the second Massey program included domestic animal and wildlife veterinarians and doctors who were from research institutes, university graduates, NGOs and government institutions, none of whom were program managers as such. This is in contrast to the first program which did have a strong focus on program managers who were selected by the national governments.

Author Response: Yes, these figures are inclusive of said considerations. The trend in SA is that program managers are usually in-service public health program managers who are nominated by
the government to attend relevant training programs for their skill enhancement. This point has been reinforced in multiple areas of the discussion.

31. Lines 215-216 - give an indication of the period of time represented by 'short term' and 'long term'.

Author Response: Added the following clarification:

We did not create any cut-offs to define short-, medium-, and long-term programs as we felt that such restrictions would impose artificial and illogical definitions. Short term programs were organized for days to weeks and were meant for building a small set of skills; these programs, often conducted in a workshop-mode, usually did not culminate in the acquisition of any degrees or certification. Medium term programs lasted for weeks to months and were meant primarily for skill enhancement of public health professionals, program managers, and in-service candidates; they may have resulted in certification but not the acquisition of a degree. Long term programs were carried on for months to years, usually in a university-setting, and cumulated in the acquisition of a degree or certificate subject to multiple assessments over the period of the coursework.

32. Lines 217-218 - does this statement take into consideration that both Massey programs had a strong applied research component, and the second program didn't target program managers?

Author Response: We would like to thank the reviewer for spotting this oversight. The second Massey program was overlooked and has been included in this calculation. The numbers in the corresponding table have also been accordingly modified.

33. Table 1 - again, give an indication of the timeframes associated with short, medium and long term.

Author Response: Added.

34. Table 1 - do the figures take into consideration that both Massey programs had a strong applied research component, and the second program didn't target program managers?

Author Response: The figures have been corrected. We would like to thank the reviewer for bringing to our notice this oversight.
35. Lines 228-229 Table 2 and Table 3. The OH approach appears to predominantly be represented by "inclusion of OH concepts". I think the interpretation of the OH approach in this review is possibly limited by the following points:

35.1. Without understanding the curricula for all the OHEHCB programs it is difficult to determine the extent to which OH concepts are being taught in the various programs. The results presented here may thus be strongly biased towards programs that have a description of the curriculum available. I recommend the statement in lines 228-229 and the summary presented in table 2 be revised to reflect this uncertainty. I can speak for the Massey program which had significant OH concepts taught in relation to outbreak investigation, disease surveillance, zoonotic disease control programs and policy making with respect to zoonotic diseases. However, this information is unlikely to have been gleaned through the documents that the authors gained access to through their search.

35.2. Building OH collaboration can be achieved through organising the program in such a way that participants from the multiple sectors work together in formal and applied aspects of the program. For example in addition to teaching OH approaches in a formal education program, a collaborative approach can be built through including group assignments that require participants from the different sectors to produce a combined outcome that reflects integration of approaches across the sectors for things such as surveillance, investigation and control of zoonotic diseases. Likewise, conducting collaborative research projects together builds a transdisciplinary OH approach.

Author Response: We would like to thank the reviewer for the insightful comment. As we have highlighted in multiple places in the discussion, the lack of published and grey literature on the subject of OHEHCB programs has hamstrung the review to some extent. We have, further, added the following bit of text, to the paragraphs preceding table 2 and 3 to further clarify our stand on this issue:

However, as has been pointed out earlier, adequate documentation to assess the curricular extent of each of the programs was not available. In light of this experience, we decided to use a less stringent approach to define the extent of OH engagement. Despite that, we found a small fraction of the programs to fulfill the set criteria. The current data suffers from the uncertainty spawned by the inadequacy of the available documentation.

35.1 We agree with the reviewer’s comments; however, since the content of the table was based on the available themes, we believe it would violate the data extraction principles we followed if we added text based on interpretation of what was not available in the reviewed literature. Consequently, we have chosen to add a few lines to highlight this uncertainty in the paragraph preceding tables 2 and 3, but have desisted from making similar additions to these tables.
35.2 We agree with the reviewer’s assessment that collaborative coursework can also be viewed as the application of concepts of transdisciplinarity in the context of OHEHCB programs. We have, therefore, made this one of the two mandatory criteria, which a program needs to fulfill, before they can be assessed to have extensive or limited engagement with OH concepts. We believe till more detailed data/documentation comes to light, our approach provides a cautious middle path, which, while minimizing the risks of over-estimating the extent of OH engagement in capacity building efforts, also does not inordinately underestimate the same.

36. Line 229 - replace "the OH capacity building" with "to OH capacity building".
Author Response: Replaced.

37. Table 2 title - "…capacity building programs in SEA and SA"
Author Response: Added.

38. Table 2 - OH networks were a part of the Massey programs in the form of One Health Hubs, as described in the Vink et al (2013) paper.
Author Response: Added the following text for clarification:
No indigenous networks present with focus on OH capacity building; One Health Hubs, created in project-mode initiatives, were the hallmark of some of the programs with extensive OH engagement.

39. Table 2, row 3 - in the SA Massey program a collaborative OH approach was built through the way in which the components of the program were designed and implemented i.e. participants from the different sectors were engaged in implementing activities together e.g. completing assignments in the formal education and implementing collaborative investigation projects, workshops, etc in the applied program. I don't think the term "outcome oriented approach" sufficiently captures the collaborative building approach that was a key part of the design of the (Massey) SA programs.
Author Response: Added the following clarification:
Outcomes oriented approach – with focus on surveillance and response to disease outbreaks and limited emphasis on other competencies; OHEHCB efforts under one initiative focused on implementing collaborative, investigation projects as part of the training package.
40. Table 2, row 4. This row appears to be focused on the "curricula model". My comments are similar to the point above. While some of the OHCC were not directly taught in courses labelled as such in the curriculum, the curriculum and associated activities were designed to build most of the competencies, for example those that are listed in the SEAOHUN documentation

Author Response: The general trend of the programs in SA are that they are curricula-oriented, rather than competencies oriented. To bring to focus the contribution of the Massey Program, we have added the following highlight:

Topic-based curricula followed for most OHEHCB programs; except for one OHEHCB program, emphasis on competencies-based approach has been limited.

41. Line 234 - add "between programs in each region" to the end of the sentence.

Author Response: Added.

42. Line 235 - Begin the sentence "As an example, duration and field-experience levels ....".

Author Response: Altered, as suggested.

43. The paper does not refer to the OH research capacity building component of the AHIF/World Bank funded OH capacity building program in South Asia, which is described in the Vink et al (2013) paper.

Author Response: We have added the program; there was the one Massey program unaccounted for in the five programs with extensive OH engagement.

44. Lines 257-258 - the Avian and Human Influenza Fund (AHIF) via the World Bank and the European Union funded two significant OHEHCB programs in the SA region and should be referred to in addition to IDRC and USAID.

Author Response: Added the following clarification:

The Avian and Human Influenza Fund (AHIF), via the World Bank and the European Union, have also funded two significant OHEHCB programs in the region.
45. Line 264 - describe preparedness for …… ?minimising the impact of EIDs.

Author Response: Modified the sentence to read:

Several differences were found to exist in the overall OHEHCB strategy between the two regions; it is possible that this could be critical in determining the overall preparedness to EID events, not only for the regions overall, but also for the individual member states that are located in the respective regions.

46. Lines 275-276 "In SA, the only comparative policy structure was the OH policy enunciated by Bangladesh." This sentence refers to "a comparative policy structure" that is compared with the focus of SEAOHUN program to "building capacity to respond to OH policy needs" in SEA. The two sentences are not comparing the same aspect of OH and I suggest rewording the sentence regarding the OH strategy that is being implemented in Bangladesh so it stands alone without a comparison with the OH approach in SEA programs.

Author Response: We agree with the reviewer’s observation that the Bangladesh policy is a program level commitment, and capacity building, although a part of it, is not the sole objective. With that in mind, we have made the following addition:

Whilst such policy structures are absent in SA, an OH policy for response to emerging infectious disease threats has been outlined in Bangladesh. Although this is not comparative to the policy mandate adopted by the SEAOHUN, a policy-level commitment to deploying OH interventions for EID threats could set the tone for structured OHEHCB programs in the region (17).

47. Line 277 - "in which they found….."

Author Response: Edited.

48. Lines 278 - 280: The two components of this sentence do not fit well together and also don't fit well with the previous sentence. My interpretation is that the previous sentence reflects OH capacity building is still almost exclusively supported by international agencies and national governments have not adopted a One Health approach to policy making. The first part of the sentence in lines 278-280 is not correct - a number of OHEHCB programs have attempted to develop core OHCC in stakeholders (refer to my comments in #41 above). There is increased awareness and a very gradual adoption of One Health approaches amongst policy makers over time, which is accurately reflected in the second part of this sentence.
Author Response: Whilst we agree with the reviewer’s observation that the past decade has experienced several programs which have targeted critical stakeholders for OHEHCB, there remains a reluctance in the national players to adopt the strategies at scale. We believe the wording of the previous sentences failed to take this message through. We have expanded and reworded the statement as follows:

Although a number of projects and initiatives have funded capacity building efforts directed at the stakeholders, there has been limited uptake of the same in the national policies across the nations in both the regions. Aside from a small program in Vietnam, integration of OHEHCB with medical and veterinary curricula remains a theoretical construct for most nations. This reluctance on behalf of national players to commit to developing core OHCC in stakeholders is reflective of the ambivalent approaches to the policymaking discourse in developing nations, in which OH remains at an arm’s length (19).

49. Lines 280-284: modify this sentence taking into consideration comments in #41 above.

Author Response: Added a sentence to clarify:

With the exception of the OHEHCB initiatives under the leadership of the Massey University, the programs in the SA region were largely geared towards fulfilling programmatic needs rather than addressing research and development capacity issues.

50. Line 288 "in the region…”

Author Response: Added.

51. Lines 291-293: I would argue that the design and collaborative nature of a number of the collaboration investigation projects in the Massey University program which were taken through to policy making level in the more recent program, do support at least an interdisciplinary approach, and in some cases a transdisciplinary approach.

Author Response: Extensively edited the paragraph to clarify the context. The authors believe that aside from the Massey programs, very limited inter- or transdisciplinary efforts have been concluded successfully in the SA region. The findings of the review support this assertion. To clarify this stand, the now-edited paragraph reads as below:

Most of the OH programs in the SA region that claimed to have a OH component were seen to be limited to functioning within the multidisciplinary framework – the system where researchers from different fields work sequentially or in parallel, but independently, and within their
disciplinary perspectives (21). In SA, the more recent programs deployed by the Massey University represent the sole example where collaborative investigation project work was taken up till the policymaking level, achieving some success in interdisciplinary cooperation. Yet, given that a larger proportion of programs in SEA focussed on the core OH competencies, it is more likely that they have moved further along the continuum towards achieving truly transdisciplinary training of their students/trainees – one where researchers, program managers, students, community members and policy makers come together to work with a shared vision, drawing together knowledge from scientific, social, economic, and other relevant contexts, to devise a comprehensive solution for a complex, cross-cutting problem, like EIDs (22). This remains a concern, especially in the light of the lack of structured framework to address the capacity gaps. Given the ad hocism noted in several programs of OHEHCB in both the regions, especially in SA, the challenge remains to build programs with evidence-driven identification of core competencies, structured curricula developed to develop these competencies, and involving a wider cadre of beneficiaries, including stakeholders who may be affected by OHEH policies. In addition, there is a dire need to assess the extent to which OHEHCB programs are actually leading to capacity enhancement in target groups; for this, there may be a need to develop new standards or adapt existing ones to fit the local context (20).

52. Additional file. The way in which OH/EH Projects/Initiatives and OHEH Capacity Building Programs are represented in Technical Appendix 2: One Health/EcoHealth Programs and Capacity Building Programs included in the review, is inconsistent and in many cases there is not a clear distinction between what is the Project and what is the Program within the Project and the institution that is delivering the project/programs. This table could be significantly improved so the projects/programs included in the review are more informative for readers who are not familiar with these programs.

I recommend the following:

52.1. More clarity and consistency in the description of Projects and Programs and the institutions delivering these. For example, the name of an institution should not be listed as a Project (e.g. Massey University, National Centre for Disease Control, India). The name of the project should be listed and the institution delivering the project can be included in brackets after the project.

See specific comments in the annotated Additional files document.

52.2. Add the source of information on the programs and projects in a third column of Appendix 2 of the Additional file.

Author Response: The annotated file was not available on the manuscript central panel; we have made edits based on the comments in this, and previous points, made by the reviewer.
Author Response: 52.1 The definitions for the terms have been appended in the manuscript

Author Response: 52.2 Added the details required.