Author's response to reviews

Title: Health adaptation policy for climate vulnerable groups: A 'critical computational linguistics' analysis

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Author's response to reviews: see over
AUTHOR RESPONSE TO REVIEWERS’ FEEDBACK

REVIEWER 1
Reviewer's report
Title: Health adaptation policy for climate vulnerable groups: A 'critical computational linguistics' analysis
Version: 1 Date: 10 January 2014
Reviewer: Pol De Vos

Comments:
- Interesting analysis, with a nice combination of quantitative and qualitative elements.
- The title and abstract convey with the content of the manuscript.
- The research question is clear and specific.
- Methods are well described.
- Data are sound.
- All included data are public and no problems exist with data deposition standards.
- Discussion and conclusions are well developed and adequately supported by the data.
- Other references and former work on which the authors build are clearly mentioned.
- The document is well-written and easy understandable.

AUTHOR RESPONSE: Thank you to this reviewer for this very positive feedback, we do appreciate the encouragement especially as this study has been a long and demanding one done in a context where climate change research is no longer a priority in our country.

Minor Essential Revisions:
- The only problem I have with the abstract is that it does not mention the essential fact that the 12 countries included are industrialized countries. Of course, this is well mentioned in the manuscript, but to me it seems to be an essential ‘detail’ that should be mentioned in the abstract. (Moreover, I prefer ‘industrialized’ or ‘high income’ countries above ‘developed’… From a linguistic point of view, a clear definition on ‘being developed’ would be a complex challenge.)

AUTHOR RESPONSE: We have revised the abstract to state ‘The study analyses an exhaustive sample of national adaptation policy documents from Annex 1 (‘developed’) countries of the United Nations Framework Convention on Climate Change: 20 documents from 12 countries.’
- In my view, there might be a slight problem with the description of the limitations of the analysis:
a/ The fact that only English documents were included, is understandable. But it should be stated that many government documents might exist that are not written in English (has it been checked?). When speaking on local analyses of the problems of specific vulnerable groups, these might have been written in other languages. If not checked, this language barrier could be important.
b/ Also the fact that no implementation documents were included, might have led to the exclusion of specific strategies for vulnerable groups (possibly with a more general analysis). Again, if not checked, it could be important.
These limitations should be briefly discussed.

AUTHOR RESPONSE: The discussion of the sample has been revised to insert a paragraph at the end of that section as follows:

In relation to sample limitations, a determination of the extent of health adaptation policy documents not in English is beyond the scope of this study and cannot be accurately made without very substantial language translation resources for searching for, translating and analysing such documents. Further, the exclusion of implementation documents meant that the study did not focus on the detail of how such policy was interpreted and reinterpreted by communities or what communities have done in the absence of such policy. The extent and quality of local initiatives suggested by policy documents in English for Annex 1 ‘developed’ countries also cannot be assumed to be greater than what may be in place in non Annex 1 countries at the local level. Such an assumption may be wrong not simply because policy documents are not a measure of local creativity anywhere, but also because there is a substantial body of emerging literature suggesting that local indigenous cultures bring sophisticated and creative adaptive capacities and strategies to a climate-changing world [1-8].

Discretionary Revisions:
- In the discussion, I would have expected a broader analysis of the social and economic determinants that are common (or not) for the mentioned vulnerable groups. These will probably be related to poverty in economic terms, in communication possibilities, in education opportunities, etc.
- Also a (reference to a) broader description of the definition and content of vulnerability, and why these different aspects should be included in a health adaptation policy, would strengthen the given analysis, and lead to stronger conclusions.

AUTHOR RESPONSE: The following definitions and explanation of vulnerability have been included in the second last paragraph in the background section on vulnerability (‘Defining climate-health vulnerability and deciding vulnerable groups’):

These vulnerable groups often share one or more of the risk factors described in the applied literature on risk assessment for climate-vulnerable groups: unequal access to education and lower literacy; unequal health outcomes; susceptibility to chronic and/or infectious diseases; poorer nutrition; lower life expectancy; lesser access to health services; lower health literacy; gender inequality; unemployment; lower income; poorer quality housing; concentration in ‘at risk’ geographic areas with poorer community and public health infrastructure supports; lesser water quality and supply; exclusion from decision-making processes; lesser social and civic participation [9]. As the 2014 Fifth Assessment Report (AR5) of the IPCC suggests, those who are socioeconomically disadvantaged in wealthy, not only poor, countries will bear the heaviest burden of climate change. Climate change works to increase existing inequalities and make it more difficult for those who are already socially, economically or culturally disadvantaged or excluded to overcome that disadvantage [10]. Accordingly, the rationale for this study is given by the broader definition of vulnerability to disasters and emergencies provided by the World Health Organisation, which suggests why health adaptation policy should prioritise those most ill-equipped to adapt:
Vulnerability is the degree to which a population, individual or organization is unable to anticipate, cope with, resist and recover from the impacts of disasters [...] Vulnerability is a function of susceptibility (the factors that allow a hazard to cause a disaster) and resilience (the ability to withstand the damage caused by emergencies and disasters and then to recover) [...] The concept of vulnerability helps to identify those members of a population who are most likely to suffer directly and indirectly from a hazard. It is also useful in identifying those who are more likely to suffer longer-term disruptions of livelihoods and life-lines, as well as those who will find it more difficult to re-establish their accustomed patterns of living [...] This has important implications in defining priorities for vulnerability reduction.[11]

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 I have no competing interests

REVIEWER 2
Reviewer's report
Title: Health adaptation policy for climate vulnerable groups: A 'critical computational linguistics' analysis
Version: 1 Date: 15 April 2014
Reviewer: Kristie Ebi
Reviewer's report:
Health adaptation policy for climate vulnerable groups
It is refreshing to read a manuscript where the authors are relatively explicit about their biases, although it does raise some questions about objectivity.

AUTHOR RESPONSE: Our thanks to the reviewer for her time and positive comments. We have revised the methods section to better explain that:

In order to balance requirements for objectivity with the need for nuanced readings of policy texts, computational linguistics software [12] is used here to offer objective, machine based findings about the presence of explicit references to vulnerable groups. These findings are the basis for the conclusions. However, machine-based findings are supplemented with critical discourse analysis offering nuanced readings of the text that necessarily involve interpretation, implemented within the established paradigm of textual exegesis that is critical discourse analysis [13-16].

The manuscript suffers from several major flaws:
• It is very difficult to interpret the results of the critical computational linguistics without being able to compare with analyses for somewhat similar health policies designed to protect vulnerable groups, such as clean air regulations. The authors work on the assumption that only policies with explicit references to a vulnerable group are able to protect such groups. However, this assumption is unsupported
Author Response: The assumption that policy about climate change and health ought to include references to vulnerable groups is now better supported by the background section on vulnerability where we have inserted a definition of vulnerability explaining why such groups should be prioritised in policy. The following clarification has also been inserted as the first paragraph in the conclusions section:

This study was predicated on the assumption that an analysis of best practice in health adaptation policy documents involves consideration of the extent to which they offer guidance on the special needs of particular vulnerable groups. The alternative assumption—that policy need not refer to specific climate vulnerable groups on the basis that their needs can be equally well met by broad policy frameworks—is much more difficult to sustain. For example, our previous analyses of accounts of flood management offered evidence that the groups we have studied here have distinctive needs important to the effective management of climate disasters: early warning systems need to take special account of the needs of culturally and linguistically diverse communities; planning for evacuation centres does need to account for socioeconomically disadvantaged children and people with disabilities, and so on [17]. Of course, there are policy documents such as ‘Clean Air’ regulations that will benefit diverse groups—this study does not at all negate that phenomenon—though the extent to which such documents optimally meet special needs may be unproven. The existence of ostensibly successful policy documents that are silent on the special needs of particular groups is not an argument against developing ‘best practice’ health adaptation policy that explicitly prioritises the needs of vulnerable groups, if the evidence of the IPCC about climate vulnerability and social inequality is to be heeded [10].

The critical discourse analysis has limited applicability and should be removed.

Author Response: We ask that the reviewer to give us latitude to include this analysis. A paper analysing the presence of references to these groups in policy documents using only machine-based counts and outputs is a paper that does not offer the results of manual scrutiny of those documents. We have clarified the importance of the two approaches as follows:

The study method is informed by the belief that combining elements of two ostensibly opposed methods—‘computational linguistics’ and ‘critical discourse analysis’—can offer broad, reproducible and accurate findings about the quantifiable content of a large language dataset as well as insights about what it values, how, to extend the empirical findings. In order to balance requirements for objectivity with the need for nuanced readings of policy texts, computational linguistics software [12] is used here to offer objective, machine based findings about the presence of explicit references to vulnerable groups. These findings are the basis for the conclusions. However, machine-based findings are supplemented with critical discourse analysis offering nuanced readings of the text that necessarily involve interpretation, implemented within the established paradigm of textual exegesis that is critical discourse analysis [13-16].

The discourse analysis is reduced to one table only (Table 1). Table 1 provides not simply counts: it also explains what are the dominant discourses in the language about each of the vulnerable groups—information that a machine cannot provide. Table 1 also provides references to the specific publicly available policy documents to substantiate
the findings of the critical discourse analysis. This is now better explained in the Critical discourse analysis section.

• The stated goal of the manuscript was to investigate the “adequacy” of policies to protect vulnerable groups, not how policy should be formulated, so those paragraphs in the Discussion and Table 2 should be removed.

AUTHOR RESPONSE: The aim of this paper is to consider answers to these questions: how are specific climate vulnerable groups represented in adaptation policy? What are the implications of this for best practice in developing policy for such climate vulnerable groups? The discussion of best practice aims to explore the implications of our findings in ways that have practical value for policy-makers. Given that our study has diagnosed policy inadequacies, discussion of its implications must therefore involve a discussion of what a best practice health adaptation policy document might look like. This discussion is considered by us to be an ethical requirement of our study: we are uncomfortable ethically with diagnosing the inadequacies of policies without also offering some practical suggestions, based on the emerging literature, about best practice policy. The conclusions have now been revised to make this clearer.

• The analyses would be much more useful if they used a definition of vulnerability that is consistent with the rest of the literature. It ignores that in some regions certain disadvantaged groups could benefit from climate change, and that new groups will likely become affected by climate change. The IPCC definition from the 5th Assessment Report would allow comparison with the larger body of research in this area.

AUTHOR RESPONSE: We have revised the background section on vulnerability to include the 2014 AR5 IPCC report definition as follows:

As defined by the 2014 5th Assessment report of the Intergovernmental Panel on Climate Change, vulnerability is seen in this study as ‘The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.’ Contextual vulnerability or ‘starting-point vulnerability’ refers to ‘A present inability to cope with external pressures or changes, such as changing climate conditions. Contextual vulnerability is a characteristic of social and ecological systems generated by multiple factors and processes’[10]. This study does not assume that all effects of climate change are negative: in some regions already disadvantaged groups may benefit from climate change, while climate change may affect new groups.

The sections that follow explain why our emphasis on the socioeconomic vulnerability of specific climate vulnerable groups is consistent with the health literature and the climate change literature. For example, we explain that:

As the 2014 Fifth Assessment Report (AR5) of the IPCC suggests, those who are socioeconomically disadvantaged in wealthy, not only poor, countries will bear the heaviest burden of climate change. Climate change works to increase existing inequalities and make it more difficult for those who are already socially, economically or culturally disadvantaged or excluded to overcome that disadvantage [10].
We also include the WHO definition of vulnerability to disasters to offer the rationale for this study and suggest why health adaptation policy should prioritise those most ill-equipped to adapt.

Other comments:
• The authors should be more prudent in statements implying there is wide agreement on a concept or conclusion where the only reference is a paper by the authors.

AUTHOR RESPONSE: There are 76 references in the revised submission, five of which refer to our publications. We have gone through each of the in-text citations in the original submission and found they fell into one of the following three categories: 1) citations that make clear that we are referring to our previous work i.e. that have the purpose of simply signalling the previous work we have done relevant to our approach in this paper; 2) citations that are part of a commonsense statement in Table 3 for which it could be argued a single citation is sufficient e.g. “Ensure staff developing policy have a budget and training and other support that will help them include climate vulnerable groups appropriately”; 3) citations that follow stand-alone claims in the text i.e. citations to our work that are not accompanied by any other citations to support them. There was one instance of a citation in the third category (in the background rationale and aim): a reference to our American Journal of Public Health publication that was not a study but more a review of best practice, to which we have now added citations supporting the claim that, despite the large corpus of climate and health research, there is still relatively little applied health adaptation happening at the coalface of local community level [18-24].

• The social determinants of health are not the only primary health determinants.

AUTHOR RESPONSE: We have revised the text so that the statement in the original submission “A large body of evidence has accumulated to suggest that health is strongly influenced by socioeconomic factors: that health is distributed in ways that are closely linked to the particular social and economic conditions of people’s lives [25, 26]” is followed by the statement “This does not mean that the social determinants of health are the only primary health determinants.”

• There are multiple analyses of national adaptation policies and the extent to which they consider vulnerable groups.

AUTHOR RESPONSE: We have clarified this point to explain in the first line of the sample section that, while there are a number of surveys of adaptation policy for particular regions such as Europe,[19, 20] quantification of the presence of references to specific vulnerable groups has not been offered in a global survey of all current national adaptation policies for health.

• There are 196 Parties to the UNFCCC.

AUTHOR RESPONSE: It is true that, as we state, 195 parties ratified the convention as but it is also true that, currently, there are 196 Parties (195 States and 1 regional economic integration organization) to the United Nations Framework Convention on Climate Change. See http://unfccc.int/essential_background/convention/items/6036.php which states that “The UNFCCC entered into force on 21 March 1994. Today, it has near-universal membership. The 195 countries that have ratified the Convention are called Parties to the Convention.”

We have clarified the statement so that the two figures appear.
• The IPCC 3rd Assessment Report was not the primary impetus for including adaptation as one of the pillars of the negotiations under the UNFCCC, although the assessment was helpful to the discussions.

AUTHOR RESPONSE: This clarification has been inserted thank you.

• The authors should check their history of the inclusion of adaptation in the Convention. The Nairobi Work Plan was and continues to be a major component.

AUTHOR RESPONSE: Our discussion is not a history of the development of these complex policy documents—a far more complex task than can be attempted in the brief overview we offer—but rather an attempt to sketch, as we state at the beginning of that section, the global and intra-country prescriptions for adaptation policy, particularly for health, which frame national policy efforts. We have inserted a sentence to clarify this point.

• The statement at the end of the first paragraph on page 7 should be deleted as it is wrong. All Parties to the Convention are required to produce regular national communications that include a section on adaptation.

AUTHOR RESPONSE: We cannot find a claim in the original submission that all Parties to the Convention are not required to produce regular national communications that include a section on adaptation: We say the following which infers all Parties do have that requirement:

While 42 (Annex 1 or developed) countries have prepared reports due on 1 January 2010 (under the Guidelines for the Preparation of the Fifth National Communication under the UNFCCC and the Kyoto Protocol), these provide little by way of statements of policy on, or information about, climate and health adaptation [27]. Notwithstanding, it is likely that national health agencies will increasingly call for a greater focus on health in the national communications—adaptation generally will continue to receive greater attention in the national communications of these 42 developed countries. A further 153 (non Annex1) or developing countries have submitted at least one national communication under the UN Convention.

However, we have added the following sentence to the beginning of that extract to clarify: “All Parties to the Convention are required to produce regular national communications that include a section on adaptation.”

• The statement on the NAPAs is not quite right either, and needs a citation.

AUTHOR RESPONSE: We have inserted the reference to clarify that we are simply referring to


• Please update the number of national communications submitted.

AUTHOR RESPONSE: This has been done.

• Please provide more balance in the discussion of health adaptation in national communications by comparing this with the discussions for other sectors, such as agriculture.
AUTHOR RESPONSE: This has been done by clarifying that although little specific climate and health information about climate vulnerable groups is included, reporting on other sectors such as agriculture takes a similar broad or overview perspective.

• Page 8, the World Health Assembly determines the priorities and work plan for WHO, not the UNFCCC.

AUTHOR RESPONSE: We have clarified the wording of this to explain that we simply mean to say there are consistencies, but that the UNFCCC has this role.

• The authors need to justify only reviewing national adaptation policies in English.

AUTHOR RESPONSE: We have explained and qualified this in our sample section as follows.

In relation to sample limitations, a determination of the extent of health adaptation policy documents not in English is beyond the scope of this study and cannot be accurately made without very substantial language translation resources for searching for, translating and analysing such documents.

As we say, it is not simply the translation of documents that must be done accurately when the sample moves beyond English texts, as might be the case in a review of published scholarly articles. In this kind of policy study of applied documents in use in government sectors, the process of searching for or determining the sample, which here involved much correspondence with agencies to check and re-check the public availability of national policy documents, would also need to be done accurately in multiple languages.

• Figure 1 could easily be removed.

AUTHOR RESPONSE: We ask the reviewer’s latitude with this requirement, especially as we do not provide detailed quantitative tables but rather provide detailed discussion of the supporting data for the concept map. However, not all readers are quantitatively minded. For these readers, Figure 1 offers a visual picture or snapshot of these semantic relationships. If we remove the figure, which is the key output for Leximancer software analyses and our only figure in this MS, we will remove this visual, multi-dimensional information about semantic relationships: where concepts are located one in relation to another, where the most frequent concepts tend to be and the typical semantic pathways between them. We have inserted a brief explanation in the findings for the concept map to explain this point.

REFERENCES CITED IN THE AUTHOR RESPONSES:
12. Leximancer version 4, [https://www.leximancer.com](https://www.leximancer.com)
27. **Submitted national communications; Annex 1 countries**