

## Responses to Anonymous Referee #2

### M.V. Ogra and R. Badola

*We thank the Reviewer very much for the time invested into this insightful and constructive review. The detailed comments are really helpful. Our responses to individual points and plans for revisions are outlined below.*

R2: This paper is potentially a useful addition to the growing literature on gender dimensions of climate change adaptation. It adds some useful insights from the Himalayas, based on case study material from India. It includes an extensive discussion on overall debates centering on climate change, with a focus on the problematic exclusion of gender issues. Primary data is based on a case study focusing on ecotourism as a form of livelihood diversification, which provides useful insights to the way local communities are changing and adapting their livelihoods in the face of rapid change. It will be important to include this paper on gender issue in the special issue.

- *Author Response: Thank you for the encouragement.*

R2: Conceptual, methodological, case study, flow and structural issues in the paper need to be addressed. Overall, the paper, as currently written, is disjointed. The conceptual framework does not support the primary case study, and the conclusions jump to new issues without adequate framing. The paper requires tightening.

- *Author Response: We agree that the introduction could set up the specific case study more effectively, and that the paper can be tightened up throughout. Please see our responses to the items below for additional details about specific changes we plan to make in the revision.*

R2: Specific scientific issues include:

i) many “grand” questions are raised and unnecessarily drawn out, but not adequately answered (technical interventions, holistic approach, mitigation, north/south power imbalances, gender power imbalances, etc.). The paper needs to get the point about gender issues faster, shorten the conceptual discussion considerably, and use freed-up space to develop and analyze the case study more deeply.

- *Author Response: Among our original intentions at both the CLISAP workshop and in this related discussion paper was to provide an overview of the gender/climate change debate since the creation of the UNFCCC to an interdisciplinary audience comprised largely of natural scientists and climate modelers; our understanding was that the audience would not likely be very familiar with this history, except perhaps through the climate justice movement. In tracing the development of this subfield of gender and development studies, we thought it would be fruitful to outline the major areas of scholarship and debate. That said, we agree that discussion of “grand issues” in the first two sections can be considerably shortened through revision and appreciate the reviewer’s suggestion that the space be reallocated to further develop the discussion of field-based insights.*

*Our revised introduction will present a conceptual framework that more clearly emphasizes gender-differentiated impact/vulnerability and introduces the Sustainable Livelihoods model (DFID, 1999)<sup>1</sup>. We will explain that these two concepts are to be used in the paper to demonstrate how one might: (a) identify gender-differentiated impacts of climate change in the region; and (b) achieve deeper insight into gender-based aspects of eco-development interventions. This will link the introduction to the case study in a more concrete and direct manner.*

*As explained in more detail below (please see item iv), our revised introduction will also situate our interest in gender-differentiated impacts within the context of other categories related to vulnerability or strength (e.g., caste, class, ethnicity, marital status, etc.)*

ii) the case study focuses on eco-tourism as a diversification strategy, but the links to adaptation are weak (with some mentioning in the table); the analysis therefore needs to be deepened considerably, using a tightened/focused conceptual framework.

- *Author Response: Section 4 of the original manuscript (“Sustainable Livelihoods and Adaptive Capacity”) articulates the reasons that livelihood diversification serves as a rational, adaptive response to livelihood insecurity. As noted above, we plan to discuss the Sustainable Livelihoods (SL) approach in a revised discussion of the conceptual framework. Regarding the links to adaptation to climate change and other drivers of livelihood insecurity, we can incorporate points from the tables into the main text and further expand on the context of livelihood insecurity (see related response to item iii, below).*

iii) the question of attribution needs to be addressed; is livelihood diversification solely a response to climate change, as the paper suggests, or are other forces at play as well?

- *Author Response: We did not intend to suggest that livelihood diversification is happening only in response to climate change. Livelihood diversification in the region already serves as a means of adaptation to a general livelihood insecurity associated with the larger regional political economy, but climate change is deepening the conditions of livelihood insecurity. In the original manuscript, we observed that “State-led development in the region has focused on transportation and hydropower infrastructure projects and failed to promote sustainable local livelihoods, while simultaneously creating additional threats to biodiversity and natural resources” (P1050, L23-25). In revising the manuscript as a whole we will make this point more clear, and place it earlier in the discussion through new text that introduces the study area in much greater detail.*

iv) Some conceptual issues require attention. The term gender is used as a way to analyze the homogenous category “women” and “men”, “women’s needs”, etc. The paper criticizes homogenizing tendencies (i.e. Mohanty) and out-dated WID approaches but falls prey to the

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<sup>1</sup> Department for International Development (DFID): Sustainable Livelihoods Guidance Sheet, last access: 10 Sept 2014, available at: [www.eldis.org/vfile/upload/1/document/0901/section2.pdf](http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf), 1999.

same uncritical tendencies without analyzing gender power relations or differentiating along class, age, marital status, etc. This needs to be centrally engaged in the analysis of the case study material, and not as suggested in the paper, to have this “more sophisticated analyses” (page 22) picked up by future research. Its uncritical focus on “social systems” (assumed to be bounded entities) is problematic; it is suggested that the authors consider political-ecology concepts to analyze gender power relations, inter and intra-household gendered negotiations, etc. (as authors they cite engage).

- *Author Response: We certainly agree that it is important to more fully understand how gender interacts with other markers of status (caste, class, age, marital status, etc) in shaping vulnerabilities, adaptive capacities, and responses. However, in the original manuscript we clearly explain that our intention is not to conduct a centralized analysis of “gender power relations” (as seems to be sought by the reviewer), but simply to “help readers better understand the linkages between gender issues and climate change adaptation/mitigation issues in the Indian HKH” through a discussion of qualitative, field-based perspectives about lived experiences (P1494, L7-12). We also clearly acknowledged in the original manuscript that in addition to gender-based differences, other axes of difference are equally critical and often work in conjunction with gender-based vulnerabilities to intensify the experience of impact (e.g., in reference to interconnected gender/ethnicity/class vulnerability through example on P 1497, L2-9 and through discussion of compounding inequities associated with reduced wealth assets -- see Section 3, references to the work of Mearns and Norton, 2010<sup>2</sup> and Demetriades and Epslen, 2010<sup>3</sup> on P1501, L8-19 and modified SL model on P1518 emphasizing role of wealth).*

*That said, our experiences in the field suggest that gender-based impacts of climate change cut across social categories such as ethnicity and caste, particularly for women involved in agricultural tasks due to a gender-based division of labor that (as we have observed) is not specific to these categories. Income, tenurial status, and household size however, do appear to be crucial aspects to sustainable livelihoods development and are related directly to household assets and overall capacities. We appreciate the reviewer’s encouragement to reconsider the importance of addressing these issues in more detail in the revised paper, and plan to do so in the following ways:*

- 1) *Revised discussion of the study area can include much more ethnographic detail about gender-based division of household and agricultural labor patterns, gender-based patterns of decision-making, and possibly other indicators of “gender power relations” at the intra-household level.*
- 2) *Through revised text, figures, and tables, we can more clearly identify where gendered impacts differ (or not) between economically or otherwise defined groups.*

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<sup>2</sup> Mearns, R. and Norton, A. (Eds.): *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, World Bank, Washington, D.C., 2010.

<sup>3</sup> Demetriades, J. and Epslen, E.: *The Gender Dimensions of Poverty and Climate Change Adaptation*, in: *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, Eds. Mearns, R. and Norton, A., The World Bank, Washington D.C., 133- 144, 2010.

*Regarding our uses of the term “social system” in selected passages of the paper (P 1503, L12 and 24; P1508, L26): We recognize that the component parts of any cultural-economic system are never fixed in time or space. We nevertheless require a term to encompass in a single unit the various resources, networks, and flows represented in the SL conceptual framework. Given that our audience includes systems modelers (geochemical, hydrological, climate, and policy modelers), we have chosen to retain use of the term but will include a note to briefly explain this position and that the model should be viewed as a dynamic and adaptable one. We will also communicate in the revised text that the framework is designed to offer “a way of thinking about livelihoods that helps order complexity and makes clear the many factors that affect livelihoods” (DFID 1999, p.2)<sup>4</sup>.*

v) The paper needs to be more specific regarding methodology (i.e. how many interviews, how many women, how many men, how many times each were interviewed, overall profiles of the participants, etc.).

- *Author Response: We will provide these details in the revised manuscript through a new subsection devoted to providing a fuller picture of the NDBR communities and the methodological details underlying collection of the ecotourism narratives, in particular.*

vi) In the conclusion, issues of climate modeling and climate justice appear without prior context. Although the issue of climate justice and equity are important, they need to be framed beforehand (i.e. what evidence in the case study tying to climate justice).

- *Author Response: Our attempts to engage with climate change and related policy modelers are in response to the ESD audience interests and the specific framework of the special issue. Our understanding is that among the special issue goals is the contribution of a cross-disciplinary dialogue between climate scientists, systems modelers, and social scientists that is understandable and meaningful to all participants. We are happy to modify the text in this section to frame the context for our suggestions more clearly.*

*Regarding the context for climate justice, in the original manuscript the introduction provided the context for this part of the discussion. Since we plan to revise the introduction significantly (please see earlier response to item i, above), we will ensure that any concluding references to the climate justice movement are adequately and clearly framed.*

vii) In several places, the authors assume or assert (i.e. “assuming”, result “may be caused by...”, “may well”, “may result in”, etc.) rather than focusing on the evidence in hand.

- *Author Response: We will check and correct the revised text for such statements and try to be more specific in supporting assertions, throughout.*

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<sup>4</sup> Department for International Development (DFID): Sustainable Livelihoods Guidance Sheet, last access: 10 Sept 2014, available at: [www.eldis.org/vfile/upload/1/document/0901/section2.pdf](http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf), 1999.

viii) In many places, the paper remains general, without evidence to back up/frame particular arguments (i.e. direct impacts, indirect impacts, gendered impacts, gender-differentiated outcomes, etc.).

- *Author Response:* This comment appears to be in response to Table 1 (Reported examples of climate change indicators, impacts, and effects perceived by HKH residents.) Our text in the original manuscript makes clear that the categories in question are used to “provide a simplified model” of direct/indirect/gendered impacts. As mentioned in the original manuscript, our goals in this section were to give “a sense for the range” of impacts and categories (P1500, L21) and to “suggest how these impacts can be viewed through a gender lens” (P1494, L17-18 and P1501, L2-4). Thus, the table was intended to be general. At the same time, evidence is provided through the cited examples provided in the original table (note, P1516).

*Regarding other generalizations which may have been unintended, as above (see related response to item vii), we will check and correct the revised text.*

ix) While the authors argue that women’s resilience on natural resources is reduced, one wonders about newly added pressures of additional people (i.e. tourists) in their demand for food, fuelwood, water, etc.? Is this factored into account? If so, do they still lead to positive adaptation?

- *Author Response:* We agree that this is an important point for consideration in a revised version of the paper. In preparing the revised paper, we will look at our data about tourism resource use and labor demands on this point and try to incorporate this into the existing discussion of the potential ‘pitfalls’ of ecotourism (In Section 5 (P1507), we already note that in other sites ecotourism contributes to weakening, instead of strengthening, of some livelihood assets).

x) We are told the area is agro-pastoral, but this not adequately discussed or elaborated.

- *Author Response:* As noted above (see previous responses to items iv and v), we will be including new text that provides more details about the area. We will add more information about livelihood strategies and practices of residents.

Technical corrections requiring attention and clarification include:

- conceptual clarity and consistency in the use of the categories “male/female” and “men/women” which are inter-mixed throughout the paper (often in the same sentence) and in the tables/figures (it is suggested adding that a short explanation on how the word gender and sex differences are understood and used in the paper);

- *Author Response:* We will correct any such inconsistencies throughout and provide a brief note to clarify our use of “men” and “women” (rather than male/female) as

*signifiers of socially constructed, gender identity categories dominant in our study area.*

- the use of the term Hindu-Kush Himalayas and Indian Himalayas (the paper is more focused on the latter, given there the one case study, and therefore it is advisable to drop the word "Hindu-Kush" and simply use India, or Indian Himalayas);

- *Author Response: We will check and correct the revised text to retain consistent use of the term "Indian Himalayas" (as suggested; thank you).*

- critically read the statement on page 6 referencing Neumayer and Plumper (2007), go back to the original paper, as the statement does not reflect what they are suggesting; - list specific countries where gender differences in death rates disappear in societies where women and men enjoy equal rights (reference by Aguilar, 2010); which countries are these? And what do death rates in disasters have to do with the primary data from the case study?

- *Author Response: We thank the reviewer for pointing out our error in (mis)interpreting the findings of Neumayer and Plumper. Death rates in disasters were noted as an example of gender-differentiated vulnerability, but we appreciate the reviewer's observation that the connection between this point and our case study is unclear. Regarding other confusing attributions (e.g., Aguilar), we will certainly closely check all citations to ensure both accuracy and clarity in attribution.*

- the title (global threats, local vulnerabilities; gender) does not reflect the content of the paper (diversification; women); the abstract could be tighter, as it raises some issues that are not adequately developed in the paper (i.e. season pastoral migration, discursive gender/climate change nexus, women's lack of political and economic authority in decision-making processes – at what levels? Which insitutions?, etc.)

- *Author Response: We will revise the title, abstract, and keywords in response to these comments. Thank you.*

- correction of grammatical errors and typos are required.

- *Author Response: We will check and correct the revised text throughout.*

*Thank you again for this helpful feedback. –Authors*